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THE OTTAWA NATURALIST

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1916

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1917

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THE OTTAWA NATURALIST

VOL. XXX.

OTTAWA, APRIL, 1916

No. 1

ANNUAL REPORT OF THE OTTAWA FIELD-NATURALISTS' CLUB, 1915-16.

The Council of the Ottawa Field-Naturalists' Club has the honour to report on the work of the past season—1915-16.

Standing committees, the Editor and Associate Editors of THE OTTAWA NATURALIST, the Librarian, and leaders of the respective branches, were elected at the first meeting of the Council, held on the 1st of April, 1915. Four meetings of the Council were held during the year, and a fifth called for 16th of March, but owing to lack of a quorum no regular business could be transacted.

THE OTTAWA NATURALIST.

Under the continued editorship of Mr. Arthur Gibson, THE OTTAWA NATURALIST, the official organ of the Club, has appeared regularly during the year, volume XXIX having been completed. Among the more important papers published in the volume, several of which are illustrated by plates or text figures, the following may be mentioned:—

- Suggestions for Ornithological Work in Canada, by P. A. Taverner.
- A Case for Small Museums, by Harlan I. Smith.
- On the Validity of the Genus *Plethopeltis*, by R. M. Field.
- Revision of the Canadian Species of *Agelacrinites*, by Percy E. Raymond.
- Minerals from Baffin Land, by T. L. Walker.
- Quebec Dragon-flies, by Rev. T. W. Fyles.
- The Dangers of our Wilds, by Charles Macnamara.
- Mimicry—Some of Nature's Stratagems, by B. C. Tillet.
- A New Crdovician Pelecypod from the Ottawa District, by Alice E. Wilson.
- Shallow Water Deposition in the Cambrian of the Canadian Cordillera, by L. D. Burling.

- The Evolution of the Sheep, by B. C. Tillet.
 Some Habits of Swainson's Hawk in Manitoba, by Norman Criddle.
 The Use of Gum Damar in Paleohistology (with notes on the genus *Benthopecten*), by G. H. Hudson.
 Gleanings in Fernland, by Frank Morris.
 The Curious Egg of the Hagfish (*Maxine*), by E. E. Prince.
 Fossil Collecting, by E. M. Kindle.
 Buprestidae Known to Occur in the Ottawa District, by Bro. Germain.
 The Genera of the Odontopleuridae, by P. E. Raymond.
Prenanthes mainensis: Notes of the Morphology, Taxonomy and Distribution of this Hybrid form, by Bro. M. Victorin.
 Birds of Aigonquin Park, by W. E. Saunders.

EXCURSIONS.

The following field excursions were arranged last spring by the committee in charge:—

- May 8.—Rockcliffe.
 " 15.—Iron Mines at Ironside.
 " 22.—Britannia.
 " 29.—Aylmer.
 June 5.—Wright's Grove, Rideau River.

For most of the excursions the weather was favourable, and the attendance fairly good. About seventy were at the Ironside excursion, which afforded an excellent opportunity for a study of the interesting geology of the old iron mines. The Rideau River excursion was attended by about forty. Attention was mostly devoted to botanical specimens. There were no excursions conducted during the autumn.

LECTURES.

The following is the programme of the series of lectures for the winter season, which was carried out with certain changes both as to time and place.

- Dec. 7.—Wheat Improvement in Canada, by Dr. C. E. Saunders, Dominion Cerealist.
 Jan. 11.—Canadian Folk-tales and Oral Traditions, by Mr. C. M. Barbeau, Division of Anthropology, Geological Survey.
 Jan. 25.—The Use of Ornamental Trees and Shrubs, by Mr. W. T. Macoun, Dominion Horticulturist.
 Feb. 8.—The Formation of the Great Plains, by Mr. D. B. Dowling, Geological Survey.

Feb. 22.—The Evolution of Army Sanitation, by Dr. R. Lorne Gardner.

Mar. 7.—The Identification and Nesting of Some of our Common Birds, by Mr. W. E. Saunders, of London, Ont.

Through the kindness of R. G. McConnell, Esq., Deputy Minister of Mines, arrangements had been made with the Lecture Committee to hold all the lectures in the auditorium of the Victoria Museum, but owing to the burning of the Parliament Building, which in itself was a Dominion-wide calamity, the auditorium had to be engaged for the House of Commons, and therefore only the first three lectures were held there. Through the kindness of Dr. White, the assembly hall of the Normal School was put at the disposal of the Club for the remainder three lectures, and that of Dr. Gardner was delivered there on the regular date, that by Mr. Saunders on March 13th, and that by Mr. Dowling on the night of the annual meeting. We have to express our hearty appreciation of the kindness of those gentlemen in granting the use of the auditorium and assembly hall, and also of the kindness of Mr. Sykes, Librarian of the Carnegie Library, for the use of a room in which the meetings of Council were held. Our thanks are also due to the city press for free insertion of lectures, excursion notices and reports.

