

*Steven M. Speck*

**COOPER ORNITHOLOGICAL CLUB**

**PACIFIC COAST AVIFAUNA  
NUMBER 22**

**BIRDS OF NUNIVAK ISLAND  
ALASKA**

**BY**

**HARRY S. SWARTH**

**CURATOR, DEPARTMENT OF ORNITHOLOGY AND MAMMALOLOGY  
CALIFORNIA ACADEMY OF SCIENCES, SAN FRANCISCO**



**LOS ANGELES, CALIFORNIA  
PUBLISHED BY THE CLUB  
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Cyril Guy Harrold

1896 - 1929

#### NOTE

The publications of the Cooper Ornithological Club consist of two series—The Condor, which is the bi-monthly official organ, and the Pacific Coast Avifauna, for the accommodation of papers whose length prohibits their appearance in The Condor. The present publication is the twenty-second of the Pacific Coast Avifauna.

For information as to either of the above series, address the Club Business Manager, W. Lee Chambers, 2062 Escarpa Drive, Eagle Rock, Los Angeles County, California.

## CONTENTS

	Page
Frontispiece: Cyril Guy Harrold	
Dedication .....	6
Introduction .....	7
Description of Nunivak Island.....	8
Character of the Avifauna of the Bering Sea Region.....	9
Palaeartic Species in Northwestern America.....	13
Map of Bering Sea and Alaska.....	14
Nearctic Species in Northeastern Siberia.....	15
General Accounts of the Species.....	17
Literature Cited .....	58
Index .....	61

## DEDICATION

On February 4, 1929, in New York City, there passed away at the age of 33, Cyril Guy Harrold, an ornithologist and field naturalist of outstanding ability. Until a short time previously his talents had been known to only a few friends, and death unhappily intervened just when full opportunity for the career he desired was opening before him. His most important single contribution to ornithology lay in his work upon Nunivak Island, Alaska, and it is fitting that the present publication, based upon the results of those labors, be dedicated to his memory. A brief biography of Mr. Harrold will be found in the *Auk*, vol. 46, 1929, pp. 285-286.

## INTRODUCTION

In the summer of 1927 Mr. Cyril Guy Harrold made a trip to Nunivak Island, Alaska, on behalf of the California Academy of Sciences, accompanied part of the time by Dr. George Haley of St. Ignatius College (now University of San Francisco). Dr. Haley's interests were botanical, part of his collection coming to the Academy; Mr. Harrold devoted himself to birds and mammals. Harrold's itinerary was as follows: Seattle, May 10; Sitkalidak Island, Alaska, May 15 (5 hours); Akutan Island, May 17 to June 13; Unalaska, June 14 to June 23; Nome, June 28 (4 hours); Nunivak Island, June 30 to November 6. The resulting collection numbered 555 bird skins, 10 bird skeletons, 74 mammals, 12 sets of birds' eggs.

Of the enthusiasm, industry and endurance that went into the making of this collection it is impossible to speak too highly. The trip grew from Mr. Harrold's suggestion. He was anxious to visit the region and for the sake of the experience offered to donate his services; the Academy paid for his actual expenses and transportation. The specimens are all beautifully prepared, and as the collection includes many of the larger water birds this implies skill and hard labor to a greater degree than is usually called for in ordinary field work. Mr. Harrold's enthusiasm kept him upon Nunivak Island until a dangerously late date. He postponed departure when opportunity offered in early October, and before the expected boat returned from the mainland, ice swept down from the north, cutting off communication. It was a mere chance that the ice opened again for a long enough period to permit approach of a boat from Nome that took him off. As it was, he was reduced to using bird carcasses for food, and had resigned himself to the prospect of spending the winter in the Eskimo village.

On the labels of all specimens collected there is careful notation of the color of bill, feet and eyes, taken from the freshly killed bird, and these items I have inserted in this report under nearly every species. Harrold was an intelligent and accurate observer, and although too busily occupied with the labor of hunting and preparing specimens to write his observations at any length, his notebooks do contain many entries regarding habits, appearance and occurrence. These comments, supplemented by information elicited through correspondence at the close of the trip, I have utilized as fully as possible. All statements originating from Harrold will be found inserted under the species concerned, enclosed in quotation marks.

In the following accounts the bird species are arranged in the order adopted in the *A. O. U. Check-List of North American Birds* (1931). The nomenclature mostly, but not altogether, follows the same authority. In that volume, however, there are innovations that are not explained, some of them contrary to the usage of the latest revisers of the groups concerned, and in such

cases I have not felt obliged to explain my adherence to the older forms.

My study of these birds was greatly facilitated by the privileges I enjoyed at the Museum of Vertebrate Zoology, University of California. The extensive Alaskan collections of that institution, free to my use, were consulted upon many occasions. To Dr. G. Dallas Hanna, of the California Academy of Sciences, to Dr. Jean M. Linsdale, of the Museum of Vertebrate Zoology, and to Mr. Thomas T. McCabe, I am indebted for a critical reading of my manuscript, resulting in corrections and additional information that I have been glad to incorporate therein. The drawings of bills and other parts in this report were made by Mrs. Frieda Abernathy, the map by Miss Margaret W. Wythe.

This paper was originally prepared to appear in the Proceedings of the California Academy of Sciences, and it is through the courtesy of that institution that publication is permitted through another channel. Throughout the text the inserted numbers in parenthesis are collection numbers of the California Academy of Sciences.

Two publications have appeared based upon material in this collection, both written by myself. The titles are as follows:

Occurrence of some Asiatic birds in Alaska. Proc. Calif. Acad. Sci., Fourth Ser., vol. 17, no. 8, July 10, 1928, pp. 247-251. (*Charadrius mongolus mongolus*, *Pyrrhula pyrrhula cassini*, *Anthus spinoletta japonicus*, *Locustella ochotensis*, *Prunella montanella*.)

The lemming of Nunivak Island, Alaska. Proc. Biol. Soc. Wash., vol. 44, Oct. 17, 1931, pp. 101-104. (*Lemmus harroldi*, new species.)

HARRY S. SWARTH.

California Academy of Sciences, San Francisco,  
December 1, 1933.

#### DESCRIPTION OF NUNIVAK ISLAND

Nunivak Island, where Harrold's most important work was done, had not previously been visited by an ornithologist. It lies in Bering Sea, between the mouths of the Yukon and Kuskokwim rivers and about forty miles off-shore, much nearer to the mainland than to any other of the islands of Bering Sea. It is one of the larger islands, about seventy miles long. He landed at Nash Harbor, "situated on the northwestern side of the island, at the mouth of a stream of considerable size, which widens out into a small lake only a few yards back from the sea-shore." Near the lake was a native village, and in this vicinity Harrold made his headquarters. His description of the surroundings reads as follows: "Nunivak Island, situated about half way between Nome and Unalaska, consists mainly of rolling tundra, practically treeless except for very stunted willow and a pigmy birch, which attains an average height of about six inches. In the interior there are several more or less prominent hills, the highest of which is said to have an altitude of about 600 feet. The shore line at the extreme western end of the island is rugged and precipitous, the cliffs rising perpendicularly to a height of from 100 to 200 feet. Here sea birds, particularly murre, nest in numbers, the natives paying annual visits to the nesting grounds to secure skins of puffins, murre and others for clothing. Only a few miles from Cape Mohican, the western extremity, the cliffs become less precipitous, and evidence of



rapid erosion is noticeable along both coasts. Eastward along the north shore the mossy tundra slopes gradually down to the water's edge, with sandy beaches in the bays. In the lower areas of the interior there are numerous lakes and sloughs, while toward the western part of the island outcroppings of rock are frequent in the hills, forming the habitat of the few Rock Ptarmigan observed. In the draws, or sheltered coulees, the combination of 'nigger-heads' and a tangled mass of stunted willows, with long grass covering the pitfalls between, makes travel on foot difficult. The country in the vicinity of Cape Etolin (the northeastern part) differs strikingly from other sections visited. There, near the mouth of the Mekokayak River, there are several extensive tidal mud-flats, the largest about two miles long and one mile wide. Exposed at low tide, these form a great attraction to geese and waders. A rather surprising feature of this locality is the considerable area of sand-dune country, mostly overgrown with tall 'rye grass' (*Elymus mollis*). This grass, the seeds of which constitute the main food supply of the snow buntings in the fall, is woven into baskets, mats, and even socks, by the Eskimos.

"There was a marked scarcity of nesting ducks and geese in the interior, although the wide marshy valleys appear to offer an ideal breeding ground. This scarcity may be attributed to several causes, chief of which is probably persistent hunting by the natives, particularly of the geese. Loons, chiefly Red-throated, are common and may have some effect on nesting ducks by driving them from the sloughs. Large gulls are often seen hawking over the tundra lakes and no doubt take toll of nesting water fowl.

"In the fall the crowberry (*Empetrum nigrum*), abundant everywhere, is added to the diet of a number of birds, including cranes, geese, Pacific Eider, gulls, godwits and snow buntings, the faces of many individuals being stained by the purple juices."

#### CHARACTER OF THE AVIFAUNA OF THE BERING SEA REGION

In the Nearctic avifauna there is a fair proportion of species that are the same as, or obviously derived from, Old World forms, and of these there are many that seem to have entered North America at its northwestern extremity, where Alaska and Siberia are today separated by only a few miles of a shallow sea. Our literature contains innumerable references to the migration of species, fossil or recent, in either direction between the continents across the land "bridge" that, once or several times, is assumed to have existed at that point. Acquisition of a representative collection of birds from an island in Bering Sea, this meeting ground of Old World and New World avifaunas, gives opportunity for a tentative analysis of present day conditions there, and for bringing together scattered facts that have been recorded of late years, thus affording a more comprehensive understanding of the problems involved.

The continents of Asia and North America lie in closest proximity to each other in latitude 65° north. Bering Strait, the body of water separating them, is fifty miles wide in its narrowest portion. Cape Prince of Wales in longitude 168° west forms the extreme western projection of North America; opposing it on the Asiatic side is the bold promontory of East Cape, the extreme eastern projection of Chukchi Peninsula. Lying approximately midway between these two headlands are the Diomedé Islands, the larger of which, known as the Big Diomedé, belongs to Russia, and the smaller, the Little Diomedé, belongs to the United States. The islet called Fairway Rock lies a few miles to the southeast of the Diomedés.

As shown on the Coast and Geodetic Survey Chart, the 100-fathom line of Bering Sea starts at Unimak Island, the Aleutian Island lying at the southwest extremity of the Alaska Peninsula, and trends northwest to Cape Navarin on the Siberian Coast. North of this line Bering Sea is characterized by extreme shallowness, barely averaging 200 feet in depth, whereas to the south it abruptly attains a depth of 12,000 feet. The extreme shallowness persists through Bering Strait and prevails over a large portion of the Polar Sea lying to the north. It is to be noted of the Aleutians, which are held to mark off Bering Sea from the Pacific Ocean, that the westernmost islands rise directly from oceanic depths. In some speculations they are regarded as having afforded a bridge between Asia and America at some time in the past (Knopf, 1910, p. 414).

As regards a land connection between Alaska and Asia at any period sufficiently recent to have affected the present-day bird population, it is well to keep in mind that, however satisfactory as explaining observed conditions, it is not an established fact. In a geological study of this question, the author just cited (Knopf, 1910) remarks that:

It is obvious that the record of the geologic history of the region as revealed by the sedimentary rocks is characterized by immense lacunae, and is practically a blank for the whole of the Tertiary period. Such further evidence as may be obtained must be afforded by the study of the physiographic evolution of the region.

Then, in conclusion:

The crustal instability of the region, the known large differential warping that has accompanied elevatory movements, and the shallow depth of Bering Sea render it, however, highly probable that at various times brief periods of land communication have existed between the continents. The general conclusion is therefore borne upon us that if the problems of the intercontinental migration of faunas demand periods of terrestrial communication between the two mainlands during Cenozoic time, the physical evidence, so far as now known, favors the probability of intervals of continuity of the adjoining land masses of Asia and North America.

In a publication dealing with a collection of marine invertebrate fossils (Pliocene and Pleistocene) from this same region, Dall (1920, p. 25) comments as follows:

A superficial glance at an ordinary map is likely to lead the observer who goes no deeper into the subject to the conclusion that land bridges, including the Bering Strait region and the Aleutian Island chain, may reasonably be assumed as the routes by which Asiatic immigration took place. . . . So far as the Aleutian route is concerned it must be positively rejected as impracticable. The Bering Strait region offers more plausibility, yet the evidence so far gathered from geologic exploration indicates not only that no closer land connection than at present has existed between the two continents at Bering Strait since Miocene time but, on the contrary, that the present separation is less than at any period during that time. The conclusion from our present knowledge is inevitable either that the postulated land bridges must have existed in some other locality or that the assumed migration must have taken place over the ice of the strait when frozen, possibly during the glacial epoch.

Another important conclusion reached in the same paper (Dall, *loc. cit.*) is "that a more free connection probably existed in Pliocene time between the North Atlantic and the Bering Sea regions."

A paper entitled "Some Post-Tertiary changes in Alaska of climatic significance," by Philip S. Smith (1927, pp. 35-39) is largely devoted to evidence upholding "the general stability of Bering Straits."

Further citations could be made along the same line of reasoning. The hypothetical Alaska-Siberia land bridge of a past age has been a satisfactory explanation of many facts in animal distribution, but I gather the impression that there has been an *a priori* acceptance of the assumption as an established base of departure, and that it has been used as such in many studies not directly concerned with that immediate region. Critical scrutiny of local con-

ditions and collections (as quoted above) all brings evidence that points in the other direction, that is, toward the age-long continuance of the body of water that we now call Bering Sea. It is well for the zoologist to bear in mind the attitude of modern geologists and paleontologists, and to realize that if the solution of problems pertaining to the distribution of species requires belief in a former land connection between Alaska and Siberia, the evidence thereof lies thus far largely in the zoologist's own field of investigations.

In the case of my own studies of the birds, I feel the need of such a land mass, not so much as a means of union between America and Asia, but as a barrier that would have isolated the Bering Sea marine avifauna from those of other seas. Even here, however, the question arises as to whether such a relatively narrow barrier would have been as important a factor in the segregation of different faunas as climatic differences, produced perhaps by ocean currents of varying temperature which it would be impossible to map today from existing data.

It is in the Arctic and sub-Arctic regions that there exists the greatest number of animals, including birds, that are unchanged or but slightly changed in the Old World and the New, and it might have been supposed that in this region so slight a barrier as Bering Strait would scarcely serve to define the boundary between any very distinct avifaunas. As a matter of fact, the essential characteristics of the American avifauna and the Asiatic are preserved on each side, to the shores of the dividing waters, and the overflow of species in either direction serves but to emphasize many deep-seated differences between the two. What is even more surprising, to my mind, is that the Bering Sea area itself has served as a differentiation center of no mean importance. There is a surprising number of strikingly characterized birds that are peculiar to this region. This fact was recognized by William Palmer and ably discussed in the introduction to his "Avifauna of the Pribilof Islands" (1899). The conclusion of Palmer's argument (regarding the terms Alaskan and Sitkan) is that: "The Aleutian Islands, the islands of Bering Sea, and much, perhaps all, of the mainland coasts of Alaska and northeastern Asia to the Arctic Sea constitute a single subregion to which the name *Aleutican* is more properly applicable" (*op. cit.*, p. 368). I do not recall seeing this term used by any subsequent writer, but study of the birds finds me generally in accord with Palmer's position. His detailed arguments and comparative tables of species need not be repeated here; what I have to say is largely supplementary to his statements.

Following is a list of bird species almost or entirely restricted to this region in the breeding season:

Phalacrocorax urile	Lagopus rupestris townsendi
Phalacrocorax perspicillatus	Lagopus rupestris evermanni
Branta canadensis minima	Pluvialis dominica fulva
Philacte canagica	Arenaria melanocephala
Polysticta stelleri	Phaeopus tahitiensis
Somateria v-nigra	Arquatella ptilocnemis ptilocnemis
Arctonetta fischeri	Arquatella ptilocnemis couesi
Thalassoaëtus pelagicus	Arquatella ptilocnemis quarta
Lagopus rupestris nelsoni	Pisobia acuminata
Lagopus rupestris atkensis	Limosa lapponica baueri
Lagopus rupestris chamberlaini	Ereunetes maurii
Lagopus rupestris sanfordi	Rissa tridactyla pollicaris

<i>Rissa brevirostris</i>	<i>Nannus alascensis tanagensis</i>
<i>Uria lomvia arra</i>	<i>Nannus alascensis petrophilus</i>
<i>Cyclorhynchus psittacula</i>	<i>Nannus alascensis semidiensis</i>
<i>Aethia cristatella</i>	<i>Acanthopneuste borealis kennicotti</i>
<i>Aethia pusilla</i>	<i>Motacilla flava alascensis</i>
<i>Aethia pygmaea</i>	<i>Leucosticte griseonucha</i>
<i>Penthestes cinctus alascensis</i>	<i>Passerculus sandwichensis sandwichensis</i>
<i>Nannus alascensis alascensis</i>	<i>Melospiza melodia sanaka</i>
<i>Nannus alascensis meligerus</i>	<i>Plectrophenax nivalis townsendi</i>
<i>Nannus alascensis kiskensis</i>	<i>Plectrophenax hyperboreus</i>

This list is admittedly imperfect, due to our limited knowledge of the region, especially on the Asiatic side. I have aimed to include only such species as would be recognized as belonging primarily to this restricted area, but there are other American forms that might go in, and perhaps a good many additional Asiatic species or subspecies.

