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---

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# THE OTTAWA NATURALIST.

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VOL. XVII.

OTTAWA, MAY, 1903.

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## THE NESTING OF BIRDS AT THE CENTRAL EXPERIMENTAL FARM, OTTAWA.

W. T. MACOUN.

The following notes on the nesting of birds at the Central Experimental Farm are not published with the object of encouraging bird nesting at the Farm, for this is prohibited, but to show how many species of birds have been attracted there because they are protected and have found suitable nesting places. This article was written to supplement the report of the Ornithological Branch, which will also be found in this number of *THE NATURALIST*.

As the trees and shrubs at the Experimental Farm increase in size in the forest belts and on the ornamental grounds there is an increasing number of species of birds which breed there. In addition to that part of the Farm which is under cultivation there is a small area where the natural timber still remains, and a marsh and swamp with tamarac and willows and a few other trees. These places attract quite a number of birds which would not be found if all the Farm were under cultivation. The following observations have been made at the Farm during the past sixteen years, but particular attention was paid to the species breeding there during 1902.

Of the water and shore birds there are several which breed in the swamp and marsh near the canal. Although a nest of the American bittern has not been actually found to our knowledge, these birds are frequently seen in the marsh during the breeding season and undoubtedly breed there. A nest of the least bittern with eggs in it was found by Dr. F. A. Saunders in the summer of 1902 in the marsh. A nest of the sora or Carolina rail was

found in the marsh several years ago and it is probable that the American coot breeds there also

Of the shore birds, the spotted sandpiper is the only species which has been found breeding on the Farm. For the past three years a pair has built in the fruit plantations, which are nearly or quite three-quarters of a mile from a pond or stream. In the years 1901 and 1902 the nest was built in the strawberry plantation, it being placed in the row of plants and well hidden by them. In 1902 the nest was built in the middle of the orchard. The newly hatched young have been found running about in the fruit plantations. Nests have also been found on the high land in the arboretum.

None of the hawks or owls have been found breeding, though it is possible that in the Farm woods near St. Louis dam, the sharp-shinned hawk has had its nest as the nest of this bird has been found just across the canal in Dow's swamp.

The black-billed cuckoo has bred for several years in the forest belts, but in 1901 a nest with eggs was found in an apple tree in a thickly planted part of the orchard. The cuckoo does not build in the open but seeks a secluded place for its nest. It is one of the last birds to arrive and hence breeds late. Its peculiar note in early summer is often puzzling to those not familiar with the habits of the bird.

The only woodpecker which has been found breeding is the flicker. This bird is very common. A nest was found in a hollow basswood stump in the arboretum in 1902, but as the hole was only about six feet from the ground it was easily discovered by boys and robbed. This bird shows little tact in selecting a site for its nest and the large hole which it makes can be seen at a glance.

The nighthawk has been breeding on the Farm for the past fifteen or sixteen years, and several nests have been found. Many eggs must have been destroyed by the horse and cultivator, as the bird will lay its eggs where cultivation must be done. The eggs, which are two in number, are laid in the open in a shallow depression on the ground. The soil which becomes hottest seems to be preferred.



The chimney swift breeds in the chimneys of the houses and comes back regularly every year. It is very seldom that these birds are injured by fire. They do not begin nesting until the furnace fires are out, and they seem to know by instinct, perhaps by the smell of the soot, those chimneys from which smoke is likely to come during the summer and they keep away from them.

While a ruby-throated hummingbird's nest has not actually been taken on the Farm to our knowledge, we believe this bird to breed there as it is very common during the summer. A nest was taken some years ago by Mr. W. E. Saunders in the woods near the Farm.

The kingbird breeds in the orchard in the apple trees, and appears to take no trouble in hiding its nest which is readily seen. It seems to rely on its pugnacity for keeping all intruders away, and certainly it is sometimes alarming to have this little bird crying and darting about. The eggs of the kingbird are very beautiful, in fact among the most beautiful of Canadian birds. The kingbird is, we understand, fond of honey bees and it is difficult to protect its nest if the bee man finds it out.

