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NOTES ON THE BIRDS OF SOUTHEASTERN ALASKA.

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(*Plates I-III*)

SOUTHEASTERN ALASKA is an ideal field for the bird student, for in addition to interesting forms of life in an almost untouched country, he is working in the most beautiful part of North America. The region, a narrow strip of mainland with its precipitous mountains and hundreds of off-lying islands, is set apart, climatically, from the rest of Alaska; the winters are comparatively mild with an excessive amount of humidity, and the summers are cool. Consequently, a luxurious vegetation flourishes along the whole coast, the undergrowth oftentimes making an almost impenetrable barrier. Spruces, hemlocks and cedars are the principal trees, with cottonwoods, willows and balm-of-Gilead along the streams, and a tangle of blueberry, salmon-berry, alder and devil-club on the hillsides. The mountains are very precipitous in places, rising abruptly from sea level to over four thousand feet in elevation; deep fiords and land-locked harbors abound, while great glaciers add to the scenic attractions. Muir and Taku Glaciers are well known as "live" glaciers, Mendenhall is a typical "dead" glacier, while there are many small "mountain glaciers" which seem as though suspended high up on the mountain sides. Naturally, all these great barriers of ice have a great influence on the life of the surrounding regions. I know of no other territory which offers such possibilities to the field man as does southeastern Alaska. While several summer expeditions have worked the country as a



1. GLACIATED COUNTRY NEAR HEAD OF MUIR INLET. SNOW BUNTINGS, LEUCOSTICTES AND WILLOW PTARMIGAN WERE NOTED HERE.
2. MT. JUNEAU WITH SPUR OF MT. ROBERT ON RIGHT. JUNEAU AT BASE OF MOUNTAIN AND DOUGLAS IN FOREGROUND.

whole, the surface has barely been scratched, and there are very few late fall, winter and early spring records from the northern part of the territory. While the climate is mild, for the most part, that of the northern section, from Frederick Sound northward, is more severe than to the south; strong winds,—known in the vicinity of Juneau as “the Taku,” make water work extremely hazardous during the winter days, and collecting is not a particularly enjoyable occupation. But in retrospect it is an interesting experience and I number my field days in southeastern Alaska as among the most enjoyable I have had. The white people are always hospitable and glad to aid one; the natives, generally, are a good natured lot, although they have become suspicious of the white man, doubtlessly due to many impositions at his hands, and little information is to be gained from them.

Bird life is not varied, and except during migration time, birds are extremely scarce. The great woods, which seem so favorable for feeding and places of refuge, are almost barren, and during the winter, only a few species are at all common. Siskins, Crossbills, Chickadees and Kinglets are common winter birds, but one might walk for hours along the rough trails without even hearing one. At times, the species are numerous, of course, but generally speaking, the winter months drag slowly and are unfruitful to the ornithologist, unless notes of a negative character are to be considered of value. Water birds are more abundant,—but we must add “locally,” for they will be seen in numbers only in favorable places. The cold, violent winds sweep down the narrow channels, causing the birds to settle in sheltered bays, where they are rarely seen during a day’s travel, along the main boat highways. In the springtime, the small forms seem to linger south as long as possible, and then great hosts of them arrive and start their nesting operations immediately, while all the sea birds desert the inland waters and congregate at their favorite breeding places. The majority of the sea fowl nest on islands, although a few use the precipitous mainland cliffs. Forrester Island is probably the largest breeding island and supports a greater life than any other; the islands of Glacier Bay are also well populated with breeding birds.

The spring migration is soon over and the nesting season well advanced almost before one realizes it. The fall movement of

birds is more leisurely, the non-breeding individuals appearing first, and then the waves of northern adults and young straggle through. During September, there is a pronounced "mountain-top migration," where many species occur commonly, which are rarely seen at sea level.

These notes were made while I was a representative of the U. S. Biological Survey, with headquarters at Juneau, and are published through the courtesy of Dr. E. W. Nelson, Chief of the Survey. Because of Dr. Nelson's years of interest in Alaskan work, I was given every encouragement to cover as much territory as possible, and so, during the year and a half covered by these notes, from November 1919 to April 1921, I was privileged to work in many sections. Mr. George Willett has done more work in southeastern Alaska than any other naturalist, but his has been confined more or less, to the southern portion, while the greater part of my time was spent north of Frederick Sound; the 1907 and 1909 Alexander Expeditions covered a large part of the field, and the personnel of these expeditions is sufficient proof that the ground was well worked. With all the collecting done in southeastern Alaska, however, there has been little duplication; the northern expression—"our trails crossed," is an apt one, for though possibly a dozen "bird men" have worked in the region, the possibilities for further study are unlimited. There are few winter notes from the northern section. A gasoline boat is a necessity to the collector, and a large list of species is to be obtained only by visiting many localities. On the other hand, while birds of a given spot may be few in number, there are several localities where intensive work should be carried on, to work out the life histories of little known species. Glacier Bay, to my mind, is an ideal field. Several southern breeding records could be made there, I am sure.

I am indebted to Dr. Harry C. Oberholser for kindly identifying the doubtful specimens, and to Messrs. George Willett, George Folta and John S. Young for many favors; they have all been companions on various field trips, and have kindly loaned me a few of their photographs to accompany this article.

No effort has been made to compile the work of others, but I have included a few observations of Mr. Willett and Mr. Fred Gray of Wrangell. My bird observations were merely incidental to other

inspection work, and I have no doubt that any naturalist could add many records to my list, in covering the same territory. Conditions change, according to the seasons; southeastern Alaska is still primitive when one leaves the vicinity of the villages, and so, it offers an attractive field for biological observations.

ITINERARY.

Nov. 11-15, 1919	Juneau and vicinity
Nov. 16	Taku Harbor
Nov. 18-24	Keku Strait (between Kupreanof and Kuiu Islands)
Nov. 25-29	Wrangell
(December 1919 spent up the Copper River, interior Alaska.)	
Jan. 1-Feb. 2, 1920	Juneau and vicinity
Feb. 3-9	Oliver Inlet, Admiralty Island
Feb. 9-21	Juneau and vicinity
Feb. 23	Sitka
Feb. 25-March 3	Wrangell and vicinity
March 4-6	Keku Strait—Kupreanof Island
March 7-13	Shakan, Dry Pass, Klawack, Craig— (Prince of Wales Island), Suemez Island.
March 17-April 10	Juneau and vicinity
April 11-26	Wrangell and Stikine Flats
April 27-May 6	Juneau and vicinity
May 7-24	Hooniah Sound, Chicagof Island
May 25-June 3	Juneau and vicinity
June 3-9	Mendenhall Glacier
June 10-11	Skull Rock, Canoe Pass, Excursion In- let
June 12-20	Glacier Bay
June 21 (and Aug. 8)	Mud Bay, Chichagof Island
June 27-28 (and July 4)	Taku Glacier
June 26-July 6	Juneau and vicinity
July 9-21	Forrester Island
July 27-Aug. 7	Juneau and vicinity
August 8-15	Glacier Bay
August 17-22	Juneau and vicinity

August 23-26	Along Stephens Passage and Lynn Canal
August 28-Sept. 1	Twin Points, Admiralty Island
Sept. 2-25	Juneau and vicinity
Sept. 26-Oct 2	Holkham Bay, Tracy Arm, Seymour Canal, and Taku Harbor
Oct. 3-19	Juneau and vicinity
Oct. 9-16	Glacier Bay
Oct. 17-24	Juneau and vicinity
Oct. 25-29	Kootznahoo Inlet (west coast Admiralty Island)
Nov. 1-Dec. 27	Juneau and vicinity
Dec. 28-Jan. 8, 1921	Wrangell and vicinity
Jan. 9-15	Juneau and vicinity
Jan. 16-19	Hobart Bay, Portage Bay, Petersburg, Sokoi Island and Shettisham
Jan. 20-April 1	Juneau and vicinity

All dates given in the bird notes refer to 1920, unless otherwise specified.

