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THE BIRDS OF SOUTHERN BYLOT ISLAND, 1954

BY JOSSELYN VAN TYNE AND WILLIAM H. DRURY, JR.

THIS report was in the final stages of preparation at the time of Josselyn Van Tyne's death. Drury wrote the general discussion and Van Tyne wrote the material on specimens and taxonomic information in the faunal list.

There are some features in this report on which we differed: nomenclature and inclusion of ideas based, perhaps, on inadequate information. Van Tyne did agree that *Squatarola* should be made a synonym of *Pluvialis*. In the text, Drury has noted such points of disagreement, together with Van Tyne's opinions.

The trip was conceived and organized by Rosario Mazzeo and Axel and Katharine Rosin. It was made possible by a private grant and sponsored by the Arctic Institute of North America and the New York Zoological Society. The New York Zoological Society also contributed to its support. Van Tyne collected birds and made specimens. Benjamin G. Ferris, from Harvard's School of Public Health, studied human ecology and problems of public health in the Eclipse Sound area. Richard S. Miller, from Harvard University, worked on populations in insects and mammals (Miller, 1955). Edward Ames, then of Harvard University, was botanical and general assistant. William H. Drury, Jr., then at Harvard University, made studies of birds and of the vegetation with regard to frost features. Mary Drury helped with ornithological studies and was responsible for the kitchen, with extensive help from Dr. Ferris. Axel and Katharine Rosin helped with bird observations and photography.

Rosario Mazzeo made the arrangements for logistics, and sent the expedition off admirably prepared and organized, but very unhappily was prevented from coming along himself because of his duties with the Boston Symphony Orchestra. William Drury was in charge in the field.

Those concerned with the organization were impressed by the

friendly cooperation and efficiency with which the Canadian Government officials handled our arrangements and permits. We are grateful to P. D. Baird for information and advice.

Bylot Island (map in Miller, 1955, p. 166) was selected because: (1) it promised to be near the dividing line between the arctic bird faunas related to the Old and New Worlds; (2) it promised to be far enough north to have high-arctic vegetation, but not so far north that vegetation would be sparse; (3) it promised to be the breeding grounds for poorly-known high-arctic nesting species; (4) the presence of sedimentary rocks on the southwest section promised well-developed frost features; (5) aerial photographs showed that it had high mountains in the interior, many of which were unclimbed and unknown; and (6) it was close to Pond Inlet where a population of Eskimos and a source of emergency supplies and communication could be relied upon for help.

#### DESCRIPTION OF BYLOT ISLAND

The island lies between two northern peninsulas of Baffin Island between  $72^{\circ}45'$  and  $73^{\circ}45'$  N,  $76^{\circ}$  and  $81^{\circ}$  W, District of Franklin, Northwest Territories, Canada. It is about 115 miles long from northwest to southeast and 60 miles across at its widest point (Miller, 1955). It forms the north shore of Eclipse Sound, south of the eastern end of Devon Island.

The central two-thirds is mountainous and covered with a snowfield through which nearly a hundred peaks and ridges rise. Half a dozen reach altitudes above 6000 feet. From the borders of the snowfield, 60 or more large glaciers flow outward in all directions. The southwest quarter of the island is free of snow and ice in the summer. It is a low plateau, underlain by poorly consolidated sandstones and shales dipping gently to the northwest, and reported to be of Cenozoic Age (North America Geologic Map, 1911). The area from which the Aktineq River carries rubble is of igneous and metamorphic rocks; quartzites, gneiss, granite, and diorite, reported to be of Pre-Cambrian Age (North America Geologic Map, 1911).

The glaciers seen on the south shore have retreated from their moraines and are undergoing ablation. During June and July, the months we were on the island, these glaciers were melting rapidly, and the waters from the glacier called Aktineq, on Canadian National Topographic Maps, carried a swirling current of rockflour-laden water far out into Eclipse Sound. The discolored water is responsible for the

name the Eskimos give to the mouth—Aktineq—which means “spews out.”<sup>1</sup>

The island is about 1000 miles north of treeline and the vegetation is of mat plants such as Arctic willow (*Salix arctica* Pall.)<sup>2</sup>, avens (*Dryas integrifolia* M. Vahl.), and bell heather (*Cassiope tetragona* (L.) D. Don), growing with sedges, grasses, and especially with grass rush (*Luzula confusa* Lindeb.). There are many bare patches resulting from wind erosion where lichens, purple saxifrage (*Saxifraga oppositifolia* L.), poppy (*Papaver radicum* Rattb.), and grass rush grow. Most of the uplands have a thin cover of Hypnaceae mosses, and in sheltered places the moss mat is thick. In such places sedges, heaths, and willows grow luxuriantly. Drainage and exposure control the distribution of the types and they in turn are controlled on the uplands by microtopographic patterns resulting from frost action—solifluction and patterned ground. The meadow-like slopes of warm south-facing ravines are covered with flowers, and unstable scree and frostings show poppies and a variety of composites and crucifers among the locoweed (*Oxytropis Maydelliana* Trautv.), vetch (*Astragalus alpinus* L.), and cinquefoil (*Potentilla* of 3 species). The tallest shrub found, shrub willow (*Salix Richardsoni* Hook., var. *McKeandii* Pol.), grew to a maximum of eighteen inches on hummocky slopes in south-facing depressions.

Camp was on the 15-foot beach on the southwest side of the mouth of the Aktineq River (Fig. 1 and Pl. I). This raised beach had been blown free of snow when we arrived, an indication that the wind was to be our constant companion. The camp site was chosen primarily for its promise of frost features and suitability for nesting birds.

Bluffs rise sharply to about 150 feet out of Eclipse Sound just west of camp, and the upland slopes gently upward from these to the north toward the mountains (Fig. 1). The rounded ridges at the edge of the Aktineq Glacier are at about 700 feet, and are completely covered with vegetation. The Aktineq Glacier's snout was seven miles north of camp. The river is depositing its delta. It has regularly built beaches at its mouth as the land has risen; presumably this is related to isostatic

<sup>1</sup>The Eskimos here usually have no name for rivers. Their interest lies in the features of the shoreline. Thus, “Ooyarashukjooet” means “the place of the big boulders,” and there is a river (kook) there. This and following Eskimo words have been spelled phonetically.

<sup>2</sup>A taxonomic discussion of the species of higher plants and a study of the vegetation and frost features will be published in *Rhodora*. The names here follow Polunin's *Botany of the Canadian Eastern Arctic*, Part I; Bull. Natl. Mus. of Canada, No. 92, 1940.

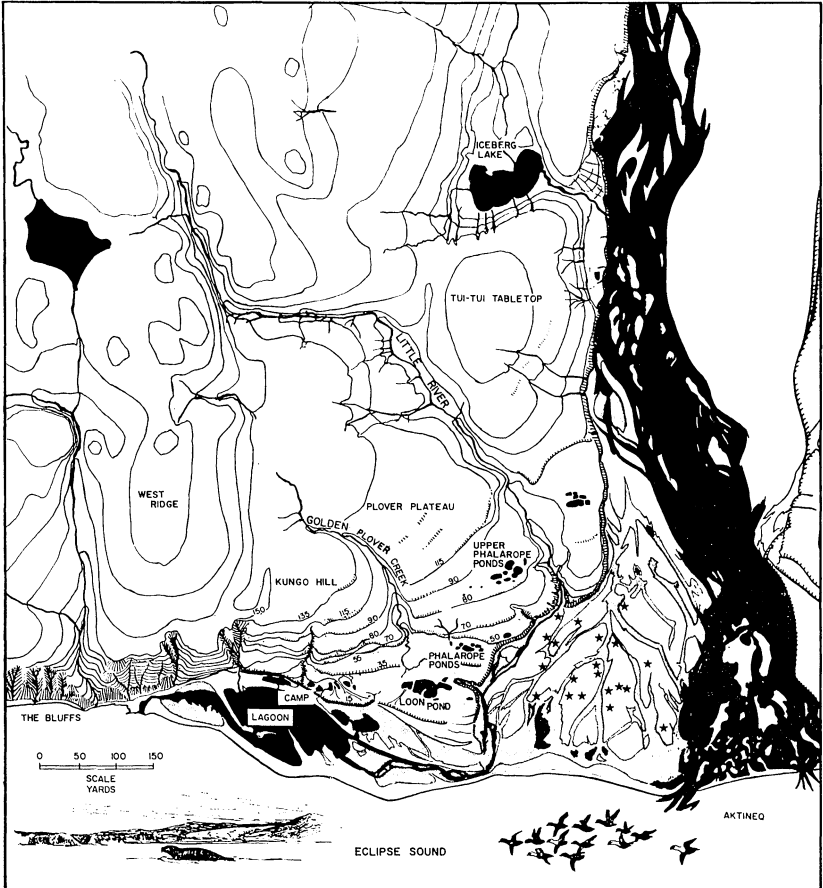


FIG. 1. The study area. The area of about one square mile in which we made detailed biological studies is included in this field map. Topographic locations referred to in the species discussions are shown. Elevations were established by hand-level transects. The black stars on the gravel wash at the mouth of the river are Arctic Tern nests. Inland water areas are shown in black.

readjustment since the retreat of the last ice. Thirteen old beaches were identified within half a mile of camp; three below the beach on which our tents were pitched and ten on the steep slope of the hills north of it. The highest beach found is at about 140 feet (determined by hand-level transect), but no special study was made, and other beaches will probably be found at higher levels.

## JUNE AND JULY ON BYLOT ISLAND

The story of the seven weeks of our stay, June 12 to July 29, has been published (Drury and Drury, 1955). A lively description of certain aspects of the expedition, especially trips to Pond Inlet and Button Point, was published by Katharine Scherman (Rosin) in 1956.

An area (Fig. 1) was set off east of the highest ridge of the bluffs; it extended north for about a mile and east to the river. In this area no birds were collected so that nesting activities could be watched. Although the sun never set during our seven weeks' visit, there were noticeable morning and evening activity peaks (0700-0900, and 1900-2100).

During the first week of our stay (June 12-19), while the snow covered most of the land (Pl. I), only Arctic willow and purple saxifrage were in flower, and bell heather was appearing at the edge of the snow. Thawing areas were saturated with water. Most of the frost features were still under the snow, but the polygon patterns of cracks and ridges were evident through it. Ditches were dug to study and keep track of the retreat of the annual frost.