It is possible that the phoebe has built somewhere in or about the buildings on the Farm, but a nest has never been found to our knowledge. The wood peewee also probably builds in the larger trees.

Among the first birds to arrive is the prairie horned lark, which usually appears during the latter part of February and begins breeding soon after the snow is off the ground. The nest is built on the ground, usually in the open. There must be many pairs breed on the Farm every year. A nest which was found in the arboretum a few years ago was built in the ground close to a large dandelion.

The crow remains here all the year round and is frequently seen during the winter months. It breeds early in spring in the large pine trees.

Bobolinks are fairly common in the meadows, but their nests are hard to find and few of them are seen. It is one of our finest singing birds, and it is fortunate that their nests are difficult to discover, as boys have no discrimination. The cowbird, which is closely related to the bobolink, is about as useless a bird as the

latter is valuable. What useful part this bird plays in the economy of nature is difficult to imagine. As is well known it builds no nest of its own but lays an egg here and there in the nests of other birds smaller than itself. The poor little chipping sparrow appears to be the commonest sufferer. The young cowbird outgrows the lawful heirs of the nest and soon monopolizes it. It must keep the faithful mother busy satisfying the stomach of this voracious intruder.

The red-winged blackbird is quite common in the marsh at St. Louis dam and breeds there regularly. These birds fly over the high land well into the arboretum, probably after some kind of food.

Every year a few pairs of meadow larks breed, and as their nests are hard to find they usually rear their young. The meadow lark arrives early in the spring and its peculiar notes are readily recognized.

The Baltimore oriole is closely related to the meadow lark, but the habits of the birds are very different. As is well known, the hanging nest is built near the end of a pendulous branch and as large trees are usually chosen the nest is fairly safe from being robbed, though, we regret to say, boys with catapults sometimes play sad havoc with them. The oriole builds in the large elms at the Farm.

One of the noisiest birds is the bronzed grackle, which is also among the first arrivals in the spring. It builds in the large pine trees.

Although the purple finch does not breed in large numbers several nests have been found at the Farm. This is not a shy bird and a nest has been found within one hundred feet of one of the residences at the Farm. The white spruce appears to be the favourite tree, and the nest is built from fifteen to twenty feet from the ground. The female is quite tame when brooding, and one can approach quite close to the nest without disturbing her. A rare nest of the American goldfinch has been found late in the season and it is probable that quite a number of pairs breed at the Farm, but they breed late when few are looking for nests.

The European house sparrow is closely related to the American goldfinch. This bird begins to breed early and continues late,

and it is difficult to tell how many broods are raised in a season. The nests are built in holes, corners and cracks in the buildings.

There are probably more nests of the vesper sparrow on the Farm in one season than any other species not even excepting the house sparrow. Many nests are found every year, and many nests must be destroyed by the plough and other farm implements. The nest is built on the ground and usually has some partial protection in the form of growing grass or weeds. Although no nests of the Savanna sparrow have been found to our knowledge this bird must breed on the Farm, as it is seen there during the summer. The white-throated sparrow's nest has not been found either, but this bird probably builds in the natural woods on the Farm.

There are none of the small birds which are more associated with the home than the chipping sparrow. This little fellow seems to delight in building his nest near the house and will, if possible, choose a shrub or tree almost if not quite against a building. The nest never seems to be firmly fixed to the branch on which it is resting, and there are probably more capsized chippy's nests after a rain or wind storm than any other species.

The slate-coloured junco may breed on the Farm but a nest has not been found.

The song sparrow is quite common but the nest is not as easily found as either the vesper or chipping sparrow. The nest of the vesper sparrow it found by the bird rising almost under one's feet, while the nest of the chipping sparrow is very easily seen in the shrub or tree where it builds. The song sparrow usually builds its nest in dense shrubs or on the ground, but not often in an open position, and hence it is more difficult to find, though the nests are quite common.