DESCRIPTION OF LOCALITIES.

There is a great similarity in the regions visited; the mountains are more or less alike, with precipitous walls, heavy stands of timber and impenetrable growths of alder and berry bushes. There are small bars at the mouths of the various mountain streams and the collector is almost always assured of a good camping site. One should always be supplied with a large scale chart of the region being worked, and have a tide table. There is little need for detailed descriptions of the various regions, and so I am confining myself to a brief account of locations which we visited.

Juneau, the Capitol of Alaska, is a little town of three thousand people. It is situated at the foot of Mt. Juneau, and of Mt. Robert, two hills which rise abruptly some 4000 feet from sea level; it is a very picturesque little city with half the business part of town built upon pilings over Gastineau Channel. Well made trails wind along the beach, giving easy access to the Mendenhall Bar, five miles to the north, and Mendenhall Glacier, fifteen miles away. Gold Creek has cut a great canon, which separates Mt.

Juneau and Robert, and several miles inland are the Granite Creek Mountains. Salmon and Lemon Creeks are about five and ten miles up the beach, respectively; the mountains of this region are all precipitous, their lower slopes being well clothed in alder and devil club, and heavy stands of spruce. Timber line is approximately eighteen hundred feet. Tides throughout the region run well over twenty feet, between the low and high, so the boatman must choose his anchorage with care; the beaches are usually rocky, and often very steep. Down channel from Juneau is the little town of Thane, with Sheep Creek Basin a high valley a few miles inland. Across the channel from Thane is the town of Douglas, now practically abandoned, on Douglas Island.

Taku Inlet, at the head of which is the famous Taku Glacier and the dead Norris Glacier, enters Stephens Passage some fifteen miles below Juneau.

Across Taku Inlet, and a few miles below on the mainland shore is Taku Harbor. This is a land-locked haven much appreciated by boatmen, for even the largest passenger steamers take shelter when "the Taku" blows.

Keku Strait is a narrow, rocky channel between Kuiu and Kupreanof Islands. It is a beautiful and picturesque place, with high wooded hills on either side. The climate is milder in this vicinity than near Juneau, so an abundance of wild life is found,—the call of the Loon and the howl of the Alsakan wolf are familiar to all who have hunted there.

The little town of Wrangell, on Wrangell Island, is near the mouth of the Stikine River. The hills are not so steep as elsewhere, and the woods are more open. Water birds are abundant in the channels between the various nearby islands.

Oliver Inlet is a deep cleft on the north shore of Admiralty Island, where the tides run to and fro with great speed. It is a fine collecting spot with wide, open parks, heavy woods, and favorable places for water fowl.

Shakan is a small village on the inner shore of Kosciusko Island, and Dry Pass is a very narrow water way between this island and Prince of Wales Island. Klawack and Craig are small villages on the west shore of Prince of Wales.

Our work on Chichagof Island was carried on in Hooniah Sound.

It is a large body of water extending in a northwest and southeasterly direction off Peril Strait, and is separated from Lisianski Strait on the Pacific side of Chichagof by only a narrow neck of land. Consequently, it offers an ideal migration route for water birds, for many of them would naturally cut into Chatham Strait, following up Peril Strait into the sound, and then over the divide to the open ocean. Landlocked bays border the sound, which proved ideal loitering places for thousands of water fowl, bays which are so isolated that they give almost absolute immunity from man. Swift mountain streams have built wide bars at their mouths which offer inducements to shore birds, while small fresh water ponds proved attractive to other forms.

Mendenhall Glacier is a "dead" glacier some fifteen miles above Juneau; it is about two miles in width and has high mountains, densely wooded, on either side. The Mendenhall River, which runs from the glacier, has cut its bed through the glacial debris, and has built a large bar, a favorite resort of many water birds.

Skull Rock is a small, precipitous rock in Stephens Passage, off Young's Bay on the northern shore of Admiralty Island; Canoe Pass is a very narrow water way, navigable at high tide for small motor boats, if one is fortunate, on the tip of Point Couverton. This is the peninsula on the mainland shore at the meeting place of Chatham and Icy Straits.

Excursion Inlet, on the mainland shore of Icy Strait about half way from Point Couverton to Glacier Bay, is a narrow fiord, with densely wooded hills on either side. The banks are very steep in places, great walls of rock, rising from deep water, so one cannot follow the beach at any stage of the tide.

Strawberry Point is a long needle-like peninsula extending into Icy Strait, forming the east shore of Glacier Bay; the trees are small spruce, grown in the memory of the oldest Indians, who claim to remember when no trees existed. The point is known historically as an old battle ground between two Indian tribes, but is more popular for the excellent strawberries which grow in abundance.

Glacier Bay is a large body of water headed with great ice-sheets, Muir Glacier being the most famous. These glaciers have been very active, and some years ago, at the time of the Katmai eruption, if I remember correctly, five miles of the glacier broke off at

one time. The head of Muir Inlet is a sterile region, and one can see the remains of old forests which have been covered over by the ice. The extensive moraines near the glaciers are favorite nesting sites for many birds. Both shores of the bay are cut up with numerous harbors, and great valleys extend back between the high hills on the east shore. The large islands dotting the bay are the breeding grounds of a multitude of sea birds. Willoughby Island is probably the largest, and it proved to be very precipitous on its western slope, where the Gulls nested. The summit is round and worn from ice action, and even the most level slopes hold but little soil or vegetation. The summit and crevasses were filled with snow (middle of June) and but scant vegetation grows above 1000 feet elevation. The highest peak is approximately 1700 feet in height. While the western slope has but little vegetation, dwarfed spruces and alders, the opposite side is well clothed with alders, cottonwoods and spruces. Small flowering plants were conspicuous on the sterile slopes of both sides.