By the third week of June (24-27) the uplands had started to thaw in earnest. Flowers of purple saxifrage, cinquefoil, and Arctic willow suddenly covered the exposed places. As the snow left, mats of bell heather appeared in sheltered hollows, and then the general plant cover of the uplands showed through the carpet of moss, sedges, willows, and avens. But at first the whole surface was a sea of mud. As the thaw proceeded, the mud got deeper until it reached a depth of six to eight inches. Then, after the snow had gone, the surface gradually dried (Pl. I). During the thaw some spots, non-sorted circles (Washburn, 1956), thawed early to a depth of 8 to 18 inches and formed quicksand-like holes. Ponds formed where water was dammed by the frozen ground. This was the time when frost features formed; cracks opened up, were filled with water, then froze, and slump moved the soil and disturbed the vegetation.

Eggs began to hatch during the first week of July. Larks hatched that first week, and Baird's Sandpipers soon afterward. Longspurs, Snow Buntings, Golden Plover, and White-rumped Sandpipers came next, and Oldsquaw, Black-bellied Plover, and Red-throated Loon last. The only Pipit nest found was robbed by a weasel, but in the last week of our stay, some adult Pipits were seen carrying food.

During the last week of July, walks were taken to collect birds that needed better representation in our collections. Surveys 12 miles west

and ten miles north showed that the majority of nesting species and individuals were along the shore and on the slopes of large valleys. At this time most of Eclipse Sound was still frozen, but a strip of water about a mile and a half long had opened up at the mouth of the Aktineq.

#### THE AREA STUDIED

Our main camp (Fig. 1 and Pl. 1) was on an elevated beach 15 feet above the present high-tide level, and between 15 and 20 miles south of the mountains, in the center of the south shore at Latitude  $72^{\circ}48'$  North and Longitude  $78^{\circ}54'$  West, according to Canadian Topographic Maps. Fifty yards behind camp a steep slope rose. The river is now actively depositing its delta, as indicated by conspicuous changes in the shore line in the few years since the taking of aerial photographs in 1948 by the Canadian Government. The delta bars contained brackish lagoons (Fig. 1 and Pl. I) which were used continually by several of the bird species we studied. North of the steep slopes to Eclipse Sound there is a deeply dissected plateau whose steep valley sides and ridges are modified by solifluction. The effects of frost action are violent, but they do not obscure the effects of stream erosion. During late June, at the height of snow melt, the melt water torrents rolled boulders two or three feet in diameter, but in late July the stream beds contained no water. The violence of run-off has carved a topography characteristic of dry climates, and on first examination the uplands over the sedimentary deposits resembled the western Great Plains.

The area in which our studies were carried out is shown on the map (Fig. 1). It is about one and one-half miles square. The southern quarter of the study area was behind the 15-foot beach ridge and was a wet and nearly flat surface, modified by solifluction, alluviation, and bog growth into a gentle slope from the 35-foot beach.

The central and northern part of the area consists of three hilltops, which we called Kungo Hill, Plover Plateau, and Tui-Tui Tabletop, separated by two rivers, which we called Golden Plover Creek and the Little River. West of these three hills the West Ridge ran inland, rising in elevation towards the north. It started at 200 feet at the top of the Bluffs and rose to about 2000 feet at the edge of the mountains. The streams to the west of this ridge drained south toward Eclipse Sound. Those on the east drained east toward the Aktineq. West Ridge was the edge of our study area. Just to the east of the Bluffs, the highest hill, Kungo Hill, rose to 145 feet (established by hand level transect). West and north of this was a marshy area on the 135-

foot level, which connected around the head of Golden Plover Creek onto Plover Plateau. Plover Plateau sloped gently southeast between the Little River and Golden Plover Creek. Northeast of the Little River was Tui-tui Tabletop, a level area whose whole surface was deeply scarred with frost-cracks and whose eastern slopes were blown nearly free of vegetation by the prevailing and intense easterly winds. North of Tui-Tui Tabletop was Iceberg Lake (which did not thaw until early July). A gentle slope broken by a few sedimentary outcrops rose from Iceberg Lake toward West Ridge. The erosional remnants on this slope were partly buried by solifluction, blown barren by the winds but surrounded with conspicuous grassy meadows formed as a result of lemming tillage and fertilization.

On the low east part of the study area were four groups of ponds, each on a level behind a raised beach: (1) north of the Little River and east of Tui-Tui Tabletop on the 55-foot level; (2) between the Little River and Golden Plover Creek east of Plover Plateau, also on the 55-foot beach (the Upper Phalarope Ponds); (3) east of Golden Plover Creek and below Plover Plateau on the 35-foot beach (Phalarope Ponds); and (4) on the delta deposits of Golden Plover Creek on the 15-foot beach (Loon Pond). All of these wet areas were surrounded by mossy and sedgy marshes, in and around which were developed patterns of frost-cracks. The outlines of the ponds were determined by the rectangular pattern of frost-cracks.

#### METHODS OF STUDY

Our studies were a reconnaissance of the breeding birds of the area. We carried on detailed studies in a circumscribed area where birds were not collected (Fig. 1), and the result of these studies will be published elsewhere. At the peak of the season we checked 35 active nests daily. During the summer, 69 nests of 12 species were found and studied, and in the course of checking nests and watching behavior, we observed most of the stages of the breeding cycle.

Mary C. Drury and Benjamin Ferris did most of the daily checking of nests. Van Tyne checked a certain number each day en route to outside collection areas. William Drury checked a number while studying bird behavior, vegetation, and frost features.

We got some information about the birds' habits and distribution from the Eskimos who were with us. To do this we relied heavily on Pete Murdoch, the Hudson's Bay Post Factor, who speaks Eskimo fluently. To make sure that we and the Eskimos understood each other, we spent about two days with Peterson's (1947), Soper's (1946),

and Hantzsch's (1908) names, checking just what occurred, and the local names. Our chief sources of information were Joe Panipookoocho and Idlouk. Joe had traveled to Alaska and Ellesmereland. He was interested in birds, but only in those you can shoot with a rifle. Idlouk, though of superior intellect and ability, was neither widely traveled nor especially interested in birds. We were able to fill in additional details with the help of Kidla, Idlouk's wife, Idlouk's son Panilu, and his daughter Leah. They were interested in small birds and their nests, but were not widely traveled. We checked the use of nearly all names in the field. In addition, we asked Idlouk to collect five species, using the Eskimo names, and he brought them back promptly and accurately.

Van Tyne considered Arctic Loon and Canada Goose well enough substantiated by sight identification to be included with the main list. He wished to omit Common Loon, Whistling Swan, Red-breasted Merganser, Rough-legged Hawk, Gyrfalcon, Pectoral Sandpiper, Pomarine Jaeger, and Wheatear. His feelings were based on a desire to limit the report to reliable information with which we would "make some contribution." I (Drury) am more impressed with the reliability of our Eskimos' observations than was he, and feel we should report as much as we could learn, indicating our judgment of reliability, but allowing others the opportunity to make use of hints which may mean more in the future than they do to us now.

Dates in the faunal list are 1954, except where otherwise noted. Capitalized color names follow Ridgway (1912).

#### FAUNAL LIST

*Gavia stellata*. Red-throated Loon. (Eskimo: Koksau or Koksow)

SPECIMENS.—Adult female, July 28; downy female, July 26 (day of hatching). Weight of downy, 52.7 grams, no fat. Iris of adult, Morocco Red.

This was a conspicuous species along the south shore of Bylot Island. We found and studied one nest, and observed at least eight birds on the lead in the sea ice at Aktineq, and five or six on the lead at Ooyarashukjooet. Two pairs performed display flights over our camp in June.

*Fulmarus glacialis*. Fulmar. (Eskimo: for light phase, Kahkoodlook; for dark phase, Eékgadlook) No specimens.

Our information from Murdoch and Panipookoocho agrees with that published by Freuchen, who took three specimens at Bylot. Joe



reported that there are "many, many more" of the light phase on the cliffs at Elwin Inlet near Nautilus Mountain.

Only one, a light-phase bird, was reported in Eclipse Sound, near the end of July. Between 25 and 40 Fulmars were reported at Button Point.

Fisher (1953) reports two colonies on Borden Peninsula. According to Joe Panipookoocho, there is only one (on Nautilus Mountain). We asked him about others specifically, and he said there are two cliff sites between Pond Inlet and Clyde River. One is on the north shore of Buchan Gulf and the other on the south shore of Scott Inlet. That on the north shore of Buchan Gulf may be the one reported by Wynne-Edwards (1952) at Coutt's Inlet, 72° N, 74°30' W. Joe has often traveled between Pond and Clyde inlets.

There was no clear indication to Joe, Pete, or the others of any change in numbers in the species or of percentages of dark to light phase. These people do not think in large numbers or shifts in numbers. Joe said that there are many more birds at Craig Harbor, Ellesmereland, and even more than that at Dundas Harbor, Devon Island. At these places the percentage of light-phase birds was higher in relation to dark-phase birds than it is in the Eclipse Sound area.

The name for the dark-phase Fulmar, Eékgadlook, means "wears glasses," in reference to the dark area around the eyes. It seems that this is an explanation of the story Sutton repeats (1932) about the Eskimo who had worn snow glasses and was later transformed into a Fulmar. The Eskimos agreed that Fulmars, like geese and gulls, are able to smell.

*Branta bernicla*. American Brant. (Eskimo: Niúkooliúknuk) No specimens.

On the melt-water lagoon in front of camp, one light-bellied brant was seen June 20, 21, and 24; two on June 22. In each case they stayed for about one-half hour, and then flew upriver. In the last week of June, three brant were seen at Button Point, in the leads by the floe edge. The color of the bellies was not noticed. On July 12, there were three (with light bellies) in the mouth of the river at Ooyarashukjooeet; they stayed in the fresh water about a quarter of a mile from the sea and were very wary.

*Chen hyperborea atlantica*. Greater Snow Goose. (Eskimo: Kungo)

SPECIMENS.—Aktineq region, 2 females, June 14, 15, one female, July 13; one male, June 16: Ooyarashukjooeet region (inland), one male, July 8.

The June specimens were full-winged, the wings measured: male, 456 mm.; females, 405 and 433 mm. They were somewhat fat, and each weighed slightly over seven pounds (by spring balance). The June 14 female (collected from a pair flying over camp) contained two eggs about ready for the shell. The June 16 male had enlarged testes: left, 33 by 23 mm.; right, 27 by 18 mm. The testes of the July 8 male measured: left, 22 by 14 mm.; right, 17 by 11 mm.

The July specimens were flightless. The July 8 male had six new outer primaries, 40 to 50 mm. long (10 mm. of tip unsheathed). The inner remiges had not yet been shed, and no other molt was evident except for two new tail feathers (apparently Nos. 2 and 3 from the center) on the right side. The July 13 female was in the same condition, except that there were a few more outer primaries (about 25 mm. of tip unsheathed), and there were no new tail feathers. The July birds were thin and weighed: male, 6.5 pounds; female (very thin), 5.5 pounds.