The swamp sparrow's nest has not been found, but it probably breeds in the swamp and marsh near St. Louis dam and the canal.

In 1895 a dicksissel spent the summer at the Farm and probably a pair were breeding in the meadow where the male bird was seen constantly for some days. This was the first and last record of this bird as it does not as a rule come to Eastern Ontario,

The only swallow which is known to breed on the Farm is the barn swallow. A few pairs breed in the barns, but the house sparrows occupy most of the available sites for nests. A pair started to build under the verandah of one of the houses in 1902 but they gave it up, though we cannot say for certain that the house sparrow was responsible for this.

During the last days of June and the beginning of July the cedar waxwings are busy breeding. This species breeds very late and is still seen in flocks during the latter part of June. The nest is very easy to find as it is built in rather open trees from six to ten feet from the ground. A Chinese maple (*Acer tataricum*, var. *Gennala*) is a popular tree, and among the many species on the grounds this appears to be preferred. It is unfortunate that this bird does not breed about two weeks earlier, as when a flock swoops down on a cherry tree or strawberry plantation a great deal of damage is done.

For the past three years, and perhaps more, the northern shrike has built regularly at the Farm. In 1902 the nest was found on May 19th, with six eggs in it, a short distance from that of 1900. The nests were found in elm trees about fifteen feet from the ground. The brood of 1900 was successfully raised by the old birds and it was an interesting sight to see the fully fledged young fighting for their food. They made a great din, the harsh notes of the old birds rising above their offspring. Some of the notes of the shrike are very pleasant to listen to while others are as bad or worse than those of the blue jay. Frequently we find grasshoppers empaled by these birds on the spur of the fruit trees in the orchard. There has been some confusion regarding the identity of the shrike which breeds here, but it is certainly the northern shrike.

A red-eyed vireo had its nest somewhere in one of the large maples in the orchard enclosure in 1902, but the exact site was not located.

There are probably several warblers breed in the woods and swamp near the canal and St. Louis dam the nests of which have not been discovered. The nest of the yellow warbler is quite common and is readily found in the shrubbery. The Maryland



yellow-throat and American redstart both breed in the swamp near St. Louis dam.

The catbird builds every year in the thick parts of the shrubbery and is one of the most adept at hiding its nest. This is a most delightful songster and it is refreshing to hear its bold notes. It has harsh notes as well but these may be forgiven.

A pair of brown thrashers make their headquarters with us each year and usually a nest is found. One time it is in a spruce hedge and another time in a brush pile, and again at the base of a low-growing shrub. This is one of our very best songsters. Early on a May morning it will sit on the top of a tree and fill the air with its strong rich notes. It will then disappear and is rarely seen during the day.

A small box was put up by Dr. Fletcher in his back yard with a hole too small for a house sparrow to enter, the object being to induce the house wren to breed in it. He was quite successful, and for three years he has had the pleasure of watching these little fellows building their nest, rearing their young and listening to their shrill but sweet song. We hope that the house wren will become more common at the Farm.

A nest of the long-billed marsh wren was found in the marsh near the canal some years ago by Mr. A. G. Kingston, but this has been the only one taken so far as we are aware.

Of the thrush family the bluebirds and robins are all that are known to breed on the Farm, although Wilson's thrush may breed in the thicker parts of the forest belts or in the natural woods. The bluebird is not common but it seemed a little more numerous the last year or two. It usually builds in a hole in the fence posts. The robin is very common and the nests are easily found. Comparatively few broods, however, seem to be reared, as between cats and boys the robin has a hard time of it. Cats may be seen stalking robins I believe at almost any hour of the day or night.

## REPORT OF THE ORNITHOLOGICAL BRANCH, 1902.

(Presented and read March 17th, 1903.)

The following report is submitted by the Ornithological Branch.