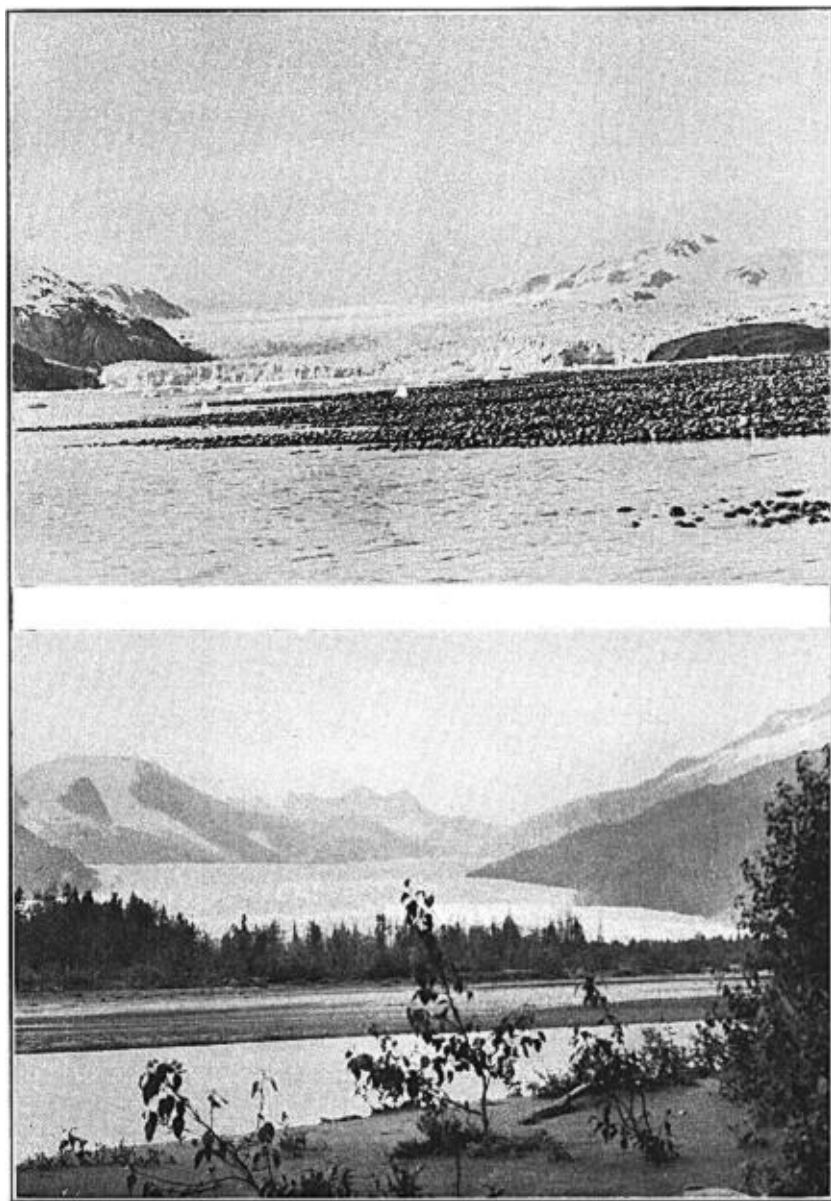
Bartlett Cove is on the east shore of the bay, not far from Strawberry Point, and a few miles above the cove are the Beardslee Islands. The outermost island, a favorite place for sea birds, has broad expanses abruptly interrupted by small steep-walled valleys. The islands are covered with alders, and small bushes, and along the beaches are stands of tall grass,—a favorite resort of Fox and Song Sparrows. An Eagle's nest with two young was seen in one of the small spruces on the outer island, big Blue Herons were noted along the beach, and Geese were of common occurrence.

Seymour Canal is a great waterway in the inner side of Admiralty Island, while across the channel on the mainland shore is Sumdum, Tracy Arm and Holkham Bay.

Forrester Island, probably the best known and largest of the bird islands of southeastern Alaska, is about twelve miles off shore from Dall Island. Good descriptions of this island have been written and the reader is referred to the articles of Professor Harold Heath and George Willett (see bibliography).

ANNOTATED LIST OF BIRDS.

Colymbus holboelli. HOLBOELL'S GREBE.—This species was observed commonly during the spring, fall and winter months, and several



1. MUIR GLACIER, GLACIER BAY. SHORT-BILLED GULLS AND SEMIPALMATED PLOVERS NESTED ON MORAINES IN FOREGROUND.

2. MENDENHALL RIVER IN JUNE, FIFTEEN MILES NORTH OF JUNEAU.

specimens were collected. They were recorded from Taku Harbor, Keku Strait and Sumner Strait November 1919; from Juneau, Tee Harbor, Peril Strait and Wrangell in February 1920; from Keku Strait, Craig and Hydaburg during March; at Wrangell the 11-18 of April; in Stephens Passage and Seymour Canal September 25 to October 1, and in Stephens Passage, Icy Strait, Glacier Bay and Kootznahoo Inlet during the month of October. Others were observed in Taku Harbor, Rocky Pass and Sumner Strait in November, one at Wrangell January 3, 1921, and another at Portage Bay January 15.

Colymbus auritus. HORNED GREBE.—This agile little bird is not as common as Holboell's Grebe, but never-the-less includes all of southeastern Alaska in its range. Willett tells me they winter near Craig, and I saw one there March 9 in winter dress. At Hooniah Sound they were fairly plentiful in May, not a day going by that three or four were not seen, all in high plumage, as were those in Glacier Bay in June. Several were observed in Keku Strait November 18, 1919 and one in the same locality March 5, 1920. They were noted daily in Hooniah Sound May 7-24, and in Glacier Bay June 11-26; several were seen at Midway Island (Stephens Passage) and about thirty in Seymour Canal September 29-30. A few others were noted in Stephens Passage, Glacier Bay and Kootznahoo Inlet during October; one was seen at Wrangell January 3, 1921, and another collected in Hobart Bay January 15.

Gavia immer. LOON.—These large divers are fairly common and are to be noted during all months of the year. They were especially plentiful in Keku Strait and near Petersburg. Although their distribution is general, one might travel for days without a single record, their nature and feeding habits making them more or less inconspicuous; they feed in the shadows along the shore, or again, when one approaches by boat, they dive and do not appear until long after the boat has passed. When in open water where the light is strongest, however, they are very conspicuous.

Loons are rather inquisitive and when one is anchored in some pleasant little bight, where great spruce trees cast wavering shadows upon the depths it is not uncommon to have a pair circling the boat curiously, as they ride buoyantly upon the water. In flight they follow the channels of the streams, rarely going overland, and rarely circling, but travelling in a straight line as though in a hurry. Their weird, and not too mournful cry is a common sound of the wilderness, and seems in harmony with the surroundings. Mr. Fred Gray tells me this species nests abundantly on the little fresh water lakes on the different islands and the mainland near Wrangell, and states that practically every little body of water has its Loon family. Birds in high plumage are to be seen the year around. The birds collected had been feeding entirely on fish, herring and rock cod usually; near Petersburg, where shrimp are plentiful, I am told the Loons gorge on these small animals. The species is so commonly distributed that records are almost superfluous. They were seen in Keku Strait November

18, 1919, and at Oliver Inlet February 3, 1920, and were common in Keku Strait, at Craig, Klawack and Wrangell in April and May. Herring were running at this time, and many birds were congregated in the region of Klawack. They were abundant in Hooniah Sound and in Stephens Passage May 2-25, and were observed daily in Glacier Bay in June, and were seen commonly on all field trips in October, and at Wrangell in January, 1921.