The soft parts of the July 13 male were: nail of maxilla, Buff Brown; rest of bill, about Vinaceous-Fawn; legs and feet, Pinkish Vinaceous to Light Russet-Vinaceous.

All of the snow geese collected had the face plumage strongly iron-stained, and the stain extended faintly down the neck and across most of the breast; in one bird the thighs also were strongly stained.

White and Lewis (1937) recorded the several specimens of this species from Bylot Island in the National Museum at Ottawa: four (sex?) taken the "summer of 1927;" two (heads only) taken at Eclipse Sound, June 20, 1927. White and Lewis knew of only one Bylot Island nesting place: "the southwest point of Bylot Island, facing Eclipse Sound."

A fresh egg on June 17 was Pale Olive-Buff. It weighed 124.6 grams and measured 78.2 by 53.8 mm.

Snow geese were common and there were nests with eggs when we arrived. We counted about 30 geese at Pond Inlet on June 11, and saw a flock of 75 from our camp on Bylot repeatedly during our first week (June 12-19). Small scattered flocks of six to 30 birds were the rule: the total within three miles of camp amounted to 150 to 200 birds. We found four nests June 16 to 20; all were destroyed. A flock of 15 was seen on June 30; few were seen during July; in the last week of July a single snow goose was seen flying at Oonakuk-tooyuk. When they disappeared, Idlouk said the geese were around the shores of large inland lakes. He also suggested that non-breeding birds molted early, and most of the breeding birds molted in July.

White and Lewis (1937) state that, according to reports from the Royal Canadian Mounted Police, "the period when, because of the moult of the primaries, the adult geese are flightless, normally falls in the latter half of July or in early August." With Idlouk's help, Van Tyne collected a solitary flightless male on July 8 northeast of Ooyarashukjooeet, and on July 13, with Dr. Ferris, he took a similar female from a flock of ten flightless geese on a lake three miles west of camp.

*Chen caerulescens*. Blue Goose. (Eskimo: Khaviúk) No specimens.

Van Tyne saw one individual June 16 and 17, and on June 23 found a freshly-molted scapular feather. On June 17 and 26, the Drurys saw a Blue Goose with a flock of eighteen Greater Snow Geese. The Blue Goose was noticeably smaller than the others. Idlouk and Panipookoocho reported that a few Blue Geese (which they said were smaller than snow geese and larger than brant) nested on Bylot Island near Canada Point. Baird (1940) saw one in the summer of 1939 near the southwest corner of the island.

If there is, indeed, a regular breeding population of Blue Geese on Bylot Island, it should be investigated in detail. If the two populations exist together without interbreeding, it is strong evidence that they are two species.

*Clangula hyemalis*. Oldsquaw. (Eskimo: Ahgyeeahtsuk)

SPECIMENS.—One male, June 15; 1 male, 1 female, June 20 (the female preserved as a skeleton). Colors of the June 15 male: band across bill, Neutral Gray; iris, dark Tawny; light scales of feet, Pale Medici Blue. Both males had enormously enlarged testes and were very fat; the female was about to lay and had a great mass of fat in the body cavity.

The first Oldsquaws came across the ice June 15. By June 22 there were 17 pairs present in the lagoon in front of camp. Nine pairs stayed through the period of display, mating, and egg-laying. The nine drakes joined other drakes and formed a flock of 16 to 23 on the open water at the mouth of the Aktineq (July 15–20). We found two nests; both were destroyed. On July 10 there was a flock of 40 drakes and 16 ducks in the sea at the mouth of the Aktineq. In the open water at Ooyarashukjooeet on July 8 there were over 200 Oldsquaws, and 190 on July 12.

*Somateria spectabilis*. King Eider. (Eskimo: Kingalik; Meetuk for eiders in general)

SPECIMEN.—One female, July 2; little fat; legs and feet Isabella Color.

We saw mixed flocks of King Eiders, 45 to 250 birds (about a third adult drakes, a third young drakes, and a third females) between June 29 and July 22, flying west into Eclipse Sound. We found no indication of a general early July migration of adult males toward Greenland, as Salomonsen (1950) and Wynne-Edwards (1952) reported. Joe Panipookoocho said there was no such movement of drakes through Eclipse Sound, and that the mass movement out of the fjords from the west comes in October, and is of mixed flocks. He said brown birds move west through the Sound in mid- and late July.

An adult drake and two ducks appeared in the lagoon in front of camp June 24. A pair was seen on Loon Pond on June 28 and 29.

A general movement into the area from the east occurred with the wet, easterly winds in the third week of July. There were 13 adult and 15 immature drakes, and 13 ducks in the open water at the mouth of the Aktineq from July 12 until we left. There were 150 on the sea at Ooyarashukjooet July 8, and 135 on July 12. King Eiders were seen at Button Point in the last week of June.

*Falco rusticolus*. Gyrfalcon. (Eskimo: Keegaveek) No specimens.

This species nests at Button Point. We found the three outer primaries of a white-phase bird (attached to bones of the hand) at the mouth of the Little River on June 26. None of the local people had seen a gray- or black-phase bird.

*Falco peregrinus*. Peregrine. (Eskimo: Keégahveeáhtsook) No specimens.

At least one Peregrine used a sandstone outcrop high on the Bluffs west of camp as a perch. The site is indicated at the farthest western edge of the map (Fig. 1). Immatures were seen several times, always flying eastward away from the vicinity of the perch.

*Lagopus mutus rupestris*. Rock Ptarmigan. (Eskimo: Ah-khee-geeveek or Ah-kreeg-veeuk)

SPECIMEN.— One male, July 3.

Ptarmigan droppings were numerous everywhere in the study area. On June 16, Idlouk found a female in summer plumage on the peaty marshes north of Iceberg Lake. Miller collected a fat male in breeding

condition (testes, 15 mm.) on July 3 near the same place. The plumage was still white except for a few brown feathers coming in on the crown, nape, and back. The flight feathers looked fresh and unworn when compared with the rest of the plumage.

*Grus canadensis*. Sandhill Crane. (Eskimo: Ktateekjahksook) No specimens.

Idlouk reported that cranes nest on the west side of Bylot, near Canada Point. His oldest son, Oudlahteektok, went there in July 1954, and reported cranes. The site that Idlouk indicated was suitable for nests—sunny and mossy, with hummocks of avens, water sedge, and shrub willow one to two feet high—had the most luxuriant vegetation that we saw on Bylot. Baird (1940) saw one nest in the summer of 1939 near the southwest corner of Bylot.

*Charadrius hiaticula hiaticula*. Ringed Plover. (Eskimo: Koodleekoodleéah)

SPECIMENS.—Two females, July 10; 1 male, July 13; 1 female, July 14; 1 male, 1 female, July 20. All were very fat; males weighed 57.7, 57.5, 60.5, 64.5 grams, respectively; females, 59.0, 57.9 grams. All specimens showed heavy body-feather molt. Wing measurements (in the same order): males, 130, 131, 128 (133, worn); females, 126, 129 mm. The tails were all too worn to yield significant measurements. The basal half of the bill of the males ranged from Orange Chrome to Mikado Orange; legs and feet were Apricot Buff to Ochraceous Buff.

We collected specimens from *all* sites, and our specimens are of the European population. Sutton and Parmelee (1956) report that *all* of the breeding population at Frobisher Bay in 1953 were *semipalmatus*. Wynne-Edwards (1952) reported the occurrence of the two populations together at Clyde Inlet, and Kumlien (1879) reported the two together in Cumberland Sound. Soper (1928) found only *semipalmatus* at Nettilling Lake, and both species absent from Cumberland Sound in 1924. These records and the geography of Baffin Island indicate that the narrow zone of overlap probably runs along the east coast of Baffin Island. Skins of the two populations are easily separated (Pl. II).

The absence of intergradation, even where the two populations occur, and the exaggerated differences where they meet (Pl. II, marked difference in breast band), indicate to us that two populations are displacing (Brown and Wilson, 1956) each other along the narrow zone of overlap and thus acting as two species here. The narrowness

of the overlap indicates that the two are very closely related, and have not diverged enough ecologically to become extensively sympatric.

Bock (1959) concluded that the populations of *C. h. hiaticula*, *C. h. tundrae*, and *C. h. semipalmatus* are continuous around the north, and that although the two populations (*hiaticula* and *semipalmatus*) act as if they were two species where the "ends" come together, the whole should be treated as one species. This conclusion is based on two bits of published evidence that the two overlap and act as two species along the east coast of Baffin Island. Wynne-Edwards' (1952) specimens came from ecologically segregated areas on Clyde Inlet. Kumlien (1879) reported that the Eskimos could tell the two populations apart and had a name for each. Because of this, it seems important to include information which we had earlier felt was too vague to be valuable.

Joe Panipookoocho said that there is a bird like "Koódleekoodleéah" farther south in Ungava Bay which has a different sounding voice. He, Idlouk, and Panilu independently picked Wilson's Plover out of Peterson (1947), and said they saw a bird like that around Pond Inlet too. Joe said they had a name for it which he could not remember. With Murdoch present, I pursued the question with Joe and with Panilu because I guessed that they might distinguish between the European and American populations by name. This illustration in Peterson of Wilson's Plover is like a caricature of some of the features which distinguish *hiaticula* from *semipalmatus* (Pl. II). But the birds like Wilson's Plover were numerous in the fall; I am convinced that the Eskimos are distinguishing the immature from the adult plumage of Ringed Plover. On this basis I think it unwise to accept Kumlien's evidence that the Eskimos of Cumberland Sound had names for the two populations there, until someone who speaks Eskimo clarifies first what the people at Cumberland Sound actually mean.

Ringed Plovers were seen on the hill east of Tui-Tui Tabletop, and across the Aktineq, on June 17 and 23, but not later. There were four on the cobbles of the wash of the Aktineq on June 23. On July 10, three specimens were taken on the barren gravel beach east of the Aktineq, but one was too badly damaged to preserve. On July 13, a lone male was taken on the shore of a small pond on the high plateau west of camp, near the seashore. A female was taken on the gravel and sand bars of the river at Ooyarashukjooeet on July 14, and two were taken at Oonakuktooyuk on July 20.

A hatched egg was found on the gravels east of the Aktineq on July

10, and a young plover was seen by Axel Rosin at Oonakuktooyuk on July 20.