We regret to state that there are so few systematic observers of birds and their habits that it is difficult to make a very voluminous report of the work which has been actually done during the past year. No species of birds new to the district were discovered, but the number found here is so limited that after more than twenty years' observations it is not to be wondered at that it is only rarely that a new bird is seen.

Notes of the arrivals of birds were again made by some of the members but these were not printed in THE NATURALIST this year. We hope, however, to soon publish a list giving the average dates of arrival of the different birds for the past five years. Thinking it might prove of interest to the Club we have looked up the dates of arrival for the past seven years of those two first harbingers of spring, the robin and the song sparrow.

Robin : 1897, March 22 ; 1898, March 15 ; 1899, April 6 ; 1900, April 2 ; 1901, March 24 ; 1902, March 15 ; 1903, March 9.

Song Sparrow : 1897, March 18 ; 1898, March 11 ; 1899, April 6th ; 1900, April 1 ; 1901, March 24 ; 1902, March 15 ; 1903, March 13.

The dates of arrival of the prairie horned lark may also be interesting.

Prairie Horned Lark : 1897, February 22 ; 1898, February 18 ; 1899, March 15 ; 1900, February 14 ; 1901, March 1 ; 1902, February 27 ; 1903, February 15.

## DESCRIPTION OF A NEW SPECIES OF MATHERIA, FROM THE TRENTON LIMESTONE AT OTTAWA.

By J. F. WHITEAVES.

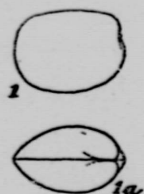
The genus *Matheria* was described by E. Billings in 1858, in the third volume of the Canadian Naturalist and Geologist. It was based upon a single species, the *M. tener* of Billings, a small lamellibranchiate or pelecypodous bivalve, from the Trenton limestone at Lake St. John, P.Q. *Matheria* appears to be most

nearly related to *Cyrtodonta* and *Vanuxemia*, and is now included in the family Cyrtodontidæ, Ulrich, of the order Prionodesmacea, Dall. The types of *M. tener*, which were collected by Mr. J. Richardson and Dr. R. Bell in 1857, at Blue Point, on Lake St. John, are still in the Museum of the Geological Survey.

A second species of this genus, from the Trenton shales of Minnesota, was described by Mr. Ulrich in 1892, under the name *M. rugosa*, in the Nineteenth Annual Report of the Geological and Natural History Survey of Minnesota. And, in his Report on the Lower Silurian Lamellibranchiata of Minnesota, published in 1897, in volume three, part two, of the Final Report on the Geology of Minnesota, Mr. Ulrich expresses the opinion that the *Modiolopsis recta* of Hall, from the Niagara limestone of Wisconsin and Illinois, is also a *Matheria*.

In the Museum of the Geological Survey there are a few specimens of a fourth and previously undescribed as well as unfigured species of this genus, from the Trenton limestone of Ottawa, collected many years ago by E. Billings and labelled by him with the manuscript name *Matheria brevis*. This species may now be defined and characterized as follows.

MATHERIA BREVIS.



*Matheria brevis*.—Fig. 1. Side view of the most perfect specimen collected, in outline, and showing the marginal contour of the right valve.

Fig. 1a. The same specimen, as seen from above, to show the amount of convexity of the closed valves.

Both of these figures are of the natural size.

Shell small, inflated and regularly convex, but not quite as wide as high, suboval or oblong subquadrate, about one-third longer than high and very inequilateral. Anterior side very short,

narrow and consisting of a small rounded lobe below the beaks, on each side; posterior side longer, and a little wider in the direction of its height; posterior end vertically subtruncate at its mid-height, rounding abruptly into the cardinal margin above and into the ventral margin below. Ventral margin gently convex but curving upward more abruptly and rapidly at the posterior than at the anterior end; superior border almost straight and nearly horizontal; umbones depressed, anterior, very nearly but not quite terminal; beaks incurved.