Perhaps the outstanding peculiarity of this catalogue is the inclusion of various wide-ranging, perhaps circumpolar forms that are represented here twice over, once by a strongly marked "subspecies" (rarely by the species unchanged), again by a still more accentuated development that we regard as a "species." Closely related forms existing thus side by side, sometimes, though not always, on the same island, include the following birds. In the cormorants there are *Phalacrocorax pelagicus pelagicus* and *P. urile*, and also the extinct *P. perspicillatus*. Several species of cormorants exist together in other regions it is true, but here *pelagicus* and *urile* are so closely related as to be regarded as of the same subgenus, and furthermore they supply but one example of many. In the eiders there is *Somateria v-nigra*, regarded by some authorities as a subspecies of the wide ranging species *Somateria mollissima*, and the two locally developed species, *Polysticta stelleri* and *Arctonetta fischeri*. In the sandpiper genus *Arquatella* there are three forms, *ptilocnemis*, *couesi* and *quarta*, which have been variously regarded as specifically or subspecifically distinct from each other and from *Arquatella maritima*. In the turnstones (*Arenaria*) are found the circumpolar species *A. interpres* and the local *A. melanocephala*. In the kittiwakes (*Rissa*) the circumpolar and generally stable species *R. tridactyla* has produced the local subspecies *R. t. pollicaris*, existing side by side with the local species *R. brevirostris*. In the murrens (*Uria*) the wide ranging *U. aalge californica* occurs here with the more closely restricted local subspecies (*arra*) of *Uria lomvia*. In the snow buntings (*Plectrophenax*), a circumpolar species that is not markedly variable over most of its range has developed here a local subspecies, *P. nivalis townsendi*, and there is also in a very limited habitat the one other species of the genus, *P. hyperboreus*.

The pairs or groups of closely related forms listed above do not always occupy exactly the same habitat, though they do in some cases. In any event, comparable sorts and degrees of variation occur over and over again in different genera to a remarkable extent, suggestive on the whole of entire varied populations being subjected simultaneously to the same influences, or of the region perhaps enduring a series of invasions or periods of isolation.

There are other peculiarities of the Bering Sea avifauna. *Lagopus rupestris*, on the several Aleutian Islands, has developed a surprising number of well differentiated resident forms, though it is not a markedly variable species over most of its range. On the other hand, the usually plastic *Melospiza*

*melodia*, similarly resident on the same islands, remains unchanged throughout the group. *Melospiza* here reaches its maximum size, the culmination of a development that has its beginning outside this area. *Nannus* is another genus that has responded remarkably to the Bering Sea environment, with a series of distinguishable forms upon many islands. There is a sudden change here, too. *Helleri*, from Kodiak Island, is but slightly removed from the mainland *pacificus*, while the Bering Sea and Aleutian forms, judging from published measurements, appear to be abruptly larger, both as compared with American forms to the eastward, and Old World forms to the westward. The passerine birds that have become differentiated in the Bering Sea region show a common tendency toward large size, as is apparent in *Melospiza*, *Plectrophenax*, *Passerculus*, *Leucosticte*, and *Nannus*.

Among mammals, the extinct Steller sea cow (*Rhytina gigas*) and the northern fur seal (*Callorhinus alascanus*) are striking forms that are peculiar to the region.

#### PALAEARCTIC SPECIES IN NORTHWESTERN AMERICA

<i>Mareca penelope</i>	<i>Cuculus canorus bakeri</i>
<i>Eunetta falcata</i>	<i>Surnia ulula pallasi</i>
<i>Nettion crecca</i>	<i>Scotiaptex nebulosa barbata</i>
<i>Nettion formosum</i>	<i>Cryptoglaux funerea magna</i>
<i>Nyroca fuligula</i>	<i>Micropus pacificus pacificus</i>
<i>Nyroca ferina</i>	<i>Penthestes cinctus alascensis</i>
<i>Glaucionetta clangula clangula</i>	<i>Oenanthe oenanthe oenanthe</i>
<i>Haliaeetus albicilla</i>	<i>Cyanosylvia suecica</i>
<i>Thalassoaëtus pelagicus</i>	<i>Calliope calliope camtschatkensis</i>
<i>Charadrius mongolus mongolus</i>	<i>Acanthopneuste borealis kennicotti</i>
<i>Eudromias morinellus</i>	<i>Locustella ochotensis</i>
<i>Lymnocyptes minimus</i>	<i>Prunella montanella</i>
<i>Rhyacophilus glareola</i>	<i>Motacilla alba ocularis</i>
<i>Calidris tenuirostris</i>	<i>Motacilla alba lugens</i>
<i>Pisobia subminuta</i>	<i>Motacilla flava alascensis</i>
<i>Erolia testacea</i>	<i>Anthus spinoletta japonicus</i>
<i>Limosa lapponica baueri</i>	<i>Anthus cervinus</i>
<i>Philomachus pugnax</i>	<i>Fringilla montifringilla</i>
<i>Eurynorhynchus pygmeus</i>	<i>Coccothraustes coccothraustes japonicus</i>
<i>Larus schistisagus</i>	<i>Pyrrhula pyrrhula cassini</i>
<i>Larus argentatus vegae</i>	<i>Pinicola enucleator kamtschatkensis</i>
<i>Cuculus optatus</i>	<i>Emberiza rustica</i>

The Palaearctic birds known to have wandered eastward to North America, on islands or mainland, now comprise a list of 44 species. It is a list that cannot yet be satisfactorily analyzed, through lack of data, but in all probability many species therein, entered from one or two occurrences, will prove to be not "accidental" or "casual," as now regarded, but of regular occurrence. There are several species that are securely established upon American territory and whose ranges therein are fairly well known, such as *Limosa lapponica baueri*, *Penthestes cinctus alascensis*, *Oenanthe oenanthe oenanthe* and *Motacilla flava alascensis*. It is a noteworthy fact of the many record stations included in this long list of species that they are concentrated within relatively narrow limits, nearly all in northern and western Alaska (see map, fig. 1). We do not find a diminishing few straggling farther east and south.

The American subspecies *Bombycilla garrula pallidiceps* bears the same relation to the Palaearctic *Bombycilla garrula* as does *Penthestes cinctus alascensis*

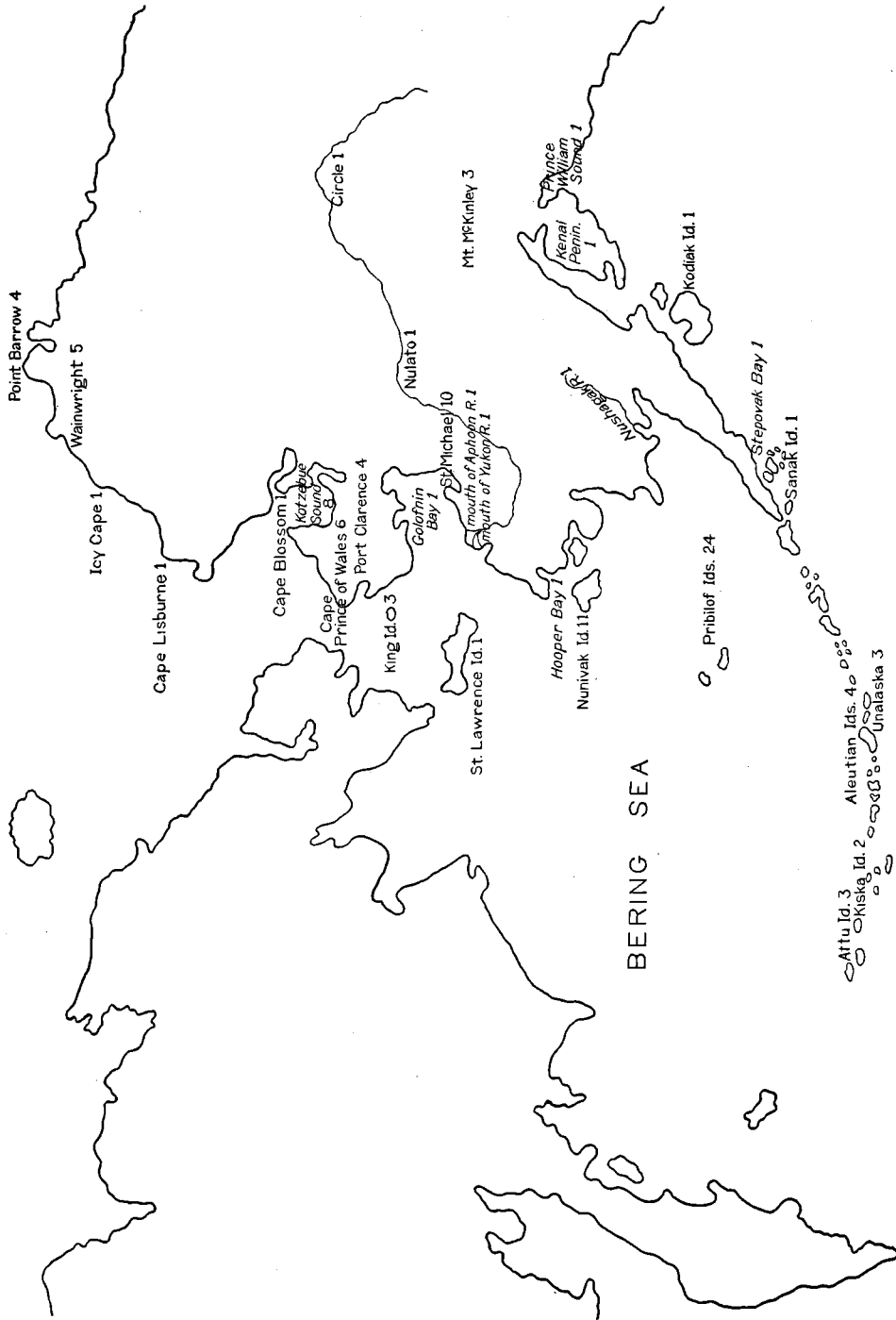


Fig. 1. Map of Bering Sea and Alaska, showing localities where Asiatic species of birds have been collected. The numerals indicate the number of species recorded from each place.

to the Palaearctic *P. cinctus*, or *Motacilla flava alascensis* to *M. flava*, but there are notable differences in manner of occurrence. The more widely-spread distribution of *Bombycilla g. pallidiceps* and its absolute separation from its Old World relatives are in strong contrast to the limited habitats and the close Asiatic connections of the other two species cited. There do not seem to be birds representing intermediate conditions. *Bombycilla g. pallidiceps* and *Lanius excubitor borealis* afford parallel cases, apparently belonging to an older invasion than that to be seen on the shores of Alaska today. Their distribution is very much the same; although *Lanius* has pushed much farther eastward it still seems to be a "rare" bird—literally so, represented by a very sparse population—in the eastern part of its range. The eastern trend of migration of *Bombycilla* may be indicative of a future eastward extension of the breeding range. The many Asiatic visitants of the present time, whether a large summer population or merely "casuals," return punctiliously to Asiatic shores from their limited American domain. There is no straggling southward or southeastward in North America.

#### NEARCTIC SPECIES IN NORTHEASTERN SIBERIA

<i>Chen hyperborea hyperborea</i>	<i>Larus canus brachyrhynchus</i>
<i>Oidemia americana</i>	<i>Uria aalge californica</i>
<i>Haliaeetus leucocephalus alascanus</i>	<i>Cephus columba</i>
<i>Circus hudsonius</i>	<i>Hylocichla minima aliciae</i>
<i>Grus canadensis</i>	<i>Anthus rubescens</i>
<i>Charadrius semipalmatus</i>	<i>Dendroica coronata</i>
<i>Heteroscelus incanus</i>	<i>Seiurus noveboracensis notabilis</i>
<i>Pisobia melanotos</i>	<i>Acanthis hornemanni exillipes</i>
<i>Pelidna alpina sakhalina</i>	<i>Junco hyemalis hyemalis</i>
<i>Tryngites subruficollis</i>	

Little is known regarding the occurrence of North American birds in extreme northeastern Asia, and the present list will probably be extended by future exploration. Three species, *Haliaeetus leucocephalus alascanus*, *Pisobia melanotos*, and *Hylocichla minima aliciae* are known to breed regularly in Siberia. These birds, again, in their southward flight retrace their way to America. There is something impressive in this crossing of migration paths, of American and Asiatic invaders, and these tortuous routes together with the limited and sharply defined areas occupied by the several species upon alien shores all give emphatic evidence of the slow, the extremely slow, process undergone by any species in the extension of its range. Between its winter home and its nesting ground an individual Gray-cheeked Thrush may travel on three continents, from South America, across North America, and into Asia, but who can say how many generations are required before the Asiatic colony to which this bird belongs can extend its limits from one valley to the next? How long, similarly, has it taken our American *Bombycilla garrula* and *Lanius excubitor* to cover the territory now occupied? And just what is happening now on the borderland of the limited habitat of the American *Penthestes cinctus*? The last mentioned subspecies occupies a somewhat different position from the other recent Asiatic invaders in that it is non-migratory. Its range is divided, including regions in Siberia and Alaska that are separated not only by Bering Sea but by the stretches of open tundra between the coast and its woodland habitat. There can be little or no com-

munication between the Siberian and Alaskan colonies of this form, such as exists in species that migrate to and from the Asiatic side.

It seems remarkable that the migration of species should have been so uniformly in one direction, from west to east. There are circumpolar species or groups of species of which it would be difficult to say whether they had originated in the Old World or the New. Disregarding these, there are many North American birds more or less widely distributed across the continent that seem clearly recognizable as derivatives of Old World stock. On the other hand, in the abundant and distinctive Palaearctic avifauna it does not seem to me that there is much (aside from the few obviously recent immigrants to extreme eastern Siberia) that can be pointed out as unquestionably from the New World. The wren *Nannus* (or *Troglodytes*) is probably the outstanding example of such an invader, with one Old World representative of a group that is extensively developed in North and South America. *Perisoreus infaustus* perhaps belongs in the same category, judging from the wider distribution and more varied development of the genus in North America than in Asia and Europe.



## BIRDS OF NUNIVAK ISLAND, ALASKA

### GENERAL ACCOUNTS OF THE SPECIES

#### ***Gavia immer*** (Brünnich)

##### Common Loon

One seen and heard calling at Nunivak, July 1; two seen July 2. On June 27, at sea about 100 miles north of Nunivak, a large loon was seen flying, apparently *Gavia adamsi*, though not certainly identified.

#### ***Gavia arctica pacifica*** (Lawrence)

##### Pacific Loon

One specimen (no. 31299), an adult female, Nunivak Island, August 16. Bill black; iris vinaceous red; tarsus and foot black on the outer side, grayish on the inner side. This bird, compared with fifteen specimens from Monterey Bay, California, taken during April and May, presents no points of difference that can not be explained as the result of wear on the feathers. There is no difference in iridescence on the throat and none in size. One bird was seen at sea eighty miles south of Nome, June 27, and others, usually in pairs during July and August, at various points on Nunivak, on dates ranging from July 11 to September 26.

#### ***Gavia stellata*** (Pontoppidan)

##### Red-throated Loon

Three adult males collected, one on July 11, two on July 13 (nos. 31300-31302). Iris reddish brown. Top of upper mandible grayish; bill otherwise black. Present in numbers on Nunivak during July and August, in pairs and nesting wherever suitable places were visited. Noisy during this period, their wailing cries continuing until the first week of September. A young bird, apparently of this species, was seen in the sea on October 9.

#### ***Diomedea nigripes*** Audubon

##### Black-footed Albatross

Seen following the steamer at various times: On May 13, 14, midway between Seattle and Kodiak, about a dozen birds; May 16, one, between Kodiak and Akutan; November 16, several, between Unalaska and Seattle.

#### ***Puffinus tenuirostris*** (Temminck)

##### Slender-billed Shearwater

Two specimens: Adult, sex unknown, Sitkalidak Island, May 15; female, Nunivak Island, September 2 (nos. 31238-31239).

Shearwaters, apparently all of one species, were seen in large numbers at sea from Seattle northward. Off the Alaska coast they were rarely found close to land, though abundant farther out. Seen on May 16, a straggling

flock of probably 2000 birds west of Kodiak Island; on June 13 between Akutan and Unalaska; and June 24, 25, between Unalaska and Nunivak. On September 2 one bird, and on September 4 two more, were found dead on the shore at Cape Etolin, Nunivak. Several hundred were seen between Nunivak and Unalaska on November 9, and a few scattered birds northwest of Vancouver Island, November 22. On May 15, at Sitkalidak Island, two dead Shearwaters were found beneath a Bald Eagle's nest, evidently killed and dropped there by the Eagles, as this was half a mile from the shore. One of the two was saved as a specimen.

***Phalacrocorax pelagicus pelagicus* Pallas**

Pelagic Cormorant

Nine specimens (nos. 31229-31237), one from Akutan, eight from Nunivak. Three apparently adult males (July 7, August 22, August 31) show hardly a trace of white plumes on the neck, or of the white flank patches. Young birds taken in July and August are variously advanced in the post-juvenal molt. A female taken on Akutan, May 31, presumably in its second year, is dull brownish throughout. Adult male: Bill very dark brownish, blackish brown, or black; gular sac and bare areas on face, dull maroon; iris green; feet black. Young birds: Bill blackish brown; gular sac and bare areas on face, maroon or reddish yellow; iris brown; feet black.

Small breeding colonies seen at Akutan and at several points on Nunivak. The birds were common in August; about Cape Etolin, until November 6, cormorants, apparently all of this species, were seen in varying numbers practically every day. Several large cormorants seen at Akutan on May 24 and succeeding days were believed to be *Phalacrocorax auritus cincinatus*, but none was secured.

***Cygnus columbianus* (Ord)**

Whistling Swan

Two seen September 4 sleeping in the middle of a tundra lake about three miles south of Cape Etolin. Large numbers were reported by an Eskimo as seen October 1 at the mouth of one of the rivers.

***Branta canadensis minima* Ridgway**

Cackling Goose

Geese of the *Branta canadensis* group were seen upon Nunivak from time to time, flocks of 5, 14 and 20 upon July 1, 3 and 5, respectively; again on August 28, September 4, September 11 (several small flocks), and September 16. Birds seen in August and September were usually on the tundra, feeding upon "crow berries."

