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1885.



THE

Canadian Science MONTHLY.

DEVOTED TO THE INTERESTS OF

Canadian Naturalists and designed to encourage the popular study of the Natural Sciences.

Canadian Postal College of the Natural Sciences.

This Institution aims to awaken and foster a more general interest in Scientific knowledge, to induce young men and young women to engage in systematic study at home, and to afford its members the means for mutual assistance in the pleasing and ennobling study of Nature's works. All efforts used to make the connection of students with this Association pleasant and profitable.

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A. J. PINEO, KENIVILLE, N.S.

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"THE AUK"

A Quarterly Journal Ornithology.

(Organ of the American Ornithologist's Union)

THE AUK, now entering on its second volume, while thoroughly scientific, aims at popularizing Ornithology, and its pages are open to the Field Ornithologist and Amateur as well as to the Scientist. Volume I. contained contributions from nearly sixty of the best known Ornithologists of the United States and Canada. Its present tendency is toward a less technical character than it presented in its earlier numbers, with a larger proportion of more or less popular articles. As heretofore, the REVIEWS of current ornithological literature, and the department of GENERAL NOTES, CORRESPONDENCE, and NOTES and NEWS, will form a prominent feature of the magazine. In the department of RECENT LITERATURE notice will be given of all papers relating especially to North American Ornithology, *wherever published*, as well as also of all monographic and general works. THE AUK thus covers the whole field of Ornithology in a way to make the magazine indispensable to all who desire to keep pace with the subject, and especially with the current literature of North American Ornithology. The magazine is issued quarterly, the numbers averaging about 100 pages each.

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Canadian Science Monthly.

VOL. III KENTVILLE, N. S., FEBRUARY, 1885, No 2.

NOVA SCOTIAN GEOLOGY.

BY REV D. HONEYMAN, D. C. L.

PAPER V.

TRURO CENTRE, WALKS.

Dr. Forrester longed much for a collection of the rocks of the province for the use of his students. How pleased he would have been to find a depository of important rocks as an initial and fundamental part of his collection. In our walks we never dreamt that such a depository existed in the town of Truro, where a better collection of the Archæan rocks and others of the Cobequid mountains lying to the north could be made than is practicable by any search in the mountains themselves.

Those who wish to improve present opportunities, had as well provide a hammer and bag for the purpose of properly examining and collecting. We now walk a short distance along the line of the Intercolonial Railway towards the Cobequid Mountains and come to the ballast section. Here is a great accumulation of what is called Glacial Drift.

This belongs to the formation called Pleistocene, *i. e.* nearest to the *cene* or new.

The material has been transported by Glacial (ice) action during the Glacial Period.

Examining it we find numerous boulders of rocks whose source is the Cobequid Mountains. You can collect the following:—

Syenites, Quartz (syenitic,) Diorites (granitoid), Granites (pos-

ibly), Gneisses (syenitic), Amygdaloids (dioritic), Porphyries (possibly). As these can all be found *in situ* (in position) in the Cobequid Mountains and as we are certain they have been transported from that quarter, an importance is attached to a collection of these which cannot be attached generally to a Boulder Collection. If an opportunity should present itself it is advisable to collect specimens, as I have done, from the rocks *in situ* and place them beside the boulder specimens for the purpose of comparison. In the above list of specimens I have placed some (possibly) that may *not* be found in this deposit although they are found in similar deposits in Halifax Harbour. In this case the deposit is out of the line of known rocks in the Cobequids. Amygdaloids, if such there be in this deposit, are not to be confounded with those of Blomidon or Partridge Island. They will be Cobequid Mountain amygdaloids of a different constitution and of *post-Archæan* and *pre-Triassic* age. There are such to be found in the Cobequid Mountains.

It is chiefly from the use of these as railway ballast that I have come to be particularly acquainted with its constituents. This mode of transportation interferes materially with the investigation of Glacial transportation.