Surface markings not at all well preserved in either of the specimens collected, but apparently consisting of fine concentric lines of growth. Hinge dentition and muscular impressions unknown.

Approximate dimensions of the specimen figured: maximum length, fifteen millimetres; greatest height, eleven mm; maximum width, or thickness through the closed valves, nearly nine mm.

Trenton limestone, Ottawa, E. Billings: four nearly perfect but badly preserved specimens.

*M. brevis* can be distinguished at a glance from *M. tener*, *M. rugosa* and *M. recta*, by its comparatively short, tumid and regularly convex valves.

Ottawa, April 16th, 1903.

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#### REPORT OF THE ZOOLOGICAL BRANCH, 1902.

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*To the President and Council of the*

*Ottawa Field-Naturalists' Club.*

In submitting the usual report referring to the zoological work of the Club during the past year, it must be admitted that no very new or striking facts are available such as would give special interest or value to this annual record. Many years ago the leaders of the Zoological section pointed out that original observations on our native mammals are becoming more difficult, as the city continues to expand and the surrounding country becomes more thickly occupied, and they specified the moles, the shrews, and the smaller rodents as likely to afford the main field



for work open to resident zoologists in Ottawa. This is still largely true, and the shrews, the mice, voles and other small rodents, still invite more systematic study, with the possibility of interesting discoveries. The bats, too, are comparatively neglected, although few of our local naturalists can claim to be familiar with all the species occurring in the capital and its neighbourhood. If during the coming season a small group of enthusiasts would determine to take up such neglected branches of study as these, the zoological section of the Club would have something new and valuable to lay before the members. It is known that the white-footed mouse, the red-backed mouse, and several species of interesting field-mice are found in the Ottawa district, but actual records of specimens obtained are few and far between. A fine specimen of the Black Squirrel, from the Gatineau region, it is understood, was on exhibition on Sparks street in December, and a remarkably handsome Silver Fox from the Coulonge district has been exhibited alive in the city within the last two or three weeks. The amphibians, turtles and snakes of Ottawa require thorough investigation, and observations such as those of Mr. W. S. Odell, two or three years ago, on *Spelerpes bilineatus*, are much required. One member of the Club, Mr. Andrew Halkett, is able to record the examination of a great variety of Teleostean fishes from various localities in Ontario and Quebec. These are being preserved to form the nucleus of a new collection of fishes in connection with the Marine and Fisheries Department.

Professor Macoun handed to Mr. Halkett a specimen of the Brook or White Sucker (*Catostomus commersonii*) obtained by Mr. R. B. Whyte. Fishery Inspector Loveday also furnished a Lamprey (*Petromyzon concolor*) in the larval stage, which had already assumed the parasitic habit and had attached itself to a catfish (*Ameiurus ebulosus*). Through the assistance of Dr. T. Bell, Algonquin Park specimens of Great Lake Trout, Yellow Perch, Ling, Chub, Speckled Trout, etc., from the Provincial Park were obtained, while fine specimens of large-mouthed Black Bass from Port Perry, Ontario, were sent by Officer J. E. Evans, taken in Lake Scugog. Unusually large examples of the Cisco (*Coregonus artedii*) were received from Lake Erie in November, and Mr Halkett collected at Healy's Falls, Northumberland Co., Ont., Catfishes

(*Ameiurus*), Mulletts or Suckers (*Catostomus*), Sun-fishes (*Lepomis*), Yellow Perch (*Perca flavescens*), Ling or Burbot (*Lota maculosa*), also Gar-pike or Bill fish (*Lepidosteus*) and Killifishes (*Fundulus diaphanus*), in the Bay of Quinte, near Belleville. While in the Province of Nova Scotia, Mr. Halkett secured, at or near Digby, last fall, the Picked Dogfish (*Squalus acanthias*), Codfish (*Gadus callarias*), Tom cod (*Microgadus tomcod*), Haddock (*Melanogrammus aeglefinus*), Hake (*Merluccius bilinearis*) Halibut (*Hippoglossus hippoglossus*), Herring (*Clupea harengus*), Smelt (*Osmerus mordax*), Gunnel or Butterfish (*Pholis gunnellus*), also bones of the Angler or Goosefish (*Lophius piscatorius*), and the scapular bones, two vertebræ and three ribs of a Beluga or White Whale (*Delphinapterus leucas*). Finally, a small Sturgeon (*Acipenser*), and the head of a large example, were obtained in the St. Lawrence, near Lancaster, Ont.