*Pluvialis dominica dominica*. Golden Plover. (Eskimo: Toóólee-hrátsuk)

SPECIMENS.—Three adult males, June 14, July 13, July 20; 1 downy female, July 16; 1 downy female, July 23; Aktineq region. The June male had the iris Bister, the bill and legs black. The three males weighed (in same order): 144 (some fat); 151 (very fat); and 146 grams (fat). Wing, 181, 179, and 175 mm.; tail, 70, 70, and 65.5 mm. Only the June male had greatly enlarged testes; the left testis (twice as large as the right) measured 12 by 5 mm. Both July birds were undergoing general body molt. The downy young (in their first day) weighed 19.5 and 17.2 grams; some fat was noted on the second downy. The legs were "about *Chaetura* Drab to Olive-Brown" (the latter on the heel).

We saw a pair of Golden Plovers on Baffin Island at Pond Inlet on June 11, and they were already present and display-flying on Bylot Island when we arrived on June 12. We saw a flock of 90 to 100 flying very rapidly southeast at 1130 on June 15 at about 300 feet, and a flock of 96 (perhaps the same) on June 16 flying north at about 300 feet. We found the first nest June 28; hatching of young on July 15 indicates that incubation must have started by June 17 to 20. Three broods were raised in the area near camp. We found a total of four territories including a nest and four eggs three miles northeast of Ooyarashukjooet. On two walks about eight miles inland on the east side of the river (July 8 and 14) we saw eight or ten pairs. Golden Plovers were definitely more common than Black-bellied Plovers on the uplands back of Ooyarashukjooet. There were two pairs on the slopes above the raised beach at Oonakuktooyuk July 20, and four pairs in the two and one-half miles between that river and camp. Our walk eight miles inland from the main camp on July 21 produced no plovers other than those in the camp area.

The common statement (e.g., Ridgway, 1919) that the breeding plumages of the two sexes are "alike" is apparently incorrect, as was recognized by Annie C. Meinertzhagen (Witherby, *et al.*, 1940). As modern museum series (e.g., 14 June adults at UMMZ-JV) show, the face and whole underparts of the male are clear solid black, whereas the face, throat, belly, and vent of the female are always mottled with gray and white. The white areas on the side of the chest

are much more extensive in the female and sometimes almost meet in the center.

*Pluvialis squatarola*. Black-bellied Plover. (Eskimo: Tóodlee-hrátsuk)

SPECIMENS.—Two adult males, July 10 and July 17; 3 nestling males, July 23, 24, and 28 (weight, 21, 21, and 20.5 grams). The June adult weighed 186 grams (slightly fat); the July adult, 181 grams (fat). General body molt was in progress in the latter bird; its wing-spread was 595 mm. All three newly-hatched downy young had some fat on the body; the bill was Chaetura Black, the legs and feet Chaetura Black to Chaetura Drab (the latter on the heels).

Of 19 male and 13 female May and June specimens in the University of Michigan Museum of Zoology, the male was without exception the full-plumaged bird. Of 59 similar specimens at the Museum of Comparative Zoology, Harvard University, the only apparent exception was prepared by an old-time taxidermist and perhaps not sexed correctly. Witherby *et al.* (1940), Niethammer (1942), and European authors generally have described the sexes as different in the breeding plumage; but, as in the case of the Golden Plover, American authors have mistakenly followed Ridgway's lead in describing the sexes as alike. Table I compares the downy plumages of *squatarola* and *pluvialis*. Plate III shows a nestling Black-bellied Plover with the nape stripe, reported to be restricted to Golden Plovers.

The Eskimos used the same name for this species as for the Golden Plover, although they knew that there were two different birds.

We saw the first of this species on June 15 as they flew over the beach behind camp. We found the first nest (containing three eggs) on June 30. We found four nests and the territories of two more near the edges of our area—all on dry, exposed ridges. The July 10 male in full plumage was collected on the barren hill east of the Aktineq.

We saw two pairs of Black-bellied Plovers near the seashore at Ooyarashukjooet on lichen-strewn raised beaches. We heard a third pair on the northwest side of the river. On July 20 there was one pair of Black-bellied Plovers on the gravel and cobbles on the raised beach east of Oonakuktooyuk, and a single bird in full plumage was seen halfway between that river and camp. None was seen July 21 on the walk far inland from our base camp.

There was a consistent difference in the breeding plumages of the sexes of this species at the four nests we studied, and the difference



TABLE I

COMPARISON OF PLUMAGES OF DOWNY YOUNG OF BLACK-BELLIED AND GOLDEN PLOVER

Black-bellied Plover (9 specimens)	Golden Plover (13 specimens)
Face	
A plain buff area, divided by fine black central line; facial black markings obscure.	More patterned; an "arrangement" of yellow, white, black, with a roughly triangular dark marking at mid-forehead. Clearly marked black pattern on face; moustache and line over the eye.
Superciliary	
Discernibly marked in only a few specimens; then indefinite, narrow, yellow-buff.	Definite, rather wide, white line.
Collar	
White of underparts continues over hind-neck in wide unspotted collar, although not without exceptions.	Narrower, with dark stripe at center of hind-neck; white of collar continuous with white of superciliary in some specimens.
Upper Parts	
Down is dark at base, with elongated buff tips, giving a marbled effect (the long tips tending to overlap).	Down is dark at base, with short, yellow-buff, thickly tufted tips, giving a fine speckled effect (each tuft tending to stand alone).
Many fine down feathers much elongated, like "guard hairs."	"Guard hairs" shorter.
"All-over" pattern.	Two parallel lines of white down sides of back.
The dark on thighs tends to be continuous with back pattern.	The dark plumage on thighs separated by white from the back pattern; forearm shows less mixture of dark; it is a clear yellow spot in some specimens.
Underparts	
White, with very slight local washes of very pale yellowish and grayish (the tips of the longer, finer down feathers are so colored).	Definitely grayish; the gray of the concealed bases of the down several shades darker and browner.
Legs	
Chaetura Black (to Chaetura Drab on heels).	Chaetura Drab (to Olive-Brown on heels); browner than <i>P. squatarola</i> .

between the sexes was more marked than in Golden Plovers. The two adult males in our collections are in full spring plumage.

*Arenaria interpres interpres*. Ruddy Turnstone. (Eskimo: Teligba)

SPECIMEN.—One male, July 8. Ooyarashukjooeet.

The bird collected, an adult in full breeding plumage, was alone on the mud flats at the mouth of the river at Ooyarashukjooeet. We saw no others. There was little fat on the bird, and its testes were somewhat enlarged (the larger one, 8 mm. long). We assigned it to the race *interpres* after comparing it with a dozen *morinella* and a dozen *interpres* in strictly equivalent plumage. The rufous above is much restricted, and the cap is almost solid black. The measurements, however (wing, 144; tail, 58.5 mm.), are less than those given by Salomonson (1950) for typical *interpres*. As noted by Conover (1945), the distinguishing characteristics of the American race are evident only in fresh breeding plumage, but Joe Panipookoocho pointed out that the birds he was used to seeing differed in these same details on the back and head from the illustration in Peterson (1947). It is not a very strong race. The following banding recoveries reported in *The Ring* indicate that both races may be expected, or that racial determinations are not always reliable:

"No. 6, 1956. *A. i. morinella* 'juv.' (nestling) banded Ellesmere Island, July 5, 1955; recovered Sept. 13, 1955 in Portugal.

"No. 8, 1956. *A. i. interpres*, recovered by Parmelee on Ellesmere 'at about the same time' as the above, had been ringed 'in southwest England.' "

We have observed that this bird scratches "directly" (not over the wing), which strongly supports other evidence that it should be considered a sandpiper rather than a plover.

*Erolia fuscicollis*. White-rumped Sandpiper. (Eskimo: Livilivilak)

SPECIMENS.—One adult female, 1 adult male, June 23 and July 2; 3 downy young, male, female, and one not sexed, July 16, 24 and 19. Weights of adults: 47.0 (female), 40.5 grams (male); both fat. A downy young weighed 6.3 grams the first day. The breeding female (June 23) had a dark Olive Brown iris; bill, Chaetura Drab (more greenish at base of maxilla; basal half of mandible, dark Cinnamon); legs, Olive Brown, feet blacker.

Bylot Island, together with Arctic Bay, where Shortt and Peters (1942) collected juveniles, seems to be the northeasternmost recorded point of breeding White-rumped Sandpipers.

On the afternoon of June 19 there was evidently a general arrival of this species. They were present continuously from then until we left. Singing was heard until June 30; the first nest (with four eggs) was found on June 28. None of this species was seen elsewhere except at a large creek three miles north of camp on June 26, but we thought there were six nests in the area we studied.

The egg of the White-rumped Sandpiper was well figured in color by Poynting (1896) from a specimen taken on the "Barren Grounds" in 1865 by MacFarlane.

The only colored figure we find of the downy young of the White-rumped Sandpiper is on Sutton's (1932) handsome color plate. Unfortunately, there is no explanation that this is the unfinished outline of a painting. The downy young of this species is a rich reddish-brown above, with some irregular black areas and a general speckling of white. They are remarkably like the downy young of other species of *Erolia* with which we have been able to compare them (i.e., *bairdii*, *melanotos*, *alpina*, and *minutilla*). Even *Micropalama himantopus* is remarkably similar in the downy stage, as Bent (1927) has noted.

*Erolia bairdii*. Baird's Sandpiper. (Eskimo: Toóee-toóee, or Twee-twee)

SPECIMENS.—Four adult males, 1 adult female, June 21 and July 21; 2 downy young, male and female, July 10 and 14; 1 immature male, July 19. All specimens, adult and young (except the newly-hatched downy young), were fat. The June male weighed 39.7 grams; the adults taken July 21, 49.5 (female), 37.8, 45.5 and 45.5 (males). The downy female taken in its first day weighed 6.9 grams; its legs and feet were Deep Olive Gray.

Baird's Sandpipers were singing over several raised-beach ridges on June 13. A nest with incomplete clutch (two eggs) was found June 17 and another (three eggs) June 18. Eggs hatched between July 3 and 19, but most hatched between July 7 and 10.

Breeding and non-breeding birds were heard to give the *tui-tui* call, from which the bird gets its Eskimo name. The hoarse *drreeet*, the familiar call of the bird on migration, was heard only from flocks. This fall note was first heard June 30, and the first flock of gathering migrants was seen July 7. A flock of five was seen over the 70-foot beach near Golden Plover Creek on July 11. One Baird's Sandpiper was seen flying steadily along the beach at Ooyarashukjooeet on July 14, and one flock of 16 and another of five was seen at Oonakuktooyuk

on July 20. A flock of seven was seen on the same day on the uplands between Oonakuktooyuk and the Peregrine's perch.

Nineteen nests (or parents with young) were seen in the area of study at camp; two more between the Peregrine's perch and Oonakuktooyuk; two at Oonakuktooyuk; and two at Ooyarashukjooeet; five between Iceberg Lake and the snout of the Glacier. The vegetation was considerably further advanced at Ooyarashukjooeet than at camp, and Baird's Sandpipers may have nested earlier there.