I have experienced this inconvenience in my work on the east side of Bedford Basin. Here there is abundance of glacial drift, through or close by which the railway passes. The railway engineers informed me that the ballast came from Truro. In this way the Truro drift has become mixed with the Halifax drift. As this has been used up and down the line, caution has to be exercised in observation on the drift wherever the railway traverses. This ballast has rendered the Truro drift of easy access to others than those of Truro. This is an advantage where the fact is known.

This accumulation differs in its structure from similar accumulations around Halifax. This will be seen from comparison with the late Observatory Hill, H. M. Dockyard. (*Vide* last number of CANADIAN SCIENCE MONTHLY.)

Walking up Salmon River on its left side we observe walls of Triassic New Red Sandstone. This is a geological formation underlying the drift. The walls are what we call in geological language, sections. They are composed of soft Sandstones of dark red color and hence have been called Red Sandstone. They have been named New Red Sandstone in order to distinguish them from the Old Red Sandstone. A distinguishing feature of these there-

fore is their color. On the origin of [this color there has been much speculation. Still it is a subject of question. The name by which this formation is now designated in Nova Scotian Geology is Triassic.

CANADIAN BIRDS.

By ERNEST E. T. SETON

Paper V.

FAMILY PARIDÆ—THE TITMICE.

Chicadee or Black-capped Titmouse—*Parus atricapillus*.

Hudsonian Chicadee.—*P. hudsonius*.

The Chicadee—*Parus atricapillus*. (*P.* Latin for titmouse: *atricapillus*=black-capped.) L. 5 1-3. Crown, nape and chin black; cheeks ashy white; above ashy-olive; below whitish, shaded with brown on the flanks; quills plain drab. Sexes alike. Nest in a wooden stump or a woodpecker's hole, lined with a belt of down, hair, or feathers. Egg, 5-8: .5×.5; delicate rosy white, with fine reddish specks, chiefly at the large end.

The Hudsonian Chicadee, *P. hudsonius*. L. 5. Rather smaller than the preceding, but with slightly longer tail. General color the same but browner. The back of the head also more of a brown hue. Nest and eggs, scarcely distinguishable from preceding. Found in the northern parts of Canada.

The Common Chicadee is one of our best known and most widely distributed birds. It is found nearly all over the United States east of the Rocky Mountains. It is abundant in Manitoba, Ontario and the Maritime Provinces. In Manitoba, strange though it may seem, this is our common species; the Hudsonian Chicadee I have never seen there.

Even in districts where the Chicadee is abundant, it is surprisingly unnoticeable in the summer. You may never see one for weeks together unless you take a ramble through some dense swamp of second-growth cedar, in which dead stumps and stubs are abundant. Here in early spring you will hear the two long-drawn clear notes, one just a true interval below the other. Or more often the querulous "tleeet" "tleeet," will be heard, followed by the peculiar "chick-a-dee-dee-dee-dee" uttered by the spright-

ly little bird as he climbs about, head up or heels up, with an apparently entire contempt for the majesty of the great all-ruling law of gravitation. Contempt for great powers seems to be rather a characteristic of the Chickadee, for Emerson wrote:—

“Here was this atom in full breath,
Hurling defiance at vast death :
This scrap of valor just for play
Fronts the north wind in waistcoat gray.”

Audubon speaks of a chickadee alighting on his gunbarrel. Probably this was just as he was leveling it at one of the kind; and it is no unusual thing for an inquisitive chickadee to alight on the person of some curious observer, who sits perfectly still in their haunts.

The nest is generally in a rotten stump, and not very far from the ground. It is in outward appearance, much like the nest of the Downy Woodpecker but smaller; and like that bird the chickadees dig it out for themselves, although they are fond of utilizing some knot-hole or other cavity which will save them the greater part of their labor. One which I examined, was lined with a thick felt of hair and feathers which was so compact, that when the rotten stump was torn away, the nest remained intact, like a strong purse of softest down and fur.