In spite of meagre results, suitable for recording in such a report as this, there is every reason to believe that the zoologists are in various ways vigorously pursuing their favourite studies, and, if no important discoveries are made, these studies are a never-ending source of interest and enjoyment.

JOHN MACOUN,  
E. E. PRINCE,  
W. S. ODELL,  
ANDREW HALKETT.

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#### ENTOMOLOGICAL BRANCH.

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The third meeting was held at Mr. Halkett's residence on Thursday, Feb. 12th at 8 p.m., and was opened by the host with some observations upon his very attractive collection. His object, when he began collecting, was chiefly to obtain pretty specimens, but he now recognized that such a collection should only be a stepping-stone to one of greater usefulness in which life-histories would be illustrated. After some discussion on these lines, a list was submitted by Mr. Harrington of some forty species of diptera new to the Ottawa List, and he read a short note urging the importance of the study of this order, in view of the influence of

many species, such as house-flies and mosquitoes, in propagating diseases, or in otherwise injuriously affecting the welfare of mankind. Mr. Metcalfe described experiments made in Toronto by Dr. Brodie in rearing species of *Meloe*, and the egg-laying habits of these beetles. Mr. Halkett asked whether any members of the Hydrocampidæ, whose larvæ are aquatic, occur at Ottawa, and in reply Dr. Fletcher stated that two species of these moths were found but not commonly. He also called attention to similar habits of the larva of *Azama obliquata*, which bores in the stems of the Cat-tail Flag (*Typha*) and can swim from one plant to another; the breathing spiracles being so high up as to be above the surface of the water. Mr. Gibson read some portions of a paper which he is preparing upon the Canadian species of the genus *Apantesis* (of Arctian moths) with special reference to the larvæ. Two cases were exhibited, containing representatives, generally in good series, of nearly all the recorded Canadian species, showing interesting affinities and variations. Dr. Fletcher exhibited a fine ichneumon fly, *Megaplectes Blakei*, from Cape Breton. This genus of the Cryptidæ is distinguished readily by the swollen triangular second joint of the maxillary palpi. The species in question occurs at Ottawa, and seems to be widely distributed in Canada and the United States. Mr. Young showed some living beetles which he had recently collected under bark, etc., and Mr. Harrington exhibited a series of his Buprestidæ.

The fourth meeting was held at Dr. Fletcher's house on Thursday, Feb. 26th, when a paper was read by Mr. MacLaughlin on the "Classification of the Odonata," or dragonflies. This paper was illustrated by a series of species representative of the different groups and of the principal genera. Mr. Halkett exhibited the nymph-case of a large species collected by him at Spanish River, and which was not recognized by any of the members present. The methods of collecting and preserving dragonflies were discussed and Mr. Harrington mentioned that in Japan, where these insects are very numerous, he had observed the children catching them quite easily by means of a slender bamboo tipped with a little rice-glue. Mr. Metcalfe read some observations on the "Day Flight of the Male of *Callosamia Promethea*," which commenced about 4 p.m., while the females were only seen at