The eggs of Baird's Sandpiper have been figured in black and white by Dixon (1917) and fairly well in color (one egg) by Oates (1902). The colored figure published by Jourdain (1907) is so different from any eggs we saw that we are inclined to wonder about the identification of the specimen. We collected no egg specimens and have only our notes and color photographs as a record.

Ridgway (1919) described the downy young of this species well, but in a series of 13 specimens (which include borrowed specimens collected in Alaska) we find that the brownish-black median streak on the forehead *does* in many cases extend to the bill; the same is true of the loreal streak. Also, the specimens before us have no "pale brownish gray shading" on the chest. The underparts and the whole background of the face are usually a slightly grayish white with little or none of the "buffy" mentioned by Ridgway. The young of this species is very much like that of the White-rumped Sandpiper above, except that the forehead and lores of Baird's Sandpiper are nearly pure grayish white instead of strongly buff. When the ventral surfaces are compared, the White-rumped Sandpiper is seen to be strongly buffy on the chin, neck, and crissum.

An excellent brief description of the downy Baird's Sandpiper is given in Witherby *et al.* (1940).

*Crocethia alba*. Sanderling. (Idlouk and his family had no name for this species)

SPECIMEN.—Adult female, July 20. Weight, 57.3 grams (extremely fat). Wing, 123; tail 52 mm. This bird was still in breeding plumage, but body molt had begun; the body plumage, though not the flight feathers, was very worn. The specimen differs from most others we have seen in that the black speckling on the throat is reduced and the colored area of the throat ends short of the breast.

Our specimen was collected on the dry uplands near Oonakuktooyuk. It performed a distraction display, as if near a nest. The vegetation

of the site was like that described for the nesting of this species in Greenland (Salomonsen, 1950).

Freuchen (Hørring, 1937) reported Sanderlings on the dunes and shore at Pond Inlet, July 28, 1924.

*Phalaropus fulicarius*. Red Phalarope. (Eskimo: Shaukwok)

SPECIMENS.—Three males, June 30, July 13, July 19; female, July 19. The July males weighed 43.5 (somewhat fat) and 48.5 grams (extremely fat); the female, 51.5 grams (somewhat fat). The soft parts of the female, still in full breeding plumage and with ovary slightly enlarged, were: bill, Ochraceous Orange; legs, Light Drab to Citrine Drab; webs of feet, Antimony Yellow.

A pair of Red Phalaropes was flying over the plateau behind Pond Inlet, Baffin Island, on June 12. We saw the species in our Aktineq study area only between June 17 and 30. On June 22 a tight flock of 35 flew west over the camp about 100 feet above the ground.

On July 20, two females and a male were feeding in the melt-water pools at the Upper Phalarope Ponds. Their notes were *tseu-wit* and *weet*, both very hard and piercing in quality, quite unlike the twitterings of Northern Phalaropes on their breeding grounds.

On June 12, four pairs of Red Phalaropes were feeding at the edge of leads several miles from shore, in the center of Eclipse Sound.

On the evening of July 12, a pair was feeding in the marsh of water sedge and mud cotton-grass (*Eriophorum Scheuchzeri* Hoppe) on the lee shore of a shallow ox-bow near the mouth of the river at Ooyarashukjooet. The female was very tame, but the male was easily alarmed. They were not seen again July 13 or 14. We saw no indication of nesting in our area.

*Stercorarius parasiticus*. Parasitic Jaeger. (Eskimo: Nipungea)

SPECIMEN.—Light-phase adult male, July 2. Testes somewhat enlarged. Weight, 453 grams (very fat).

Between June 19 and 23 we saw two Parasitic Jaegers rather frequently, one light-phase and one dark-phase. They sometimes associated with Long-tailed Jaegers. On at least five other occasions (through July 7) we recorded a light-phase adult. On a visit to our camp-site, June 15 to 16, 1955, D. V. Ellis reported a single dark-phase individual.

Dark-phase individuals appear to be very rare this far north in eastern Canada (Southern, 1943).

*Stercorarius longicaudus*. Long-tailed Jaeger. (Eskimo: Ishunga)

SPECIMENS.—Three females, June 22, 26; July 21. Weight, June 22 and July 21 specimens, respectively, 277 (no fat), and 296 grams (little fat). The June 22 bird had the ovary enlarged, but was not laying.

On our arrival, there were Long-tailed Jaegers both at Pond Inlet (June 11) and on Bylot (June 12). In our study area we saw eight on June 16; 14 on June 20; 11 on June 21; and again 11 (with two Parasitic Jaegers) on June 23. Between June 12 and 25, flocks of six to 15 birds flew in steadily, and usually silently, from over the ice of Eclipse Sound; they continued inland, flying out of sight to the northward. Flocks had ceased to arrive by June 30. During July groups of ten to 15 were seen flying over the mouth of the Aktineq River and over the lead in the sea ice. They often uttered the *coooo-eeeeep* cry. During the last week of June (24–28) members of our party saw between 100 and 200 over the leads in the sea ice between Pond Inlet and Bylot Island, and from five to ten at the floe edge at Button Point. At Ooyarashuk-jooeet, on July 14, there was a loose flock of about 15 Long-tailed Jaegers flying over the lead at the mouth of the river and three pairs on the flat uplands. We found no nests on Bylot Island, but the Rosins found one nest at Pond Inlet.

*Larus hyperboreus hyperboreus*. Glaucous Gull. (Eskimo: Nawyah or Nowyahveek)<sup>3</sup>

SPECIMEN.—Adult male, June 18. Testes, 7 by 17 mm. Weight, 3.5 lbs. (moderately fat). Colors of soft parts of the collected specimen were: iris, Straw Yellow; orbital ring, Honey Yellow; bill, closest to Buff-Yellow, the tip closest to Olive Buff, the spot on outer part of lower mandible, Carnelian Red; feet, Deep Vinaceous, shading to Light Grayish Vinaceous.

This was the most numerous gull. We saw them at Pond Inlet, on the ice of Eclipse Sound, and at Bylot. There were six at the outlet of swift-flowing water at the west end of the frozen lagoon in front of camp on June 17, twelve on June 18. While this flock remained near camp, we often observed up to eight gulls at a time circling, and occasionally calling, 100 to 150 feet above the snow-covered hills. As soon as melt-water collected on the lagoon (about June 20 to 22), this group dispersed. After that, Glaucous Gulls were seen occasionally along the shore or out over the ice, singly or in pairs.

<sup>3</sup>The name Nowyahveek is used when distinguishing this gull from Herring Gull.

During the last week of July, we saw increasing numbers of Glaucous Gulls over the open water at the mouth of the Aktineq River. Most of them were adults, but a few were in the speckled immature plumage.

None of the Glaucous Gulls was attracted to the camp or to the offal from dead seals and seal skins that we spread on the gravel beaches. The specimen examined had fed entirely on fish.

Members of our party reported seeing ten to 100 Glaucous Gulls at various times at Button Point (June 24–26). These gulls were roosting, and presumed to be nesting, high up on the southern end of the Akpa Cliffs above a spot where, according to the Eskimos, Murres formerly nested.

*Larus argentatus thayeri*. Herring Gull. (Eskimo: Kooksee or Nowyah Kooksee)

SPECIMENS.—Two males, June 28, 29. Testes 18 and 17 mm. long. Both specimens, some fat.

Colors of the soft parts (the specimens were similar) were: iris, about Ivory Yellow, heavily speckled with black; bare skin of eyelid, finely mottled pale yellow and pink; bill, Olive-Ocher, the terminal 8 mm. of the maxilla Olive-Buff, the spot on the lower mandible Grenadine Red; legs about Pale Vinaceous-Drab, the scales on the outer side redder; feet Deep Vinaceous marbled with Dark Vinaceous.

The iris was not simply "pale brown" (Peterson, 1947), but agreed well with Allan Brooks' description (1937): "straw-color, thickly powdered with brown or grayish specks, freckled with darker." As Brooks says, the eye appears "dark," in contrast to the "staring, pale-colored eye of *smithsonianus*."

In the original description, W. S. Brooks (1915) called the mantle of *thayeri* "lighter" than that of the bird now named *smithsonianus*, but our specimens (which closely resemble the type of *thayeri*) are definitely darker than June specimens of *smithsonianus* from the Great Lakes and Massachusetts.

As shown in Figure 2, the bill of *thayeri* is much more slender than that of *smithsonianus*. The pattern of black wing-tips and mirrors is most clearly shown in the underwing, as illustrated.

The flight feathers of the June 28 specimen are old and worn. Its bill is small, measuring: culmen, 50; depth at angle, 16.7 mm. The June 29 specimen has fresh flight feathers. The wing measures 419; tail, 163 mm.; bill: culmen, 57, depth at angle, 17.3 mm.

We saw Herring Gulls on our arrival and regularly in small num-



FIG. 2. Bills and underwings of Herring Gulls. Above: *Larus argentatus smithsonianus*. Bill stouter, and more abrupt; underwing pattern with more black. Below: *Larus argentatus thayeri*. Bill slenderer, shorter, and less abruptly hooked; underwing pattern with less black divided into two parts.

bers, up to six on June 18 (all adults), throughout our stay. We found them always scavenging in small patches of melt-water, but most ignored the scraps thrown out for them. Two males loitered about the camp and we collected them when it became apparent that they were not taking part in displays or other sexual activity. No others were seen about the camp after that.



*Rissa tridactyla tridactyla*. Kittiwake. (Eskimo: Teraterak)

SPECIMENS.—In the Royal Ontario Museum of Zoology and Palaeontology are two specimens (sex not determined) collected by Howard Parsonson and B. D. Van Norman, respectively, on "Bylot Island," June 16, 1951.

In 1954, Kittiwakes bred in large numbers on the southern end of the east-facing bird cliffs north of Button Point. They nested low on the cliffs, below the few Thick-billed Murres' nests at that part of the cliffs. Estimates of the Kittiwake colony ranged from 2000 to over 100,000. Moving pictures taken at the cliff (June 24–26, 1954) show active territorial struggles in progress. Several climbs were made, but no eggs were found.

*Xema sabini sabini*. Sabine's Gull. (Eskimo: Ehooeekrikgagyagyuk)

SPECIMEN.—Adult female, July 13. Weight, 130 grams (little fat). Wing spread, 850 mm. The colors of the soft parts of the collected female were: iris, about Vandyke Brown; orbital ring, Brazil Red; bill, Light Brownish Olive (to Isabella Color on mandible); mouth lining, English Red; legs, about Light Neutral Gray, marbled with black, especially on outer side.