The young, which are remarkably numerous, are for some time after leaving the nest, led about by the parents. I am inclined to think that the parties of five or six seen rambling about together in the winter are the survivors of one family of the previous year still under guidance of the parent birds. Their food all the year round is chiefly insects, and during the whole acrobatic performance, which they carry on from dawn till dusk, a careful scrutiny would shew them to be picking up minute aphides and other small insects, which constitute their main support. An examination of the tongue would shew it to be split up at the end into a sort of brush which is said to be of great service to it in securing its tiny prey. About dusk the whole band is said to retire to some hollow tree, where they nestle together in comfort even during the coldest of weather; for in Manitoba they do not seem to be seriously inconvenienced by even 60° below zero F.: and when the return of light summons them forth to begin another day they do not fail to answer the summons and take up the acrobat performance where they left off. Now and then some hilarious member of the party, in his excess of cheerfulness, will spare a moment to

lift his voice in utterance of the two strong clear notes which are commonly described as the mating song.

In order to ascertain exactly the earliest and latest periods of this song, I made notes for some time and found that the Chicadee is prone to sing as late as December 31st, and that, in fact, he is liable to sing at any time, day or night, summer or winter. Nevertheless his simple song, is classed by the hunters among those delightful mysteries "*signs of spring*," for it is most often heard as spring approaches, and when the snow is gone, and the flocks of many new and louder singers come, the voice of the elegant little Chicadee is overpowered and for a time both bird and voice continue in obscurity.

ERRATUM.—In the article on the Woodthrushes, the careless use of general language led me into a blunder, which I should have corrected; but it had escaped my notice at the time and would have done so altogether had not Mr. Chamberlain pointed it out. The phrase 'All these are abundant throughout E. N. America' is erroneous as it included the Wood thrush (*mustelina*) which is not common much beyond the Ottawa, nor is it to be included in the Maritime Provinces, except as a straggler.—E. T. S.

MINERALOGY.

BY PROF. S. K. FITCHINGS.

PAPER VI.

DOLOMITE.

This mineral is a carbonate of calcium and magnesium. It resembles calcite in many respects and is often associated with it. It may be distinguished from that mineral by its hardness and by not effervescing with acid until heat is applied. It occurs in the following varieties:—

Pearl spar, crystalized in rhombohedrons with curved faces, and having a pearly lustre.

Fibrous.

Granular, which constitutes many varieties of statuary marble.

Garhofian, a white, sub-translucent porcelain-like variety.

Brown spar, colored brown by carbonate of iron.

Compact massive, resembling common limestone. This occurs in extensive beds and is burned for quick-lime, making a more durable cement than the calcium carbonate alone. It is also used much in making the hydraulic cement. Dolomitic lime is said to be injurious to the soil, but if it is allowed to become thoroughly air-slacked before using it will be found to be beneficial. One of the important uses of this mineral is in the manufacture of Epsom salts.

GYPSUM.

The mineral gypsum occurs in several distinct varieties.

Crystallized or *Selenite*. This form is either in distinct crystals or in broad thin plates which are perfectly transparent and have a pearly lustre. This form is made use of in some optical apparatus. Most crystals are white but some have a yellow, reddish or gray color. Beautiful specimens are sometimes obtained by the evaporation of sea or spring water in the manufacture of salt, as these waters contain gypsum in solution.

Fibrous Gypsum, a white delicate variety. When very fine and somewhat opalescent it is called *satin spar* which is made use of in jewelry.

Massive, to which belong (a) *Alabaster*, a somewhat translucent very fine grained variety useful for making vases, statues, and other ornaments; (b) *Rock Gypsum*, a dull-colored rock impure from clay or limestone. This variety occurs in extensive beds in many parts of the world, especially in Nova Scotia and New Brunswick. These places supply the most of the gypsum used in the provinces and the Eastern United States. When ground it is much used as a fertilizer for it is one of the best absorbers of ammonia known, thus furnishing nitrogen to the plant, and probably some of the gypsum itself is taken up by the plant.

Plaster of Paris is prepared from ground gypsum by heating till the water of crystalization is driven out, and when water is added to this some is again absorbed and the mass forms into minute crystals becoming nearly as hard as the original rock. It is much used as a cement, for making moulds, taking impressions, producing a hard finish on walls, glazing porcelain, preparing artificial marble, etc.

