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# THE OTTAWA NATURALIST.

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## A NATURALIST IN THE FROZEN NORTH.

By ANDREW HALKETT.

Beyond the ordinary range of observation are vast ice-bound and snow-clad regions, where nature, although not there at all times profuse in the manifestation of her life forms, unfolds before the eye of the naturalist who may be fortunate enough to visit those far away places, creatures remarkable in their structure, and quite as remarkable in their life-histories and habits. Something is already known concerning certain of the animals which inhabit the frozen North : much, very much indeed, remains to be found out. The fields where those creatures have struggled to exist, and have survived, are vastly extensive, and their habitats very varied, and often singular. They exist in divers environments : they swarm in the open sea, creep about or remain stationary deep down upon its bed ; they swim at its surface, or fly immediately over it, or yet again in the upper air ; they bury themselves in mucky substances along the beach, or in sand in pools of salt water ; they hide themselves and take refuge among algæ and under stones ; they crawl along among the leaves of stunted plants, and hover among arctic flowers ; they move about amid the azoic rocks of the barrens, and even live beneath the ice in fresh-water ponds formed of melted snow.

Furthermore, there are many delicate forms, such as the medusoids, and other hydrozoans, which cannot well be preserved as museum specimens ; therefore, an adequate conception of those could be acquired only through coloured illustrations, so that they await the skill of an artist, with pencil and brush to figure them on the spot.

Ice-bound and snow-covered, then, as those northern regions are during the long winter, they yet offer to the observer a rich field where nature reveals the living objects she has placed there ; and the opportunities to observe which the short milder season affords, are many. It is primordially a place for a field-naturalist: a place, moreover, where the mind is aroused to the urgent need on the part of naturalists (and this the more so on account of the present state of zoological knowledge) for closer and deeper observations, whatever the nature of their respective researches may happen to be. In this connection, a few preliminary remarks may be in place, and are offered suggestive of what may be expected in an address which purports to deal with animal forms many of which have had little if any attention, and which are made in order to show that as yet the work of a naturalist in the Hudson Bay region and in the more northern and eastern locations, is that of a pioneer.

The mere closet naturalist lacks the experience of the field naturalist. Were one, it is true, to confine himself to a laboratory or a library, having little desire to go out of doors, were he simply to read popular works on natural history, or to pore over more advanced zoological treatises, he might familiarise his mind with general theories of classification, or with outlines of comparative structure. In other words, a student of this sort might gain a fairly accurate conception of the sub-kingdoms into which the animal creation is divisible. But if he thus limited his studies, having little ambition to walk even a mile from his home in order to stroll through the woods or along the banks of a stream, his knowledge would be curtailed and inaccurate. On the other hand, one who values the recorded researches of others, and who, whilst not dependent upon books, reads or refers to them, knowing that they contain many corroborated facts concerning the forms and habits of animals ; but who at the same time is independent enough to follow living beings to their haunts, to learn at first hand from themselves, will find his stock of information accumulating and resting upon a surer basis. Nevertheless, one who carries on original researches will discover how little, relatively, he knows, and the more deeply he pursues knowledge in the realms of natural history, the more he will see,



not only how much remains to be found out, but also how much already alleged and taken for granted, requires corroboration, or even correction. If this be so, one whose opportunities have led him into fields hitherto little frequented, will commensurately feel the gravity of nature's own obstacles which tend to impede the way in seeking to add to the treasury of knowledge, and therefore he ought to be as certain as possible of his data before entering into descriptions. The substance of the following remarks, then, is at best fragmentary and partial, an effort to adhere strictly to what was actually observed, leaving the filling in of details, in such a wide and varied field, to subsequent researches. "It is an old and firm conviction of mine," wrote Darwin, "that the naturalists who accumulate facts and make many partial generalizations are the *real*\* benefactors of science." And, surely, the true scientific method is to ascertain facts and marshal them, which of course implies incompleteness entailed through the processes of collecting them.

The mammals observed are limited to the four orders of the Carnivora, or the beasts of prey; the Rodentia, or those which gnaw their food with chisel-like incisor teeth; the Ruminantia, or those which chew the cud; and the Cetacea, or those of the whale kind. The tail in all the species observed, excepting those of the family of the Canidæ, or dogs, wolves, and foxes, is short or rudimentary. This is true even of the Ruminants, although those creatures of the North are plagued by dipterous insects—at least the Caribou is. The tail in the Cetaceans is of course broad, so as to act as a propeller. The colour of the iris is generally brown, and this is the case in many of the birds also. I was struck with the similarity of the colour of the iris in the fox and in the hare, and was led to think that some homologous purpose is thereby served to those creatures. Burrowing does not seem to be a common habit, and, when resorted to, has usually to be done in the snow, the rocks affording little facility for that purpose, except in the instance of small rodents.