Gavia adamsi. YELLOW-BILLED LOON.—This species proved not uncommon during the winter and spring months although most observers have failed to record it. Two were seen at Oliver Inlet February 6, 1920, one in Keku Strait March 5, an immature at Wrangell April 23, and a full-plumaged adult in Stephens Passage May 25; one was collected on the same date in Gastineau Channel near Thane; five were seen in Stephens Passage between Douglas and Admiralty Islands, June 10, and an adult and immature collected, and three others seen in Icy Strait June 11-12. The first were observed in the fall in Seymour Canal, where at least eight were positively identified September 30-October 1; nine were seen October 7-9 in Stephens Passage, and one taken, and thirteen were seen in Icy Strait and Glacier Bay October 10. Seven were noted in Icy Strait on the return trip October 15; five in Canoe Pass and Chatham Strait October 24 (2 collected) and two others at Killisnoo October 26, of which one was secured.

Mr. Young tells me that he saw this species commonly near Admiralty Island in the spring and fall of 1921, and collected one specimen which was turned over to a scientist in Juneau.

The center of abundance of the Yellow-billed Loon in southeastern Alaska is undoubtedly among the northern islands, probably from Seymour Canal northward to Icy Strait, for if they extended their range in any numbers to the southward, Mr. Willett would undoubtedly have known it. For further data on this species in Alaska, I will refer the reader to 'The Condor,' Vol. 24, No. 6, and Vol. 27, No. 1.

Gavia pacifica. PACIFIC LOON.—A common species except during July, August and September, when the birds are on their Arctic breeding grounds. Several were noted in Stephens Passage February 3-7, 1920 and a few in Keku Strait March 3. Birds in breeding plumage were observed in Hooniah Sound May 17, and others in Stephens Passage June 10, and Glacier Bay June 12-21. I remember four beautiful adults floating so motionless upon the mirror-like water that they made no more disturbance than so many corks. After watching me for some moments, they turned leisurely away, and with handsome heads held high, disappeared among some grounded icebergs just out from the shore line. They were common during October, having been recorded from Seymour Canal, Stephens Passage, Glacier Bay, Chatham Strait and Kootznahoo Inlet. Birds which I took to be this species were seen at Petersburg January 17, 1921.

Gavia stellata. RED-THROATED LOON.—This Loon was not positively identified until June 10, when several adults were seen in Stephens Pas-

sage. At Canoe Pass, on the morning of June 11, there were twenty-five or more flying back and forth along the channel, and the next day, a dozen at least were noted at Pleasant Island in Icy Strait. A pair or two were observed daily in Glacier Bay between June 12-21, but they were never common. The first specimen seen in the fall was taken near Holkam Bay in Stephens Passage September 25, an adult in worn plumage; three birds were seen in Tracy Arm the following day, and several in Seymour Canal September 28-October 1. The last recorded were a few observed daily in Stephens Passage October 7-9 and in Glacier Bay October 12-14.

Lunda cirrhata. TUFTED PUFFIN.—An extremely common bird along the coast, near favorite breeding islands during the summer months, but rarely seen along the coast in winter. I first met the species in Glacier Bay in June 1920, when a hundred or more were seen on the placid water of the bay, in company with Murrelets and Cormorants. They were evidently nesting on Willoughby, Marble and Drake Islands, as they were seen entering crevices, or sitting about on the rounded, ice-worn rocks. They were nesting by thousands on Forrester Island in July, the ground being honey-combed with their burrows in many places. They choose a variety of nesting sites in which to deposit their single, large white egg,—under rock slides, or in crevices in the cliffs, but they usually inhabit burrows constructed for the purpose. The largest colonies are found among clumps of grasses on precipitous, exposed hillsides, where the thousands of tunnels undermine the vegetation, making each little clump of grass an island surrounded with burrows. Climbing about among a colony of these birds is not as uninteresting as might be supposed, for the grass is often worked loose from the steep walls; then too, the Puffins have a habit when alarmed of diving into space with the speed of a falling rock, without the customary cry of "gangway," and apparently without the slightest care as to their final destination. The Tufted Puffins begin to lay about June 10, and we saw several black, downy young July 10. These quaint birds are among the most successful in raising their young, and are well armed with a razor-like beak to ward off invaders. The Indians use all the different sea birds for food, but this species which nests in such abundance, selects such inaccessible places, it is doubtful if they could be endangered by raids of the natives. The species was last observed in Glacier Bay August 8-15, when a few were recorded daily, for none were apparent on my trip to the bay during October.

Fratercula corniculata. HORNED PUFFIN.—Not as abundant as the preceding species, but they nest fairly abundantly in all colonies of sea birds along the exposed coast. They were noted daily at Forrester Island in July, sometimes sitting at the entrance to their burrows, but usually feeding among the kelp, or darting overhead with the speed of an arrow. These birds are not nearly so well provided for protecting their young or egg as the Tufted Puffin, for their large beak is rather weak and their general nature is less pugnacious. As though realizing their inferiority, they place their eggs in most inaccessible places, sometimes in dark caves

among a network of boulders, or again far back in pockets left by the faulting of the ledges; while many seemed to prefer large wave-washed caves. Several pairs were nesting high up on the arched dome of "murre cave," a huge wave-worn cavern where the screech of the Murres and the incessant rumbling of breaking waves made continuous deafening roars, and high thrown spray covered the walls with a slippery slime. Here, as though aware of their safety, the Puffins deposited their eggs on a narrow ledge. The first eggs are laid about June 10 on Forrester, according to Willett, but no young were noted up to July 21, when I left the island. In flight, this species is a particularly beautiful bird, and it is a wonderful sight to see a dozen or more of them stringing along the boulder-strewn beach, sometimes flying high against the blue of the sky, or often sailing low,—just clearing the spray of the massive waves crashing among the rounded boulders.

Cerorhinca monocerata. RHINOCEROS AUKLET.—This species breeds on Forrester Island by thousands, their burrows literally undermining the woods in places. The entrances of their nesting holes are often under the roots of trees or under heavy windfalls on the gentle slopes of the island, rarely more than 500 feet in elevation. The majestic spruces tower to a great height and shed perpetual shadows where only an occasional ray of sunshine enters to dry the moist vegetation. The soil is rich with humus making comparatively easy digging for the birds, as the length and numerous galleries of the burrows indicate, some are simple with straight, short leads with a cluster of spruce twigs making the nest, while others wind back and forth in an intricate maze which would do credit to a woodchuck. The Auklets begin to lay about May 15, when their one whitish egg is deposited at the end of the burrow, and is soon encased in a dirty brown coat from the surrounding soil. Badly incubated eggs, and downy young were found on July 10, and of fourteen adults collected, ten proved to be males. It seems the birds incubating during the day time have the long shift of eighteen hours or more, for there are only four hours of darkness during July; as the Auklets are rarely noted in the day time, the exchange of duty must be done under cover of darkness. Rhinoceros Auklets were occasionally noted out over the water as they sailed along in bands, but Willett tells me they usually make long flights for their food. Meares Pass, at the north end of Dall Island is a favorite feeding ground, where the preferred food, "needle-fish," abounds. On the evening of July 21 we saw an individual near Waterfall, at least fifty miles from Forrester, returning to its nesting place with a needle-fish dangling from its beak. Willett stated he was confident the Forrester birds usually make such flights.