This specimen is from near the type locality of *Xema sabini*—"Sabine Islands, near Melville Bay, west coast of Greenland." After comparing it with others in equivalent plumage (including 15 specimens from Alaska), we are unable to agree with Portenko's proposal (1939) to recognize four races, basing one on only two specimens (from west Alaska). He apparently had but one other specimen from Alaska, and that he assigned to another new race.

The stomach of the bird we collected contained 19 medium-sized to small aquatic beetle larvae (Dytiscidae) and two large adult crane flies (*Tipula*), kindly identified for us by T. H. Hubbell.

We found the wing tips and primary feathers of Sabine's Gulls at the Eskimo houses at Sermilik, July 4. An adult was seen in the open water at the mouth of the Aktineq on July 10.

Freuchen (Hørring, 1937) reported this species breeding at "Akpat" near Button Point on June 24, 1924. He reported one being chased by two Long-tailed Jaegers at Pond Inlet on the same date.

*Sterna paradisaea*. Arctic Tern. (Eskimo: Emohkotaïlok)

SPECIMENS.—Two males, July 5. Weight of one (which had not lost blood appreciably), 110 grams; some fat. Legs and feet, Nopal Red; bill, Carmine. Three of the adults handled had completely red bills,

but two (male and female) had the terminal third dusky, somewhat as in the Common Tern. A female dissected July 8 was in egg-laying condition.

The first Arctic Terns, 20, were seen on July 3 over the gravel wash at the mouth of the Aktineq. This date is so late that it suggested a second nesting, but no terns were seen on the breeding site between June 14 and 28. It is unlikely that a colony in its second laying would show the conspicuous expression of the early courtship displays we recorded. The party returning from Pond Inlet on June 28 saw three or four terns over the leads in the sea ice. A flock of 32 birds was seen roosting on the ice off the Aktineq on July 8.

By July 11 the communal display flights were rare, and on July 14 the first eggs were found. Thirty terns were seen displaying at Ooyarashukjooeet. Twenty nests were found at Aktineq.

*Uria lomvia*. Thick-billed Murre. (Eskimo: Akpa)

SPECIMENS.—Hørring (1937) lists a skin taken at Button Point on August 3, 1923, and an egg from "N. of Button Point," July 3, 1923. He quotes Freuchen's notes that the "first eggs" were found July 1, 1924. A fresh egg brought to us from that colony by Eskimos in the first week of July measures 82.8 by 49.3 mm.

During the period of June 24 to 26, the murrets visited the Akpa Cliffs north of Button Point briefly each day, but flew around most of the time they were at the cliffs. They apparently spent most of the time at sea beyond the edge of the floe ice, where the party saw them in large flocks. Very few eggs were found by those who climbed among the nesting sites. Estimates by the members of the party of the numbers of murrets present ran from 800 at the cliffs and 800 at sea, to more than 10,000 at the cliffs and more than 20,000 at sea. A reliable estimate was probably 2000 to 5000 birds at the cliffs and another 2000 to 5000 at sea. Colored moving pictures taken of the southern part of the Akpa Cliffs show the murrets nesting above the Kittiwakes.

Although the people of Eclipse Sound area call this Akpa Cliff area the Button Point Cliffs, they are two miles north of Cape Graham Moore which is the conspicuous point on charts and maps.

According to the Eskimos, there is another murre colony, a little larger than the one at Button Point, at Cape Hay on the northwest coast of Bylot Island.

The Eskimos tell the story that the Akpas used to nest on cliffs a little farther south of their present ones. They say that "because many

people were killed collecting eggs there," the birds moved to the present cliffs. The older site still shows guano stain and bird-cliff vegetation.

*Plautus alle*. Dovekie. (Eskimo: Akpahliátsuk) No specimens.

The party at Button Point (June 26–28) reported between six and 60 at the floe edge. They found no evidence of nesting. Joe Panipoo-koocho reported that Akpahliátsuk do nest on the coast of Baffin Island just south of Coutt's Inlet; that is, in approximately Lat. 72° N., Long. 74° W. The species has not been recorded before as nesting in the Canadian Arctic.

We saw no Dovekies in Eclipse Sound, but the sea ice had not yet gone out when we left on the last of July.

*Cepphus grylle*. Black Guillemot. (Eskimo: Pitseeulak) No specimens.

The party at Button Point saw an estimated dozen Black Guillemots at the floe edge June 24 to 26, and another dozen in the leads between Pond Inlet and Bylot Island, June 28. We saw one three miles off the Aktineq on July 8.

*Nyctea scandiaca*. Snowy Owl. (Eskimo: Ookpeek or Ookpeek-wahk, "Big Owl") No specimens.

The summer of 1954 was a time of extreme lemming scarcity, and we saw only one Snowy Owl, perched on an old nest, at Ooyarashuk-jooeet on July 7.

Several hundred pellets were collected by members of the party, but were destroyed by a janitor before they could be analyzed. It was apparent from superficial examination that about 95 per cent of the contents consisted of lemming bones, together with some weasel bones and feathers of small birds. A set of pellets from one site contained a large number of snow goose feathers, and another contained weasel bones.

Three nests from previous years were found (two, at Aktineq, were identified by the presence of owl feathers). All were on high exposed ridges, among hummocks of grass on lemming mounds next to boulders.

*Eremophila alpestris hoyti*. Horned Lark. (Eskimo: Kah-óh-rud-lee-rah or Kah-óh-dlee-rah)

SPECIMENS.—Six adult males, June 23, July 3, 13, 14, 14, 21; 8 adult

females, June 25, July 14, 15, 15, 20, 20, 21, 21; 1 nestling female, July 3. Measurements (in chronological order: Males: wing, 110.5, 112.0, 110.5, 111.0, 114.0, 109.5; tail, 70.0, 71.5, 70.0, 72.0, 71.0, 73.0 mm.; weight, 42.0, 46.0, 42.0, 42.5, 41.0, 42.7 grams (For comparison, June males of *praticola* from central Michigan have wings of 104, 104, 104, and 105.5 mm.; weights of 31.5, 35.3, 35.2, and 32.1 grams). Females: wing, 105.0, 106.0, 104.5, 104.5, 102.5, 106.0, 106.0; tail, 60.5, 67.0, 65.0, 63.0, 65.5, 64.5, 64.0, 63.5 mm.; weight, 42.7, 37.0, 42.2, 40.4, 39.5, 39.5, 39.7, 39.7 grams.

All of these Bylot specimens had at least some body fat; those taken after the first week of July were very fat (with the exception of a female with "some fat," taken July 21). By July 14 the males had begun to molt their body plumage.

We have compared our males from Bylot with the type specimen of *hoyti* in the Chicago Natural History Museum, and we find them closely similar. The type, taken in North Dakota on April 22, 1896, is in fresher plumage and has a slightly yellower throat than any of our Bylot males. Three of our Bylot specimens have more slender bills than the type, but the others do not. Our series of adults from Bylot is quite uniform. There is a slight variation in the yellowness of the throat, but no more than is to be found in breeding males of *praticola* in Michigan. Thus, our experience differs from that of Wynne-Edwards (1952) at Clyde Inlet, some 275 miles to the southeast of Bylot. Wynne-Edwards stressed the variability of Clyde Inlet larks; we note that he collected only two adult males.

The Bylot nestling (taken July 3) had some fat and weighed 25.7 grams. Compared with eight juveniles from Churchill (near *hoyti*) and eight from central and southern Michigan (*praticola*), it has a black background to the dorsal plumage, with yellowish (rather than buffy white) feather tips, and is extensively yellow below. The whole lower breast and upper belly (for a distance of 2 cm.) are Colonial Buff. In fact, the juvenile *hoyti* from Bylot is much more distinct in color from juvenile Michigan specimens than are Bylot adults when compared with Michigan adults. (One of the *praticola* juveniles was collected as recently as 1948, so museum aging is presumably not involved.)

Horned Larks were widely distributed when we arrived. We saw a pair on June 14 in a loose flock of other perching birds without any show of antagonism, but to judge from the dates of hatching, nest building must have already started. Territories were very large; the centers of our four territories were about 400 yards apart. The species,

although not numerous in any spot, was more widely distributed over the island than any other except, perhaps, the Snow Bunting. Two or more larks had territories over the barren hilltop just east of the Aktineq. There were four pairs of larks on the dry lichen and bare ground surfaces of the old beaches, terrace edges, and stream banks east of the river at Ooyarashukjooeet on July 14. On July 20, four families of larks were found on vegetated slopes along the foot of the Bluffs between camp and Oonakuktooyuk. On July 21, ten families of larks were seen between camp and the snout of the Aktineq Glacier.

*Corvus corax*. Raven. (Eskimo: Toóloogah or Toóloogruh) No specimens.

We saw ravens over the Bluffs between June 16 and late July. Three were soaring and croaking over the Aktineq on June 21. As they soared, they followed one another and changed leaders. Occasionally they dived at each other, zigzagged, and then swept upward again, almost making a loop.

Many ravens were reported to be calling in a re-entrant in the high part of the cliffs on the south end of the Akpa colony at Button Point. A maximum of ten was seen (June 24–26).

*Anthus spinoletta rubescens*. Water Pipit. (Eskimo: Engeook-djeeyook)

SPECIMENS.—One male, June 25; 1 female, July 13. Weights: male, 23.8; female, 23.0 grams (both fat).

Pipits were in song on June 13. We saw a few feeding on the edges of raised beaches on the south side of Kungo Hill, but this species was almost entirely restricted to the sun-soaked ravines cut into the Bluffs west of camp. Along the mile and a half stretch of sheltered Bluffs west of camp, there were seven territories where parent birds scolded. One pipit was seen about a quarter of a mile up one of the deep valleys into the Bluffs about three miles west of camp on July 20. On July 21 one pipit was seen on a sunny, southeast-facing slope at the snout of the Aktineq Glacier, together with Horned Larks, Snow Buntings, and a longspur. Our observations agree with those of others (Soper, 1928, 1946; Sutton, 1954; Wynne-Edwards, 1952) that this species was restricted to sunny steep slopes where the vegetation was most "lush" and rich in species. We found one nest; the most northern record we can find.

*Acanthis hornemanni hornemanni*. Hornemann's Redpoll. (Eskimo: Khanguk)

SPECIMEN.—Adult male, June 25. Weight, 19.2 grams (some fat). Wing, 88; tail, 69.5 mm. (worn).

We saw a redpoll on June 15 on a sandstone outcrop and one on June 18 feeding at the edge of a snowbank in grass and bell heather. The male collected June 25 was feeding alone on the uplands west of camp, on a small patch of very sparse vegetation in an extensive snowfield. The notes we recorded were: *twang-twang-twang-twang-twang* and *tzzinnnng*.