In appearance the Walrus (*Odobæus rosmarus*) when seen in its habitations, is massive and unwieldy. Great numbers were

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\* Italics his.

seen at, and in the vicinity of, Charles Island, Ungava, in September, 1903. They were first observed in the sea, either singly, or two or three together. At the island they were numerous, and were moving about among the surf and boulders. Walruses were also encountered off Southampton Island. At this place numbers were resting themselves on the great sheets of floating ice, and when approached would in the easiest manner simply slide over the ice into the sea. In August, 1904, numerous Walruses were seen on floating sheets of ice, as we were sailing up the Greenland coast.

Whilst at Coming Creek, North Devon Island, some of the party, intent on making researches regarding the geology and palæontology of the place, went ashore. When in the small launch, a number of Walruses were seen swimming about in the bay. They were chased, and it was great amusement to see them rolling themselves down into the water, in order to hide, and to see them coming up again, as they were compelled to do, in order to breathe.

Knowledge of the Seals is nearly as involved as is that of the Whales. (See p. 86.) Usually only their heads are seen above water, and viewed, as they often are, from a distance, it is sometimes impossible to be sure of the species. The different kinds outwardly resemble one another, and there is considerable individual variation, occasioned by the creature's time of life; and probably for other reasons, such as that of the patterns and markings in the sexes of a particular species. Indeed, one who has never been in the arctic regions cannot properly understand the obstacles to be overcome in studying out those creatures. With us, the best opportunities were in the iglows, or snow-houses, only dimly lighted by the stone lamps when the days were very short, and the sun low down in the heavens.

Seals were observed dotted about here and there in the water at Winchester Inlet, in September, 1903, their heads appearing and disappearing as they sported themselves in this sheltered place. At Fullerton, throughout the winter, seals were frequently seen. One day I observed two frozen-over openings, at places apart, the abandoned holes of seals. In the month of May, seeing a seal resting on the ice far away in the distance, I

walked toward it with one of the firemen in order to get a better view of it, but it disappeared through its hole in the ice. I then walked over to examine the hole but failed to find it. The surroundings disguised its whereabouts, the packed snow of the low rocks being just sufficiently ridged to hide it from view; and this was a clear case of protection to the creature.

Irrespective of difficulties, three species of seals were determined, viz., the Flipper or Ringed Seal (*Pagomys fetidus*), common at Fullerton, where it was frequently to be seen at the floe or open water during the winter, and it was also seen in Baffin Bay; the Harp Seal (*Pagophilus grœnlandicus*), seen in Baffin Bay, and on the ice near Cumberland sound; and the Hooded Seal (*Cystophora cristata*), seen resting on a sheet of ice in Davis Straits.

The Polar Bear (*Thalarctos maritimus*) can be seen during the short summer, walking about when the ground is carpeted with a low-growing vegetation, and cranberries and blueberries paint the landscape, and when, in certain localities, there is snow only in ravines and deep hollows where the sun cannot penetrate. Sometimes also his bruinship is to be seen on the floating ice in the sea. Bears were encountered as they were walking about on the mountain sides at Eric Cove and at Digges Island, Ungava, and on floating ice off Southampton Island, where walrus were observed. Also among the ice at the head of Hudson Straits, near Cumberland Sound, and in Baffin Bay.

A Barren Ground Wolf (*Canis lupus albus*) was killed with a trap gun in the month of March. If this were the same individual—which is more than probable—it had been seen several times for some days, previously, prowling about near the vessel, and running along over a frozen pond on an island. Its colour was white, the hairs of the back being tinged with black.

The Esquimo Dog (*Canis borealis*) is very wolf-like. This variety of the dog is the domestic animal of the Inuit or Esquimo, and it would fare ill with him were it extinct. It draws his sleigh over the frozen sea, and over the snow inland. Its disposition is that of the dog of a savage, lacking the docility of our civilized varieties; but it has little of the aggressive ferocity which, from descriptions, I anticipated it would have. It remains

quiet as you pass it, but retreats at the slightest sign of molestation. At the same time I am certain that, if kindly treated, it would soon exhibit affection. It is about the size of a collie. In colour it varies: some are black, variegated with white, or *vice versa*, others gray, and others again, but infrequently, cinnamon colour.

The Arctic Fox (*Vulpes lagopus*) is tolerably common in the vicinity of Fullerton, and during the winter months was frequently brought in from the traps. In winter its coat disguises it thoroughly. One day in February I walked to the traps, in one of which was a fox, dead and frozen stiff, which at first I took to be a lump of snow, so much did the creature resemble its surroundings. On another day of the same month the traps were again visited, in one of which was a fox caught by the toes of one foot. It was living, and limped about when approached, but was very easily killed. As soon as it was dead, I examined its iris, and also examined the iris of a living fox which was brought to the vessel in November, and found the colour to be a beautiful brown.