Ptychoramphus aleuticus. CASSIN'S AUKLET.—These little sea birds are abundant on Forrester Island but are rarely noted on the waters close to their breeding colony. I saw two birds in flight July 18 when attempting to reach the mainland, and three more July 21 when with Mr. Willett, crossing from Forrester to Dall Island. These Auklets nest in

large colonies along the north and west shores, where most of the colonies of sea birds appear to be,—that is, on the “outside,” while the “inside” (nearest Dall Island) seems to be little used in comparison, except by the thousands of Ancient Auklets (which had already left the island with their young). The burrows of the Cassin’s Auklets can usually be distinguished from those of the Rhinoceros Auklets by their smaller size, while the Cassin’s Auklets also nest to a greater height, often choosing favorable places almost to the top of the island. Their burrows are found among the huge trees or on exposed, brush covered slopes, in equal numbers. They start nesting earlier than most species, the first eggs being laid about the middle of April and young birds nearly able to fly were taken from burrows July 9. According to Willett, fresh eggs are abundant about May 10.

A Cassin’s Auklet was collected in Chatham Strait October 9, just off Canoe Pass (a strong southeaster had been blowing for two days), and two others were seen farther down the Strait October 24. Several were observed in Icy Strait, near Glacier Bay October 10, and one was collected. The specimens taken had been feeding on small shrimp.

Synthliboramphus antiquus. ANCIENT MURRELET.—This species is a very abundant nesting bird on Forrester Island, where they make their burrows along the wooded hills, as do the Auklets; the majority nest on the “inside” of the islands, however, in contrast to most species. Their small burrow entrances are easily identified, and they often run their nesting tunnels to a considerable depth. During my visit to Forrester, not one Murrelet was excavated out of many trials, and Willett told me that most of the birds had departed with their young two weeks previous. On July 8 I saw several birds on the water and in flight, off the lower end of Dall Island, and in the channel between Dall and Forrester Island. They could be told from the Marbled Murrelets at that time of the year by their light color, as the latter appear dark from the distance. On July 21 when crossing from Forrester to the mainland with Willett, we saw about a dozen adult Murrelets, and one pair of three-fourths grown young, which were collected with the parents. This is the first time Willett, in seven years work in the vicinity, had seen young of this size, or had noted the young after they left the island, and were unable to fly. Several more adults were seen in Meares Pass that evening, where they were probably obtaining “needle-fish,” for which the Pass is famous. Possibly a dozen birds were noted at the entrance to Glacier Bay August 9, and I collected a pair. Young Marbled Murrelets were becoming abundant, so it was difficult to make positive identifications between the two species. A pair of birds was seen in Icy Strait October 10, but I was unable to collect them.

Brachyramphus marmoratus. MARBLED MURRELET.—This is probably the most common and abundant sea bird found in southeastern Alaska, and it would be the exception to make a water trip of any length without noting a few; their distribution is general, and they occur abundantly at all periods of the year, their appearance in a given place being

dependent upon the food supply. They were very numerous near Wrangell in April 1920, and especially so in the vicinity of Pleasant Island in Icy Strait June 11. To give dates of records would be mere repetition, for they can be noted daily. The first young of the year was seen on July 19, at Forrester Island, and young were abundant in Glacier Bay August 8 to 15. The nesting place of this species has never been found, but from their general distribution over the inland waters during the breeding season,—breeding birds having been taken in Hooniah Sound, Wrangell and Glacier Bay in May, April and June respectively, it seems evident that the birds not only have an extended breeding season, but that they probably do not nest in large colonies, as do the Ancient Murrelets. Mr. Gray used to own a dog which was an adept at locating the nests of burrowing birds. Gray scoured the hills with the dog where he thought there was a likelihood of these birds nesting, but he never obtained any results. I did prove that they have a long nesting period for I took a female at Wrangell April 23 which had evidently laid an egg, and had another ready for the shell; another specimen with an egg nearly ready to be laid was taken in Glacier Bay June 12. These little divers are in changing dress during April, many still in the winter white, some in high plumage, and others in various stages between the two. They are wonderfully agile and quick to dive, swimming under the water with the speed of a fish; both wings are partly extended as an aid in navigation. During the mating months, their mournful little whistle could be heard when a pair separated, or when one band called to another in the dusk.

Brachyramphus brevirostris. KITTLITZ'S MURRELET.—This species was first noted in Glacier Bay on June 12, although I had watched carefully for it in Icy Strait the day before. They were first seen off the south end of Willoughby Island where small flocks were feeding among the hundreds of Marbled Murrelets, Puffins, Cormorants and Loons. The water of the bay was like glass, the quiet grey-sheen almost oil-like with deep reflection of spruce and hemlocks along the shore; the ragged, snow-covered peaks of the distant horizon were mirrored perfectly, and the huge icebergs,—some with colorless worn surfaces covered with Cormorants, others irregular and sculptured, showing their recent break from the massive "ice-river" at the head of the inlet, their shadows of an intense blue, were drifting with the tide without a ripple,—a summer, Arctic panorama unsurpassed. Small flocks of Kittlitz's Murrelets flushed on either side of the boat, their white breasts sparkling in the afternoon light. Others were upon the water ahead, and through the glasses I could distinguish the lighter, slightly greenish cast to the backs of this species, in contrast to the darker colored Marbled Murrelets.

Dixon notes (1907 Alexander Expedition) that the Kittlitz's Murrelets are wilder than Marbled Murrelets, and fly more swiftly. After collecting some thirty specimens, I cannot agree that there is any apparent difference in the general flight and wildness of the two species. It is true that at times the Kittlitz's Murrelets will take to wing while the others will dive,

but the converse is true also, for I have found this species often dives while the Marbled Murrelets take flight. The direction from which the wind is blowing, the number of birds about, the food supply and individual variation all go to make up and cause varied actions in different individuals, but there is little specific difference in action between the two,—at least not enough to be an aid in collecting. At times Kittlitz's Murrelets do appear to rise from the water more abruptly than the others, but I have also seen them go bouncing over the waves as if they could not get on wing, and then finally settle to the surface and dive. When collecting this species I seemed to have better success away from the island shores, where the many Marbled Murrelets were feeding, and it was also necessary to go with the light at my back, as the two species cannot be separated when the shadows fall the wrong way. During June 12–21, many Kittlitz's Murrelets were noted and about eighteen collected. Their center of abundance in Glacier Bay seemed to be in the vicinity of Willoughby Island, and to the eastward along Beardslee Islands. I rarely noted them in the channels, but usually upon the open bay. One of the females collected June 12 had an egg in the oviduct almost ready for the shell. I watched the birds upon the water on this date without a clue as to the direction of the nesting grounds, for I never saw them overland. On the 19th we went to the head of the inlet, into the ice in front of Muir Glacier, but none of these birds were observed within ten miles of the ice-sheet. On June 21, when returning to Juneau, I took two specimens in Icy Strait, about opposite Excursion Inlet, and saw several others, as well as identifying at least nine more in Chatham Strait, between Point Couverton and Point Retreat. On July 4 a trip was made to Taku Glacier and I thought I saw a few of this species but I could not be certain. I think however that this species will be found around all the large live glaciers when more work has been done in the region.