night. A paper by Mr. Young on the "Inflation of Larvæ" was then read and the author gave an exhibition of the skilful manner in which he prepares his beautiful and lifelike specimens. He inflated a Mamestra larva and also the hairy caterpillar of *Phragmetobia rubicundula*, pointing out that hibernated individuals were somewhat more difficult to make good skins of than the summer forms. He showed fine skins of the caterpillars of *Orgyia leucostigma*, *Ampelophaga myron*, *Phyrria umbra* and *Acronycta impressa*, and also a fine series of imagoes of *Colias Eurytheme* (with larva) and a specimen of that rare little yellow butterfly, *Terias Lisa*. Dr. Fletcher showed a White Grub (*Lachnosterna* sp.) bearing the parasitic fungus *Cordiceps melolonthæ*, and Mr. Young stated that similar specimens occurred annually in his garden. Mr. Harrington exhibited a case of some of the chief insects in different orders which he had taken in Japan, and Dr. Fletcher drew attention to several new books on nature study which were upon the table, including Roberts' "Kindred of the Wild" and "Round the Camp Fire" and Long's "Fowls of the Air," etc.

W. H. H.

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#### MEETINGS OF THE BOTANICAL BRANCH.

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The first meeting of the Botanical Branch was held on the evening of February 5th, at Dr. Fletcher's house, who, as chairman for the evening, explained that the reason the meeting had been called was twofold. After discussion, the botanical leaders had decided that regular meetings of the Branch would be very useful in keeping up the interest in botany among the members, by giving an opportunity for the reading of notes and short papers and for the discussion of many matters which might not be considered of sufficient importance to bring before the general meetings of the Club; further than this, these contributions would provide valuable matter for publication in the OTTAWA NATURALIST.

Each member present was invited to express his views on the subject. All were unanimous in the opinion that such meetings would be very helpful and Mr. J. M. Macoun, the Editor of the OTTAWA NATURALIST, stated that the contributions would



be most acceptable for the monthly magazine; for, notwithstanding the large number who apparently took an interest in plants and collected them at the excursions, notes of a botanical nature sent in for publication were very few.

Prof. Macoun gave an interesting account of some of the plants he had collected in the Yukon during the summer of 1902. Dr. Fletcher showed specimens of interesting plants he had collected in south-western Alberta, and drew attention to several, the finding of which on this side of the Rocky Mountains was unexpected.

Dr. Ami introduced the matter of dividing the Ottawa district into floral areas for convenience of reference. When these would be definitely decided upon, the distribution of the rarer species could be plotted on the geological map of which the Club has a large supply.

Mr. A. E. Attwood was requested to act as recording-secretary for the meetings and to keep minutes of the discussions.

The second meeting was held at the house of Prof. Macoun, on the 23rd February. The chairman, Prof. Macoun, exhibited a complete collection of the Carices and Antennarias, of Ottawa, and at the same time pointed out the most obvious differences between the various species.

The remainder of the evening was spent in discussing the best method for the systematic prosecution of botanical work in this district.

J. F.

The third meeting was held, March 23rd, at the residence of Mr. J. M. Macoun.

Dr. Fletcher exhibited a plug taken from a drain-tile which had been completely filled with willow rootlets, a branch of the root having effected an entrance at the junction of two tiles. A short discussion on willow hedges followed.

Mr. W. T. Macoun showed a section of a cherry-tree that had been girdled by mice. Above the girdle the diameter was over  $\frac{1}{2}$  inch greater than below. The specimen was a natural demonstration of the deposition of woody material formed from food stored

during the previous season and elaborated in the following spring. The girdle made it impossible for sap from below to ascend.

Mr. J. M. Macoun showed specimens of *Aquilegia Canadensis* and *A. coccinea* and expressed the opinion that the latter would be found in the Ottawa district. The ripened fruit is the best distinguishing feature of the two species. On *A. Canadensis* the follicles have spreading tips while in *A. coccinea* the follicles are straight and about  $\frac{1}{3}$  longer. The flowers of *A. coccinea* are much larger than those of *A. Canadensis* and the spur is twice as long. Specimens of *Spiraea latifolia* were also exhibited which showed this species to be quite distinct from *S. salicifolia*; both species are found near Ottawa. The crucial test of a species was, after some discussion, decided to be the continuous reproduction, without variation, of plants from seed.