MEMBERSHIP.

During the year 18 new members joined the Club. The present membership now stands at 325.

Mention is feelingly made of the decease of an ardent member of the Club, Mr. J.C. Kearns, and who before his death testified of his interest in it in a bequeathment of the sum of one hundred dollars. In memory of Mr. Kearns the Council agreed not to appropriate this sum for ordinary expenditure, but to invest it, and to devote the interest accruing to prizes to members of the Club for the best collections of natural history objects as may be determined upon.

It remains to be said that leaders of the respective branches have been busily engaged in their several lines of natural history or scientific work.

The Treasurer reports a balance on hand of thirteen dollars and seventy cents (\$13.70.)

Respectfully submitted.

ANDREW HALKETT,
Secretary.

TREASURER'S STATEMENT 1915-16

RECEIPTS.

Balance from 1914-15.....	\$ 36.25
Membership Fees:	
Arrears	\$ 81.00
1915-16.....	186.00
1916-17	11.00
	278.00
Advertisements in THE OTTAWA NATURALIST....	88.50
Authors' Extras sold.....	64.40
Provincial Government Grant.....	200.00
Donation, Paul A. Cobbold, Esq.....	1.00
Miscellaneous90
Copies of OTTAWA NATURALIST sold.....	12.30
	<u>\$681.35</u>

DISBURSEMENTS.

Printing THE OTTAWA NATURALIST, 3 Nos. of Vol. XXVIII. and 9 Nos. of Vol. XXIX.....	\$420.70
Illustrations.....	19.10
Authors' Extras.....	87.60
Miscellaneous printing, envelopes, etc.....	24.69
Postage, THE OTTAWA NATURALIST to members..	34.40
Editor.....	50.00
Lectures expenses.....	13.00
Postage, bank exchange, etc.....	18.16
Cr. Balance.....	13.70
	<u>\$681.35</u>

Audited and found correct.

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THE FORMATION OF THE GREAT PLAINS OF NORTH-WESTERN CANADA.*

D. B. DOWLING.

The plains of Canada form but a portion of the larger plains of the continent, which occupy a large part of the interior and are divided into an eastern and a western portion by a great central valley. The eastern plains which extend to the St. Lawrence lowlands are forested and, therefore, seldom referred to as plains. Westward, the rainfall being lighter, there is a thinning of the forests and there are more open areas. These are generally referred to as the plains. In Canada the open prairie of the plains is being invaded by the forests from the north, so that a division can be made of treeless plains, plains with scattered trees, and forested plains.

The first requisite in a definition for these plains would perhaps be a nearly level surface, supplemented by a soil covering, and a climate admitting of the production of some vegetation, for the absence of moisture soon produces desert conditions. The formation of a level surface, to take a homely example, suggests either *planing* or *plastering*. The planing process of nature is a slow decay of the old surface and its removal by erosion. The surface thus planed is inclined to be rocky, and, as it is losing its rock waste, the soil is to be found sparingly in the hollows or valleys. In plastering the nature process consists of the spreading out, generally by large bodies of water, of the rock waste poured in by the streams. This produces a more perfectly even surface outline than is ever produced by the planing process, but our surface features are the product of both. If the surface were a part of a perfectly rigid sphere, it would be difficult to explain the presence of large areas containing the rock waste, or of those plains built up by the spreading action of the sea, but as there is a vast amount of evidence showing that the continent has not been stable but sank in certain areas, rose in others, and repeated the sinking and rising several times, we are forced to believe that the crust is flexible, and that its equilibrium is influenced by tangential strains or the shifting of load. To this we owe the submergence of those parts which received a coating of rock waste deposited by the sea. Much of this rock waste underlies the great agricultural areas or plains, so that we may say that the flexibility of the crust made possible the peopling of the earth by providing soil covered areas for the plant growth necessary to sup-

*Resume of lecture before the O.F.N.C., March 21st, 1916.

port the animal life. The plains of North America bear in their underlying rocks records of long invasions of the sea, and these form a part of the history of a continent which seems to have been a very old feature.

Much of its early history is very obscure, but we know that at several periods the ocean encroached and almost submerged the continent. The maximum submergence was probably in Ordovician times, when much of the limestone deposits of the continent were formed. Later the seas seemed to have been shallower, and the rocks formed by the debris entering the sea were of a fragmental character, and became better soil makers. The plains of eastern America owe most of their fertility to the decay of these rocks, but the western plains, now called the Great Plains, received still further treatment beneath a shallow muddy sea which covered the sandstones and limestones of the former plain by a heavy coating of mud now hardened to shale. Then when the sea invasion was about over, the great mud flats supported a very rich vegetation, which is preserved in coal seams. The later additions to the building of the plains consist of coarser material, and indicate a nearer source of supply which means an elevation of the land underlying and adjoining the western edge of the basin. With the draining away of the salt water there was an additional elevation in the land area which amounted to mountain building. This consisted of the formation of folds as a partial relief from the tangential strain, but as the movement continued, probably too rapidly for the material to follow without fracture, most of the folds became broken.

