

A NATURALIST IN THE FROZEN NORTH.

By ANDREW HALKETT.

(Continued from page 86.)

Their return from the south to that vicinity was observed early in April, and one or more were seen at intervals between then and the 20th of that month, by which date they had fairly established themselves, and were afterwards to be seen daily, at any hour, flying about, or alighting on the tops of the iglows. During the long sunlit days those little birds, together with the dogs, longspurs, and horned larks, lent a picturesqueness to the group of iglows, and were thoroughly at home, among the snow and ice, even when the wind was blowing strongly.

The nest of the snow-bird is a substantial structure, composed chiefly of grasses lined with white feathers; those found by me were placed under large stones.

A Red-poll (*Acanthus linaria*) was caught on the deck of the vessel when we were sailing along the Labrador coast, and a specimen shot whilst it was flying about among the snow-buntings near the vessel and iglows at Fullerton.

“When you see one raven you need only look round to discover a second.” So said Father Brehm, and maybe his statement is based upon fact. One or two Ravens (*Corvus corax principalis*) had made their abode at Fullerton, and were often to be seen singly or together throughout the winter. Not requiring to be disguised from enemies, nor in order to obtain its food, this bird is a conspicuous object, and its jet black colour amid its white surroundings, is no doubt an advantage to it in finding its mate.

The Horned or Shore Lark (*Otocoris alpestris*) was occasionally seen among the snow-birds at Fullerton, and the Snowy Owl (*Nyctea nyctea*) was occasionally reported to have been seen in that vicinity. This owl is diurnal as well as nocturnal.

Two eggs, from the same nest, of a Falcon (*Falco*) were found at Fullerton on the 5th of July. In one incubation was advanced, the other was rotten.

The Rock Ptarmigan (*Lagopus rupestris*) was repeatedly seen in various stages of plumage. In the white plumage in the months

of December and May, in variegated plumage in September, and in white or variegated in June. It is not easy to understand this, but I speak of what I saw. Ptarmigan were also seen out at sea—off Labrador—early in October, their tails spread out fan-shape in flight, and their plumage was then white.

We must hurry through the birds. That line of the arctic fauna is too great to do anything like justice to in a single lecture.

Shore-birds are numerous. One day a little Sandpiper tried to decoy me away from its nest by feigning to have its wings broken. It would allow me almost to touch it, and then skip away; after which it repeated its tactics. I sat on a rock and patiently watched it until it returned to its nest, which contained four beautiful eggs.

The Red Phalarope (*Crymophilus fulicarius*)—a bird of wide distribution—is well represented and thoroughly at home in our northern waters. With its coot-like feet it swims gracefully about in the ponds, and equals any duck in its ease of movement, a thing shared with other Phalaropes, but otherwise unique among the shore birds. During the summer it was common at Fullerton, but its nest was hard to find.

The Whistling Swan (*Olor columbianus*) was found at Southampton and Hutchen's Goose (*Branta hutchinsii*), and the Lesser Snow Goose or Wavy (*Chen hyperborea*) at Fullerton.

Eiders (*Somateria mollissima*) was very plentiful, and some remained at the floe or open water throughout the winter, and were frequently shot.

The following analysis of the contents of the gizzards of some 20 Eiders may be of interest:—Numerous shells of *Acmea testudinalis*, numerous fragments of valves of *Tonicella marmorata*, a few shells of *Margarita cinerea*, a number of shells of other small gastropods, a few opercula of a gastropod, egg-capsules of a gastropod, numerous valves of *Crenella*, fragments of valves of various small and medium-sized lamellibranchs, various parts of the shells of *Hyas* and other crustaceans, a few pieces of the arms of an ophiurian, a few bones of a very small teleost, fragments of alga, numerous small stones.

The King Eider (*Somateria spectabilis*) was of rarer occurrence than the common Eider, but was occasionally seen. A male bird

I came across suddenly during one of my walks, resting on the water, and, as it shewed no inclination to get out of the way, I had for a few minutes a splendid view of it.