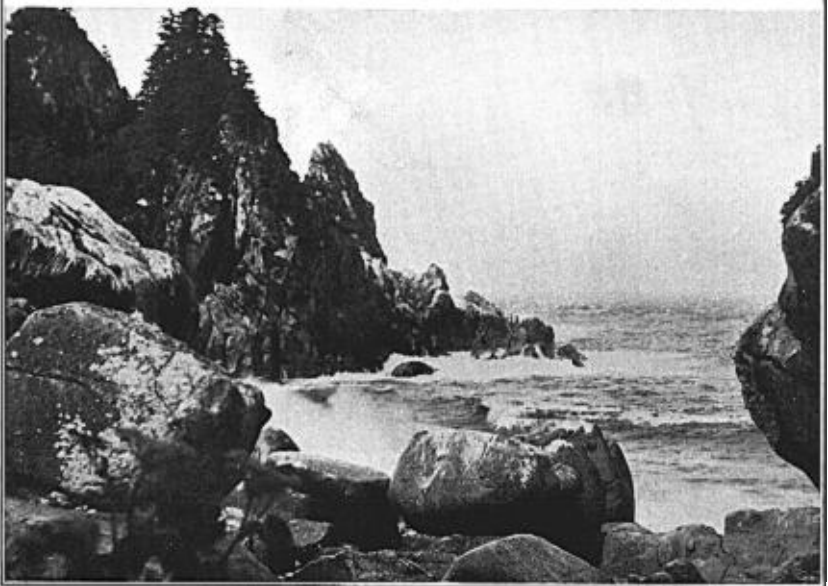
I returned to Glacier Bay August 8–15, and collected another series of Murrelets. The season was well advanced, of course, and young Marbled Murrelets were abundant, as well as a few Ancient Murrelets. Although hundreds of birds were at the mouth of the bay, I failed to identify a single Kittlitz's Murrelet, and it was not until I ran to Muir Glacier August 12 that I identified or collected any. Possibly one hundred were noted in pairs or small flocks in the drifting ice above Reid Inlet, where none had been seen in June. They seemed to find conditions to their liking close to the glacier, in the floe ice. Two young birds were taken, their slightly smaller size and immature look being apparent while they were upon the water. On August 14, possibly 25 birds were seen along the Beardslee Islands, but on the whole, the species was much scarcer than in June.

During my trip to Glacier Bay in October, I was unable to identify a single Kittlitz's Murrelet, although we again went to the glacier. There were very few birds in the ice, so it may have been that food conditions were not favorable and the birds were in another arm, up Reid Inlet for instance, or they may have left the bay for the open sea for the winter

months. The varied plumages of the specimens taken correspond to the descriptions given by Grinnell in his report of the 1907 Alexander Expedition. June is undoubtedly the middle of the breeding season, that is, the birds begin nesting at that time, as dissection of specimens proved.

Cephus columba. PIGEON GUILLEMOT.—These birds are residents and are to be noted at all times of the year in practically all localities; they breed in all suitable places where they will be free from vermin, usually choosing small islands and laying their two large speckled eggs far back under a pile of boulders, where they are practically inaccessible. Occasionally however, they choose a little rocky niche up from the dashing spray, and trust to fortune they will be unobserved. On Forrester the Guillemots begin to lay about June 10, eggs and downy young both being observed between July 9–21. They like to feed along the edge of a bed of kelp, a band of them together, where they secure their small fish by diving. Having filled themselves to satiety, they often rest idly upon the water with their last catch held dangling crosswise in the beak. Again, one will see the air filled with darting black forms,—especially when the surf is breaking among the boulders with a crashing roar, and the seething foam swirls out from shore for fifty yards or more; then they dive into the breaking waves with abandon, and coming out with dangling red legs outspread, rise high in the air and circle off to some convenient ledge, with the small fish tightly clutched in their mandibles.

Uria troile californica. CALIFORNIA MURRE.—Murrees are abundant and breed in great numbers on the outside islands, Forrester being the most important. They are generally distributed during the winter months, according to food supply, and are to be found in numbers one week only to be very scarce the next. When the herring and other small fish school, hundreds of Murrees are sure to be in attendance; consequently, the vicinities of Wrangell and Craig are favorite places for Murrees during the early spring. Birds still in winter plumage were noted at Wrangell in April, while others had assumed their spring dress. They begin to lay during the middle of July on Forrester, where they deposit their single egg along some precipitous ledge; there is no pretense of a nest and often the ledge is so narrow the bird can barely cover her egg. When the Murre returns to its egg, it waddles about comically before straddling and tucking it in place with the beak. When alarmed they dive headlong from their nesting ledge with a consequent shower of eggs kicked into space in their clumsy efforts to make haste. Although many eggs are broken in each colony in this manner, the damage caused by predaceous Ravens is even greater. These old robbers make journeys to the rookery, steal an egg and fly off to a convenient limb to enjoy it. We watched one ragged-winged fellow, which was easily identified, carry away six eggs in fifteen minutes. The Crows are equally destructive, but they are not so conspicuous in their depredations, for they eat their plunder on the spot. When some disturbance causes an entire Murre colony to leave their ledge, the downward shooting white forms look not unlike a scud of surf shot forward by the



1. "DEAD" NORRIS GLACIER WITH NESTING MORAINE IN FRONT. PHOTOGRAPHED FROM TAKU INLET FIVE MILES DISTANT.
2. SHORE LINE OF FORRESTER ISLAND.

wind; the birds circle madly about for a few minutes and then settle onto the water in "rafts," hundreds of them together. They are excellent fliers and go very swiftly with fast strokes of their short wings; flocks of a dozen or more pass a given point continuously as they return from the fishing grounds, flying more or less in single file, and all in all, this species is the most conspicuous on Forrester. The young do not appear on this island until August, the different colonies seeming to start their egg laying about the same time. The fishermen and natives of southeastern Alaska have long made a practice of gathering sea bird eggs, and although less egg stealing has been carried on on Forrester since it was made a reservation, they still make occasional raids.

Stercorarius pomarinus. POMARINE JAEGER.—One specimen was observed in Icy Strait, off Point Adolphus on August 8. It was a dark bird with white underparts, and was chasing Gulls fishing off the point. Willet tells me the species is not uncommon near Craig in the fall.

Stercorarius parasiticus. PARASITIC JAEGER.—This species is fairly common in Glacier Bay, and a few were noted daily during our visit in June; one was taken on the outer Beardslee Island June 16 and seven others noted about the Gull colony. On August 14, four more were taken on the same island, an adult and three young, and several others recorded. It is probable the birds nested on the island, in view of the fact that they were present during the breeding season, and that young were collected. No Jaegers were seen in Glacier Bay during October.

Stercorarius longicaudus. LONG-TAILED JAEGER.—Only two birds seen. The first was observed when crossing from Forrester to Dall Island with Willett July 21, when a beautiful specimen came winging along; the other was noted at the entrance to Glacier Bay August 9, close to Strawberry Point.

Rissa tridactyla pollicaris. PACIFIC KITTIWAKE.—Only a few were seen in the spring, three in San Juan Harbor, Suemez Island, March 11, and several small flocks in Glacier Bay June 16-17. They were next observed in Seymour Canal October 1, when one was taken from a small flock; on October 7 they were fairly common near Young's Bay in Stephens Passage, and in the channel behind Horse and Colt Islands along the Admiralty shore. October 9-10 they were abundant in Icy Strait and Bartlett Cove. None were noted on the return trip down Icy Strait October 14 in spite of good observing weather, or down Chatham Strait the latter part of the month. The specimen taken in Seymour Canal October 1 had the hind toe almost lacking, with no evidence of a nail.