This completes our brief consideration of the carnivorous mammals observed. We have next to consider those belonging to other orders, and will begin with the Polar Hare (*Lepus arcticus*). This rodent, when fully clad in its pure white coat among the frozen ponds and snow-covered rocks of its native haunts, presents a graceful sight. It runs about, sits up, and lies down betimes, and moves rather timidly, somewhat in a semi-circle round about the observer.

Polar Hares were occasionally shot at Fullerton, and any fine day during the winter, when walking over the islands of the channel, their foot tracks might be seen in the snow. Its winter coat is pure white, excepting the ear tips, which are jet black. The Hares have little difficulty in obtaining food, because the stalks of the dried hay-like grass which they feed upon, are often left uncovered by the drifts several inches above the surface of the snow. I frequently came across the places where they had been feeding, and found that besides eating the exposed grass, they also got at the covered-up vegetation by scraping the snow away. Hares were seen in August along the Greenland coast, and at

Cape Sabine, all of them white, there being evidently in those places of the very far north no time for assuming a summer coat.

A few specimens of several kinds of small Rodents, such as lemmings, and marmots or ground squirrels, were found. The males of the Marmots have cheek-pouches for storing food for after use.

The skins, with the heads intact, of six Musk Oxen (*Ovibos moschatus*) were brought to the vessel from the inland. An examination of their skulls is as follows:—Cavity of brain small; very prominent orbital projections, eye sockets full of fat; when thawed out, the iris brown, pupil light blue. The skull of a calf shewed a different contour from those of the mature animals, the occipital opening being larger, and the lower mandibles thicker in proportion towards the middle. Dentition:—Incisors, 6 in each lower jaw; canines, 1 in each side of lower jaw; molars (including pre-molars), 6 in each upper and lower jaw of specimens numbers 1, 2 3, and 6; 5 in each upper jaw of number 4, with a space for a 6th, and 6 in each lower, the back portion of 6th not having the usual flatness of a molar, but conical and canine-like, and received into the vacant cavity of upper jaw; 4 in each upper and lower jaw in number 5 (calf), the last pointed not flat, but low, apparently a tooth in the forming, each 3rd molar in three parts; 6th molar in each lower jaw of the other skulls in three parts. A small branch of crow-berry (*Empetrum nigrum*) was attached to one of the skins.

We were well supplied throughout the winter with the flesh of the Reindeer or Barren Ground Caribou (*Rangifer grænelandicus*), the carcasses being brought to the vessel from the island by the Esquimo. The flesh of those deer is excellent, and one might eat it every day of the year without tiring of it. The Caribou are much infested with the large larvæ of an Œstrian dipteron, which are buried in the flesh.

In many respects, more is known about the infinitesimal protozoans than about the Cetaceans, or mammals of the Whale tribe, many of which are the giants of the animal world. As a rule, only certain parts of their great bodies are to be seen at one time, usually when they rise to respire; and, even then, very often at a considerable distance from the observer. For this reason, I



seek to be cautious in speaking with certitude concerning the identity of species, in particular cases, unless the evidence was unmistakable. The bones of Cetaceans, bleached, mutilated and worn, are often to be seen along the shores.

Two Whales, evidently the Right Whale or Bow-head (*Balæna mysticetus*), were seen on the Greenland side of Baffin Bay; the Killer (*Orca gladiator*) was reported seen after leaving Port Burwell in August, and the Narwhal (*Monodon monoceros*), whilst we were sailing along the coast of Greenland. A White Whale or Beluga (*Delphinapterus leucas*) was seen sporting itself leisurely near the shore in a harbour on the Labrador coast, and several White Whales were seen at Fullerton. Certain cetaceans, apparently the Grampus (*Grampus griseus*) and the Common Porpoise (*Phocæna communis*), were seen whilst we were sailing along the Labrador coast.

Bird life is an attractive feature in the Arctic zone. Some, such as ravens, eiders and sea-pigeons, remain in the far north throughout the winter (that is, some of them do); and when the sun gains in the ascendancy, the return from the south, for breeding purposes of insessorials, birds of prey, numerous shore birds, swimmers and divers, is indeed a thing of import. Some unerring instinct leads those immigrants to leave the more genial and wooded temperate parts, to betake themselves to the barrens of the north, where, undisturbed, they may make their nests, and rear their young among the rocks and ponds. Among the earliest arrivals are the insessorials, notably the Snow-birds, and these are soon followed by gulls, terns and shore birds. Whilst removing their skins I found the birds were generally well protected from the cold by fat, and that the swimmers and divers, in addition, were very oily for resistance against water.

Tit-larks (*Anthus pensilvanicus*) were seen at Port Burwell. Lapland Longspurs (*Calcarius lapponicus*) were frequently noticed hopping about among the snow-birds at Fullerton.