One specimen collected (no. 31177) an adult female shot September 11. This bird is in the midst of the molt, with flight unimpaired but the body, especially below, half destitute of feathers. The white cheek patches are obscured with dusky and speckled with black, a condition that has been ascribed to immaturity, but fragments of old body plumage prove this bird

to have been at least in its second year. I have labelled this specimen *minima*, but in measurements it stands about at the dividing line between that form and *hutchinsi*. In ventral coloration, too, it is paler than typical *minima*. The birds seen are all commented upon as of small size.

***Branta nigricans* (Lawrence)**  
Black Brant

Nine specimens (nos. 31168-31176), five adult males, three adult females, one young male. All specimens: Bill black, feet (tarsus, toes and web) black, iris brown. Appeared in numbers at the end of the summer. First seen August 16, and during the next four weeks large flocks, sometimes flights of many hundreds, were seen at frequent intervals. The last large flight occurred on September 16, the last birds (a flock of about 20) on October 5. The migrating flocks were usually travelling east or south-east. Of the specimens taken the adults are all at the latter end of the molt, full feathered for the most part but with a greater or less admixture of old plumage on back and flanks and in some cases with rectrices only in part replaced.

***Philacte canagica* (Sevastianoff)**  
Emperor Goose

Seven adults and two immatures (nos. 31159-31167). Adult male: Upper mandible pink, area around nostrils slate blue, edge black, nail horn color; lower mandible black, splashed with flesh color; tarsus, toes and web, yellowish; iris brown. Weight 6 pounds. Young female: Bill blackish, shading to purplish flesh color at base; tarsus and toes yellow ochre, webs the same but blackish at outer edges; iris brown. The adults (one male and six females) were shot August 28, September 4, and September 18. All are in the final stages of the annual molt, in which renewal of plumage of the lower parts and flanks and the rectrices is the last to be accomplished. The two young birds, shot September 18 and 21, respectively, are in immature plumage throughout.

The first Emperor Goose, a single bird, appeared on the shore August 20. The next day a flock of nine arrived and from then on the species was of frequent occurrence, as single birds, two or three together, or flocks, sometimes of as many as 55 or 60 individuals. Observed practically throughout the remainder of Harrold's stay upon Nunivak, the last entry pertaining to the species being dated October 29. The first arrivals, until the middle of September, were all white headed adults. On September 15 the first young birds (dusky headed) were seen, and they were common thereafter. The first migrating flocks were all travelling southeast; late in October they were headed northeast. The Emperor Geese fed mostly upon the sea shore, but occasional flocks were encountered on the tundra, feeding upon berries. The one adult male of the series had its face stained and the throat and entire intestinal tract dyed blue from a diet of berries.

"These birds are very vociferous. Their notes, which resemble those of the White-fronted in general character, have a peculiar 'tinny' quality unlike those of any other species with which I am acquainted."

**Anser albifrons albifrons** (Scopoli)  
White-fronted Goose

A fall migrant at Nunivak: a flock of seven, August 6; flock of five, August 9; flock of eight or nine, August 29; flock of eleven, September 1. All were seen on the same tidal mud flat, at Cape Etolin.

**Chen hyperborea hyperborea** (Pallas)  
Lesser Snow Goose

Observed as a fall migrant at Nunivak, all flying eastward or toward the southeast, a flock of 33 on September 4, a flock of 39 (about half juveniles) on September 8, a flock of 45 or 50 on September 14, and a flock of about 40 on September 15.

**Anas platyrhynchos platyrhynchos** Linnæus  
Mallard

A pair of Mallards seen at Unalaska, June 15. The species was not otherwise observed.

**Dafile acuta** (Linnæus)  
Pintail

Three from Nunivak, an adult female July 12, two males September 4 (nos. 31222-31224). Female: Bill blackish, base slate; iris brown; feet pale greenish-gray, web blackish. Male: Upper mandible brownish-gray shading to pale slate on sides, lower mandible pale yellowish-gray; iris brown; feet greenish-gray, webs blackish. The two males are adults, just beginning to molt from the eclipse plumage, in flightless condition, with primaries partly grown.

These birds are not in condition to show the best differentiating characters between the Pintails of the Old World and the New, of which the long tail feathers of the full-plumaged male are claimed to be the most reliable feature, but, compared with California birds, they have slightly smaller bill and narrower speculum, also supposed to be characteristic of the Old World subspecies. Bailey (1930, p. 264) has declared his inability to sub-specifically identify his Pintails from northwestern Alaska, but it seems not unlikely that the breeding contingent upon the outlying Alaskan islands migrates to and from the Asiatic side, as does the Old World Teal. This was the only fresh-water duck seen upon Nunivak, where it was not common. Last noted October 9.

**Nettion crecca** (Linnæus)  
European Teal

Two adult males, one adult female, shot on Akutan, May 24 (nos. 31225-31227). Male: Bill blackish, lower mandible freckled with yellowish; iris brown; feet greenish-gray, webs black. Female: Bill dark olive, paler at

base, yellowish below; iris brown; feet greenish-gray, webs black. Seen only on Akutan, where the above three birds were taken from a flock of six, and where another pair were seen on June 5.

***Clangula hyemalis* (Linnæus)**  
Old-squaw

Two adult males, four adult females, one young male and two young females (nos. 31213-31221). Adult male (July 2): Bill blackish with sub-terminal band of brownish pink; feet pale gray, tinged with flesh color, joints dusky, web black; iris brownish-yellow. Adult female (July 7): Bill blackish; feet slate, tinged with black, web black; iris yellowish-brown. Young male (August 26): Bill dull brownish, shading to greenish-slate on sides at base; feet pale slate, tinged with flesh color; iris brownish-yellow. The two old males (July 2 and 5) are mostly in worn summer plumage, beginning to molt into the white-headed winter stage. The flight feathers had not been lost. The three adult females (shot July 13) are all in worn plumage, but with unimpaired flight.

Fairly common on Nunivak, in pairs early in July and breeding; broods of downy young seen July 11. At intervals during August and September single birds appeared or three or four together; on October 27 a flock of about 65 flying northeast. On November 2 a single bird was seen in the snow on the tundra, apparently eating "crowberries."

***Histrionicus histrionicus pacificus* W. S. Brooks**  
Harlequin Duck

Six adult males and five adult females (nos. 31202-31212), four from Akutan, May 24, 28, the rest from Nunivak. Male: Bill blue-gray, darker at base; feet dull grayish brown, the joints, outer side of tarsus and outer toe darker; webs black; iris brown. Female: Bill dusky, nail and sides of upper mandible grayish; feet pale yellowish-gray, webs black; iris brown. Males taken early in July, one as late as July 18, are still in breeding plumage, more or less worn. One shot on August 5 is just beginning to molt into eclipse plumage, the flight feathers not yet lost. A pair of adults shot November 2 are in perfect winter plumage, entirely through the molt.

Harlequin Ducks were common, in pairs or small parties, off the rocky shores of Akutan, May 17-25, after which time, though still present, they were much less numerous. At Unalaska, June 14-23, only a few were seen. At Nunivak the species was not common, but single birds or small companies were occasionally encountered in the streams and flocks in the sea, at intervals during the summer. The pair shot November 2 were the last seen.

***Polysticta stelleri* (Pallas)**  
Steller Eider

Ten adult males, four adult females, and one young female (nos. 31186-31200), all from Nunivak Island. Adult male: Bill slate; feet dull grayish, webs black; iris brown. In an eclipse male the bill is indicated as dull

brownish-gray. Adult female: Bill brownish-gray; feet dull brownish-gray, webs blackish; iris brown.

Eight males and three females were shot on July 6, affording a series of males that is beautifully illustrative of the acquisition of the eclipse plumage. In one bird the molt has barely begun, as indicated upon the head and neck. Five others illustrate the increasing eclipse area, progressively upon head, neck, dorsum and breast, with the white wing coverts, long scapulars, and traces of the tawny sides still retained. Two are in eclipse plumage throughout, to be distinguished from the adult female only by the slightly darker belly and traces of a whitish area across the upper breast. Two more adult males taken on August 3 and 11, respectively, are in transition stages, with the old bright plumage still retained on wings, lower breast, flanks and belly. As shown by this series the acquisition of the eclipse plumage begins on the head and progresses backward, dorsally and ventrally alike, with the entire wing plumage and finally remiges and rectrices as the very last to be changed. Three females shot on July 6 show the beginning of molt on head and neck; one taken August 11 has almost entirely renewed the plumage on head, neck and body down to the rump, but the wings (including all the coverts) and the rectrices were still to be shed. A female, apparently a young of the year in fresh plumage throughout, was shot on September 21 from a flock of about thirty, all apparently of the same stage. No bird in flightless condition was collected.

The series secured July 6 was taken from a flock of twenty-six as they several times passed back and forth between a lagoon and the sea. During the week of August 3-10 there were large flights passing northeast off Cape Etolin, practically all being adult males in partly acquired eclipse plumage. Seen at intervals during August and September: August 23 many swimming off Cape Etolin during a "northwester," on September 4 a flock of about 75, on September 8 a flock of over 100, on September 21 a flock of about 30, all these in the brown plumage, eclipse males, females or young. From September 22 throughout October a few were seen almost daily, either entirely brown colored, or else with white wings and brown head and neck. From these observations it would seem that in the post-eclipse molt the wing coverts are first to be renewed, head and neck plumage last, in reversal of the order in which the eclipse plumage is acquired. On October 29 the first males were seen that were again in high plumage.

***Somateria mollissima v-nigra* Gray**  
Pacific Eider

One adult male, three adult females (nos. 31178-31181). Of the three females, shot July 2, 13 and 24, respectively, two are in rather worn, though not excessively worn, breeding plumage; the bird shot July 2 has much new body plumage. All retain their flight feathers. The male, shot November 4, is in normal adult plumage throughout, freshly acquired.

Eiders, either King or Pacific (they were not always to be distinguished) were seen at frequent intervals, either off-shore or in the lagoons, up to the time of departure, November 6. Male Pacific Eiders in high plumage were

encountered early in July, and in eclipse during the second week in August. During October the flocks contained many adult males in various stages of the post-eclipse change. Although eiders of the several species were present in considerable numbers throughout the summer, there is no suggestion in Harrold's notes that he suspects any of them of nesting upon Nunivak Island.

**Somateria spectabilis** (Linnæus)  
King Eider

Two adult males and two adult females from Nunivak Island (nos. 31182-31185). The two males, taken on August 24 and September 26, respectively, are in extremely worn plumage, an immature or an eclipse stage that apparently had been carried over beyond the normal period. Both are flightless, the September bird with no flight feathers remaining, the August bird with those of one wing gone. Both show the beginning of molt into adult plumage. One of the females (July 5) is at the beginning of the molt, with flight feathers in place, the other (September 21) is flightless and with the old rectrices still retained, but the body plumage, above and below, almost entirely renewed. Male: Upper mandible brownish-yellow at base, shading to dull brownish tinged with flesh color, nail horn color, lower mandible pale yellowish-brown; feet brownish-yellow, webs blackish; iris pale yellowish brown. Female: Bill dull blackish slate shading to black at base, nail blackish horn color, lower mandible dull slate; feet yellowish brown, webs black; iris brown.

A male King Eider in fully acquired adult plumage was seen October 16.

**Oidemia deglandi** Bonaparte  
White-winged Scoter

Apparently not breeding on Nunivak. Small flocks seen at Akutan May 18 and 25. Not encountered during June and July, but single birds or small flocks (15 or less) seen at Nunivak from August 19 to October 14. A flock of five in the harbor at Unalaska, November 12.

**Oidemia americana** Swainson  
American Scoter

One specimen, an adult female found dead on the shore at Cape Etolin, October 22 (no. 31201). Six blackish ducks supposed to be of this species were seen at the same point November 4. Not otherwise observed.

**Mergus serrator** Linnæus  
Red-breasted Merganser

Seen at Akutan, May 18, at Unalaska, June 15, and on Nunivak at various dates thereafter. Three observed feeding in the sea in the lee of Cape Etolin, October 26. On August 1 a nest was found containing seven eggs far advanced in incubation. This was in a weed-covered hole in a bank, about twelve feet above high tide, nest composed of a few grasses and grayish

down. One specimen collected (no. 31228), a female, parent of the nest described. Bill reddish brown; top of upper mandible brown; iris brown, surrounded by a ring of reddish brown; legs and feet dull reddish orange.

**Astur atricapillus** (Wilson)  
American Goshawk

An adult bird seen on Sitkalidak Island, May 15, being mobbed vigorously by a pair of Pigeon Hawks.

**Accipiter velox** (Wilson)  
Sharp-shinned Hawk

One specimen collected upon Nunivak (no. 30986), an immature female shot September 14 while flying about among the boulders on the shore. The species was not otherwise observed.

**Archibuteo lagopus sancti-johannis** (Gmelin)  
American Rough-legged Hawk

Two birds, adult male and female, collected on Akutan, June 3 (nos. 30990, 30991). Bill blackish, grayish at base; cere, gape, projection over eye, and feet, yellow; iris brown. The stomach of the female contained two *Microtus* carcasses.

Seen almost daily on Akutan, May 17 to June 13. A pair appeared to be nesting in a small cave in the face of a cliff, about 60 feet from its base, a place that was inaccessible either from above or below. On Unalaska, June 14 to 23, the species was fairly common. On June 22 a nest was found, placed in a crevice in a high cliff, this one also being impossible to reach. The nest itself was small and flat, scarcely larger than that of a crow, constructed outwardly of sticks and roots, and lined with roots. It contained three young about five days old, of a dirty whitish color. Most of the birds seen were in the "normal" phase of coloration, but a few black ones were observed on Unalaska and one on Akutan.

**Haliaeetus leucocephalus alascanus** C. H. Townsend  
Northern Bald Eagle

On Sitkalidak Island, May 15, a nest was seen, built in a small poplar, from which two eggs, heavily incubated, had been removed and smashed by one of the residents a few days before. On Akutan there were probably three pairs of Bald Eagles. A nest was found on the south side of this island, placed on the top of an isolated pinnacle of rock about 150 yards from shore. No sticks were available there and the nest was built entirely of weed stalks and grass. Two heavily incubated eggs were brought to Harrold that were collected on Kodiak Island, May 22, the nest placed on a low cliff. Eagles were fairly common on Unalaska but no nests found. The inhabitants of that island hunt the birds persistently, accusing them of being destructive of foxes.



**Falco rusticolus candicans** Gmelin  
Gyr Falcon

Two specimens collected upon Nunivak (nos. 30988, 30989). Bill slate, shading to black at tip and pale blue-gray at base; cere greenish gray; tarsus and foot pale greenish-gray, claws black; iris brown. A female shot September 26 is nearly through the annual molt, with rectrices and flight feathers partly grown; from the remnants of old plumage, it is evidently an adult bird. The second, also a female, was shot November 4, is in freshly acquired plumage throughout and is essentially like the first specimen in appearance. One pair of Gyrfalcons was seen on Akutan, and several birds on Unalaska. Besides the two shot on Nunivak, one other was seen October 17.

The A. O. U. *Check-List* (1931, p. 74) uses the subspecific name *uralensis* for the gyrfalcon of this region, on what grounds it is not stated. Hartert (1920, p. 148) uses the name *candicans* and expressly discredits *uralensis*; Preble (1923, p. 83) applies the name *sacer* to birds from the Pribilof Islands; and Swann (1922, p. 67) named the Alaskan bird *alascanus*. I am not in a position to judge between these conflicting claims, but follow Hartert (1915, 1920) as the only one who has published thorough and convincing studies.

Peregrine Falcons (*Falco peregrinus*) were seen upon Akutan, but no specimens were taken and the subspecies, whether *anatum* or *pealei*, was not ascertained.

**Falco columbarius columbarius** Linnæus  
Pigeon Hawk

A pair of Pigeon Hawks were seen on Sitkalidak Island, May 15, attacking a Goshawk, and the male bird was collected (no. 30987). Bill dark slate, base greenish; iris brown; bare skin around eye yellow; tarsus and toes yellow.

In May, 1930, I had opportunity to examine the series of Pigeon Hawks in the British Museum, including more adults from eastern North America than I had seen before. From the evidence there, as well as from such American collections as I have seen, I am unable to recognize a northwestern subspecies, *Falco columbarius bendirei* Swann (1922, p. 66).

**Lagopus lagopus alascensis** Swarth  
Alaska Willow Ptarmigan

Fourteen specimens from Nunivak (nos. 30992-31005), including five summer males, two young in the post-juvenal molt, an adult female going into winter plumage, and six birds that are almost or entirely in the white winter garb. The Willow Ptarmigan of Nunivak Island has the heavy bill characteristic of the bird of the Alaskan mainland. There are at hand four adult males from Unalaska and two from Atka, collected in May and June, and these are small billed, as in *Lagopus l. alexandrae*. They are not in exactly comparable plumage with the Nunivak birds but appear to be somewhat darker, more ruddy, again as in *alexandrae*.

Two young birds shot on Nunivak September 13 are mostly in juvenal plumage, with patches of the chestnut "winter, preliminary," most extensively on the breast, and with small tracts of new white feathers on the sides. An adult female shot October 5 is mostly white below, mostly in the "winter, preliminary" above, and with a scattering of barred feathers held over from the breeding plumage. Six birds shot from October 25 to November 4 are almost or entirely white. The species was not common on Nunivak and the series collected was the result of many long and arduous trips, on some of which no ptarmigan at all were seen. After the middle of September they were found in flocks of from nine to twenty birds.

**Lagopus rupestris kelloggæ** Grinnell  
Kellogg Rock Ptarmigan

Two adults (nos. 31012, 31013) were collected upon Nunivak, July 1, a female in perfect summer plumage, a male much farther behind in the summer change. The species was not otherwise observed upon the island except that three downy chicks, just hatched (nos. 31106-31108), collected on July 2 are probably Rock Ptarmigan. They were attended by the mother bird only, whereas in the Willow Ptarmigan both parents care for the young.