The Long-tailed Duck, Old Squaw, or Sou-wester (*Clangula hyemalis*) was common at Fullerton, where during the long days it was to be seen at any hour among the fresh water ponds, and to be heard uttering its distinctive cry : *ha-how-wa*.

The nest of this bird is a beautiful object—composed of grass, thickly lined around the sides with down and sunken in the turf. The eggs, which are of a pleasing buff colour when seen in the nest, add to the appearance of the object.

Terns' eggs were brought to the vessel by the natives promiscuously. There is a considerable variation in the markings of the eggs, and they may not all be of the same species, although mostly to be referred to the Arctic Tern (*Sterna paradisæa*), which was the species of tern most commonly seen.

The American Herring Gull (*Larus argentatus smithsonianus*) was to be seen anywhere in the northern part of Hudson Bay, in the Straits, and along the coast of Labrador.

Besides the Herring Gull, several other kinds, notably Jaegers, which may be considered the birds of prey of the Laridæ, or Gulls, were found.

The little Dovekie (*Alle alle*) is one of the most boreal of birds. It was plentiful in Davies Straits, and in the far north, to be seen gregariously in isolated flocks, or singly, flying, diving, or swimming. At Eath, Greenland, it was also seen, flying in flocks high up in the air.

Murres (*Uria lomvia*) were numerous at Coates Island, and all through Hudson Straits. They were doubtless hatching their eggs in the near vicinity to the vessel at Wolstenholme; but, owing to the ice jam, there was no way of getting near them.

Sea Pigeons (*Cephus mandtii*) were seen off the coast of Labrador; in proximity to the low and rugged islands situated at the entrance to French Head Bay; and at Winchester Inlet. They were quite common at Fullerton, and were occasionally shot at the open water. They were also seen at Beechy Island.

Red-throated Divers (*Urinator lumme*) and Black-throated Divers (*U. arcticus*) were found at Fullerton.

Of Fishes, small Salmonoids were seen jumping at the mouth of the river at Nachvak. The Salmonoids are numerous, at least in individuals of particular species, in the far north, and were frequently caught through openings in the ice at Fullerton. Hundreds of Salmonoids were netted at Pond's Inlet. The stomachs of those were crammed full of amphipods. A small trout was caught with the hand in a stream at Port Burwell. Cod-fish (*Gadus callarias*) were caught with the gigger at Port Burwell, and a number of small Gadoids was found at Fullerton. A specimen of *Lycodes*, and one of *Gymnelis*, were dredged at Port Burwell, and a few specimens of two species of Blennioids at Fullerton. A Sand-launce (*Ammodytes*) was found at Eric Cove, lying on the beach at low tide, out of the water, and was alive, and no doubt was awaiting the return of the tide. Cottoids or Skulpins were numerous, and were the most common of the marine fishes observed. Great numbers of a species of fresh-water Stickleback were found in the ponds at Fullerton. A Basking Shark (*Somniosus microcephalus*) was seen in the hands of the Esquimo at Port Burwell.

Several specimens of Ascidians or Tunicates were dredged. Among them two of *Boltenia*, one at Port Burwell (small), the other at Fullerton (large). The latter is of a red colour, and the stalk is covered with *Spirorbis*, Polyzoans, and a bright pink alga.

The crustacean fauna is very rich : the sea abounding with cirripedes, amphipods, decapods, and isopods : the fresh waters with copepods and phyllopods.

Swarms of a bright red-coloured copepod of the family Diaptomida exist in fresh water ponds, formed of melted snow, in the barrens at Fullerton ; associated with which are numbers of so called water-fleas and also a species of phyllopod.