Snow-birds (*Plectrophenax nivalis*) were observed among the rocks at Fullerton, when we arrived there towards the end of September, 1903.

(To be continued.)

## BIRD NOTES.

NOTES FROM CENTRAL ONTARIO. — The most important ornithological event of the spring of 1905 has been the breeding of the Pine Siskin in Central Ontario. These birds were abundant in the vicinity of Guelph during the past winter, and, at the approach of spring, instead of leaving for the north, they scattered over the country and bred commonly.

Some ten nests were found in the County of Wellington. The first nest to be found in Central Ontario was taken by Mr. F. Norman Beattie at Guelph, on May 7. They appear always to have selected White or Black Spruces as nesting trees.

Our previous Ontario records are from the vicinity of Ottawa, where they have been found breeding by Mr. Garneau.

This spring was marked by the late appearance of the American Crossbill, which was seen on April 13 and again on May 1; on the former occasion a flock of 6, on the latter a single bird.

During the spring migration Blackburnian Warblers, Nashville Warblers, Chestnut-sided Warblers and Magnolia Warblers have been particularly abundant, and the Mourning Warbler has been much commoner than usual and is breeding in far larger numbers.

On May 5 I took a male Cape May Warbler and saw a female and shortly afterwards Mr. L. Beattie took a male and saw others; on May 13 I took a male Tennessee Warbler, and on May 20 a pair of Pine Warblers. This last species is decidedly rare in Central Ontario.

Myrtle Warblers are again breeding at Puslinch Lake near here, as well as at Puke Lake near Mount Forest. The Green Heron is also breeding again at Puslinch Lake, as on June 29 I saw one fly down to, and away from, a particular spot in a bog there several times.

The Red-billed Grebe is breeding at Puslinch Lake this year for the first time, as far as our records go.

A. B. KLUGH.

Guelph, Ont.

RING-BILLED GULLS (*Larus delawarensis*) ON LAKE ONTARIO.— For some years past I have been interested in the gulls of Ontario, and, while I have found the Herring Gull breeding in several of the little lakes north of Kingston, there has always remained unsolved the problem of the gulls to be found on lake Ontario during the breeding season. I always supposed that these were Herring Gulls, probably immature or barren birds, and possibly a few birds which flew here from the inland lakes to feed. This was because in the early morning many gulls could be seen going north, and there was reason to believe that some birds returned in the evening. This year I have been watching the gulls on Snake and Salmon Islands very closely, and have ascertained positively that the flock, numbering between three and four hundred, is made up almost entirely of Ring-billed Gulls. There may be half a dozen Herring Gulls among the number, but certainly not more. Nearly all are in immature plumage and are, in probability, merely here during a developmental period. It will be interesting to note whether the gulls we see on these islands every summer, are of the Ring-billed variety, and more interesting still to learn if any the Ring-billed Gulls, breed in the lakes of Frontenac and Addington. Of course, as is well known, it is many years since gulls bred on any of the islands in Lake Ontario, even the Common Terns are disappearing.

C. K. CLARKE, M.D.

Kingston, Ont.

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#### GENERAL EXCURSION TO CHELSEA.

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Following a series of very successful sub-excursions held, as announced in the Spring Circular issued to all the members of the Club, to Blueberry Point, Aylmer; Victoria Park and the Central Experimental Farm; Leamy Lake, Hull, Que; Beaver Meadow, Hull, Que; the first General Excursion of the Club took place on Saturday, the 27th of May, when Chelsea, Que., was visited. There was a very large attendance of members of the Club and their friends. The Provincial Normal and other leading schools of the City were also well represented. From those present at

the Teachers' Convention, which was being held in Ottawa during the same week, and at the Royal Society's meeting, were noticed : Prof. A. H. MacKay, Superintendent of Education for Nova Scotia, Halifax ; Dr. G. U. Hay, Supt. of Education for the province of New Brunswick, St. John, N.B. ; Dr. C. F. Hodge, of Clark University, Worcester, Massachusetts ; Mr. E. R. Howes, of Bowesville ; Mr. J. W. Gibson, etc.

The weather was all that could be desired and the woods were very green and fresh, filled with treasures from which many a lesson might be learned. At this time of the year the world of Nature seems to unfold its wonders to the eye of the observer in a manner which it cannot do in the more advanced season of summer and later when the fruition comes with its varied stores. There is no time when Nature studies ought to be carried on with more interest and profit than when the buds burst forth and the birds arrive, when there is a revival of life and activity in both the vegetable and animal worlds. In a country like ours, where the seasons are so well marked, there is a special attractiveness to all studies of life in the woods, and in the open glade and mead. The pool with its myriads of forms of animal life, each of which would form a life-study of special interest ; the tree with its unfolding leaf and flower buds ; the humbler plants and shrubs, the mosses, and liverworts, the spreading lichens and mystic fungus life, all yield to the student of Nature their own distinct and special secrets that open the heart and lead to paths of pleasantness. Even the rocks, those hard and cruel things which seem so lifeless and "dour", afford a theme which tells the tale of long ago, when molten lavas, boiling magmas were cooled and formed the crust of Earth upon which now we tread and give to plant and animal life the food and the place upon which both subsist.