Larus glaucescens. GLAUCOUS-WINGED GULL.—These Gulls are common and are to be seen daily. In the winter they are very tame and will often eat from one's hand; they follow the passenger boats from place to place for scraps thrown over-board, and they are very common about the wharves and docks of the towns, where they gather refuse and eat barnacles from the pilings. When the tides are out, the Gulls resort to the flats for barnacles and mussels. Immature birds are especially evident at this

season. In June, however, few birds are to be seen about the towns, or following the boats, all the breeding birds having departed to the nesting grounds, where incubation is well under way by the middle of the month. All the outside islands have their Gull colonies with Forrester probably supporting the greatest number. Glacier Bay has some fine bird islands, and this species breeds especially abundantly on Willoughby. They also nest in considerable numbers on the glaciated points projecting into Muir Inlet close to the glacier and upon the desolate glacial moraines; another very large colony is on the right hand shore of Taku Inlet (as one approaches the glacier), where at least a thousand pairs were occupying the precipitous cliffs. The Gulls of Glacier Bay have a rather hard time rearing their families for the Indians of the vicinity have been accustomed to rob the nests; Gulls' eggs are excellent eating, and one can hardly blame the natives for seeking a change from salmon and seal.

The Gulls make neat nests of moss for their three greenish eggs, seeming to prefer an exposed bench where a wide view can be obtained. On the Beardslee Islands, however, they nest by thousands on the brush-covered slopes, while on Forrester we found the Gull rookeries on the points. Both small young and fresh eggs were seen on July 9. The youngsters are able to run about as soon as hatched, and at the anxious cry of the parent, they drop motionless along some crevice, where they are well-nigh invisible. They have apparently, no sense of distances, and when frightened will walk over ledges many feet in height, with no harmful results, so far as I could see. Much has been said as to the destructiveness of this species to spawning salmon and their eggs, but I have watched the birds about salmon streams without seeing any evidence to support these claims, other than birds eating dead salmon and picking eggs stranded on the bars at low tide. I have been told that the Gulls pick the eyes from healthy fish, but I am not convinced that the bird could hold an agile fish even in shallow water; as a whole, the damage done by Gulls in the section I worked is negligible, and Willett has told me this species rarely bothers the nests of other birds on Forrester.

Larus argentatus. HERRING GULL.—Not abundant. A few were seen at Wrangell April 12-26. About a dozen birds were evidently nesting in Muir Inlet near the glacier, but as all the Gulls left their nests at my approach, I was unable to distinguish between the nests of this and the preceding species. The pair of birds collected June 19 (AMB 543-544) were in full breeding plumage with a bright red eye-ring. This would seem to point to *vegae* for it has a red eye-ring, while that of the Herring Gull is supposed to be flesh color. The specimens were identified as *argentatus*, however. A few immature birds were seen in Taku Inlet June 27, and a pair was noted on the "Horn" on Forrester July 19. Willett tells me that a few pairs have been accustomed to nest there yearly, but we failed to note more than the two birds. At Auk Bay, August 7, at least two hundred of this species were milling about as they picked refuse from near

the cannery; several immature birds were identified in Seymour Canal October 1, and one adult in Young's Bay October 7.

Larus californicus. CALIFORNIA GULL.—Four specimens were taken at Klawack March 10, 1921. The only other records I can find for Alaska are those of Hersey in the summer of 1914, at Ketchikan.

Larus brachyrhynchus. SHORT-BILLED GULL.—Rather common throughout the year. At times during the winter, only adults would be seen, and again only small flocks of immature birds. The vicinity of Mendenhall Bar is a favorite feeding ground, and the birds hanging about the docks at high tide would usually string to the flats on the low water. In looking over my notes for the species, I find records of them for every trip among the islands, and although they are not so abundant as the Glaucous-winged Gull, they are one of the most common water birds. Several dozen pairs were evidently breeding upon the extensive glacial moraines in Muir Inlet, for they circled about continuously, showing great concern, but as my time was too limited on June 19, I was unable to investigate. There can be no doubt however that they were breeding on both sides of the inlet, on moraines which were under many feet of ice but a few years before. Hundreds were noted in Glacier Bay August 8-15, both adults and young birds, and they were abundant upon the bars at low tide. Flocks, in company with Bonaparte's Gulls, rested upon gigantic ice-bergs, and it was always a common sight to see large flocks milling about the tide-water streams. In Taku Inlet June 28, about fifty pairs were found nesting among the glacial debris at the foot of Norris Glacier. Several empty nests were found, which the young had left, and in each case the adults darted at our heads with vicious swoops. I found a couple of young birds and placed them in their nest near my photographic blind, but the adults alighted behind some beautiful lupines and called the babies to them. The blind placed by a nest of eggs yielded no better results, the birds not even covering the eggs when the blind was moved thirty feet away, although they hovered anxiously about. The three dark-green eggs were slightly elongated, and were laid in a crudely made nest of sticks among the ice-worn boulders. All were heavily incubated. The adults were tormented by the Arctic Terns, and at every arrow-like swoop, the Gulls would "duck" and give a cry of alarm.

Larus philadelphia. BONARAPTE'S GULL.—This species was noted on Mendenhall Bar May 4, when about fifty, mostly adults in spring plumage, were resting upon the sand at the mouth of Salmon Creek. As the tide came in, the birds nearest the water took wing and circled out over the channel, to be joined by the others as fast as the tide forced them to move. They worked back and forth, and I decoyed the whole flock overhead by waving a handkerchief. They were next noted at Mendenhall River June 3-4, where a flock of one hundred or more, evidently non-breeders, was congregated. The birds continually circled overhead, the whole flock changing direction of flight with the grace and suddenness of a band of Skimmers. None of this species were noted breeding, but immature

birds evidently just from the interior were found very abundant in Glacier Bay, August 8-15, where they seemed content to pass away the time resting upon ice-bergs in company with Short-billed Gulls. Whole flocks milled over the tide-rips, or sat quietly upon the water, feeding upon the debris carried by the tide. They were common during the fall, although not one black-headed adult was seen. There were great flocks on the bars of Holkham Bay September 24, and in Seymour Canal October 28; they were in numbers in Stephens Passage October 7-9, in Icy Strait on the 10th and Glacier Bay until the 14th. The migration seemed to have passed by the 26th for only a few stragglers were seen from Point Retreat to Killisnoo, in Chatham Strait, October 26 to 28.