**Lagopus rupestris nelsoni** Stejneger  
Nelson Rock Ptarmigan

Three specimens (nos. 31009-31011), adult male and female from Akutan, an adult male from Unalaska. The two Akutan birds, collected May 20, are mostly in breeding plumage though with many white feathers over all parts, the male from Unalaska, collected June 19, is in breeding garb with white throat and belly. Three more were seen upon Akutan, only the one collected upon Unalaska.

**Grus canadensis** (Linnæus)  
Little Brown Crane

Evidently nesting upon Nunivak, where many pairs were seen during the summer, and at many different points. On August 15 a flock of 30 was noted; in the ensuing weeks their numbers diminished rapidly, and on September 15 the last were seen, five birds circling high overhead. The species has been seen crossing Bering Straits in some numbers (Jaques, 1929, p. 230), and apparently is a regular summer visitant to extreme eastern Siberia.

**Hæmatopus bachmani** Audubon  
Black Oyster-catcher

Two adult females (nos. 31014, 31015) collected on Akutan Island, June 3 and 11, respectively, and several others seen. Not found on Nunivak. Adult: Bill reddish orange; iris yellow; eyelids orange; tarsus and toes very pale flesh color.

**Charadrius mongolus mongolus** Pallas  
Mongolian Plover

The two specimens collected by Harrold (no. 31029, female; no. 31030, male) have already been recorded (Swarth, 1928, p. 248). Harrold's notebook entries regarding the species read as follows:

"Aug. 14. Cape Etolin, Nunivak Island. Three juveniles on the large mud flats south of the Cape. They were extremely wary and it was even necessary to crawl in the mud and water for a considerable distance in order to approach near enough to secure one specimen.

"Sept. 1. A lone bird taken on the same flat (as mentioned above).

"Sept. 11. One on the mud flat, Cape Etolin.

"Sept. 13. One on same flat as above. Made every effort to collect this bird but without success, as it joined a party of 5 Golden Plover just as wary as itself, thereby taking away the last chance of collecting it."

Bill blackish; iris brown; tarsus dull greenish yellow, the feet slightly darker.

**Charadrius semipalmatus** Bonaparte  
Semipalmated Plover

Two adult females collected on Nunivak Island, July 6 (nos. 31031-31032). Bill black, base yellow; iris brown; tarsus and toes brownish yellow. Besides the two collected, two more were seen the following day. Not otherwise observed.

**Pluvialis dominica fulva** (Gmelin)  
Pacific Golden Plover

Twenty-two specimens (nos. 31033-31054), 11 breeding adults, 2 nestlings, 9 in winter plumage. Adult: Bill blackish; iris brown; tarsus and toes brownish black. Nestling and immature: Bill blackish; iris brown; tarsus and toes dull slate. Adults collected July 16 are beginning the annual molt; one taken July 29 has nearly completed this change. Of nine specimens collected August 16 and later, eight are apparently birds of the year. A male taken on September 16 appears to be adult, from the few remnants of summer plumage remaining on the back; it has no trace of black on the lower surface. Just one of the series is other than typical of the subspecies *fulva*. This bird (no. 31046, August 16) is commented upon in Harrold's notes as indistinguishable in color from *dominica*. Wing measurement, too, is distinctly longer than in most of the series, as is the case in *dominica*. One breeding bird, however, is quite as long winged, so I prefer to regard this specimen as a variant of *fulva* rather than a wandering individual of *dominica*.

Golden Plovers were nesting upon Nunivak but apparently in small numbers. Two juveniles collected July 17 were beginning to fly and have only small patches of natal down left. In this and in other cases it was the male parent that was most concerned over impending danger to nest or young. During August and September and early in October Golden Plovers were seen daily, usually in flocks of four or five. October 12 was the latest date

of record. The Golden Plover has "a great variety of musical whistles, one of which is almost identical with the ordinary *tu-cu* of the Black-bellied Plover. The males also indulge in a peculiar flight song consisting of a series of loud clear whistles, while they adopt a slow, tern-like flight at the same time."

***Arenaria interpres interpres* (Linnæus)**  
Common Turnstone

Eleven specimens (nos. 31018-31028), seven adult and four immature. Adult: Bill black; iris brown; tarsus and toes dull brownish yellow, the joints brownish. Immature: Bill very dark olive, almost blackish; iris brown; tarsus and toes dull yellowish brown.

Seen in small numbers on Nunivak during July, sometimes on the beach but often in pairs on the tundra far inland. No nest was found nor any very young bird seen. The first juveniles (full grown) appeared on August 5 and the adults vanished at about the same time. Throughout August and early in September a few young birds were seen almost daily, a solitary adult on August 31. Their numbers diminished rapidly in late September, and the last bird was noted on October 9.

The Academy collection contains about 80 skins of the Common Turnstone from Bering Sea and from points on the Pacific coast in California, Mexico and the Galapagos Islands, and about 20 from scattered localities around the Great Lakes and on the Atlantic coast. In this series I am unable to distinguish two forms, *interpres* and *morinella*, both of which are supposed to occur in western North America.

***Arenaria melanocephala* (Vigors)**  
Black Turnstone

Two specimens collected upon Nunivak Island, an adult female, August 6, and a young male, August 17 (nos. 31016, 31017). A dead bird in an Eskimo kayak, August 6, was the only other seen. Adult: Bill very dark olive, nearly black; iris brown; tarsus and toes dull brownish yellow. Immature: Bill very dark blackish olive; iris brown; tarsus and toes rather pale yellowish brown.

***Capella delicata* (Ord)**  
Wilson Snipe

Common on the tundra near Nome, June 28. Not seen on Nunivak.

***Phæopus tahitiensis* (Gmelin)**  
Bristle-thighed Curlew

A single bird seen at Cape Etolin, Nunivak Island, August 15, and a flock of seven on August 20. None was collected. "Its note (presumably alarm) consisted of a modulated whistle, *pee-u-weet*. In flight it reminds me

of Bartram's Sandpiper, as it frequently adopts the 'vibrant,' fluttering wing beat of the latter bird."

**Actitis macularia** (Linnæus)  
Spotted Sandpiper

One young bird seen at close range on the shore at Cape Etolin, Nunivak Island, August 20.

**Heteroscelus incanus** (Gmelin)  
Wandering Tattler

Three adults from Akutan, an adult and a young bird from Nunivak (nos. 31055-31059). Adult: Bill dusky, base of lower mandible yellowish brown; iris brown; tarsus and toes yellow. Immature: Bill dull grayish olive, tip blackish; iris brown; tarsus and toes greenish yellow.

On Akutan, May 26 to June 5, Wandering Tattlers were seen at various times, six altogether and all single birds. On Nunivak the first one appeared July 27 and from then on throughout August they were present almost daily, single birds or two to five together. Two young birds were seen September 3, and one, the last noted, was shot October 1.

**Calidris canutus rufus** (Wilson)  
American Knot

Two young birds, male and female, found in company with a young Turnstone on Nunivak, August 14, and both collected (nos. 31145-31146). The species was not otherwise observed. Bill very dark blackish olive, greenish at base; iris brown; tarsus and foot olive.

**Arquatella ptilocnemis couesi** Ridgway  
Aleutian Sandpiper

**Arquatella ptilocnemis ptilocnemis** (Coues)  
Pribilof Sandpiper

Thirty-eight specimens (nos. 31107-31144), of which seven are from Akutan, the rest from Nunivak. The series includes adults in breeding plumage, in the fall molt, and in freshly acquired winter plumage; young in natal down, in immature plumage, and in partly acquired first winter plumage. The breeding plumage is worn about three and one-half months, from early May until the latter part of August. Adults shot August 24 show the beginning of the post-breeding molt; others shot September 23, October 11, and October 15, are in winter plumage throughout. A young one in natal down was collected July 29, others in immature plumage August 19 to September 8, and one partly in first winter plumage on September 1.

Adult female in breeding plumage, Akutan, May 22: Bill dusky, greenish olive at base; iris brown; tarsus and toes pale olive. Adult female in winter plumage, Nunivak, September 23: Bill dark greenish gray, brownish yellow

Measurements (average, minimum and maximum) of  
*Arquatella ptilocnemis ptilocnemis* and *A. p. couesi*

Number of specimens	Locality	MALE					
		Wing	Tail	Culmen	Tarsus	Middle toe	
2	Akutan Id.	113.0-120.0	51.0-52.2	27.0-27.2	23.5-24.0	23.0-24.0	
5 <sup>1</sup>	Attu Id.	116.7	55.3	26.3	23.0	23.6	
10	Numivak Id.	120.4 (116.0-126.0)	56.3 (52.0-59.0)	27.4 (26.5-28.5)	23.1 (22.5-24.0)	21.9 (21.5-23.5)	
18 <sup>2</sup>	Pribilof Ids., etc.	126.5 (119.0-133.0)	59.1 (52.0-64.0)	30.4 (27.0-35.5)	23.1 (21.5-24.5)	22.6 (20.0-24.5)	
FEMALE							
4	Akutan Id.	119.5 (116.5-122.0)	55.5 (53.0-57.0)	29.0 (25.5-32.2)	23.7 (23.2-24.0)	22.5 (21.0-24.0)	
4 <sup>3</sup>	Attu Id.	118.7	53.6	30.3	23.6	24.1	
9	Numivak Id.	124.2 (121.0-127.0)	58.2 (56.0-63.0)	31.5 (30.0-34.0)	23.6 (23.0-25.0)	22.8 (22.0-24.5)	
27 <sup>4</sup>	Pribilof Ids., etc.	129.2 (122.0-134.5)	60.1 (56.0-65.0)	33.0 (28.0-37.0)	23.3 (21.5-24.5)	23.2 (21.5-25.0)	

<sup>1</sup>From Ridgway, 1919, p. 247, footnote

<sup>2</sup>From Ridgway, 1919, p. 245

<sup>3</sup>From Ridgway, 1919, p. 248, footnote

<sup>4</sup>From Ridgway, 1919, p. 246

at base; iris brown; tarsus and toes yellowish brown. Immature female, Nunivak, August 19: Bill dusky, olive at base; iris brown; tarsus and toes yellowish olive. Female in natal down, Nunivak, July 29: Bill dusky, grayish at base; iris dark brown; tarsus and toes pale greenish brown.

Fairly common upon Akutan, nesting on the higher bench land up to an elevation of about 1600 feet. None seen upon Unalaska. One of the most common birds in parts of Nunivak, where it nested over the inland tundra. During the third week in July these breeding grounds were abandoned, and large flocks gathered upon the rocky sea shore. The adults were first to appear there, five to fifty in a bunch; about the middle of August flocks of young birds were conspicuous upon the beach. The species remained common until September and in diminishing numbers throughout the month. The adults were the first to disappear, last seen September 29. Until October 18 from one to a dozen Aleutian Sandpipers were seen daily, and then stragglers at long intervals, the last on November 2.

The Akutan birds are typical of *couesi* and essentially like migrants taken in southeastern Alaska. The Nunivak series displays a rather wide range of variation in color, as between typical *couesi* and typical *ptilocnemis*. Among the breeding birds there are dark colored individuals of the *couesi* mode and pale ones of the *ptilocnemis* mode. Average measurements of the series lie between the two. In the Nunivak series there are molting adults and three in which this molt is accomplished, and in these birds the new winter plumage is of the dark slaty coloration typical of *couesi*. One other bird in winter plumage (no. 31141, adult male, Nunivak Island, October 5) is of the light gray coloration characteristic of *ptilocnemis*, and is presumably a migrant of that form. Of two immature males in the post-juvenal molt, one, collected September 1, is assuming typical *couesi* plumage, the other (no. 31139), collected September 13, is assuming typical *ptilocnemis* plumage and may again be a migrant from the Pribilof Islands.

Harrold comments upon the gray colored bird of October 5 as follows: "Of all the hundreds of Aleutians seen, I did not detect a single other bird in this gray plumage. As this bird passed me in a flock of ordinary dark-colored individuals it stood out in striking contrast, in fact, I thought at first that it was a Knot."

On the whole, while it is not possible to give the pedigree of every specimen collected, the following conclusions may, I think, be accepted. That the Nunivak breeding population of *Arquatella* is intermediate in character between *ptilocnemis* and *couesi*, as shown in measurements and in the color of the breeding birds. That these same birds apparently acquire a winter plumage that is typical of *couesi*. That migrating individuals of *ptilocnemis* appear upon Nunivak in the fall. All things considered, the breeding bird of Nunivak had best be designated as *couesi*.

Bailey (1925, p. 236) speaks of *couesi* as breeding at Cape Prince of Wales, Alaska, and at Emma Harbor, Siberia. Hartert (1920, p. 137) has described still another form, *Arquatella maritima quarta*, from Bering Island, a bird that I have not seen. So that *ptilocnemis* of the Pribilof Islands is practically surrounded by these other subspecies. Bailey (*loc. cit.*) tentatively records a spe-

cimen from Wales as *quarta*, but from the variation found in the Nunivak series such a record is plainly of uncertain value. Nor should Bent's (1927, p. 160) hesitating ascription of *quarta* to Attu Island have been accepted as authority for inclusion of this form in the A. O. U. *Check-List* (Fourth Edition, 1931, p. 119).

***Pisobia acuminata* (Horsfield)**  
Sharp-tailed Sandpiper

Five specimens (nos. 31085-31089). Adult male: Bill dull greenish gray, paler at base, tip blackish; iris brown; tarsus and toes olive.

The first Sharp-tailed Sandpiper appeared on August 27, and from then on single birds or two together, never more, were seen at frequent intervals, 20 or 25 in all, the last on October 13. The call is described as "a single (rarely a double), rather low and slightly metallic note," differing from any of the American and European species with which the observer was familiar. Harrold comments upon the difference in size between the larger male and smaller female, conspicuous in life as it is in the prepared skins.

This species is known in Alaska only as a late summer and fall visitant to extreme western localities. Ridgway (1919, p. 277, footnote) remarks that "all Alaskan specimens examined are young birds of the year," which is apt to be the case in individuals wandering at the edge of, or somewhat off, the usual beaten path of their kind. However, in a small series in the Academy collection taken upon St. Paul, of the Pribilof Islands, by Dr. G. Dallas Hanna, there is an adult female (C. A. S. no. 23511), shot August 27, 1920, in worn breeding plumage, and not yet beginning the annual molt. A male bird collected by Harrold on Nunivak Island, October 7 (no. 31089), appears to be adult. It is noticeably less buffy on the breast and less reddish above than others in the series, and differs also in details of markings on the wing coverts and elsewhere.

***Pisobia bairdii* (Coues)**  
Baird Sandpiper

One specimen, immature female, Nunivak Island, September 4 (no. 31084). Bill blackish olive; iris brown; tarsus and toes blackish. Besides the bird collected one other was seen August 14, and one September 5.

***Pisobia minutilla* (Vieillot)**  
Least Sandpiper

Two adult males from Akutan, collected May 19 and 31, respectively (nos. 31082, 31083). Bill blackish, greenish at base; iris dark brown; tarsus and toes rather pale olive or yellowish olive. "Several pairs were observed on the flats on Akutan Island. The male has a strange flight song consisting of a repetition of several low notes uttered while the bird is alternately gliding and hovering." It is noteworthy that neither this species nor *Pisobia melanotos* was seen upon Nunivak Island.



***Pelidna alpina sakhalina* (Vieillot)**  
Red-backed Sandpiper

Nine specimens (nos. 31073-31081). Adult: Bill black; iris brown; tarsus and toes dark olive or greenish brown. Young: Bill dark greenish brown; iris brown; tarsus and toes grayish brown.

Of five adults, one shot July 13 is in breeding plumage throughout, the feathers much worn. One shot July 18 is renewing wing coverts and inner primaries, and shows one gray feather on the back. One shot August 6 is about half through the molt, and one shot August 29 is nearly finished. In the last mentioned specimen the black abdominal patch is still nearly intact (apparently the last to be changed), the outermost primaries are only partly grown, and a few feathers of the summer plumage linger on back and upper breast.

A young bird shot July 11 is in natal down over head and neck and on the thighs. Body and wings are in the juvenal plumage, though the rectrices are only partly grown, and remiges have not yet appeared. Two young birds shot August 6 are in juvenal plumage practically throughout, a plumage that is not unlike the summer adult, with reddish back and with blackish-spotted sides that afford more than an indication of the black abdominal patch of the old bird. The juvenal plumage is worn a short time, probably not more than three weeks in its entirety. These two birds show the inception of the post-juvenal molt, beginning in each at the back of the neck. A young bird shot September 18 is in first winter plumage, its immaturity shown in a few juvenal tertials. The limited series of adults shows wide variation in relative amount of red and black coloration dorsally.

The species was fairly common upon Nunivak. On July 13 a nest was found containing three heavily incubated eggs. This was in a marshy spot in the higher tundra, the nest itself, placed in a tuft of grass, consisting of a thin layer of caribou moss and dry grass. The sitting parent, intensely concerned for the safety of the nest, was the male bird; the female did not appear. Throughout August and until September 20, large flocks of old and young together were seen daily on the mud flats. On October 5 a flock of about 50 appeared, all in winter plumage, and on October 8 a single bird was seen, the last observed.

***Limnodromus griseus scolopaceus* (Say)**  
Long-billed Dowitcher

Two adult males collected on Nunivak, on July 12 and 13, respectively (nos. 31147-31148). The species is not otherwise mentioned in the season's note book and presumably these were the only ones seen.

***Ereunetes maurii* Cabanis**  
Western Sandpiper

Nine specimens (nos. 31064-31072), three breeding males, four downy young, and two in juvenal plumage. Adult: Tarsus and toes dark brownish olive. Natal down: Iris dark brown; bill dusky, greenish yellow or grayish

at base; tarsus and toes brownish slate. Immature: Bill dusky, slightly tinged with dull olive; iris brown; tarsus and toes dull grayish brown.