The excursion train left the Union Station at 1.30 p. m., carrying some 300 students of Nature ; and, on arriving at the grove, Dr. S. B. Sinclair, the President of the Club, gave out the announcements for the day, pointing out to the members and their friends who the Leaders of the Club were in the different branches of work. Rendezvous was given for 4.30 p.m., when brief addresses were given on the principal objects seen during the day and lessons learned.

Professor Macoun was first called upon and gave one of his characteristic speeches, in which he drew wide conclusions as to the best methods of studying Nature and getting acquainted with her ways, in the field. Dr. H. M. Ami followed, giving a brief sketch of the geology of the region visited. The geological party had gone west to a cutting in which sea-shells were collected in abundance. These were exhibited, as were also a number of the principal rocks of the locality traversed. Crystalline limestones, phosphate of lime, gneisses that carried abundance of garnets in their sheared mass, iron ores, were described. Both ends of the geological scale met at this point. The oldest rocks which compose the earth's crust, and the youngest or newest—the Archæan and the Pleistocene—are here in immediate contact.

Dr. James Fletcher spoke on "Seed Babies," Cotyledons. Their functions and uses were carefully delineated and examples shown from specimens obtained during the day. Other forms of plant-life observed during the afternoon were exhibited by him and notes given on insects captured. A fine pair of the Luna moth was shown by Mr. E. R. Howes, which had been collected by one of the party. The eggs of the Cone Bunting were shown and the habits of the bird described.

Dr. A. H. MacKay, of Halifax, followed with pleasant and witty remarks on the Club's work and the good resulting from such outings as the present.

Dr. G. U. Hay spoke of the vast resources of Canada and the need for students all over the Dominion. His recent visit to the West Coast had revealed to him a field of untold magnitude and an inheritance for Canadians of tremendous import.

Dr. Hodge was the last speaker. He received a perfect ovation on rising to respond to the call of the President. He had enjoyed every minute spent with the Ottawa Field-Naturalists' Club. Nature Study was destined to play an important factor in the education of the peoples of the world from now on, and materials for study and research would never be lacking. The manner in which these are approached by us as students, determined the results we would likely obtain. Nature reveals herself to those who put themselves in touch with her and who seek earnestly to feel her pulsations.



The President, Dr. Sinclair, then adjourned the meeting and the excursionists returned home to the city, having thoroughly enjoyed the day's outing, which all agreed had been both most profitable and pleasant.

H. M. A.

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#### GENERAL EXCURSION TO CARP.

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The second general excursion of the Club was held on June 10th, to Carp, Ont. Only a dozen members took advantage of the cheap rate secured by the Excursion Committee. Undoubtedly the unsettled state of the weather and the probability of rain discouraged many from attending. This locality is a very interesting one, and those who did take advantage of the outing were all of the same opinion—that the day had been profitable and most enjoyable. Many interesting specimens were collected and notes made as to the distribution of species, etc.

The greater part of the morning was spent in going through a charming grove, permission to enter which had been kindly granted to the Club by the owner, Mr. Johnson, and in walking along a lovely country road to a rocky prominence, from which a fine view of a beautiful stretch of country could be had. Some wild plum trees were examined, the fruit of which had all been destroyed by the well known fungus called Plum Pockets. Near a small pool a fine large, well marked example of the Milk Snake was seen.

With regard to the plants of the district the following note is from Prof. John Macoun: "There was a marked resemblance in the flora of the rocky district at Carp with that of Kingsmere, in the absence of certain species and the presence of others; yet the species in both districts are almost identical. *Phlox divaricata* and *Hydrophyllum Virginicum* were the only species seen that have not been detected at Kingsmere. *Geranium Robertianum*, considered a rare species, was common on rocky ledges. *Archangelica atropurpurea*, new to the Ottawa district, was found by springs above the village and *Heracleum lanatum*, *Anemone riparia*, *Rhamnus cathartica*, *Phegopteris polypodioides* and *Ran-*

*unculus septentrionalis*, all rare and interesting species, were detected by the botanists."

As to the birds of the district, Mr. A. H. Gallup writes: "Forty species were listed, none rare. The following might be mentioned: Warblers—Yellow, Black and White, and Black-throated Green; Redstart, Oven-bird, Water Thrush, Mourning Warbler, and many Wood Pewees, Red-winged Blackbirds, White-throated Sparrows, Purple Martins, Red-eyed and Warbling Vireos and Wilson's Thrush. The delightful song of the Catbird was noticed."