Sterna paradisaea. ARCTIC TERN.—This species is late in arriving, the first being noted May 25 in Stephens Passage, near Douglas Island. Several small bands passed over early in the morning; they were next seen at Mendenhall River June 3-6. On June 4 a large flock was found over the moraine in front of the glacier, and I believe they use this place as a nesting site, although I had no chance to investigate. But few birds were seen on my various water trips, as I believe they stay in the near vicinity of their nesting grounds. A large colony nests on the moraine in front of Norris Glacier, near Taku Glacier. At least a thousand pairs were using the debris covered flats, and the season was found to be well advanced June 26-28. The Terns were noticed fishing immediately we entered the inlet fifteen miles from their nesting flats. They came from the direction of the glacier in scores, an apparently endless chain of Terns, every one making detours here and there in search of food. How different was the flight of the returning birds. Each one flew direct, and the glasses revealed the shining fish held crosswise in the bright red beak. When we visited the colony June 28, the day was drizzly and foggy so that the glacier was but dimly visible, and the peaks of the surrounding mountains obscured in a veil of haze. We found very few eggs remaining but the young were in all stages, from fuzzy little fellows just from the egg to three-fourths grown with pin-feathers. The adults flushed while we were still far away and flew about wildly, usually high in the air; the youngsters were hard to find, several large ones being seen, but no small ones could I make out until the photographic blind had been put up. Then I appreciated the number of youngsters scattered over the moraine, for parent Terns began dropping here and there over the boulder strewn flat, each one calling, and fuzzy little youngsters tumbled from nearby shelter. The Terns proved very tame and came readily to their young; their actions are similar to those of Least Terns, running over the ground with wings half lifted, and then stopping at the edge of the nest with wings still spread. The nest is a simple pit in the sand, like those of most Terns, except that the nesting pit is more defined, and is evident even after the young have departed. The old birds were pugnacious, and were continually harrassing the Short-billed Gulls, keeping them dodging with arrow-like onslaughts.

This colony is situated in about as beautiful and picturesque scenery as

one could imagine, the great Taku Glacier on one side and the equally large, "dead" Norris Glacier on the other. Flowering lupines served as a foreground to make the colony of graceful darting forms a veritable garden, while the gigantic walls of ice, and the grim peaks surrounding served as a contrast. Weather conditions were abominable during the few days visit, and I could not but wonder at the choice of such a nesting ground. The gray, continuous fogs were augmented by steadily drizzling rain, which poured for three days continuously, and the cold glacial winds just off the great ice-sheet did not make the prospect brighter. Conditions were most disheartening for a photographer, for time exposures were almost necessary, and then the visibility was so poor one could scarcely see more than a few hundred feet. What a wonderful opportunity it would be to visit that colony with a few days sunshine.

Puffinus griseus. SOOTY SHEARWATER.—This species was not common near Forrester in July, probably due to lack of sea-food, as all evidence seemed to point to such a scarcity, but a few were seen off shore daily. Possibly a dozen were noted from the southern point of Dall Island to Forrester July 9, and about as many more the 18th and 21st, with a few scattering individuals coming close to shore on other days. Seven specimens were collected in Icy Strait at the mouth of Glacier Bay August 9, from a flock of about twenty-five. The water was very smooth and these birds were feeding with great flocks of Murrelets, Puffins and Northern Phalaropes. They seemed very large when upon the water, and sat high; they were quite tame and allowed us to approach very near. In flight they are wonderful, and as their name signifies, they have the ability to shear the water, following the waves up and down with swift strokes of their slender, stout wings with a gracefulness which is a pleasure to see.

Oceanodroma furcata. FORKED-TAILED PETREL.

Oceanodroma leucorhoa beali. BEAL'S PETREL.—These two forms nest on Petrel Island at the south end of Forrester. The island is about a mile in length, with the usual precipitous walls, and detached rocks with their Murre colonies. The spruce trees do not attain any size and the berry bushes upon the slopes are dwarfed, allowing ample digging room for the burrowing birds. The Petrels are by far the most numerous birds on the island, and the burrows of both forms are to be found side by side in the dry soil, from the waters edge to the summit. The Forked-tailed Petrel nests earlier than Beal's Petrel, the first eggs noted by Willett being heavily incubated on May 24. On July 16 we found many fresh eggs, and no young, of Beal's Petrel, while only large young were to be found of the gray bird. While many adult Beal's Petrels were found in the burrows, none of the other species was noted. Both forms have but one egg; the nest is a little pile of sticks in the end of the burrow,—the nesting hole usually being three or four feet in length and of simple structure. The nesting sites differ somewhat in that Beal's Petrel usually chooses open ground while the other species is more apt to burrow near the roots of a tree, or along a fallen log. That the Beal's Petrel has the longer nesting period of the two is evident,

for some of the burrows held two adults, the eggs, as yet, not having been laid. The birds were apparently not greatly concerned with the opening of their home-tunnel; and when placed upon the ground, they usually waddled to the first burrow entrance and scrambled in. Some times they take to wing but are soon tangled in bushes and are glad to seek out a nesting hole. I have never seen Beal's Petrel away from Forrester (neither species was noted in flight near the island), but I saw about thirty Forked-tailed Petrels skimming over the waves before a southeaster in Frederick Sound November 19, 1919, and again, several were noted in Icy Strait October 10, and one was collected. One was seen in Glacier Bay October 14.

Phalacrocorax auritus cincinatus. WHITE-CRESTED CORMORANT.—I have never seen this species north of lower Chichagof Island; a pair was noted in Keku Strait March 5, about thirty individuals near Klawack March 10, and one pair in Patterson Bay, Hooniah Sound May 19. Many large Cormorants were seen from time to time, but as no other birds were near to compare them with, I could not identify them. This species is much larger than the Pelagic Cormorant, its size alone being sufficient to identify it, when in company with other Cormorants. At Klawack, where they were fairly common, they were feeding upon the schooling herring, in company with other Cormorants and Gulls. They are apparently more wary than the Pelagic Cormorant; are strong fliers, and are hard to collect.

Phalacrocorax pelagicus pelagicus. PELAGIC CORMORANT.—This is a common species, being seen every month of the year and on practically every trip. As with other water birds, their abundance depends upon their food supply. Where there are herring, Cormorants are sure to be in attendance. Their distribution is general during the winter months, but the majority repair to the breeding islands during summer; and even the non-breeders appear to follow the mated birds, possibly for company's sake, for few birds are seen along the channels in comparison with other months. Many birds were nesting on Forrester during July; where they build their nests upon narrow ledges along precipitous cliffs, often with a colony of Murres, or a few Gulls. I have seen half a dozen Cormorant nests close together, and again, one pair may occupy a cliff to themselves with no other birds within one hundred yards. The birds had just begun to lay, three bluish, chalk-like eggs to a nest being the most I observed; the eggs are rough and stained, and the nests are untidily kept, being plastered with droppings. This species is wonderfully colored when in full breeding dress, the array of greens and purples fairly scintillating in the half-light; some few individuals are blessed with a series of small white, thread-like plumes, which are so numerous as to make the bird look partly albinistic. Cormorants are industrious fishermen and are probably as destructive to our fish supply as any bird; whole flocks of them follow the herring run and the amount they consume must be enormous. A fisherman put out a gill net at Forrester to catch bait and I saw the net in the water alive with bait, while Cormorants were diving on both sides of it. When the fisherman

came, not a herring remained. In Glacier Bay, June 12-21, Cormorants were common, although not nesting as yet. Whole flocks clung to the precipitous walls, or sat about on the glaciated points. They were plentiful August 8-15, and were noticed especially because of their habit of congregating on the numerous ice-bergs.

Phalacrocorax pelagicus resplendens. BAIRD'S CORMORANT.—There is a specimen in the Colorado Museum collection, No. 9250 which has been identified by Dr. Oberholser as this form. It was taken by George Willett off Forrester Island July 18, 1920, and is an adult female in high plumage. This is an interesting record, and I believe the first from Alaska.

Field Museum, Chicago, Ill.

(*To be continued.*)