In composition gypsum is a sulphate of lime with about twenty per cent. of water. When heated by the blow-pipe it instantly becomes white and opaque and exfoliates, then fuses and can be scratched with the finger nails. Dissolves slowly in hydrochloric acid.

ANHYDRITE.

Anhydrite is the same in composition as gypsum except that it contains no water. It can be distinguished from that mineral by yielding no water when heated in a closed tube, and by its superior hardness. It occurs usually associated with gypsum or limestone, when it is commonly called hard plaster. It is found in orthorhombic crystals but usually granular or massive. Color white with grayish, bluish or reddish tints; lustre vitreous to pearly.

FLUORITE. (Fluor-spar.)

This is a calcium fluoride occurring in cubic or octohedra crystals; also massive. The hardness is 4. Lustre, vitreous. Color white, green, blue, yellow or red; the green and light blue or amethyst being the most common. Cleavage distinct and octohedral. Heated on charcoal it fuses, coloring the flame red, and becomes phosphorescent. If pulverized and heated with sulphuric acid it produces fumes of hydrofluoric acid, which will etch glass. This fact gives it an important use. It is generally found in veins often with metallic ores, in gneiss, mica, schist slate and limestone. Sometimes the crystals of this mineral resemble gems, but it can easily be distinguished by its inferior hardness. The massive varieties are sometimes worked into vases and other ornaments, but it is hard to work on account of its brittleness. It is also used as a flux in the smelting of some ores.

On the Wide Distribution of some American Fresh-water Sponges.

BY E. POTTS.

(From Proc. Acad. Nat. Sci. Philadelphia, 2nd. Sept. 1884, p. 215.)

Allusion having been made to the wide distribution of certain species of spiders over the North-American Continent, Mr. E. Potts, referring to the fresh-water Sponge fauna of this country, said that *Spongilla fragilis*, the first species named in America, described by Dr. Leidy in 1851 from

specimens collected near Philadelphia, had since been found abundantly along the Atlantic coast from Florida to Nova Scotia. It had been gathered at several points along the St. Lawrence and in the great lakes through the middle Continent, and in the far west had been described by Dr. Bowerbank, in 1863, under the name *S. Lerdii*, as found in the lakes and streams flowing from the Cascade Range in British Columbia, affluents of the Majestic Columbia river. The species may therefore be regarded as strictly continental in its range, and until very recently it has been distinctively American. It is a little singular that the only other place in which it has been noticed is in the neighbourhood of Charkow, in Russia, where it was discovered a few months since by Dr. L. Dybowski.

The specimens of this species from Nova Scotia had been collected by Mr. A. H. MacKay, B. A., B. Sc., of Pictou Academy, Pictou, N. S., from whom the speaker had recently received a collection of Sponges, phenomenal in its character, both as regards the number of genera and species represented and the excellent judgment that had attached to most of them their proper names from apparently very insufficient data. The collection was the result of a few day's search within a limited district, "from lakes in and near the watershed of Nova Scotia, near the borders of the three counties of Pictou, Guysboro and Antigonish," at elevations of from 100 to 700 feet above sea level. Of the genus *Spongilla*, it contains three species, *S. lacustris*, *S. fragilis*, and *S. iglooiformis*; of the genus *Meyenia*, two species, *M. fluviatilis* and *M. Everetti*; of the genus *Heteromeyenia* two, *H. argyrosperma* and *H. Ryderi*; and of the genus *Tubella* one species, *T. Pennsylvanica*—eight species representing four genera. Besides these there were small specimens of another species, evidently new, but whose generic relations could not be determined on account of the absence of statoblasts.

In some respects the most important find in the collection is *Meyenia Everetti*, Mills, this being only the second instance in which the species has been discovered. The original locality was Gilder Pond, upon Mt. Everett in Berkshire Co., Mass., at an elevation of 1800 or 2000 feet above the sea. It was there collected by Dr. F. Wolle and Mr. H. S. Kitchel, of Bethlehem, Pa., well known for their invaluable work amid the desmids and diatoms, and examined simultaneously by Mr. H. Mills, of Buffalo, N. Y., and the speaker. Its most striking peculiarity is the presence all through the dermal tissues of very minute hirotolate spicules, the only instance in which these have been observed as characteristic features of the dermal surface in any freshwater sponges, unless the complicated forms

found in *Meyenia Plumosa*, Carter may be considered an exception.