These fresh-water crustaceans are probably the modified descendants of primitive kinds which thrived in the glacial period ; for as G. O. Sars points out, "all the Copepoda pass through some free-living stages, the earliest of which is the well known so called *Nauplian* stage," and, as he clearly demonstrates, "it is easy to believe that the parasitic forms have originally descended from free-living forms," so that "the most primitive characters must be sought for, not among the parasites, but among the free-

living forms." Now these crustaceans, found during the Expedition, are free-living and comparatively highly organized kinds. Furthermore, their occurrence together in the same pond so corresponds with a somewhat similar condition of things which Sars observed in Norway, that I quote what he says: "The only place where I have met with this form [*Diaptomus bacillifer*] is in the farthest north of Norway, at Vardø, Finmark. It occurred here rather abundantly in a shallow tarn situated close to the town. In the same tarn the arctic Phyllopod *Branchinecta paludosa*, was very common, and the water was moreover peopled with large shoals of *Daphnia magna*."

Some conception of the conditions in which those remarkable copepods and phyllopods live and move, may be gathered from the following quotations from my manuscript notes.

"Walked over beyond the first pond, intending to find the opening in the second, but, owing to a blizzard, could not find even the pond. Had on returning to guide myself by the sun which dimly shone through the clouds and snow-drift, and at length saw the house which had been built for the Mounted Police, and so was enabled to make my way back to the vessel. My ears and nose were frozen. These facts are merely introduced because, such being the circumstances under which copepods were looked for that day, some of the conditions under which they were to be sought are thus shewn. Of course they were not to be found, but I knew that under the ice they were swimming about as usual." This was on the 11th November.

Of isopods collected were specimens of the Salve Bug (*Ægapsora*) found on cod-fish, and specimens belonging to the families Idotheidæ and Arcturidæ. Amphipods were exceedingly numerous at least in individuals, and were found in the sea or along the beach almost anywhere, some of the species being very closely allied. Specimens of Cirripedes or Barnacles, of the genus *Balanus* were found; but the Crustaceans are too numerous and require working out, to say more about them just now.

Of Arachnids, spiders of different kinds and sizes were found, under stones or moving over the ground at Nachvak, Eric Cove, Fullerton, and at North Devon Island. Very tiny arachnids (just perceptible) were found at Beechy Island, where Franklin's monu-

ment is. Small arachnids were found under a stone at Wakeham Bay.

Humble or Bumble Bees (*Bombus*) of two species were seen at Fullerton at the end of June and in July, flying over the rocks or hovering among the flowers of the pinkish red moss-campion (*Silene acaulis*), and specimens obtained.

Diptera, chiefly of the families Culicidæ, Cæstridæ and Muscidæ, are numerous and common in the arctics during the short summer. Mosquitoes were very thick and troublesome at Port Burwell, and some were caught with the hand on the deck of the vessel. Specimens of mosquitoes in the larval, pupal, and imago stages were also collected at Fullerton. The large larvæ of a fly which I have named the Tooktoo-fly, infest the flesh of the Caribou. Tooktoo is the natives' name for the Caribou. Small dipterous larvæ were found in a small dead bird at Cape Isabella, Ellesmere Land, and dipterous pupæ in the skull of a cetacean at Port Burwell.

The larvæ of Caddis Flies were found common at the bottom of the fresh-water ponds, where they were readily to be seen, crawling along slowly. They were voracious, and those collected kept eating the phyllopods which I had in the same vessel. Their cases were composed of bits of leaves. A specimen of Caddis Fly (imago) was also found.

Further reference to insects collected may be made to a few diurnal moths and caterpillars, to several species of beetles (including aquatic kinds), and to a curiously modified louse, specimens of which were found on a walrus and on a seal.

The time would fail in any effort to describe the various mollusks, polyzoans, annelids and echinoderms, observed or collected during the expedition. The barest allusion can be made to them.

Pteropods were found, mingled sparingly with medusoids and ctenophores, moving about near the surface of the sea in harbours; and specimens representative of the two sub-classes, viz : Gymnosomata and Thecosomata, into which those mollusks are divisible, obtained. The species found belonging to the latter named division are popularly known as "black-berries."

(To be continued.)



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