We thus find as a typical structure in the Rocky Mountains fault blocks piled one against the other in regular succession, repeating the same series of beds many times. In front of the broken area, or to the east of it, folds and breaks of less intensity and lower elevation occur at present, and towards the east the decreasing disturbance in the rocks show very clearly that the strain was from the west. The formation of the Rocky Mountains is about coincident with the elevation of the plains, for in their slow rise the soft rocks forming the covering of the broken folds were washed down and carried across the plains by the streams or spread out in lakes. On the completion of the first period of erosion, after the appearance of the outer mountains, the plains presented probably a rather rough rock-strewn surface on the higher slopes. The removal of much of this debris was made possible only by a further elevation, and with a steepening of the slope eastward the second scoring began. This was continued until from the surface hundreds of

feet were removed. The cycle of denudation was not completed, as is shown by fragments of the first surface which still remain.

The coming of the ice sheet of the glacial period is thought to have altered the general topography but little, with the exception perhaps of a smoothing of the uneven surface or a filling up of sharply cut valleys. The period during which the ice was wasting or melting is marked by many drainage channels that are now abandoned. The occupation by the glacier of the valleys of the principal streams which have a north-eastward trend, caused no doubt a damming up of the water which, together with that from the melting ice, overflowed along the ice front and sought channels that were almost at right angles to the original channel. Many of these are still used as part of the present river courses, but in the southern portion of the Canadian plains there are many of these glacially-induced channels that are now abandoned, and have apparently no other reason for their existence. The Saskatchewan drainage was diverted to the Missouri for a short period while its former valley through the Coteau was blocked by ice. The diversion filled lakes Chaplin and Johnston and proceeded south, scouring out the valley now occupied by Lake of the Rivers, Willow-bunch and Big Muddy lakes. A little later the outlet was shifted to east of the Coteau, and the Regina plain was a lake basin drained by the Souris river probably to the Red River valley. This lake was lowered by the retreat of the ice to a position farther north, and a new channel was again adopted. This was deeply cut by the flowing stream, and is now used by the Qu'Appelle and Assiniboine rivers, which have but a small flow at present.

The melting of the ice in the lowlands of the Red River valley created a lake along its front that was not as readily drained as was the case in the retreat of the ice cap across the prairies. In the Red River valley there seemed no outlet, and the basin filled until it spilled over its lowest point, far south in Minnesota at Lake Traverse. The removal or melting of a vast mass of ice in the north seems to have resulted in a slight elevation of the crust that had been depressed by the weight of the ice. This recovery, which means an actual tipping of the lake basin, lowered the lake by spilling its water to the south, and as the lake at its several stages formed beaches, the levels of these give us the amount of tilt that occurred between their dates of formation. This outlet was abandoned when the lake secured a lower northern outlet. The greatest depth of water over the site of the city of Winnipeg was about 560 feet.

The benefit of this old lake to the agricultural value of the Red River valley can hardly be measured. Over the sur-

face of the boulder clay, which covered the limestone outcrops, the waters of the lake spread a thick coating of the finely-ground shale that was excavated in the digging of the several large valleys that cut through the plateau to the west. This deposit, in lessening amount and thickness, is found over the lake basin area north of the Red River valley, and underlies the plains around Dauphin, Swan and Red Deer lakes.

On account of the soft nature of the rocks the stream valleys are deeply incised, which adds to the difficulty of using this passing water on the upland where it is often needed, since the rainfall is barely sufficient during some seasons to make up for the evaporation. Were these rivers nearer the surface the question of diversion would be simple, but long and expensive canals are required. The surface is generally treeless owing to the light rainfall. Tree planting is proceeding rapidly and is quite noticeable in Manitoba, where the bare prairie is rapidly disappearing. This, if it does not induce a much greater rainfall, retards the evaporation of the ground moisture.

As a short summary, we may repeat that the basin which received the muddy deposits of Cretaceous time has had a varied history. The rocks of the western margin were elevated and broken into long narrow blocks, which are piled up in succession to form the Rocky Mountains. A second strip was strongly folded but not elevated as high as the mountains and constitutes the foothills. A third strip formed a ridge in advance of the folded foothills and now shows a simple synclinal structure, while the remainder, less disturbed but sloping generally to the east, forms the Great Plains of the northwest provinces.