On the geology of Carp and environs, Dr. H. M. Ami, the leader of the Geological Section, says: "Carp village is situated on the bank of a small stream of the same name, along the edge and top of a series of marine terraces made up of "drift" materials deposited during later Pleistocene times, over the irregular surface of an Archæan mass which crops out in numerous places and exposes gneisses crystalline limestone, holding various kinds of minerals. Immediately opposite the Canada Atlantic Railway station are the remains of a hill of gravel from which were obtained the remains of two species of marine organisms: (1) a barnacle, probably *Balanus Hameri*; (2) a shell, *Saxicava rugosa*, L. This hill, on which a house used to stand, has been cut away for ballasting the railroad track along the line of the Ottawa and Parry Sound Railway. *Saxicava rugosa*.—Large and abundant specimens occur in the westerly portion of what remains of this once prominent feature in the landscape about Carp station, opposite the box factory and sawmill, near the old school house. The gravel is coarse; pebbles varying in size from that of a pea to 7 or 8 inches in diameter occur throughout the mass, and a large proportion of them would average from 2½ to 3 inches. Many of these, about 10%, are of Archæan age.

"Under the guidance of Mr. J. W. Gibson, to whose good management much of the pleasure of the day was due, the party skirted along the edges of the Laurentian ridge and returned over the rocks where iron-bearing gneisses—associated with crystalline limestones—syenites and granitoid or pegmatitic masses traversed by veins of quartz and occasional dykes of diorites or some other augitic materials, were seen to hold interesting minerals. In an

opening for mica were seen colonies of crystals of hornblende, which presented a very curious appearance.

“*Curved Crystals of Hornblende.*—In a single colony of hornblende crystals obtained on the dump of this vein of mica, in which pink calcite magnetite biotite crystals and hornblende crystals were observed, there were no less than fifty crystals presenting the unusual phenomenon of being curved or bent. That some extraneous force or other dynamic agency was at work to deform the crystals, is evident from the face of the crystals themselves. There are two phases of the flexure and curved condition of these crystals which may be readily observed, viz., (a) the broken and re-cemented prisms along one side or plane of the crystal; (b) the uniformly curved and deflected crystal. That the dynamic forces at work were strong enough to break many of the crystals in the colony is a fact merely to be observed; whilst many of the crystals having such a gentle, even and unbroken curve in their present appearance would lead me to believe that the crystal had once been in a more or less plastic condition. The crystals are worth studying more closely. The presence of a pink calcite in the mass leads me to infer that the pyroxene crystals were probably developed in a vein of this calcium carbonate. In a quartz vein said to be gold-bearing and occurring on the ridge, which was opened and followed a short distance in the hope of finding more material of an auriferous character, fine examples of feldspar were obtained, which gave evidence of the presence of microcline or perthite. They are highly crystalline, exhibiting large faces with perfect cleavage everywhere on the dump. Crystalline limestone and wollastonite were also observed—the limestone holding numerous and irregularly shredded masses of rusty gneiss-like structure imbedded throughout their surface outcrop which appeared in relief.

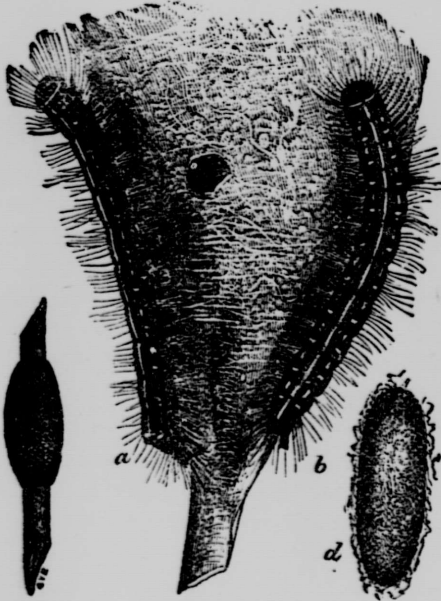
“On the farm of Mr. James Wilson a sandpit occurs, from which the members of the Geological Section obtained a fine series of marine shells, referable to two species only: *Macoma fragilis*, Fab. (= *M. Balthica*, L.) and *Saxicava rugosa*, L.”

The entomologists of the party, although few in number, made some acceptable captures, and doubtless would have collected many more interesting insects, had the day been more suit-

able for such work. As is well known, the butterflies delight in the bright sunshine, and, as the day was dull, few species were seen. Altogether eight different kinds were observed, but none of these were plentiful. The first specimens of the season of the Little

Wood-satyr, *Neonympha eurytus*, Fab., were seen flitting about in

the woods. On account of the weather, therefore, those seeking insects confined most of their attention to the collection of lepidopterous larvæ, and many caterpillars of some of our noctuid moths were found beneath pieces of board, chips, etc., on the ground. Two different species of arctian larvæ, viz., *Apantesis virgo*, L., and *A. parthenice*, Kirby, were collected. On several wild cherry trees, tents containing numerous specimens of the American Tent Caterpillar were observed. This injurious insect of orchard and forest, it is to be regretted, seems to be on the increase again.