The three adults, collected June 30, July 1, and July 5, respectively, are all in worn breeding plumage. Of the four downy young, two (July 5, 9) show the beginning of the post-natal molt in the appearance of feathers in the pectoral tracts. The two birds in juvenal plumage throughout were collected on July 13 and 17, respectively. This was an abundant species on Nunivak but apparently left early in the fall. Harrold's note-book, under date of September 1, says: "The swarms of juvenile Western Sandpipers have disappeared, only one individual being seen today." The last was noted on September 4.

***Limosa lapponica baueri*** Naumann  
Pacific Godwit

Seventeen specimens (nos. 31090-31106), one adult female, the rest young birds. Adult: Bill dusky, basal half flesh color; iris brown; tarsus and toes dark grayish brown. Immature: Bill and iris as in adult; tarsus and toes dull slate.

Apparently not breeding on Nunivak. The adult female collected was one of a pair seen on July 10, apparently not nesting. The species was not otherwise observed until August 9, when flocks of young birds appeared. These were abundant throughout August and during the first three weeks in September, the flocks sometimes numbering 20 or 25 birds. Last seen October 5, a flock of 17. No adults were observed among these migrants. "Their notes consist of a low chattering, not unlike that of the Hudsonian Godwit."

On September 4 a bird was heard calling repeatedly which Harrold first entered in his note-book as probably a Greater Yellow-legs (*Totanus melanoleucus*). A subsequent entry, an afterthought, records the suggestion that it may have been a Green-shank (*Glottis nebularia*). The common occurrence of the Green-shank upon the Commander Islands makes its casual appearance upon the Alaska coast something to be anticipated, and Harrold's familiarity with both species in life gives weight to his suggestion. It is something for future collectors to bear in mind.

***Crocethia alba*** (Pallas)  
Sanderling

Four specimens (nos. 31060-31063). Three of the four (September 13, 28) are in juvenal plumage throughout, the fourth (October 5) is changing into first winter plumage. Bill blackish; iris brown; tarsus and toes dark greenish gray, or blackish tinged with gray.

A single adult in summer plumage was seen on Nunivak, July 25. The species did not reappear until August 29, when a solitary young bird was noted. A few more, two to six at a time, were seen September 11, 13, 15, 18, and October 5.

**Phalaropus fulicarius** (Linnæus)  
Red Phalarope

Five specimens, all from Nunivak: Two adult males, July 5 and 6, respectively; one immature female, and two immature males, on September 8, 17 and 23, respectively (nos. 31154-31158). The two adult males are in breeding plumage, the three young birds in transition from juvenal to first winter plumage. Adult male: Bill dark brown shading to bright yellow on basal third; iris brown; tarsi and feet dull slate, lobes dull flesh color. Immature female: Bill blackish, slightly yellowish at base of lower mandible; iris brown; outside of tarsus and folded foot pinkish slate, inside flesh color; lobes yellowish.

Apparently of rare occurrence upon Nunivak, as there are only six note book entries, one of two birds seen (July 6) the others of single individuals. Last seen September 24. Not found breeding.

**Lobipes lobatus** (Linnæus)  
Northern Phalarope

A pair of adults from Akutan, May 23; from Nunivak an adult female July 2, an adult male July 3, a young male August 2 (nos. 31149-31153). The adults are in breeding plumage; the young bird is in juvenal plumage mostly, but with the flight feathers not fully grown and with throat and face still clothed in natal down. Adult female: Bill black; iris brown; outside of tarsus and closed feet blackish, inside bluish slate. Juvenal male: Bill black; iris brown; tarsus and foot dull brownish slate; webs at base of toes yellowish.

Breeding, but apparently not commonly, on Nunivak, where pairs were noted at various times and places. After August 10 occasional migrants were observed, the last on August 20.

**Stercorarius parasiticus** (Linnæus)  
Parasitic Jaeger

Adult female and adult male taken on Nunivak on July 28 and August 8, respectively (nos. 31286, 31287). Iris brown. Bill blackish terminally, base yellowish brown. Tarsi and feet black. These two birds are in the white-breasted phase of plumage but each has the upper breast crossed by a band, much broader in the male, of slaty brown, continuous with the brownish back. Present throughout the summer, and seen on various dates until September 13. At Cape Etolin, the eastern extremity of Nunivak, this species was less abundant than *longicaudus*; at the western end of the island the reverse was the case.

**Stercorarius longicaudus** Vieillot  
Long-tailed Jaeger

Three males, one female, adult, taken on Nunivak, July 2, 12, 14, and 19, respectively (nos. 31282-31285). Bill black; iris brown; upper portions of tarsi blue-gray; extremities of tarsi and toes black. Breeds in fair abundance

on the island where it was seen on many occasions. Last noted on August 28.

"It is surprising from what a distance the waders can detect an approaching Skua, when they climb high into the air in close formation just as they would if a Peregrine were to appear on the horizon."

**Larus hyperboreus** Gunnerus  
Glaucous Gull

Eighteen specimens, including seven adult males, seven adult females, one immature male, three immature females (nos. 31254-31256, 31262-31276). The immatures are all birds of the preceding year or older. Two of these young birds were collected on Akutan, May 18 and 21, respectively, the rest on Nunivak, on dates ranging from July 25 to October 8. The species was present on Nunivak from the time of Harrold's arrival there (June 30). Toward the end of August it became scarce, and from that time on was largely replaced by the Glaucous-winged Gull. September adults are molting, and two specimens collected on October 8 are the only ones in which molt of the remiges had advanced as far as the replacement of the outermost primaries, which in these birds are partly grown.

The two young birds from Akutan are, one of them entirely, the other in large part, in the white plumage with which Bishop (1927, p. 201) has associated the name *Larus hutchinsii*. Whatever may be said regarding the question of nomenclature, these birds support Bishop's contentions as to the mode of acquisition and the significance of this pure white plumage, namely, that it is a type of coloration that is acquired by young birds in late winter and spring through bleaching of the normal grays and browns. There are other molting immatures of later dates which have almost entirely discarded the white plumage for dark browns of apparently their second or third winters.

I am not using the name *barrovianus* for the Alaska form of the Glaucous Gull, as is advocated by Oberholser (1918, p. 472) and by Bishop (1927, p. 204). The characters used to define that subspecies simply show departure from typical *hyperboreus* toward *glaucescens*, and, it seems to me, in too vague and indefinite a manner to permit the formal establishment of such an intermediate race. My decision is influenced, too, by certain specimens in our series, some of which I have kept in the *hyperboreus* category, others with *glaucescens*, but all of them so nearly intermediate between the two that allotment to one species or the other is a somewhat arbitrary action. The variable characters that are affected are size, color of mantle, and degree of definition shown in the outline of the white areas at the tips of the remiges. (See further under *Larus glaucescens*.)

**Larus glaucescens** Naumann  
Glaucous-winged Gull

Seven specimens, including two adult males, three adult females, one immature male, one immature female (nos. 31252-31253, 31257-31261). An adult male was taken on Akutan, May 30, the others all on Nunivak, July 7 to August 20. The Akutan specimen is the only adult that shows the char-

Measurements in millimeters of *Larus hyperboreus*

Museum Number	Sex	Locality	Collector	Date	Wing	Tail	Culmen	Height of bill at base	Tarsus	Middle toe with claw
C.A.S. 31267	♂	Nunivak Island	C. G. Harrold	July 29, 1927	445.0	181.0	62.5	23.0	76.5	68.5
C.A.S. 31273	♂	Nunivak Island	C. G. Harrold	Sept. 7, 1927	460.0	185.0	67.5	25.0	78.0	72.0
C.A.S. 31271	♂	Nunivak Island	C. G. Harrold	Aug. 22, 1927	430.0	.....	58.0	22.5	70.0	65.0
C.A.S. 31270	♂	Nunivak Island	C. G. Harrold	Aug. 22, 1927	470.0	179.0	61.0	23.0	69.0	65.0
C.A.S. 31272	♂	Nunivak Island	C. G. Harrold	Aug. 29, 1927	445.0	.....	56.5	22.8	70.0	67.5
C.A.S. 31268	♂	Nunivak Island	C. G. Harrold	Aug. 1, 1927	460.0	191.0	62.0	24.0	82.5	74.5
C.A.S. 31255	♂	Nunivak Island	C. G. Harrold	July 25, 1927	440.0	176.0	60.0	22.2	73.5	67.0
C.A.S. 31254	♀	Nunivak Island	C. G. Harrold	July 18, 1927	440.0	174.5	52.0	20.5	66.5	58.0
C.A.S. 31274	♀	Nunivak Island	C. G. Harrold	Oct. 8, 1927	.....	171.0	57.8	21.0	71.0	61.5
C.A.S. 31275	♀	Nunivak Island	C. G. Harrold	Oct. 8, 1927	.....	171.5	54.0	21.0	71.0	64.0

acters of *glaucescens* to an extreme degree. The Nunivak specimens are all intermediate toward *hyperboreus*, both in color of mantle and character of primary markings. Whether or not they are individual variants of a breeding race on Nunivak, the majority of which are *hyperboreus*-like in character, cannot be told. From the dates on which they were collected they may have been wanderers, though probably not from a great distance. In Harrold's field notes (as remarked under *hyperboreus*) comment is made upon the increasing number of *glaucescens* toward the end of August. This series of gulls from the border line between the ranges of *hyperboreus* and *glaucescens* is indicative of close relationship between those forms, but nevertheless I do not care now to urge their treatment as two subspecies. It would not be surprising if similar blendings were found between *hyperboreus* and still other northern forms, and perhaps between *glaucescens* and *occidentalis*. The nomenclature might well be left undisturbed until a further accumulation of evidence enables some one to handle the whole subject comprehensively and with authority.

**Larus schistisagus** Stejneger  
Slaty-backed Gull

None collected but several identified in life from time to time. An adult was shot from the ship but lost, between Kodiak and Akutan, May 16, and others were seen at Cape Etolin on August 27 and 29.

**Larus argentatus** Pontoppidan  
Herring Gull

The collection includes three gulls of the *argentatus* type from Nunivak Island that cannot be satisfactorily identified. Two young females (nos. 30250, 30251) collected July 25 are brown-plumaged birds, presumably of the previous year, and they are assuming a plumage that is not markedly different from the one they are discarding. The third (no. 31249, female, August 4), near adult, is apparently of the *argentatus* aggregation, but it has a very small bill for that species. Wings and tail are only partly grown so that measurements of those parts can not be taken. The newly acquired mantle is mostly of the clear gray adult plumage, but the new black tipped primaries carry no white "mirrors" that might aid in identification. Harrold did not recognize any of the three as a Herring Gull, for in his notes he comments upon the absence of the species from Nunivak Island. On his southward trip in November "nothing but Glaucous-wings followed the boat from Unalaska to Seattle till we were within 100 miles of Vancouver Island, when Herring Gulls began to appear and soon outnumbered the Glaucous-wings."

**Rissa tridactyla pollicaris** Ridgway  
Pacific Kittiwake

One adult male, Akutan, June 9; one adult male, two adult females, one immature female, taken on Nunivak, July 5, August 4, and September 10, respectively (nos. 31277-31281). In the adults the bill is pale greenish yellow; gape vermilion; tarsi and feet blackish or else olive brown; iris brown. The

immature bird, apparently in its second year, was shot August 4 and is in the midst of the molt. The juvenal primaries are being replaced by those of the adult, and a few entirely gray feathers appear among the black-marked lesser wing coverts. An adult male (no. 31280), collected July 5, has already molted into the dusky-headed winter plumage. This specimen is commented upon in the collector's note book under the date of capture as the only one thus marked that had been seen up to that time. On the other hand, an adult male collected on September 10 had apparently not yet begun the annual molt.

**Xema sabini** (J. Sabine)  
Sabine Gull

Five specimens (nos. 33096-33100), three adult males, one adult female, one male in the first winter plumage, all collected on Nunivak Island, August 9 and later. Adult male: Bill black, tip yellow; iris brown; eyelid red; tarsus and foot rather pale grayish brown. Young male (September 11): Bill brownish black; iris brown; tarsus and foot pale purplish gray. Appeared on Nunivak, at Cape Etolin, August 6, and in small numbers (not more than nine or ten all told) at intervals thereafter, the last on September 20. One seen at sea about 200 miles northwest of Vancouver Island, November 23.

**Sterna paradisæa** Brünnich  
Arctic Tern

Seven specimens (nos. 31242-31248), five adults and two young. Two adults are from Akutan, May 31, the others from Nunivak, July 2 to August 14. Breeding male: Bill deep carmine, tipped with dusky; iris dark brown; feet carmine, not so dark as bill. Adult male in winter plumage: Bill dull maroon; feet dull brownish vermilion. Young in first winter plumage: Bill dull brownish, reddish along cutting edges, lower mandible slightly washed with yellowish; iris brown; feet yellowish brown. Seen at Kodiak and Nome in May and June, and in some numbers on Nunivak through the summer. An adult shot August 12 has nearly acquired the winter plumage, but for the most part the summer garb was retained much later. Molting adults were seen September 1, and one seen on September 30 appeared still to have the "solid" black cap.

"The notes of this species most commonly heard are *tee-urrr* with a rising inflection on the first syllable (the Eskimos call the bird *tkee-aah* from this note), a monotonous *churr*, and a series of high-pitched notes, *kip-kip-kip-kip*, rapidly uttered."

**Sterna aleutica** Baird  
Aleutian Tern

Three seen in company with Arctic Terns at Cape Etolin, Nunivak Island, August 7, and two adult males collected (nos. 31240-31241). Four more seen at the same place August 9 and on August 13. The utterances consisted of a weak twittering, and also of another note resembling that of the European House Sparrow. Bill, tarsus and foot black; iris brown.

***Uria aalge californica*** (H. Bryant)  
California Murre

One adult, Nunivak Island, July 7 (no. 31288). Seen in some numbers in the sea about Nunivak. There is said to be a large breeding colony of murrees at Cape Mohican, the western extremity of the island. The northern bird has been named *Uria aalge inornata*, type locality St. Matthew's Island, Bering Sea, on the basis of slightly larger size (Salomonsen, 1932, p. 128). See also Ridgway, 1919, p. 724, footnote.

***Cepphus columba*** Pallas  
Pigeon Guillemot

Two adult males, one from Akutan, May 28 (no. 31289), one from Nunivak, July 7 (no. 31290). Seen at Nunivak on the rocky shores and along the cliffs, where presumably they were nesting. One bird that was seen at sea off Cape Etolin, August 23, was still in summer plumage.

***Cyclorhynchus psittacula*** (Pallas)  
Paroquet Auklet

An adult male collected on Nunivak, July 7 (no. 31291). Bill, dull brownish red; patch on each side dusky. Legs and toes slate blue, web blackish. Iris whitish. There was a small colony, presumably of nesting birds, on the cliffs one-half mile west of the village of Tetrichimuni.

***Æthia pusilla*** (Pallas)  
Least Auklet

Several small flocks seen June 24 between Unalaska and Nunivak.

***Fratercula corniculata*** (Naumann)  
Horned Puffin

Six adults, four from Akutan, June 1, 5, one from Unalaska, June 15, one from Nunivak, July 7 (nos. 31293-31298). Breeding colonies were established at each place. Ridgway (1919, p. 789) gives the color of legs and feet as "deep vermilion red." Harrold's notes describe these parts as having the foot and inside of tarsus orange; outside of tarsus and outer toe yellow.

***Lunda cirrhata*** (Pallas)  
Tufted Puffin

One specimen (no. 31292) taken at Akutan Island, May 28, a non-breeding bird, the sex not ascertained, in winter plumage and with the bill as in winter. The postocular plumes (of badly worn feathers) are nearly as long as in summer birds but duller colored. About a dozen Tufted Puffins were seen at Akutan, apparently nesting in company with the Horned Puffin, and eleven



in Akutan Pass on June 13. Not observed at Unalaska. Noted but twice at Nunivak, the remains of one being found on the beach near Tetrichimuni, July 6, and one seen in the breakers at Cape Etolin, August 9.

**Nyctea nyctea** (Linnæus)  
Snowy Owl

A female (no. 30984) collected on Nunivak, October 27, was the only one of the species that was seen. Bill blackish; iris yellow; claws blackish. This is apparently an adult bird in the last stages of the annual molt. The greater wing coverts, some tertials, and a small patch on the dorsum are the conspicuous remnants of the old plumage, and these are less extensively white than the new feathers.

**Asio flammeus flammeus** (Pontoppidan)  
Short-eared Owl

Single birds seen on Akutan, May 18 and June 11, and on Unalaska, June 15. A female (no. 30985) was collected on September 19, the only one seen upon Nunivak Island.

**Colaptes auratus borealis** Ridgway  
Northern Flicker

A male bird (no. 30976) was collected at Cape Etolin, Nunivak, September 14, "taken as it worked on one of the Eskimo's kayak racks." This occurrence recalls the similar records of the species from Wainwright, on the Arctic coast to the northward, in July, 1924 (Bailey, 1926, p. 126; date taken from specimen in the Museum of Vertebrate Zoology); and from St. George, Pribilof Islands, "in the autumn of 1904" (Clark, 1910, p. 60). Three such captures of individuals of this species on this timber-less coast make it appear to be of other than purely "accidental" occurrence. A hardy bird and less dependent upon trees than are most of the woodpeckers, its occasional appearance beyond the forest limit is not surprising.

**Dryobates pubescens leucurus** (Hartlaub)  
Batchelder Woodpecker

One pair seen on Sitkalidak Island, May 15, and the male bird collected (no. 30977). This bird is similar to the Prince William Sound specimens which Grinnell (1910, p. 390) named *glacialis*, and which seem to me to be indistinguishable from the Rocky Mountain subspecies to the southward. Apparently this form occupies the mainland coast of southern Alaska to the western limit of trees, with the subspecies *nelsoni* restricted to the interior.