These birotules in the present collection average one third longer than those before examined, and are in every way more robust. The speaker was gratified in finding this confirmation of a rule which he has long since observed to hold amongst the infinite variations of size and form noticeable in collections of the same species from various localities, viz: that the spicules of all species increase regularly in size and solidity as we descend from high attitudes towards the sea level, where is found the extreme limit of the series. He does not attribute this gradation to a change of climatic conditions, but more probably to a gradual and constant improvement in the food supply, or in the siliceous constituents of the water. He had traced the working of the rule more particularly, through the very variable species *Spongilla lacustris* and *S. fragilis*, in *Meyenia fluviatilis*, in *Heteromeyenia argyrosperma* and *H. Ryderi*, and, lastly and most conspicuously, in *Tubella Pennsylvanica*. The extremes in this last series differ so widely that they would hardly be taken to belong to the same species; but the intermediate grades have all been collected largely from the same stream, and as a result several species named in this and other cases have relapsed into synonyms.

BIRDS IN PRINCE EDWARD ISLAND.

I never saw birds so scarce as they are this winter. Even the ubiquitous Snow Buntings that come with the snow wreaths, mimicking their driven purity with the white beauty of their arctic plumes, are much less abundant than usual. In November we had some small flocks of Redpoles feeding among the strobiles of the great yellow birches, and making the forest arches cheery with their musical peals. A few Crossbills wandered restless from one spruce grove to another at the same time and some solitary Grosbeaks strayed about the quiet autumn landscape. There were no fir or spruce seeds for them, and the poor birds had to go to the shores for a meal or content themselves with eating the buds of the trees.

It is this exceeding scarcity of forest seeds which makes the usual winter visitants so uncommon. There are literally no fir cones and not one spruce tree in a hundred has a cluster of rich brown pendants to adorn its emerald spire. Yellow birch seeds also are very scarce.

Yellow birches (*Betula Excelsia*) are our only deciduous forest trees that carry a quantity of seeds during winter, and where they abound, as they do all through the Island, they are exceedingly favorable for the wintering of certain members of the Finch tribe. The Purple Finch, with his crimson cowl and plaintive whistle will sometimes stay all winter, and startle us on bright frosty mornings by pouring a rattling cascade of joyous song from the loftiest summits of the great birch forest.

A humbler winter companion, but not less welcome, is the Song Sparrow. In the fall he picks up fallen seeds of birch and alder, but when snow deluges his home in the wilderness, he comes sociably about the farmsteads, and barter his sweet song for a meal in the yard or at the hay rick. A friend's house is placed on the sheltered side of a magnificent beech grove. The Chickadees and Blue Jays come every day to be fed at the door, and the Song Sparrow comes with them. Every sunny spell he will mount a sheltered spray and tune his gentle fife to the winter sky. And all over the settlement others are wintering by snow-laced hay rick and seed strown barn-yard.

Purple Finches and Song Sparrows do not usually winter north of New England. How is it that they have a partiality for this Island in the ice-bound waters of the Gulf? You observe that our forests are of noble yellow birches and not gloomy conifers. Our land is filled with broad grain fields and crowded farmsteads instead of great spreads of wilderness wastes. All this is the produce of a richer soil—a soil producing abundance of seed-bearing plants everywhere.

If you visit this Province in summer you will observe that everywhere a line of low red cliffs divides its swelling green from the blue wave. These broken red cliffs are the out-crop of the New Red Sandstone rocks of which the Island is composed. Everywhere the world over, this formation supports a fertile soil, and everywhere in this section of America, where it prevails, is the chosen home of bird life. The Connecticut Valley, the Western Shore of Nova Scotia, as well as this soft-outlined Isle of the Gulf, are noted haunts of the Finch and the Warbler.

Thus we see that the favorite haunts of these birds were marked out in the long, long past, when the Gulf waves and the Atlantic swell first laid down the sediment for the red rocks of the Permian and the Triassic.