SPRING EXCURSIONS, 1916.

- May 6—Rockcliffe to McKay's Lake and vicinity—Geological excursion.
- May 13—Cache Bay, west of Hull—General Zoological excursion.
- May 27—Ferry Lake and vicinity—The study of Botany to be given special attention.
- June 10—Aylmer Park and vicinity—General Zoological excursion.
- June 17—Experimental Farm—Attention to be given chiefly to practical Botany and Horticulture.

THE MAGPIE IN WESTERN ONTARIO.

The magpie has long been recognized as an erratic straggler, but it has not happened to strike the eye of any observer in the Western Peninsula of Ontario of late years; but on March 31st, at 3.30 p.m., one flew over the farm of Mr. J. T. Miner, at Kingsville. He and his son were out, probably looking at the geese, of which there were at that time between five hundred and one thousand visiting him, and they noticed a bird crossing the farm to the north of them, and took it for a blue jay, but the tail was so long that they examined it with a field glass and found that the wings had white patches on them, and "the tail was as long as the body and dark." The flight was much like that of a blue jay.

Such a definite description from two good observers like Mr. Miner and his son should make a valid record of the occurrence of this species.—W. E. SAUNDERS.

CORRESPONDENCE.

THE EDITOR, OTTAWA NATURALIST:—

I should like to know, through the OTTAWA NATURALIST, the largest beaver ever caught, and the largest specimen in any museum. I am at present having one mounted which weighed 70 pounds. This was captured by Mr. Dan Patton, Midnapore, Alta. Mr. Thompson-Seton mentions one of 68 pounds in his "Northern Animals."

N. B. SANSON,

Curator, Govt. Museum, Banff, Alta.

UNUSUAL BIRD RECORDS AT MONTREAL DURING
THE FALL AND WINTER OF 1915-1916.

Larus marinus, Black-backed Gull.—Nov. 3, I saw a female in the possession of Mr. Dumouchel, taxidermist. He informed me that this was shot at Cedars Rapids (near Montreal) on Oct. 31.

Larus philadelphia, Bonapartes Gull.—Nov. 1, I saw one at Dumouchel's shop, shot near Montreal on Oct. 28.

Branta canadensis canadensis, Canada Goose.—On the night of Jan. 21, a flock flew over St. Lambert (opposite Montreal) in a south-westerly direction, and were heard honking for

several minutes. Geese were again heard a few nights later, although no record of the exact date was kept.

Buteo borealis borealis, Red-tailed Hawk.—On Oct. 28 I saw an adult male at Dumouchel's, shot near Montreal on Oct. 24.

Astur atricapillus atricapillus, Goshawk.—On Oct. 31 I saw one in flight; also on Nov. 3, I examined an adult male, shot on the Island on Nov. 1, in the act of devouring a domestic fowl.

Cryptoglaux junerea richardsoni, Richardson's Owl.—Nov. 21, I secured an adult male.

Hesperiphona vespertina vespertina, Evening Grosbeak.—Feb. 1, I saw two adult males, shot on the Island at Pointe aux Trembles on Jan. 30. On Feb. 18, I saw one adult male and three females or immature birds feeding on seeds of shade ash trees at St. Lambert. Again, on Feb. 24 two flocks, consisting of twenty-four birds, were feeding on ash seeds in the same locality. Of these, five were bright-coloured males. This species is still with us in considerable numbers at the present date (Feb. 28). The seeds of several Mountain Ash trees in the vicinity have been quite ignored.

Junco hyemalis hyemalis, Slate-coloured Junco.—On Jan. 23, I saw one with a flock of Chickadees.

Bombycilla garrula, Bohemian Waxwing.—Jan. 21, I saw three freshly-mounted birds at Dumouchel's. These were secured near Montreal on Jan 13. On Feb. 9 I heard the burr-like song of this species at St. Lambert, but failed to see the singer. Feb. 14, while passing the same place, I again heard the notes, and discovered an individual of this species in a maple tree, and had a fine view of the rufous under-tail coverts.

Of the above-mentioned species the Red-tailed and Goshawk are perhaps not rare here, but my records are so few that I always consider them worthy of note. I have never before observed either the Canada Goose or the Slate-coloured Junco during the months of January or February, and their occurrence was probably due to exceptional mild weather, with a steady south wind preceding their arrival.

There has been a remarkable absence of several of our most common winter visitors, notably Pine Grosbeak and Redpoll, due possibly to the open weather. On the other hand, Chickadees and Red-breasted Nuthatches have been more common than usual. Snow-birds are scarce, and only seen in small companies. During the fall and early winter I was struck by the unusual abundance of Hawk Owls to be seen in taxidermist shops. These were mainly shot by hunters in the Laurentian district.

L. McI. TERRILL, St. Lambert, Que.

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