A hummingbird was seen August 9 among the sandhills one mile south of Cape Etolin, Nunivak Island, but the bird was not shot and the species not ascertained. On August 28 one Horned Lark (*Otocoris alpestris*, subsp.?) was seen in the sandhills two miles south of Cape Etolin, but it was not secured.

**Iridoprocne bicolor** (Vieillot)  
Tree Swallow

Seen about Cape Etolin, Nunivak Island, several times in the late summer, two on August 15, two on August 18, and one on September 11. One specimen collected, an immature male, August 18 (no. 30795).

**Pica pica hudsonia** (Sabine)  
American Magpie

Seen on Sitkalidak Island, May 15. Not otherwise observed.

**Corvus corax tibetanus** Hodgson  
Northern Raven

Six adults, three males and three females, all from Akutan, May 22-June 8 (nos. 30978-30983). Bill, tarsus and foot, black; iris brown.

Common on Akutan Island, where on June 5 young were seen scrambling about the cliffs. Several were seen on Sitkalidak Island, May 15, and they were fairly common on Unalaska, June 14-23. None was seen about Nome during a stay of several hours, and none was seen upon Nunivak. The absence of the Raven from Nunivak Island may be due to the same unknown cause as keeps it from the nearby Pribilof Islands. There is a curious gap here in the wide distribution of this bird, and a gap where conditions appear to be favorable for its occurrence.

I am following Meinertzhagen (1926, p. 98) in the use of the name *tibetanus* for our Northern Raven. Even if *varius* should eventually prove to be the name that should be used (see Bangs & Peters, 1928, p. 378), the facts he marshalls demonstrate the essential unity of the ravens of northern North America and northern Asia, and this condition should be recognized.

**Penthestes atricapillus turneri** (Ridgway)  
Yukon Chickadee

Two specimens (nos. 30762-30763) taken upon Nunivak Island, on September 27 and 30, respectively, and two others noted, the last on October 1. Bill black; iris brown; tarsus and toes bluish-slate.

**Cinclus mexicanus unicolor** Bonaparte  
Dipper

Two males and one female, all adult, from Akutan (nos. 30766-30768). Bill black; iris brown; tarsus and toes grayish flesh color, back of tarsus and soles brownish. Apparently fairly common upon Akutan, where it was seen upon various streams and on many occasions. A female shot May 26 had well developed ovaries.

**Nannus hiemalis helleri** (Osgood)  
Kodiak Wren

An adult male (no. 30764) was collected upon Sitkalidak Island, May 15, and others were heard singing.

**Nannus alascensis petrophilus** Oberholser  
Unalaska Wren

An adult male (no. 30765) was collected upon Akutan Island, May 29. Several were seen or heard singing upon the face of the cliffs on the south side of the island. Several were observed on Unalaska on June 22 and again on November 13. "The song is of similar type to that of the eastern (Manitoba) bird, but shorter and much weaker and less musical."

My reasons for the nomenclature here adopted for the Winter Wrens I have stated elsewhere in the following terms. "The currently accepted treatment of this group labels the several North American forms and the several Aleutian forms all as subspecies of one species, which is, furthermore conspecific with the several Old World forms. Intergradation of a sort does exist, of course, but even so I contend that trinomial usage applied throughout this series obscures more than it enlightens. The North American mainland wrens, *hiemalis* and *pacificus*, with the Kodiak Island *helleri*, are closely similar and meet the standards that I would apply in using the trinomial. In the group of subspecies upon the Aleutian and Pribilof islands there is an abrupt difference; gradual change of characters in a given direction, from the mainland westward, has not been demonstrated. *Helleri* is not an important link between the mainland and the Bering Sea groups. Even though variability in one character or another can be picked out here, there, and elsewhere throughout the islands, and can be interpreted as a demonstration of variation from one extreme to another, I submit that this is not a standard to which we should adhere. We lose sight thereby of a sudden change in character in this group, and we lose sight of the fact that variation in this group in the Bering Sea region can be correlated with what is seen there in other bird assemblages. The preferable alternative in this case is, I think, to regard the North American, the Bering Sea and Old World group, each as a separate species" (Swarth, 1931, pp. 160-161).

**Turdus migratorius migratorius** Linnæus  
Eastern Robin

Seen only at Nome, where on June 28 several pairs were observed, apparently feeding young.

**Hylocichla minima aliciae** (Baird)  
Gray-cheeked Thrush

Three birds collected (nos. 30756-30758) and others, believed to be of the same species, seen at various times from August 27 to September 20. Bill blackish-brown, basal half of lower mandible flesh color; iris brown; tarsus pinkish brown in front, flesh color behind; toes brown.

"These birds have a habit of making for the boulder-strewn shore when alarmed and hiding under the large rocks, where it is very difficult to locate them."

***Sialia currucoides*** (Bechstein)  
Mountain Bluebird

Two females were collected (nos. 30751, 30752) the only ones of the species to be seen. Harrold's note-book contains the following entries pertaining to these birds: "September 23. Cape Etolin, Nunivak Island. A female taken near the Strait. Probably driven across from the mainland by a northeast gale that has been raging for some time. Its stomach contained 'crowberries.' September 28. Cape Etolin. A female taken in the Eskimo village on the Cape."

***Oenanthe oenanthe oenanthe*** (Linnæus)  
European Wheatear

Three specimens collected (nos. 30753-30755), taken August 12, 25 and 27, respectively. Two more were seen, one on August 24, another on August 27. All are in fresh fall plumage, one an immature female, the others two males with age not ascertained. There are no obvious plumage differences between them. Bill blackish; iris brown; tarsus and toes black.

***Acanthopneuste borealis kennicotti*** (Baird)  
Kennicott Willow Warbler

"September 8. Two seen and one heard on the Cape [Etolin]. One specimen taken. Their peculiar, rasping note, like that of a young bird, first attracted my attention." No. 30761, male; bill brownish, dull horn color at base of lower mandible; iris brown; tarsus and toes dull olive brown; soles yellowish.

I am using the accepted name for this bird but feel, nevertheless, that some doubt is attached to the actual existence of a distinguishable Alaskan form of this Old World species. It is an extremely rare bird on the Alaskan side, it has not been found actually nesting there, and occurrences are nearly all as in our one Nunivak specimen, of migrating birds in late summer. These might be merely an overflow of migrants from the Siberian side that later retrace their course.

***Locustella ochotensis*** (Middendorff)  
Middendorff Grasshopper Warbler

"September 15. Cape Etolin, Nunivak Island. Weather dull but no wind until afternoon. A warbler (probably *Locustella ochotensis*) taken in the sand-hills two miles south of the Cape." The capture of this bird, the only one observed, added to the North American *Check-List* a species and genus in the family Sylviidæ (see Swarth, 1928, p. 251). C.A.S. no. 30760, female, bird-of-the-year. Bill, upper mandible brown, lower mandible brownish orange at base, shading through brownish yellow to a dusky tip; iris brown; tarsus purplish brown, toes rather pale brown.

***Prunella montanella*** (Pallas)  
Mountain Accentor

One specimen (no. 30759), an immature female taken on Nunivak Island, October 3 (see Swarth, 1928, p. 251). Harrold's note-book entry regarding this capture reads as follows: "Cape Etolin. This bird was circling around on the Cape in company with ten Alaska Longspurs. The short undulations of its pipit-like flight and its apparently long tail attracted my attention. When it settled in fairly long grass with the Longspurs it was very difficult to locate, due, as I finally discovered with the glasses, to the fact that it was 'freezing' perfectly motionless. In this position it reminded me very much of a Smith's Longspur. I did not hear it utter any note. The wind has been east or south-east for several days; yesterday no land birds were seen at all."

***Motacilla flava alascensis*** (Ridgway)  
Alaska Yellow Wagtail

Three adults collected at Nome, June 28, and seven specimens upon Nunivak (nos. 30779-30788). The Nunivak series includes two breeding adults and three birds in juvenal plumage (July 16). A male collected July 21 has not yet begun the annual molt; another male, apparently adult, collected August 16, is in winter plumage throughout. An immature male shot August 12, finished with the post-juvenal molt, may be representative of the first winter plumage; it differs from all else in the series in its almost pure white lower surface. Adult male, summer: Bill blackish; iris brown; tarsus and foot black. Adult male, winter: Bill dusky, base of lower mandible slate; iris brown; tarsus and foot very dark brown. Juvenal male: Bill dull grayish brown, edges and gape yellowish, iris dark brown; tarsus and foot grayish brown tinged with flesh color, back of tarsus and soles yellowish.

The Yellow Wagtail apparently was not common on Nunivak Island. In July and August "a few were seen at the east end of the island near Cape Etolin. Usually single birds are seen or sometimes a party of three or four. They are very restless and on several occasions I have seen them fly straight out to sea, heading for the mainland." The last was observed September 8, on Cape Etolin.

***Anthus rubescens*** (Tunstall)  
American Pipit

Four adults taken upon Akutan, May 20 to June 11, and a juvenile, two breeding adults and two birds in fall plumage upon Nunivak (nos. 30769-30777). The species was common on Akutan. A nest with six eggs was found there on June 11, placed on a bare wind-swept ridge about 1000 feet above the sea. It was in a deep depression in the ground, partly overhung with a little grass and moss. Another nest was found on Unalaska, June 19, with six fresh eggs, in a similar situation as the first though at a lesser elevation, only about 500 feet above sea level. In each case the parent bird left the vicinity at once, showing no anxiety for the eggs. The species bred in small numbers on Nunivak, where occasional birds were seen through July and August, and at lengthening intervals through September and until October 9.

"The flight song of this bird reminds me of that of the European Tree Pipit, except that whereas the Tree Pipit sings only in its descent, the American Pipit sings as it mounts into the air as well. The song consists of a twitter followed by a rather slow repetition of the same note for a considerable time as the bird floats down like a butterfly, with wings partly closed."

For use of the binomial, *Anthus rubescens*, see Swarth, 1931, p. 161.

***Anthus spinoletta japonicus* Temminck & Schlegel**  
Japanese Pipit

Harrold's note-book contains the following entry: "September 10, 1927, Cape Etolin, Nunivak Island. A pipit with bold spotting on a cream (rather than buff) breast and belly taken on the rocky shore of the Cape. It struck me that its flight and actions were not quite typical of the American Pipit, but its note was not heard. It is nearly one-half inch shorter by measurement than the average American Pipit." The capture of this bird (C. A. S. no. 30778, an immature female), the first in North America, has already been recorded (Swarth, 1928, p. 250).

Upper mandible brown; lower mandible brown, basal half brownish yellow; iris brown; tarsus and toes yellowish brown.

***Vermivora celata* (Say)**  
Orange-crowned Warbler

On Nunivak Island during late August warblers were several times seen that were recognized with fair certainty as of this species. One was encountered on August 17, four (passing overhead) on August 18, and one on August 22.

***Dendroica aestiva* (Gmelin)**  
Yellow Warbler

One bird collected, the only one seen, an immature male (no. 30794) shot September 29, when there were six inches of snow on the ground. This is probably *D. a. aestiva*, but the differences between *aestiva* and *rubiginosa* in the immature plumages are not sufficiently marked for me to feel certain of the identification of such a specimen.

***Seiurus noveboracensis notabilis* Ridgway**  
Grinnell Water-thrush

A single bird seen near camp at Cape Etolin, Nunivak Island, on August 22.

***Wilsonia pusilla pileolata* (Pallas)**  
Pileolated Warbler

Five specimens collected (nos. 30789-30793), taken on Nunivak Island on August 18, 22, and 23. Nine individuals were seen altogether on various dates from August 18 to September 7.

***Pyrrhula pyrrhula cassini* Baird**  
Cassin Bullfinch

Three specimens from Nunivak Island, all in fresh fall plumage, an adult male, October 13, and two females, taken on October 12 and 16, respectively (nos. 30973-30975). Adult male and female : Bill blackish brown ; iris brown ; tarsus and foot brown.

The rediscovery of the Bullfinch in Alaska, where it was known previously only from Dall's specimen collected at Nulato, January 10, 1867, was one of the outstanding results of Harrold's trip. His field notes upon the species read as follows :

"October 12. Cape Etolin, Nunivak. A female was taken as it was eating weed seeds on the Cape. Its note was very similar to that of the European bird.

"October 13. A bird (evidently a male though I could not sex it) was taken within 300 yards of the spot where I collected the female mentioned above.

"October 16. A single bird taken two miles south of Cape Etolin. An Eskimo shot this bird at close range with a 12 bore shot gun, consequently there is not much left of it.

"November 4. A bird in dull plumage flying about restlessly on the tundra. It was cold weather at the time these birds were seen, with several inches of snow on the ground."

The number of individuals observed takes the species out of the "accidental visitant" category, and it will probably be found to be of fairly regular occurrence in Alaska at certain seasons and at favored localities. The fact that the male bird collected is red-breasted raised questions of identification and nomenclature that I have dealt with elsewhere (Swarth, 1928, p. 248). Through a misunderstanding of rather illegible writing upon the original label, I made in that paper an erroneous statement regarding the age of the male bird of the series, a mistake that subsequent correspondence with Harrold enables me to correct. The male bird is fully adult (of the previous year or older), and the two females are immatures in first winter plumage.

***Pinicola enucleator flammula* Homeyer**  
Kodiak Pine Grosbeak

A single bird was seen on Sitkalidak Island, May 15, in full song although in the gray female plumage.

***Leucosticte griseonucha* (Brandt)**  
Aleutian Rosy Finch

Seven adults were collected, four from Akutan, one from Unalaska, and two from Nunivak (nos. 30966-30972). The species was "fairly common on Akutan. Of all the northern finches it seemed to have the poorest song. This is uttered while the bird performs a short 'butterfly flight.' They appear to nest on the steeper cliffs, where I have seen them mobbing American Rough-legged Hawks with shrill cries not unlike those of the Purple Martin."

They were present in small numbers on Nunivak through the summer,

and practically to the end of Harrold's stay, one being seen on October 29. A nest with two eggs was found on July 1, placed in a hollow on the face of a ten foot bank. It was constructed outwardly of coarse grass and weed stalks, the middle wall of finer grass and the lining of hair and feathers. Greatest outside diameter about 150 mm; inside diameter about 65, inside depth about 45. In the two Nunivak birds, collected in July, the plumage is badly worn, the tail feathers in particular being chafed and ragged. In one of the two, collected July 18, the bill was about midway through the color change from the black of summer to the yellow of winter, being dark brownish in the dried specimen.

***Acanthis linaria linaria* (Linnæus)**  
Common Redpoll

Two specimens from Nome, fifteen from Nunivak (nos. 30949-30965), including six breeding adults, three in juvenal plumage, and one adult male and seven immatures in fresh fall plumage. Adult male: Bill brownish yellow, tip dusky; iris brown; tarsus and toes brown. Juvenile: Bill dull lead gray; iris brown; tarsus and toes flesh color.

Redpolls were seen on Sitkalidak Island, May 15, and at Nome, June 28. At the latter place a nest was found containing four newly-hatched young, built in a small willow (18 inches high) on the tundra, and constructed of dry grasses and a little "cotton grass." The species was breeding in small numbers on Nunivak Island, occasional individuals being seen through July and August. During September and early October odd birds and small flocks (the largest of 25) appeared at intervals. Last noted on October 20.

***Passerculus sandwichensis sandwichensis* (Gmelin)**  
Aleutian Savannah Sparrow

Two adults from Unalaska, June 15, 16; and nine adults from Akutan, May 19 to June 11 (nos 30837-30847).

***Passerculus sandwichensis anthinus* Bonaparte**  
Kodiak Savannah Sparrow

One adult from Sitkalidak, May 15 (no. 30836).

***Passerculus sandwichensis alaudinus* Bonaparte**  
Western Savannah Sparrow.

One adult from Nome; and from Nunivak eight breeding adults, five in juvenal plumage, and five in fall plumage (nos. 30848-30866).

In a recent study of *Passerculus sandwichensis* by Oberholser (1930, pp. 109-111), the northwestern forms of this species are allotted definitions and distribution that do not accord with my own conclusions. The subspecies with which I am here concerned stand as follows in his scheme:

*Passerculus sandwichensis sandwichensis* (Gmelin). Breeds on the eastern Aleutian Islands, Alaska. South in winter to California.

*Passerculus sandwichensis anthinus* Bonaparte. Breeds in Alaska (excepting



the Aleutian Islands) and Canada, east to Hudson Bay and south to Alberta. In winter south to the southwestern United States.

*Passerculus sandwichensis alaudinus* Bonaparte. Western United States and extreme southern part of western Canada excepting the coast region of both, south to northern Mexico, and east to the Great Plains. Winters south to Guatemala.

The A. O. U. *Check-List*, fourth edition (1931, pp. 334-335) adopts a distributional scheme that is essentially the same, though applying the name *alaudinus* to the form Oberholser entitles *anthinus*, and *nevadensis* to the form he calls *alaudinus*.

As regards *P. s. sandwichensis*, that is a well defined subspecies with a limited island habitat on which I think we are all in accord. It is the form or forms occupying the area between Hudson Bay and the Pacific, and from the Great Basin northward in which there is disagreement. Oberholser (*op. cit.*, p. 110) remarks: "Careful comparison of a large series of breeding birds from the interior of Canada and the interior of Alaska, with birds from the coast of Alaska and from Kodiak Island does not bring out any differences of either size or color between the coast bird and that of the interior which would serve to separate them subspecifically. Apparently both should, therefore, be united under the name *Passerculus sandwichensis anthinus*."

With this I cannot agree. For years past I have made occasional trips to the regions indicated, bringing back collections of birds that each time contained their quota of *Passerculus*. These birds were again and again subjected to careful scrutiny in the light of the yearly increasing series, and always to the same conclusion, that the coastal birds and the interior birds were recognizably different. Furthermore, in British Columbia and Alaska, south from Yakutat Bay at least, coast and interior are so utterly different faunally that there is hardly a single variable species of bird that occurs commonly in both regions, a fact that has been so strongly impressed upon me that I have given the closest attention to all the "complementary" subspecies concerned, both as to their physical characteristics and their distribution and migration routes. My convictions call for the following arrangement.