The Goldfinches, that made the pastures of summer so gay with

their golden plumes and ringing voices, left us the middle of September. Their less gaily dressed mates, however, staid with their young to scatter the last thistle seeds on the chill air of late October days. In winter their place is taken by the wild, roving Pine Goldfinch. He keeps to the coniferous forest, and is not much seen. But sometimes in the grove we will detect a bird whose bold, buoyant flight at once distinguishes him from the tame Chickadees or feeble-winged Sparrows. Instantly he mounts to the top of the loftiest conifer, and, with a gay tweet in the winter sky, is away from grove to grove.

The departure of our summer birds is full of interest, though taken little note of. On Aug. 9th, while summer was yet in the hey-day of its glory, while our sky was at its brightest, and the flash of insect wings gayest, the Swallows gathered their newly fledged young into a great company, and, with the favorable north wind and clear sky, left the Island. About the same time the male Warblers left. It was not scarcity of food or change of temperature which caused the departure in either of these cases. I think the birds were here simply for the purpose of nesting, and whenever their duty in that respect was completed they immediately retired to more congenial stations. The female Warblers with their young, staid on in September, feasting on the myriads of *pyralides* that then swarmed the deciduous forest trees.

About Sept. 5th, when the rich red raspberries failed from the woodlands, the bulk of the White-throat Sparrows left. The Savanna Sparrows left the shorn meadows a few days earlier. Soon after, we missed little Chippy that built its hair-lined nest in the fir thicket by the road. The loud-voiced Field Sparrow, too, was soon gone; and the beautiful Bay-winged Bunting that is reported so scarce from other parts of the Maritime Provinces.

But Robins, Juncos and Song Sparrows staid till Oct. 25th. Bright October weather made pleasant days for these birds, when the world was ablaze with the sheen of autumn. The still air thrilled with the harps of insects and flashed with their thousand wings. The Bordered Skipper and the brilliant Hunter Butterfly floated in the sunshine, and the crowded Syngeneous plants of the borders bowed their hoary panicles heavy with seeds. Here Junco and the Sparrows usually fed; but Robins wandered free from one bare pasture to another. Young Song Sparrows now first tried their juvenile lays. It was a faint-whispered, timorous strain that you would hardly recognize as having any connection with the

bold song of the mature bird. Young Robins also essayed a feeble warble; and that sweetest recluse of the wood-land, the Hermit Thrush, now began his tenderest melody.

We seldom see flocks of birds leaving though we instantly miss them when they are gone. They are the

"Wild birds that change
Their season in the night and wail their way
From cloud to cloud."

How strikingly is this opinion of birds migrating in the night confirmed by the reports from lighthouse stations. At all lighthouses in the lines of migration great numbers of the winged travellers are killed by dashing at night against the lanterns. At the lighthouse of San Antonia, Cuba, five or six hundred birds have been killed by this means in a single night.

I have seen Blue Herons leave the Island. At evening, with a favorable wind, they started. They kept mounting till they must have been sufficiently elevated to see distinctly the mainland of Nova Scotia; then they bore away towards it.

About June 7th the Brants always leave here for the North. If the evening is favorable, with no adverse wind, just before sundown, the flocks become unusually restless and noisy. Then, while the summer sky glows with the setting sun, and evening sheds her calm beauty over land and sea, in one dense cloud the birds rise directly from the bay, and hovering over its waters at a great height for a few moments, with the hoarse clamor of a thousand voices, they sweep away, and are soon lost in the dimness of the northern sky.

Many birds gather into flocks before they retire and the flocks are generally observed to be unusually restless immediately before their departure. When the flocking Swallows leave their accustomed eave, when the Warblers and the Veery wander from their favorite groves, when the Savannah Sparrow whispers from trees and fences, when Robins wander wild in great restless flocks, and when Junco and the Sparrows in social companies, emulate the roving Buntings, then we know that the time draws near to say farewell to these gay friends of summer. -F. BAIN.

CRITICAL NOTE.