American or Apple-tree Tent Caterpillar:  
a, tent; b, caterpillar; c, egg mass  
on twig; d, cocoon.

Everybody can do something to control it by cutting off the tents whenever seen and trampling on them, thus destroying every time a colony of upwards of two hundred caterpillars. Much of the foliage of some Silver-leaved Maples was conspicuously disfigured by being covered with the galls of the Maple-leaf Gall-mite, *Phytoptus quadripes*. This is a very small mite which causes the elongated galls which sometimes cover the whole upper surface of the leaves. It has been particularly abundant this year on ornamental maples. Unfortunately, nothing in the way of a remedy can be suggested for this pest other than spraying with the lime and sulphur mixture before the buds burst, as is done against the Pear-leaf Blister-mite; for it probably hibernates in the same way in the scales of the buds.

A. G.

## NATURE STUDY—No. XXV.

## A SHORT INTRODUCTION TO SOME OF OUR COMMON BIRDS.

C. W. G. EIFRIG.

People desiring to become acquainted with birds, those lovable, pretty and useful friends of man, are sometimes bewildered and discouraged by the mass of material which offers itself in nature itself, or in the books which they consult. To help in overcoming these primary difficulties is the object of this paper. How elevating it is to know the birds one meets with, to recognize them by their form, color, behavior, flight and song, to become acquainted with these companions of one's work or walks! How much more beauty and satisfaction can then be got out of life! No one need be discouraged from forming at least a passing acquaintance with them. A little hard work, patience, close observation and perseverance will do it.

The families and species treated of here are loosely arranged in the relative order of abundance and probability of their being seen. The list is more especially for the Ottawa district, but many of the species are of almost continental distribution.

The Finches.—Everyone is familiar with the appearance of birds of the Finch family from our common and least desired neighbor, the English Sparrow. The chief characteristic is the thick, conical bill. A useful species of this family is the CHIPPING SPARROW, *Spisella socialis*. The English name is from its call and alarm note, chip, chip, etc.; its song is a locust-like trill, lillillillill, etc. It is smaller and more slender in shape than the English Sparrow. Its *bright chestnut crown* and grayish white line over the eye serve to identify it. Found in gardens, tree-lined streets and the borders of woods.

As common as the Chipping is the SONG SPARROW, *Melospiza cinerea melodia*. About the size of the English Sparrow, more roundish in build; much streaked with black, brown and gray, below whitish, streaked with black with a larger *blotch in centre of breast*. Its chief mark is its cheerful song beginning with usually three long notes, thus: "Olit, olit, olit, chip, chip, chip, che-char, che wiss, wiss wiss," or "Maids, maids, maids, put on your teakettles, teakettles-ettle-ettle" (Blanchan). It likes places with at



least some water and a few bushes near by, but is also found in city lots and gardens.

When passing through large meadows or pastures, you may often hear a subdued, penetrating high wiry song, something like *ptsip, ptsip, ptsip zee-ee-ee-e-e-e* (Blanchan). The bird uttering it will be seen on a tall grass or weed stem. That is the SAVANNA SPARROW. It is streaked above and below like the Song Sparrow, but *has not the blotch* on the breast; besides, it has yellow above the eye and on the bend of the wing.

Like the Song Sparrow in shape and size is also the SWAMP SPARROW, *Melospiza georgiana*. It frequents marshy places in meadows and woods, and is the darkest of our Sparrows, having darker brown and more black above, no streaks on the gray below. Its song is: *lellelellell*, etc.

When walking through lanes and fields, a sparrow-like bird will be seen to mount the fences or stumps, which, when flying away, exhibits *two outer tail feathers of pure white*. This is the VESPER SPARROW or Bay-winged Bunting, *Pooecetes gramineus*. It is probably our least pretty Sparrow, gray all over, streaked with brown and black, wing near the bend rich brown. Its song, breathing the dreamy repose of the summer meadow, is not so jubilant as that of the Song Sparrow, but still pleasing, thus: *Dee dee ree-deree deree dee dee*, etc, or, *chewee, chewee, chewee, teera leera, leera lee*, which, though insignificant in itself, when sung as the bird's vesper song, late in the quiet summer evening, is inspiring.

Another member of the Finch family exhibiting the two outer white tail feathers in flight and having the song of the Swamp Sparrow, is the well known JUNCO or SNOWBIRD, *Junco hiemalis*. It is slaty bluish black, brownish in the females, which together with the whitish bill and white in the tail and the jerky flight near thickets, makes its identification easy.