*Passerculus sandwichensis anthinus* Bonaparte. Most closely related to *P. s. sandwichensis*. Of smaller size, but, like that form, distinguished by richer brown coloration and rather heavy bill; extensive suffusion of yellow on head and neck. Habitat: The coast of Alaska in summer from Kodiak Island south-eastward (apparently not in the Prince William Sound region); on islands and adjacent mainland west of the Coast Range from Cross Sound south to Dixon Entrance. Has a limited southward migration along the coast.

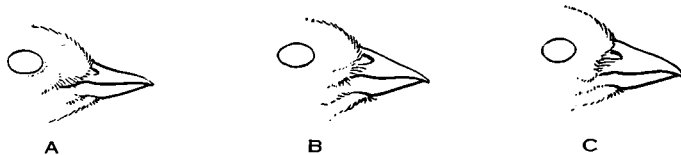


Fig. 2. a, *Passerculus sandwichensis alaudinus* (no. 39917, Mus. Vert. Zool.; Telegraph Creek, British Columbia); b, *Passerculus s. anthinus* (no. 9577, Mus. Vert. Zool.; Sitkan district, Alaska); c, *Passerculus s. sandwichensis* (no. 4598, Mus. Vert. Zool.; Unalaska, Alaska). Natural size.

Not known to nest south of Dixon Entrance, but migrates commonly on Vancouver Island and in smaller numbers into northern California.

*Passerculus sandwichensis alaudinus* Bonaparte. As compared with *sandwichensis* and *anthinus*, with lessening of the yellowish and brownish tinges and accentuation of gray tones; bill relatively long and slender. Habitat: Alaska, coast and interior from the Alaska peninsula northward; inland of the coast ranges from Prince William Sound south-eastward at least to central British Columbia. (I have seen no specimens from points between British Columbia and Hudson Bay.)

The gray colored, slender billed bird of the interior reaches perhaps its extreme of development in the Cassiar region of northern British Columbia. Grinnell (1910, p. 399) has commented upon the intermediate nature of a series from Prince William Sound, Alaska, a region that in other respects, too, shows a mixture of the faunal characters of interior and coast. Our series of *Passerculus* from Nunivak Island also shows an approach to *anthinus* in thickening of the bill; not in any marked change in the grayish coloration. The occurrence of *alaudinus* in the Prince William Sound region, an extreme outpost of its habitat, an apparent intrusion into *anthinus* territory, between Kodiak Island and the Sitkan district, is an anomaly that is more apparent than real. Many of the summer residents of the Prince William Sound region (*Passerculus*, *Junco*, *Hylocichla*, and others) must travel southward with the great stream of birds that heads toward the southeast, east of the coast ranges and mostly east of the Rocky Mountains. *Anthinus* of Kodiak Island, as also *sandwichensis* of more remote Unalaska, probably migrates due east across the Gulf of Alaska to the coast of the Sitkan district, never inland.

So far as known there is no *Passerculus* breeding on the British Columbia coast between Dixon Entrance and the mouth of the Fraser River, not on the Queen Charlotte Islands nor on Vancouver Island (except at the extreme south), a curious hiatus. The bird of the lower Fraser has been named *Passerculus sandwichensis brooksi* Bishop (1915, p. 187), and it is easily distinguishable from either of the northern forms in dispute. I may say in passing that, personally, I have never been able to distinguish between *brooksi*, of the coast, and *nevadensis*, of the same latitude inland, but that is a matter that need not be entered into here.

Savannah Sparrows were common upon Akutan and Unalaska. "Their song appears to me to be similar in every respect to that of the Manitoba bird". Common at Nome, June 28, and apparently feeding young. This was a common species on Nunivak, "in the willow thickets and elsewhere on the tundra." On July 17 "two juveniles were just leaving the nest, although the Longspurs have been flying for at least three weeks." The species was abundant in August and early September, in lessening numbers during latter September, and the last was seen on October 9.

### *Junco hyemalis hyemalis* (Linnæus) Slate-colored Junco

Single birds were seen on Nunivak on September 13, 20, 21, and 28. Three were collected, all immature (nos. 30822-30824). When the last was observed, September 28, there were six inches of snow on the ground.

Measurements in millimeters (average, minimum and maximum) of subspecies of *Passerculus sandwichensis*

## MALES

No. of specimens	Name	Locality	Wing	Tail	Culmen	Depth of bill at base	Tarsus	Middle toe with claw
9	<i>Passerculus s. sandwichensis</i>	Unalaska & Akutan Islands, Alaska	76.0 (74.5-79.2)	52.9 (48.5-54.8)	11.9 (11.5-12.8)	6.9 (6.5-7.0)	22.0 (21.0-22.5)	19.9 (19.0-21.5)
10	<i>Passerculus s. anthinus</i>	Southeastern Alaska	71.4 (68.5-73.2)	51.7 (49.0-54.0)	10.8 ( 9.8-11.2)	5.9 (5.5-6.5)	21.2 (20.5-22.0)	17.9 (17.5-18.8)
8	<i>Passerculus s. alaudinus</i>	Interior Alaska & British Columbia	72.3 (70.0-74.0)	52.9 (50.5-54.0)	10.9 (10.5-11.0)	5.2 (5.0-5.5)	20.7 (20.0-21.2)	17.7 (16.5-18.5)
4	<i>Passerculus s. alaudinus</i>	Nunivak Island, Alaska	72.9 (72.0-74.0)	52.2 (51.0-54.2)	10.3 (10.0-11.0)	5.6 (5.5-5.8)	20.9 (20.5-21.0)	18.3 (17.5-18.8)

## FEMALES

6	<i>Passerculus s. sandwichensis</i>	Unalaska & Akutan Islands, Alaska	70.7 (69.0-71.5)	50.1 (48.0-52.2)	11.6 (11.0-12.5)	6.9 (6.8-7.0)	21.6 (21.0-22.0)	19.2 (18.5-19.5)
10	<i>Passerculus s. anthinus</i>	s.e. Alaska and Vancouver Island	68.0 (66.5-70.0)	49.0 (46.2-53.0)	10.3 ( 9.8-10.8)	5.9 (5.2-6.2)	20.6 (19.8-21.2)	18.2 (17.0-19.0)
8	<i>Passerculus s. alaudinus</i>	Interior Alaska & British Columbia	67.2 (64.2-71.0)	48.9 (47.0-52.0)	10.4 ( 9.8-10.5)	5.2 (5.0-5.5)	19.8 (19.0-20.8)	17.5 (17.0-18.2)
4	<i>Passerculus s. alaudinus</i>	Nunivak Island, Alaska	67.2 (66.0-68.0)	48.2 (47.0-49.0)	10.3 (10.0-10.5)	5.5 (5.2-5.8)	20.4 (19.5-21.0)	17.6 (17.0-18.5)

***Spizella arborea ochracea* Brewster**  
Western Tree Sparrow

Seen upon Nunivak on one occasion, an immature male (no. 30825) being collected at Cape Etolin on September 21. Bill blackish, basal half of lower mandible yellow; iris brown; tarsus and toes brown.

***Zonotrichia gambelii* (Nuttall)**  
Gambel Sparrow

Three females and two males in first winter plumage (nos. 30831-30835), all collected on Nunivak from August 21 to September 25. Several more were seen during the same period. Immature male: Bill, upper mandible yellowish-brown, tip dusky, lower mandible yellowish; iris brown; tarsus and toes brown.

***Zonotrichia coronata* (Pallas)**  
Golden-crowned Sparrow

Five specimens collected: An adult male on Sitkalidak Island, May 15; an adult male on Nunivak, July 2; a male and two females in first winter plumage on Nunivak, taken on September 11, 16 and 25, respectively (nos. 30826-30830). Adult male: Bill, upper mandible dusky, lower mandible brownish slate; iris brown; tarsus and toes yellowish brown.

On Sitkalidak Island Golden-crowned Sparrows were heard singing in the brush at about 600 feet elevation. A nest was found on Kodiak Island on June 11, containing three heavily incubated eggs. It was placed in a depression in the ground on a steep bank and was fairly well concealed by overhanging grass. On Nunivak, July 3, a nest was found containing young a week old. This was in a willow thicket on the top of a mound, the nest, on the ground, almost entirely hidden by a dense network of tangled willow branches. Both parents were feeding the young. A specimen collected on September 25 was the last of the species to be seen. Harrold's notes are not explicit upon the subject but apparently the Golden-crowned Sparrow was not common upon Nunivak Island.

***Passerella iliaca iliaca* (Merrem)**  
Eastern Fox Sparrow

At Nome, June 28, a pair of Fox Sparrows were seen near the village and the male bird collected (no. 30796). Bill, upper mandible grayish brown, edges pale, lower mandible pale flesh color; iris brown.

***Passerella iliaca unalaschcensis* (Gmelin)**  
Shumagin Fox Sparrow

An immature male (no. 30797) was collected at Cape Etolin, Nunivak Island, on September 9. Another that was seen at the same place on September 22 may be assumed to have been of the same subspecies.

***Passerella iliaca insularis* Ridgway**  
Kodiak Fox Sparrow

Two adult males and three adult females were collected on Sitkalidak Island, May 15 (nos. 30798-30802). Bill, upper mandible dusky, lower mandible pale grayish flesh color; iris brown; tarsus and toes pale brown. Fox Sparrows were abundant on this island, in full song and engaged in nest building.

"No Fox Sparrows were found on Akutan Island. The only cover consists of salmon-berry canes and a few stunted willows here and there, of an average height of about 18 inches. Unalaska, although having slightly larger bushes, was just as unfavorable, and none of this species was seen there either."

***Melospiza melodia insignis* Baird**  
Bischoff Song Sparrow

Adult male and female collected on Sitkalidak Island, May 15 (nos. 30803, 30804). One other was heard. Bill: upper mandible blackish, lower mandible slaty; iris brown; tarsus brown, the toes slightly darker.

***Melospiza melodia sanaka* McGregor**  
Aleutian Song Sparrow

Eleven adults from Akutan, two adults and four juveniles from Unalaska (nos. 30805-30821). Length of two males before skinning, 193 and 203 mm.; of three females, 192, 195, and 201 mm. Adult: Bill blackish, basal half of lower mandible slate; iris dark brown; outside of tarsus and toes brown, inside of tarsus bluish flesh color.

Song Sparrows were not common on Akutan, where they frequented the cliff sides and boulder strewn beaches. A nest with four eggs was found June 1, placed in a hollow on the steep slope of a mossy bank a few feet from the base of a cliff. The sea came within 25 feet of the lower edge of the bank. The nest was fairly well concealed by overhanging dead ferns and broken salmon-berry canes. It was built of coarse grasses externally and lined with fine grass; external diameter about 150 mm., internal diameter 80 mm. Another nest with four newly hatched young was found on June 5, in a small patch of blueberry on a hillside about thirty feet above the water, the construction being essentially the same as in the first one described. On Unalaska, June 15, two families of young Song Sparrows were hopping about the face of a cliff and among the boulders on the shore.

***Calcarius lapponicus alascensis* Ridgway**  
Alaska Longspur

Twenty-nine specimens collected (nos. 30867-30895), eleven from Akutan, one from Unalaska, seventeen from Nunivak. Those from Akutan and Unalaska are all breeding adults. The Nunivak series comprises five breeding adults, six in juvenal plumage, one adult female finishing the annual molt (collected August 14), and four birds in fresh fall plumage. Adult male and

Measurements (average, minimum and maximum) of male *Plectrophenax nivalis*

Number of specimens	Locality	Wing	Tail	Culmen	Tarsus	Middle toe with claw
5 <sup>1</sup>	Western Aleutian Ids.	115.27	72.14	12.95	23.88	
12 <sup>1</sup>	Pribilof Ids.	112.27	70.61	12.70	23.11	
2	Nunivak Id.	106.5-114.0	66.5-72.0	11.0-12.0	22.0-23.0	17.2-19.0
4	Akutan Id.	110.3 (103.0-116.0)	69.9 (66.0-73.5)	11.3 (11.0-12.0)	22.0 (21.5-23.2)	19.0 (17.0-21.0)
8 <sup>2</sup>	Russian Mission, Yukon R.	109.1 (105.0-112.0)	67.3 (62.5-72.5)	9.9 ( 9.5-11.0)	21.6 (21.0-23.0)	19.4 (18.5-21.0)
10 <sup>2</sup>	Forty-mile, Yukon Ty.	105.5 ( 98.0-111.0)	69.4 (67.5-71.5)	9.5 ( 8.8-10.5)	21.4 (21.0-22.5)	19.0 (17.5-20.0)

<sup>1</sup>*Plectrophenax n. tozensendi*; measurements from Ridgway, 1901, p. 152, footnote

<sup>2</sup>Specimens from Museum of Vertebrate Zoology

female, summer: Bill lemon yellow, tip black; iris brown; tarsus and toes dark brown. Male (adult?), winter: Bill dull yellowish brown, tip of upper mandible dusky. Juvenile male: Bill, upper mandible yellowish brown, edges pale yellow, lower mandible grayish flesh color. Tarsus and toes brownish flesh color.

This Longpur was common on Akutan, on Unalaska, at Nome, and on Nunivak. A nest with three eggs was found on Akutan, June 3, placed on a steep hillside at about the 600 foot level. It was composed almost entirely of fine grasses and was placed in deep moss in the shelter of a large rock. On Unalaska, June 17, a nest with five eggs was found at about 800 feet elevation, well concealed in a depression beneath a tuft of overhanging grass. It was made of grasses and lined with fine grass and feathers; inside diameter 65 millimeters. On the tundra of Nunivak Island this was the commonest bird species, with the possible exception of the Aleutian Sandpiper. Young out of the nest were seen July 1, and others in juvenal plumage were collected during the next three weeks. By August 9 there were flocks of young birds gathered together in the sandhills. Throughout September flocks and single birds were seen almost daily, the last on October 5. "The flight song is very musical and reminds one of that of the Bobolink."

**Plectrophenax nivalis townsendi** Ridgway  
Pribilof Snow Bunting

Twenty-eight specimens (nos. 30921-30948), nine from Akutan, two from Unalaska, and seventeen from Nunivak. The Akutan and Unalaska skins are breeding adults; the series from Nunivak includes six breeding adults, seven in juvenal plumage, two adults in the annual molt, and one adult and one immature in winter plumage. Adult male, summer: Bill black; iris brown; tarsus and toes black. Adult male, winter: Bill brownish yellow, tip dusky; iris brown; tarsus and toes blackish. Adult female, summer: Bill "blackish" or "brownish black." Juvenile: Bill brownish yellow, tip of upper mandible brownish; iris dark brown; tarsus and toes grayish brown, tinged with flesh color. In molting adults (August) the bill is changing to the yellowish winter color. Ridgway (1901, p. 152, footnote) remarks that birds from the eastern extremity of the Aleutian chain are not typical of the form *townsendi*, with which he places them, but are intermediate toward *nivalis*. The gradual change in characters from east to west which culminates in typical *townsendi* of the western Aleutians begins upon the mainland in eastern Alaska and Yukon Territory. In the accompanying table the lengthening of bill and wing can be traced from the inland station Forty-mile, to the coastal region at Russian Mission, to the eastern islands Nunivak and Akutan, and to the western islands. The birds of Nunivak, as of the other islands, may remain under the name *townsendi*, in accordance with Ridgway's (*loc. cit.*) definition of the range of that form, but it should be understood that this is a conventional arrangement due to the need of drawing a dividing line where there is none in nature and thus regarding the mainland population as *nivalis*, that of the islands as *townsendi*. Stone (1900, p. 31) comments upon a series of forty skins from Point Barrow and three from King's Island as resembling Greenland birds and showing "no tendency whatever toward *P. nivalis townsendi*

Ridgw., of the Aleutian Islands." In the same paper there are described certain minor differences between male and female, and between adult and immature that are borne out in our series.

On Akutan Snow Buntings were fairly common at high elevations; on Unalaska a few were seen on the higher benches and peaks. On Nunivak this was a common species at all points visited. On July 1 a nest was found with young nearly ready to leave, and young birds out of the nest were seen the next day. Young in juvenal plumage were taken up to August 7. The annual molt of the adult is represented by specimens taken during the first half of August, but it must have lasted until about the end of the month. The flight feathers seem to be lost almost all at once and Harrold's comments upon this condition read as follows: "The adults are now (August 10) in full molt and individuals seem hardly capable of flight. While in this condition they skulk in the rock piles and are very inconspicuous." Similar observations on the molt of this species in Greenland were made by Manniche (1910, pp. 197-198). Snow Buntings remained in numbers through the summer and fall, up to the time of Harrold's departure, November 6. During the last three weeks he says: "Varying numbers seen every day, either in the sandhills (feeding on the rye grass) or along the shore." After October 10 the flocks of *townsendi* contained a greater or less admixture of individuals of *hyperboreus*. As regards the Snow Bunting's song in the early summer (June) Harrold remarks: "The male has a short song consisting of a series of clear, musical notes, sometimes uttered while perched on a rock but more often in the air during a downward, semi-spiral glide with the wings held high above the back."

**Plectrophenax hyperboreus** Ridgway  
McKay Snow Bunting

Twenty-five specimens collected (nos. 30896-30920), all in fresh fall plumage. Adult male, winter: Bill brownish yellow, tip of upper mandible dusky; iris brown; tarsus and toes blackish.