BY ERNEST E. T. SETON.

I am a little surprised to see Mr. Chamberlain renew his strictures on my Thrush Paper, and with an uncalled for asperity which gives his note the appearance of an attack rather than a critique.

In replying I will begin by admitting that I have made some errors,—one a serious one, in relation to the ranges of the species. I confess I have no personal knowledge of the distribution of birds in the Maritime Provinces, and have been led astray by misinterpretation of the phrase 'Eastern North America.' No doubt Mr. Chamberlain is right in his corrections so far as the maritime provinces are concerned. In future he will find me less loose in my statements; though, by the way, consultation of a map will show them to be more nearly correct than he allows, for the language used was general, and is only erroneous when unfairly applied to the remote corners of the district.

Next, Mr. Chamberlain says I am wrong in saying 'the Bluebird reaches the maritime provinces about the end of March,' not because its date is earlier or later but because '*it is exceedingly rare there.*'

He says '*I am not prepared to say that the Gnatcatcher has not been taken in Nova Scotia etc.,*' but he does say it, in the form of an inference. It was given on the authority of Mr. Allen.

These objections can only be characterized as hypercritical in the extreme. Lastly, Mr. Chamberlain says I omit the Gray-Checked Thrush altogether. He forgets that I promised that we should adhere to Dr. Coues as our authority, and that gentleman maintains the bird to be a mere variety of the Swainson's Thrush. Therefore it is not omitted.

He says the Veery is *not* the commonest of the Thrushes. I distinctly spoke with reference to Canada generally and I repeat the statement that the Veery is the commonest of the Woodthrushes.

He says the Thresher is confined to Southern Ontario. I reply that it is abundant in Northern Ontario as far as the great watershed north of Lake Nipissing, (Dr. Brodie, Dr. White) and probably farther, as it is one of the commonest birds of Manitoba.

These last three statements by Mr. Chamberlain are more than mistakes, they are unpardonable blunders, coming as they do in the form of a gratuitous attack.

Editorial Notes.

REMOVAL.—We have moved our place of business from Wolfville to Kentville, from which place the MONTHLY will be issued in future.

Kentville is situated about 7 miles west of Wolfville, just at the foot of the range of old Silurian hills, known as the South Mountain, and on the south side of the Cornwallis River. About 5 miles to the north, across the Cornwallis Valley, of Drift formation, the parallel range of hills known as the North Mountain, extending from Cape Blomidon on the east to Briar Island on the west, with its somewhat abrupt slopes clad in the 'forest primeval', adds to the picturesque-ness of the scenery. This range is of Triassic formation consisting of a base of New Red Sandstone surmounted by a thick overflow of dark basaltic Trap. Just over the narrow range we come to the shores of the Bay of Fundy whose precipitous cliffs, with their wealth of zeolites glittering in seam and cavity, present an exceedingly interesting field for the mineralogist. In sight are Chignecto and Cape d'Or, of historic interest, Spencer's Island, the inverted kettle of Glooscap legend, and in the middle of the Bay, Isle Haute lifting its lonely head above the waves. All these points are genuine sporting grounds to the enthusiastic mineralogist.

Mr. F. Bain, the enthusiastic naturalist of Prince Edward Island, will favor our readers with a series on the shells of his little province. Mr. Bain's article on the Birds of P. E. I. will be read in the present number with much interest.

Notes and Comments.

In the JOURNAL OF BOTANY (England), for February, W. Joshua, F. L. S., F. R. M. S., makes some notes on some rare *Desmidiace*, from Nova Scotia, which he received through the kindness of A. H. McKay of Pictou. Some of them are new to America, and one variety, *Xanthidium antilopeum* var. *Canadense*, is new to science.

According to a German scientist's experiments, the healthy eye is able to perceive about three hundred differences of colors.

The fibre of silk is the longest continuous fibre known. An ordinary cocoon of a well fed silkworm will often reel 1,000 yards, and reliable accounts are given of a cocoon yielding 1,295 yards, or a fibre nearly three quarters of a mile in length.