*Calcarius lapponicus lapponicus*. Lapland Longspur. (Eskimo: Kungnuktah)

SPECIMENS.—Nine males, 6 females, June 17 to July 18; 4 juv. males, 3 juv. females, July 14 to 27. Weights of adults: Male, June, 26.6, 27.0, 25.5, 30.4 grams; July, 30.5, 28.3, 28.3, 28.3, 28.5 grams. Female, June, 28.0, July, 29.5 (some fat; incubating), 31.3 (very fat; laying), 25.0 (fat; incubation patch), 27.6 grams. Weights of young: Young males that had left the nest but could not yet fly weighed 17.7 and 18.8 grams; another that could fly a few feet weighed 23.5 grams; all had some, or even much fat. Fledgling females weighed 25.7 (some fat), 23.7 (considerable fat), 22.2 (very fat). All of our Bylot specimens, adult and young, had at least some fat. (Males taken in Michigan in winter weigh 29 to 34 grams.) Measurements: Males (9), wing, 92.0 to 97.5 mm. (av. 94.16); females (6), wing, 88.0 to 94.0 mm. (av. 89.41). Five of the nine males had the left testis larger than the right.

Natal down (on a nine-day nestling) is bicolor—basally Deep Olive-Blue; the terminal half much darker (i.e., *Chaetura* Drab).

Juvenal plumage on the back matches that of birds taken at Churchill, Manitoba, and differs from Alaskan forms which have richer rusty edgings on the dorsal feathers. The underparts are variable.

An adult male (June 17) had the bill Olive-Ocher, slightly yellower at the base, black at tip; legs and feet brownish black; iris dark brown. An adult female (June 17) was similar, but bill slightly duller and reddish toward the tip.

There is much variation in the plumage of the adults. In males, at least, an immature (presumably yearling) plumage can be easily distinguished (Pl. II) from the adult plumage in having irregular white markings on the black throat and breast; the same birds have paler chestnut napes (see also Witherby *et al.*, 1938). Adult males (four of our nine) have a pure black throat and breast (with no white feathers

at all), a darker and richer chestnut nape, and are blacker, less brown, above.

Females also are quite variable in the plumage color of the underparts, but we found no basis for any age distinction. The color of the throat and breast ranges from buffy white, with only an indistinct line of dots down the sides of the throat and across the breast, to black-throated birds that might be confused with males when viewed from the front (Pl. II). We found some of these dark-throated females at nests and we think observers could be misled when attempting to record the role of males at nests. However, none of these unusual females had the black crown which distinguishes even a poorly-plumaged yearling male. At least three of the females (Nests 1, 3, and 15) had a noticeable chestnut collar. Dubois (1937) has recorded females of the Chestnut-collared Longspur (*Calcarius ornatus*) which were in a plumage approaching that of males.

This was the most numerous of the nesting species around our camp. It was nearly equaled in numbers by Baird's Sandpiper and was less widely distributed over the island than Horned Larks. Where longspurs occurred, the populations were dense.

Longspurs were present in numbers and singing when we arrived on Bylot Island, but groups fed together during the first weeks, rather easily reverting to winter flock behavior and use of the flock call.

A survey of territories in mid-July, counting nests, locations of parental alarm, or presence of flightless young, indicated that there were at least 27 nests in our study area. On a walk from camp north to the tongue of the Aktineq Glacier on July 21 (a transect across our study area) gave indication of ten pairs from south of Iceberg Lake to camp: four from Iceberg Lake to the Little River; five from the Little River to Golden Plover Creek near Black-bellied Plover nest No. 2; and one (No. 6) on the slope of Kungo Hill toward camp.

Outside of our study area, on the walk north up West Ridge, we saw eight to ten longspurs on territories; six of these were in valleys just west of the glacier. On the walk back, along the east-facing slope to the river, we saw twenty-three longspur territories north of Iceberg Lake. On the walk to Oonakuktooyuk on July 20, only two longspur families were seen at Oonakuktooyuk, and none on the uplands between there and West Ridge. On the west side of West Ridge there were three families outside our area. On our walks at Ooyarashuk-jooeet (more than two miles one day and five miles the next) we found seven nests by flushing females. The nests contained young

being brooded although the temperature was 45 to 55 degrees F. Male longspurs were very numerous, but we did not census them. As others have found, longspurs became inconspicuous at the end of July, but we saw no molting birds, nor any flocking or migration.

*Plectrophenax nivalis nivalis*. Snow Bunting. (Eskimo: Koh-oh-dluk-tah)

SPECIMENS.—Nine males, 2 females, June 16 to July 18; 2 juv. males, 1 juv. female, July 14 to 19. Weights of adults: Male, June, 33.3, 38.4, 34.6, 39.4, 35.5 grams; July, 36.5, 36.5, 36.8 grams; all were somewhat fat. Female, June, 36.6, 38.6; July, 37.2; some fat on June specimens; July specimen "very fat."

The colors of the soft parts of an eight-day-old male nestling (July 14) from nest No. 2 were: bill, Cadmium Yellow to Cartridge Buff (at rictus); mouth lining, near Deep Corinthian Red; legs and feet, near Ecru Drab. The head, back, and lesser wing coverts of this bird were covered (along the usual tracts) with long natal down, Hair Brown in color. Not the slightest trace of down remained on an eleven-day female in the same nest (nor on an older fledgling collected nearby two days later). The eleven-day nestling weighed 32.3 grams and was extremely fat (2.3 grams of free fat were removed from the underparts). The fledgling was also very fat.

Snow Buntings were present and singing at Pond Inlet on June 11. In contrast to reports from Greenland and Baffin Island, we did not find this species the most common bird on Bylot, and it was less widely dispersed than Horned Larks.

A mixed flock of Snow Buntings, Lapland Longspurs, and Horned Larks was seen feeding on a grassy meadow above the Bluffs west of camp June 14, but territorial activity had started and a female was seen carrying nesting material June 13. On June 23 we found a nest with six eggs. In the only successful nest we studied, the eggs hatched on July 6. Four nests were found within our study area. Four more territories were established, but we did not find the nests. There were three families of Snow Buntings in the rocks at the sides of the creek just east of Black-bellied Plover nest No. 3, and two beyond the limits of our territory up the Little River; two territories existed to the westward between West Ridge and Peregrine Perch, and five pairs between there and Oonakuktooyuk. On June 26, when all the ground was covered with snow except for ridges and some rocky places, ten pairs of Snow Buntings were found around the snow-free areas and feeding in the grasses on lemming mounds, along three miles of West



Ridge north of our study area. On July 21, we found twelve territories of Snow Buntings along the West Ridge when we followed it north to the glacier. On the return along the west bank of the river, we found three territories at the snout of the glacier, four from there to Iceberg Lake, and none from there to camp.

On July 3 we found two nests within five yards of each other in the stone wall of one Eskimo house at the shore on the west side of Sermalik. When Ferris and Ames returned from climbing the mountains, they reported Snow Buntings beyond the limit of vascular vegetation (alpine mouse-ear chickweed, which was at 3000 feet), but not to the limit of crustose lichens (at 4800 feet). On July 12, three pairs of Snow Buntings were seen at Ooyarashukjooet.

#### FAUNAL RELATIONS

Of the species and subspecies of birds found to nest on Bylot Island the following belong to the high arctic fauna: *Chen hyperborea atlantica*, *Pluvialis squatarola*, *Crocethia alba*, *Erolia bairdii*, *Stercorarius longicaudus*, *Larus argentatus thayeri*, *Cephus grylle ultimus*, *Nyctea scandiaca*.

The following seven species and subspecies belong to the northern element of the low arctic fauna and the southern element of the high arctic fauna: *Gavia stellata*, *Clangula hyemalis*, *Falco rusticolus candicans*, *Phalaropus fulicarius*, *Sterna paradisaea*, *Uria lomvia lomvia*, *Corvus corax principalis*.

Five kinds occur across the arctic to the edge of the subarctic: *Lagopus mutus rupestris*, *Charadrius hiaticula hiaticula*, *Larus hyperboreus hyperboreus*, *Calcarius lapponicus lapponicus*, *Plectrophenax nivalis nivalis*.

Those that belong to the low arctic fauna are: *Falco peregrinus anatum*, *Pluvialis dominica dominica*, *Erolia fuscicollis*, *Stercorarius parasiticus*, *Rissa tridactyla*, *Eremophila alpestris hoyti*, *Anthus spinoletta rubescens*.

These faunal relationships indicate that Bylot Island is on the lower edge of the high arctic fauna where northern extensions of low arctic species are found. The flora agrees.

#### HYPOTHETICAL LIST

*Gavia immer*. Common Loon. (Eskimo: Ktoodliwok)

Dr. Ferris identified this species at the outlet of the Salmon River near Pond Inlet Post, in the last few days of June. Freuchen (Hørring, 1937) reports seeing Common Loons with families at Pond Inlet

Post (July 21–31, 1924). Idlouk and Joe Panipookoocho both recognized the species and gave it its name of Ktoodliwok. The mouths of rivers such as the Salmon have open water in mid-June, and behind their delta bars there are brackish waters relatively free of tidal changes.

*Gavia arctica*. Arctic Loon. (Eskimo: Ktudlooleek or Ktudloolik)

On the "nights" of July 12 and 13, Idlouk and Drury saw a single Arctic Loon at the mouth of the river at Ooyarashukjooeet. With Idlouk's 35× telescope they could see the white markings on the folded wings at about 500 yards. There were five or six Red-throated Loons at the same place. Idlouk and Panipookoocho both reported that the nests of the Arctic Loon are found beside inland lakes, and that those of the Red-throated Loon occurred beside the larger ponds along the seashore.

*Cygnus columbianus*. Whistling Swan. (Eskimo: Koókjook)

No one had seen this bird in Eclipse Sound, but they all recognized it, gave it the same name, and said that it occurred to the south and southwest. Joe said there were some at Fort Ross. Leah and Panilu had seen one to the west, probably on Borden Peninsula.

*Branta canadensis*. Canada Goose. (Eskimo: Noók-liuk)

Groups of one to six Canada Geese were observed by our party at Button Point (June 24–26). The birds were decidedly larger than brant (which were also seen). According to Idlouk and Panipookoocho, Canada Geese nest on Bylot Island, near Canada Point.

*Mergus serrator*. Red-breasted Merganser. (Eskimo: Kahdsooktoh)

Both Joe and Panilu picked this bird out of Peterson (1947) without prompting, and said that they had seen it along the shore of Eclipse Sound and at the floe edge near Button Point.