Four of the series are adult males, determined from careful dissection by the collector; the remainder are all in first winter plumage. In the adults wing coverts and alula are pure white; in the immatures the alula is wholly black or marked with dusky, and there are dusky tips to the primary coverts. In the adults the black tips to the primaries and the black markings on the rectrices are more restricted than in most of the immatures (see fig. 3). There is little difference in the rusty clouding of the upper parts except that it is deeper and more extensive in some young birds than in any adults; three of the four adults have less of this tinge across the breast than have any of the young ones. For the most part the black alula of the immatures stands out conspicuously. There are one or two young birds with alula and primary coverts very slightly marked, but none in our series in which these feathers are immaculate. In all the other characters involved there is overlapping and intergrading of every degree between immatures and adults; possibly a longer series of old birds would show individuals with some slight markings on alula and primary coverts also.

In a study entitled "On the geographical variation of the snow-bunting" by Finn Salomonsen (1931, p. 70), *hyperboreus* is regarded as a subspecies of



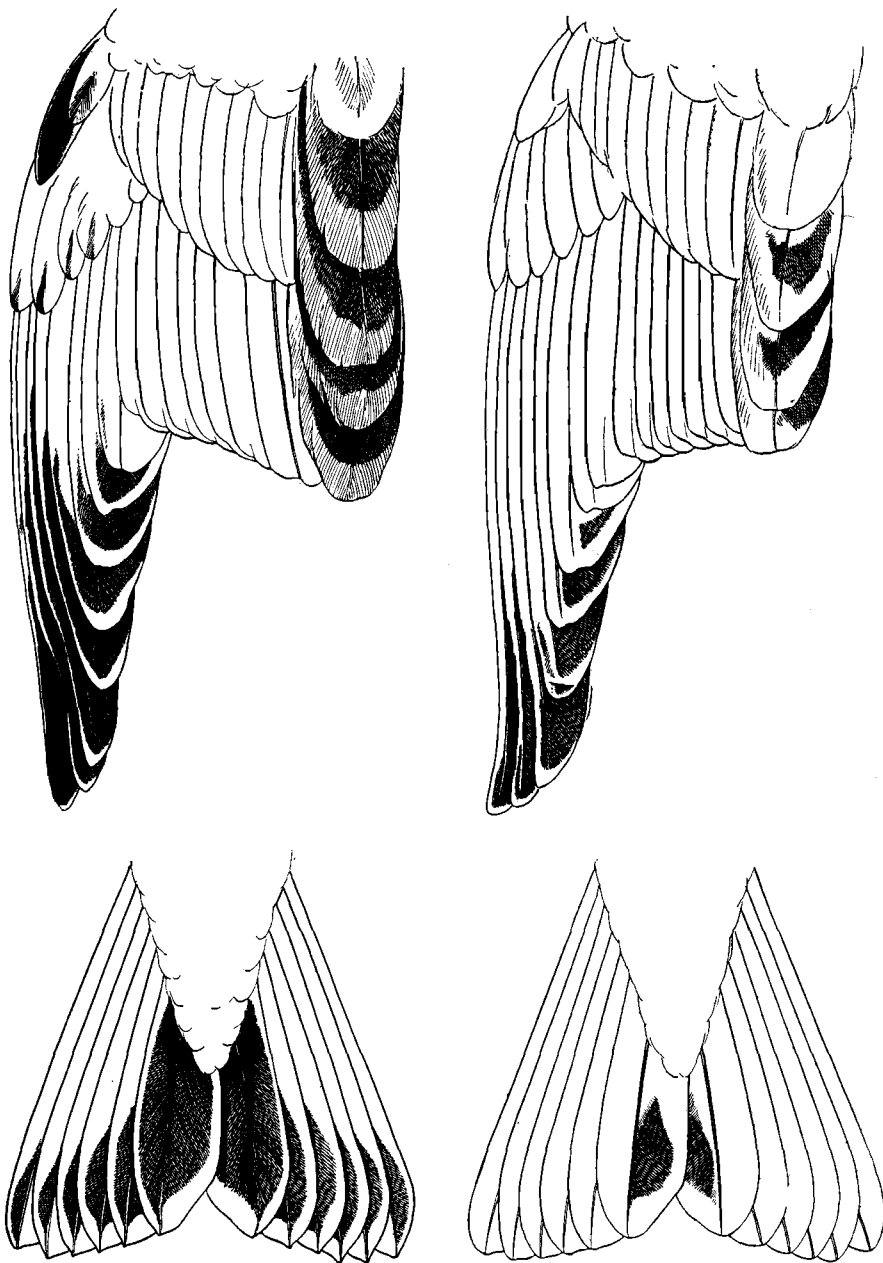


Fig. 3. Wing and tail of immature and adult *Plectrophenax hyperboreus*. Left, no. 30904, Calif. Acad. Sci., immature male; right, no. 30899, Calif. Acad. Sci., adult male. Natural size.

*Plectrophenax nivalis*. No reason is given for this conclusion, and I can see no adequate reason myself.

The McKay Snow Bunting arrived on Nunivak Island on October 4, when a single bird was shot from a hummock of moss on Cape Etolin. Another was seen on October 10 in a flock of *townsendi*, and from then on they appeared in daily increasing numbers, usually as a small percentage in large flocks of the other species. They were present up to the time of Harrold's departure, November 6. "The favorite feeding ground of this species was the tall 'rye grass' growing in the rougher sand hills. The method of obtaining the grass seeds was to settle on the stem, bending it down to the snow, where the bird could extract the seeds more easily. *Hyperboreus* was usually to be found with *nivalis* but a few isolated parties and lone birds were also seen. Their notes are very similar to those of *nivalis*, though possibly a little stronger and less musical. A few very pale individuals were noted though I doubt if any were pure white, blackish areas on the tertials being visible on all birds seen at a reasonable distance."

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## INDEX TO SCIENTIFIC AND VERNACULAR NAMES

## A

Acanthis hornemanni exilipes, 15  
 linaria linaria, 48  
 Acanthopneuste borealis  
 kennicotti, 12, 13, 44  
 Accentor, Mountain, 45  
 Accipiter velox, 24  
 Actitis macularia, 29  
 Aethia cristatella, 12  
 pusilla, 12, 40  
 pygmaea, 12  
 Albatross, Black-footed, 17  
 Anas platyrhynchos platyrhynchos, 20  
 Anser albifrons albifrons, 20  
 Anthus cervinus, 13  
 rubescens, 15, 45  
 spinoletta japonicus, 8, 13, 46  
 Archibuteo lagopus sancti-johannis, 24  
 Arctonetta fischeri, 11, 12  
 Arenaria interpres interpres, 12, 28  
 melanocephala, 11, 12, 28  
 Arquatella maritima, 12  
 ptilocnemis couesi, 11, 12, 29  
 ptilocnemis ptilocnemis, 11, 12, 29  
 ptilocnemis quarta, 11, 12, 31  
 Asio flammeus flammeus, 41  
 Astur atricapillus, 24  
 Auklet, Least, 40  
 Paroquet, 40

## B

Bluebird, Mountain, 44  
 Bombycilla garrula, 13, 15  
 garrula pallidiceps, 13, 15  
 Brant, Black, 19  
 Branta canadensis minima, 11, 18  
 nigricans, 19  
 Bullfinch, Cassin, 47  
 Bunting, McKay Snow, 56  
 Pribilof Snow, 55

## C

Calcarius lapponicus alascensis, 53  
 Calidris canutus rufus, 29  
 tenuirostris, 13  
 Calliope calliope camtschatkensis, 13  
 Capella delicata, 28  
 Cepphus columba, 15, 40  
 Charadrius mongolus mongolus, 8, 13, 27  
 semipalmatus, 15, 27  
 Chen hyperborea hyperborea, 15, 20  
 Chickadee, Yukon, 42  
 Cinclus mexicanus unicolor, 42

Circus hudsonius, 15  
 Clangula hyemalis, 21  
 Coccythraustes coccythraustes  
 japonicus, 13  
 Colaptes auratus borealis, 41  
 Cormorant, Pelagic, 18  
 Corvus corax tibetanus, 42  
 corax varius, 42  
 Crane, Little Brown, 26  
 Crocethia alba, 34  
 Cryptoglaux funerea magna, 13  
 Cuculus canorus bakeri, 13  
 optatus, 13  
 Curlew, Bristle-thighed, 28  
 Cyanosylvia suecica, 13  
 Cyclorhynchus psittacula, 12, 40  
 Cygnus columbianus, 18

## D

Dafila acuta, 20  
 Dendroica aestiva, 46  
 aestiva rubiginosa, 46  
 coronata, 15  
 Diomedea nigripes, 17  
 Dipper, 42  
 Dowitcher, Long-billed, 33  
 Dryobates pubescens leucurus, 41  
 Duck, Harlequin, 21

## E

Eagle, Northern Bald, 24  
 Eider, King, 23  
 Pacific, 22  
 Steller, 21  
 Emberiza rustica, 13  
 Ereunetes maurii, 11, 33  
 Erolia testacea, 13  
 Eudromias morinellus, 13  
 EUNETTA falcata, 13  
 Eurynorhynchus pygmaeus, 13

## F

Falco columbarius bendirei, 25  
 columbarius columbarius, 25  
 peregrinus anatum, 25  
 peregrinus pealei, 25  
 rusticolus alascanus, 25  
 rusticolus candicans, 25  
 rusticolus sacer, 25  
 rusticolus uralensis, 25  
 Falcon, Peregrine, 25  
 Finch, Aleutian Rosy, 47  
 Flicker, Northern, 41  
 Fratercula corniculata, 40  
 Fringilla montifringilla, 13

**G**

- Gavia adamsi*, 17  
*arctica pacifica*, 17  
*immer*, 17  
*stellata*, 17  
*Glaucionetta clangula clangula*, 13  
*Glottis nebularia*, 34  
 Godwit, Pacific, 34  
 Goose, Cackling, 18  
   Emperor, 19  
   Lesser Snow, 20  
   White-fronted, 20  
 Goshawk, American, 24  
 Grasshopper-Warbler, Middendorf, 44  
 Green-shank, 34  
 Grosbeak, Kodiak Pine, 47  
*Grus canadensis*, 15, 26  
 Gull, Glaucous, 36  
   Glaucous-winged, 36  
   Herring, 38  
   Sabine, 39  
   Slaty-backed, 38  
 Guillemot, Pigeon, 40  
 Gyrfalcon, 25

**H**

- Haematopus bachmani*, 26  
*Haliaeetus albicilla*, 13  
   *leucocephalus alascanus*, 15, 24  
 Hawk, American Rough-legged, 24  
   Pigeon, 25  
   Sharp-shinned, 24  
*Heteroscelus incanus*, 15, 29  
*Histrionicus histrionicus pacificus*, 21  
 Hummingbird, 41  
*Hylocichla minima aliciae*, 15, 43

**I**

- Iridoprocne bicolor*, 42

**J**

- Jaeger, Long-tailed, 35  
   Parasitic, 35  
 Junco, Slate-colored, 50  
*Junco hyemalis hyemalis*, 15, 50

**K**

- Kittiwake, Pacific, 38  
 Knot, American, 29

**L**

- Lagopus lagopus alascanus*, 25  
*lagopus alexandrae*, 25  
*rupestris atkhensis*, 11  
*rupestris chamberlaini*, 11  
*rupestris evermanni*, 11  
*rupestris kelloggae*, 26

- rupestris nelsoni*, 11, 26  
*rupestris sanfordi*, 11  
*rupestris townsendi*, 11  
*Lanius excubitor*, 15  
   *excubitor borealis*, 15  
 Lark, Horned, 41  
*Larus argentatus*, 38  
   *argentatus vegae*, 13  
   *canus brachyrhynchus*, 15  
   *glaucescens*, 36  
   *hutchinsi*, 36  
   *hyperboreus*, 36  
   *hyperboreus barrovianus*, 36  
   *schistisagus*, 13, 38  
*Leucosticte griseonucha*, 12, 47  
*Limnodromus griseus scolopaceus*, 33  
*Limosa lapponica baueri*, 11, 13, 34  
*Lobipes lobatus*, 35  
*Locustella ochotensis*, 8, 13, 44  
 Longspur, Alaska, 53  
 Loon, Common, 17  
   Pacific, 17  
   Red-throated, 17  
*Lunda cirrhata*, 40  
*Lymnocyptes minimus*, 13

**M**

- Magpie, American, 42  
 Mallard, 20  
*Mareca penelope*, 13  
*Melospiza melodia insignis*, 53  
   *melodia sanaka*, 12, 53  
 Merganser, Red-breasted, 23  
*Mergus serrator*, 23  
*Micropus pacificus pacificus*, 13  
*Motacilla alba lugens*, 13  
   *alba ocularis*, 13  
   *flava alascanus*, 12, 13, 45  
 Murre, California, 40

**N**

- Nannus alascanus alascanus*, 12  
   *alascensis kiskensis*, 12  
   *alascensis meligerus*, 12  
   *alascensis petrophilus*, 12, 43  
   *alascensis semidiensis*, 12  
   *alascensis tanagensis*, 12  
   *hiemalis helleri*, 43  
*Nettion crecca*, 13, 20  
   *formosum*, 13  
*Nyctea nyctea*, 41  
*Nyroca ferina*, 13  
   *fuligula*, 13

**O**

- Oenanthe oenanthe oenanthe*, 13, 44  
*Oidemia americana*, 15, 23  
   *deglandi*, 23

Old-squaw, 21  
 Otocoris alpestris, 41  
 Owl, Short-eared, 41  
     Snowy, 41  
 Oyster-catcher, Black, 26

## P

Passerculus sandwichensis  
     alaudinus, 48, 49  
     sandwichensis anthinus, 48, 49  
     sandwichensis brooksi, 50  
     sandwichensis nevadensis, 49  
     sandwichensis sandwichensis, 12, 48  
 Passerella iliaca, 52  
     iliaca insularis, 53  
     iliaca unalaschcensis, 52  
 Pelidna alpina sakhalina, 15, 33  
 Penthestes atricapillus turneri, 42  
     cinctus, 15  
     cinctus alascensis, 12, 13  
 Perisoreus infaustus, 16  
 Phaeopus tahitiensis, 11, 28  
 Phalacrocorax auritus cincinatus, 18  
     pelagicus pelagicus, 12, 18  
     perspicillatus, 11, 12  
     urile, 11, 12  
 Phalarope, Northern, 35  
     Red, 35  
 Phalaropus fulicarius, 35  
 Philacte canagica, 11, 19  
 Philomachus pugnax, 13  
 Pica pica hudsonia, 42  
 Pinnicola enucleator flammula, 47  
     enucleator kamtschatkensis, 13  
 Pintail, 20  
 Pipit, American, 45  
     Japanese, 46  
 Pisobia acuminata, 11, 32  
     bairdii, 32  
     melanotos, 15, 32  
     minutilla, 32  
     subminuta, 13  
 Plectrophenax hyperboreus, 12, 56  
     nivalis townsendi, 12, 55  
 Plover, Mongolian, 27  
     Pacific Golden, 27  
     Semipalmated, 27  
 Pluvialis dominica fulva, 11, 27  
 Polysticta stelleri, 11, 12, 21  
 Prunella montanella, 8, 13, 45  
 Ptarmigan, Alaska Willow, 25  
     Kellogg Rock, 26  
     Nelson Rock, 26  
 Puffin, Horned, 40  
     Tufted, 40  
 Puffinus tenuirostris, 17  
 Pyrrhula pyrrhula cassini, 8, 13, 47

## R

Raven, Northern, 42  
 Redpoll, Common, 48  
 Rhyacophilus glareola, 13  
 Rissa brevirostris, 12  
     tridactyla pollicaris, 11, 12, 38  
 Robin, Eastern, 43

## S

Sanderling, 34  
 Sandpiper, Aleutian, 29  
     Baird, 32  
     Least, 32  
     Pribilof, 29  
     Red-backed, 33  
     Sharp-tailed, 32  
     Spotted, 29  
     Western, 33  
 Scoter, American, 23  
     White-winged, 23  
 Scotiaptex nebulosa barbata, 13  
 Seiurus noveboracensis notabilis, 15, 46  
 Shearwater, Slender-billed, 17  
 Sialia currucoides, 44  
 Snipe, Wilson, 28  
 Somateria spectabilis, 23  
     mollissima v-nigra, 11, 12, 23  
 Sparrow, Aleutian Savannah, 48  
     Aleutian Song, 53  
     Bischoff Song, 53  
     Eastern Fox, 52  
     Gambel, 52  
     Golden-crowned, 52  
     Kodiak Fox, 53  
     Kodiak Savannah, 48  
     Shumagin Fox, 52  
     Western Savannah, 48  
     Western Tree, 52  
 Spizella arborea ochracea, 52  
 Stercorarius longicaudus, 35  
     parasiticus, 35  
 Sterna aleutica, 39  
     paradisaea, 39  
 Surnia ulula pallasii, 13  
 Swallow, Tree, 42  
 Swan, Whistling, 18

**T**

Tattler, Wandering, 29  
 Teal, European, 20  
 Tern, Aleutian, 39  
     Arctic, 39  
 Thallasoaëtus pelagicus, 11, 13  
 Thrush, Gray-checked, 15, 43  
 Totanus melanoleucus, 34  
 Tryngites subruficollis, 15  
 Turdus migratorius migratorius, 43  
 Turnstone, Black, 28  
     Common, 28

**U**

Uria aalge californica, 12, 15, 40  
 aalge inornata, 40  
 lomvia arra, 12

**V**

Vermivora celata, 46

**W**

Wagtail, Alaska Yellow, 45  
 Warbler, Kennicott Willow, 44  
 Orange-crowned, 46  
 Pileolated, 46  
 Yellow, 46  
 Water-thrush, Grinnell, 46

Wheatear, European, 44  
 Willow-Warbler, Kennicott, 44  
 Wilsonia pusilla pileolata, 46  
 Woodpecker, Batchelder, 41  
 Wren, Kodiak, 43  
 Unalaska, 43

**X**

Xema sabini, 39

**Y**

Yellow-legs, Greater, 34

**Z**

Zonotrichia coronata, 52  
 gambelii, 52



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