A New York paper stated on good authority that if the United States were to spend \$5,000,000 in fighting one particular insect which was mentioned, it would be the cheapest and most economical expenditure they ever made.

A clock has been invented, and is coming into use in Europe, which is warranted by its manufacturers to run for five years without either winding or regulation. The Belgian Government placed one in a railway station in 1881, sealed with the Government seal, and it has kept perfect time ever since.

Harrison Hahn of Wind Gap, Pa., has a two-year old daughter whose ears are bent forward and grown fast to the face. The girl was deformed when born. Both ears are without the orifice, but deafness is prevented by the girl hearing every sound, no matter how light, through her nose and mouth.—*Philadelphia News*.

Entomological.

In 1857, the wheat midge, (*Cecidomyia tritici*), destroyed 8,000,000 bushels of wheat in Canada, worth at least \$8,000,000.

The annual loss to the crops of the Dominion of Canada, caused by insects, is estimated at \$20,000,000. As some insects are useful, while others are injurious, it is evident that farmers should have some accurate knowledge of entomology in its relation to Agriculture.

The "Forest tent caterpillar," (*Clisiocampa sylvatica*), which was so destructive to the forests of Pictou County in 1882 and 1883, vanished last summer, 1884. Was it the coldness and wetness of the season in early summer, or the multiplication of its parasites, which caused this remarkable disappearance?

Some remarkable relics of ancient volcanic action in the northwestern portion of New Mexico, consist of a multitude of needle-like peaks rising out of the broad valley bottoms to altitudes varying from 1,000 to 2,200 feet. They are composed of black basaltic lava, having a beautiful columnar structure like the basalt of the Giant's causeway. They are remnants of lava, which once rose up out of the earth through the strata and congealed in the volcanic pipes or vents. In later periods the strata which enclosed them have been dissolved away and removed by the general erosion of the country, leaving these basaltic cones projecting many hundreds of feet in the air, as casts of the volcanic pipes or passages through which the ancient towers rose to the surface.

Correspondence.

NOTICE.—Papers on the Nuthatch, the Brown Creeper and the Wrens, are shortly to appear, and as it is desired to make this journal a corresponding medium, all who have any special observations to record concerning these, or species already described, or questions to ask, should do so at once, that their questions may be answered in the next number of the magazine. Original observations of song, nest, eggs or habits of any of these will be gladly received and incorporated and duly accredited to the correspondent.

ERNEST E. T. SETON.

Answer to Correspondence in October Monthly.

The "Snow-flea," which we have observed Jan-March, is a black Spring-tail (*Proctura*). It belongs to the sub-class Ametabola, the insects of which—like the Louse—are without wings or transformation. The perfect insects are produced directly from the eggs.

We have seen them in numbers in summer, though they are much more noticeable when they appear on the snow. They will be most frequently noticed in the shelter of groves.

The "rough caterpillar" observed travelling on the snow in March is the caterpillar of the moth *Arctia Isabella*. It will be found most abundantly the first week of October. Some few of the late ones do not transform, but hibernate over winter, and may come out any mild spell. In the same way the butterfly *Vanessa Antiopa* hibernates, and will sometimes startle us by floating its gay wings on a sunny hour in February.

F. B.

Literary Notices.

PART II, GAMOPETALAE of Canada by John Macoun, M. A., F.L.S. F. R. S. C., Botanist to the Geological and Natural Survey of Canada has appeared. Prof. Macoun has laid a very solid foundation already for the transmission of his name to posterity as a great botanical worker. *Semper floreat.*

The MICROSCOPE, an illustrated monthly journal, is edited and published at Ann Arbor, Michigan, by Chas. H. Stowell, M. D., F. R. M. S., Professor of Microscopy and Histology, University of Michigan, and Louisa Reed Stowell, M. S., F. R. M. S., Assistant in Microscopical Botany in the same University. It contains 24 pages of the most interesting and valuable material to the microscopist, and costs only one dollar. The microscopical works of the editors have made them well-known in the old as well as the new world, and have recently won deserved recognition from the Royal Microscopical Society which has elected them fellows

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Rev. Dr. A. A. E. Taylor has a characteristic
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