A very pretty bird is the WHITE-THROATED SPARROW, *Zonotrichia albicollis*. More noticeable by its sweet song than by its bodily appearance, it is rich chestnut, streaked with black above, grayish below, throat white. From the pine and spruce woods and thickets, can be heard its sweet, somewhat plaintive whistle of from one long drawn out note to as many as ten. Some hear

it flute: *Peabody, Peabody, Peabody*; others, *Sow your wheat, Peverly, Peverly*; again others, *Dear Canada, Canada, Canada*.

Closely allied to this, and handsomer still, is the WHITE-CROWNED SPARROW, *Zonotrichia leucophrys*. It stays with us a week or two during migration, is then sometimes very abundant and can be easily recognized by its white on the crown between black lines, the rich chestnut and bluish gray of the upper and under parts respectively. The song is low and soft, somewhat like that of the Vesper Sparrow.

The little GOLDFINCH or Thistle-bird (also known as the Wild Canary), *Astragalinus tristis*, singing *perchicoree* in its undulating flight, is well known—at least in summer. It is a hardy little bird and sometimes stays all winter in quite northerly latitudes. Then, however, both sexes are of a dull olive brown color.

Similar to this in size, shape, note and behavior is the little REDPOLL, *Acanthis linaria*. It is gray, streaked with brown and blackish all over and can be told best by its *crimson crown*. Old males also have a delicate pink on their breast. This and the next four species are hardy birds, breeding north to the limit of tree-growth and coming south in winter only and then not very far.

Together with the Redpoll, like it in appearance, may then be seen also the PINE SISKIN, *Spinus pinus*. Its field mark is a bright *yellow wing bar*. The large red bird often seen feeding on berries of various trees during late fall and in winter is the PINE GROSB-EAK, *Pinicola enucleator leucura*. It has a very thick bill, as its name suggests and is very fearless, allowing of close approach. It is a distinct ornament to city streets in winter.

Then may also be seen the AMERICAN and the WHITE-WINGED CROSSBILLS, *Loxia leucoptera minor* and *leucoptera*. They feed chiefly on the seeds of pines and spruces, which they abstract from the cones by prying the scales apart with their crossed bills. They are red, the former *brick red*, the latter *crimson red*, together with a *white wing bar*. In size they are like the House Sparrow.

Then there is the PURPLE FINCH, *Carpodacus purpureus*, which breeds a little further south than the last. It is about the size of the common sparrow, *crimson* or *purple-red*, the females and young males grayish with black and brownish streaks; plainer looking than the English Sparrow. It breeds commonly at Ottawa.

The FOX SPARROW, *Passerella iliaca*, seen mostly during migration, is a large, stately sparrow, bright reddish-brown, especially the tail and similar spots, and streaks below.

The TREE SPARROW, *Spizella monticola*, is also a northern breeder and is abundant in Ontario and southward in migration and winter only. It has the *bright chestnut crown* of the Chippy, though a larger bird, and the *blackish-brown spot* on the middle of the breast, like the Song Sparrow, but no streaks around it. It is found in woods and thickets.

Another winter visitor from the North is the SNOWFLAKE, *Plectrophenax nivalis*. This can at once be told by the preponderance of *white* in its plumage.

A member of this family which, on account of its beauty would perhaps not be recognized as such, is the ROSE-BREADED GROSBEAK, *Zamelodia ludoviciana*. When it flies you see a *network of black and white* on wings and tail; head entirely black; under the wings and a triangle on the breast a beautiful cherry-red; rest of under parts white. It frequents open woods and deciduous trees, park-like groves etc. Its song is as fine as its plumage. It is larger than the English Sparrow and has a very thick whitish bill.

A speck of rich tropical coloration, as it were, is the INDIGO BUNTING, *Cyanopiza cyanea*. It is rather scarce in the Ottawa district but commoner as one goes south. It is lustrous blue, *deep indigo* on the head and neck, lighter on the back. The female is brown, with a tinge of blue on wings and tail. It likes to sit on telegraph wires or poles or dry branches, and pours forth a fine sustained melody of song, in quality like the perching song of the Goldfinch. In size it is like the Chippy, much smaller than the Bluebird. These are the common members of the Finch family.

The next family of birds after the Finches is that of the Tanagers, of which we have but one member in Canada, and that one is so brilliant in coloration that it immediately attracts attention. It is another bit of tropical luxuriance and prodigality of color transplanted to our sterner climate. This is the SCARLET TANAGER, *Piranga erythromelas*. The head and body are a brilliant scarlet, the wings and tail black, thus making identification and remembrance of it very easy. This species seems to be increasing its numbers in Canada. This spring it was reported in more places and greater numbers than before.

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