*Buteo lagopus*. Rough-legged Hawk. (Eskimo: Kánweeyook or Káhyook)

The Eskimo said this species is seen occasionally at Eclipse Sound, but does not nest there.

*Erolia melanotos*. Pectoral Sandpiper. (Eskimo: Shigeriakjuk or Tuee-tuee nyuak)

Joe and Idlouk picked this species out and said that there are lots

along the marshes near the beaches in the fall. Mary Drury saw one at the Upper Phalarope Ponds on June 21.

*Larus marinus*. Great Black-backed Gull.

Joe, Idlouk, and Panilu had all seen this species, but had no name for it other than gull. Joe had seen an adult at Button Point in 1949. Freuchen (Hørring, 1937) reported seeing one at Pond Inlet (June 24) and Eclipse Sound (June 28) in 1924. On July 25 Drury saw an immature Great Black-backed Gull off the Aktineq.

*Stercorarius pomarinus*. Pomarine Jaeger. (Eskimo: Ishunguknuk)

Both Idlouk and Joe recognized this species and said that it occurs regularly.

*Oenanthe oenanthe*. Wheatear. (Eskimo: Yúkoh-gooligrah, with *gr* guttural)

Both Joe and Idlouk said that there were no Wheatears on Bylot Island, and agreed that they were found "farther south" on Baffin Island.

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#### PLATE I

UPPER: Camp on June 16, showing 80 to 85 per cent of the land surface still under snow. Nests of all but Oldsquaws and White-rumped Sandpipers were placed in areas free of snow at this time.

LOWER: Camp in early July. The lagoon in front of camp, the 16-foot beach with marsh and Loon Pond, the 35-foot beach and the side of Kungo Hill are shown. In the background are the Castle Gables on Bylot Island on the left, and Mount Herodier on Baffin Island on the right. Notice mirage over the ice of Pond Inlet and the tents of our camp. Arctic Terns' nests were found on the gravel wash of the Aktineq, between the raised beaches and the sea ice in the background beyond.

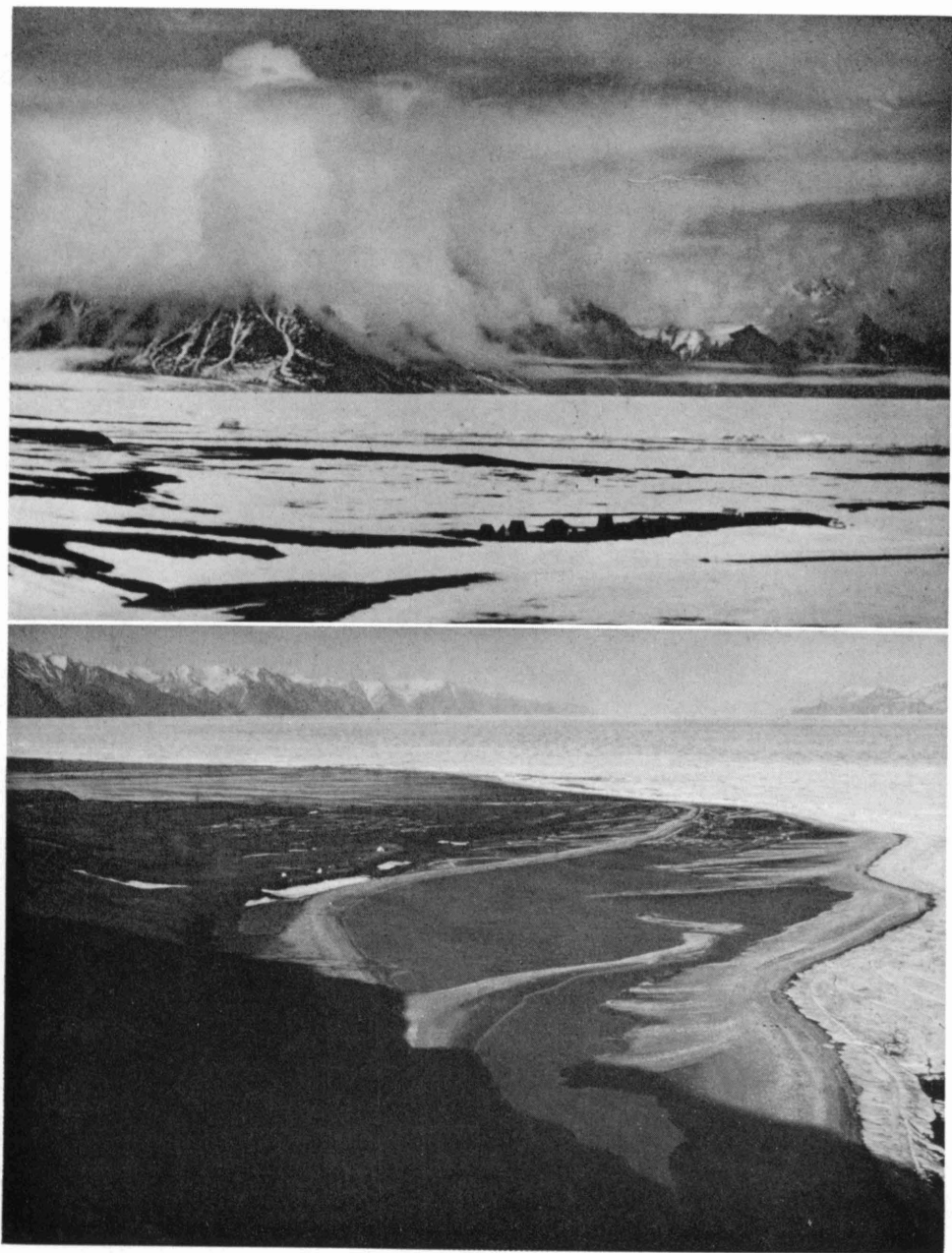


PLATE I

PLATE II

UPPER: Plumages of Lapland Longspurs. Young male's interrupted black throat shown in the skin on the left. The other five are skins of females showing the variation in black on the breast.

LOWER: Specimens of Semipalmated Plover and Ringed Plover. Ringed Plover on the right shows a much broader breast band than the birds on the left.



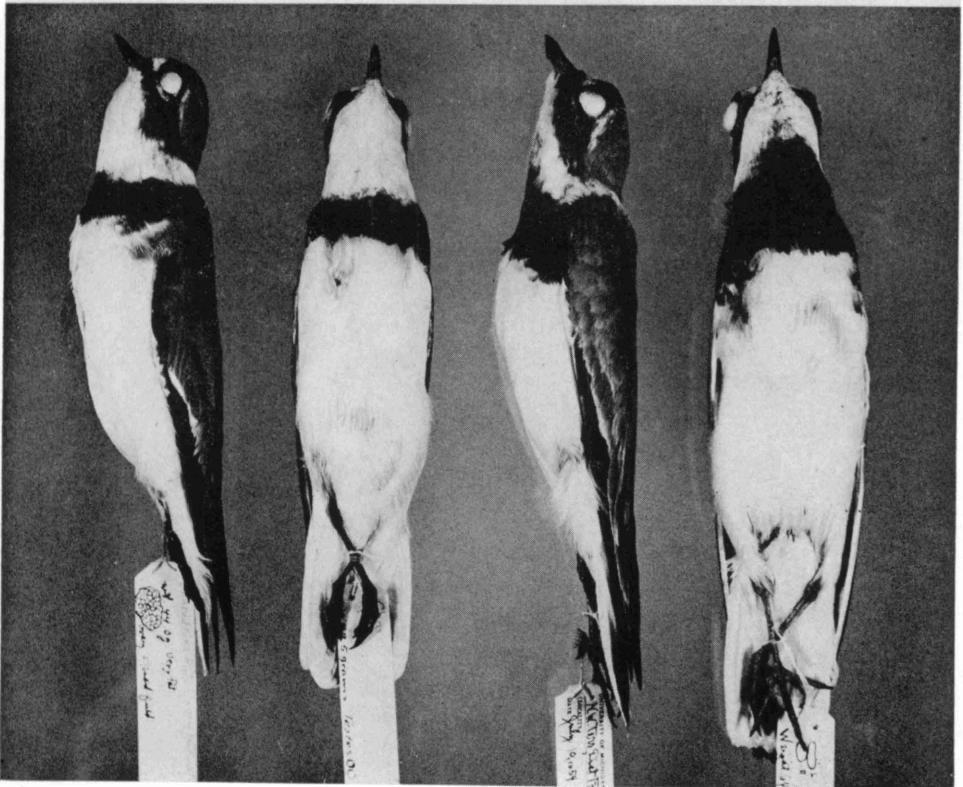
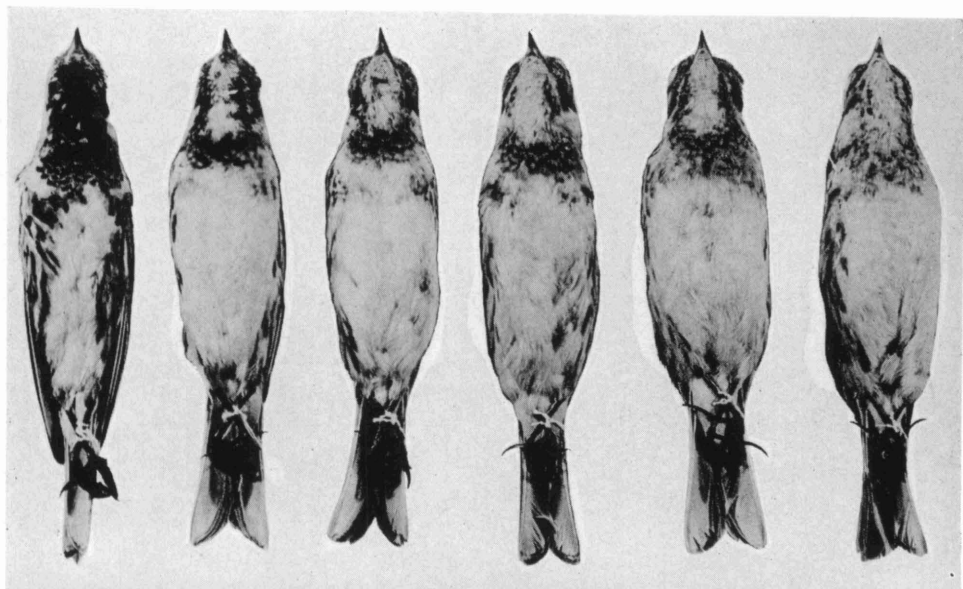


PLATE II

**PLATE III**

Eggs and nestling of Black-bellied Plover. Notice the black spots on the nape, supposedly present only in Golden Plovers.



PLATE III