Prof. Macoun strongly recommended more specialized work on the part of the members and several expressed their willingness to assume responsibility in particular phases of botanical work: Dr. Fletcher, Violets and Carices; Prof. Macoun Fungi; Dr. Guillet, Phenological observations; T. E. Clarke, Ferns of the Ottawa district; W. T. Macoun, Shrubs, with special reference to the genus *Spiraea*; A. E. Attwood, Trees and noxious weeds.

The fourth meeting was held at the residence of A. E. Attwood.

A number of twigs of shrubs and trees were identified and discussed. It was demonstrated that with a little study and care, trees can be determined as readily from twigs and buds as from flowers and fruits.

Dr. Fletcher read an interesting article from "Science" on the effect upon animals of eating "Sleepy Grass." He also spoke of the serious mechanical injury caused to the stomachs of sheep by their eating of the so-called prairie crocus (*Pulsatilla hirsutissima*). This anemone is the first green thing found on the prairies in spring and is freely eaten by sheep. The hairs of the leaves and stem are indigestible and become felted together in the animal's stomach frequently causing death.

The remainder of the evening was spent in listing the localities at which the different species of orchids growing in this region had been found.

The fifth meeting was at the residence of Dr. H. M. Ami. The most important item of business was the settling of the division of the Ottawa district with the view of better describing the localities in which plants are to be found. The *Flora Ottawensis* is at present receiving considerable systematic attention, with the object of publishing a revised list of the species to be found in the Ottawa district. In order to facilitate the recording of localities, the four geographical divisions of the district are henceforth to be recognized by names.

The Ottawa River naturally separates the Quebec area from the Catario area. Each is divided into west and east divisions by the Gatineau River and the Rideau River respectively. In the near future these divisions will probably be subdivided into sections, but it was thought wise to go no further at present than the first step, which may be indicated as follows :

- |                            |   |   |
|----------------------------|---|---|
| The<br>Ottawa<br>District. | { | A.—The Quebec Area.<br>1. Quebec West ; 2. Quebec East.<br><br>B.—The Ontario Area.<br>3. Ontario West ; 4. Ontario East. |
|----------------------------|---|---|

Dr. Ami announced that he was preparing a map that will indicate the nature of the surface of the land of the Ottawa district.

Several interesting specimens were brought by Dr. Fletcher, among them :

(1) A tuft of sweet grass (*Hierochloa borealis*) in flower. It came from the Experimental Farm, but is to be found growing wild at the Beaver Meadow and near Lake Flora, Hull. This grass is employed by Indians in making baskets, table mats, etc.

(2.) Vegetable concretions or nodules from Nova Scotia. These were several inches in diameter and almost spherical in shape. They had been formed by the matting or felting together of small pieces of grass, ferns, and pine leaves through the action of water in a pool at the foot of a small waterfall on a rivulet.

(3.) Galls from the roots of rose-bushes. This gall is found on native species and has also attacked a Japanese rose at the Experimental Farm.

(4.) Radishes in various stages of development. Their interest lay in the interpretation of the scale-like appendage adhering to the enlarged stem. It proved to be a remnant of the ruptured sheath of the radicle.

A. E. A.

## SUB-EXCURSIONS.

About fifty members and friends of the club met at St. Patrick street bridge on Saturday afternoon April 11th. The leaders present were Professor John Macoun, W. T. Macoun, Andrew Halkett, A. E. Attwood and W. J. Wilson. The party proceeded to Beechwood and McKay Lake collecting plants, animals and rock specimens by the way. The plants found in bloom were *Anemone Hepatica*, *A. acutiloba*, spring beauty, *Claytonia Caroliniana* and blue cohosh (*Caulophyllum thalictroides*). The three first named were found in considerable abundance. Attention was directed to the rock formations as shown on the map of the Ottawa district. In going from St. Patrick street bridge the Utica shale outcrops in numerous places and is seen up to the first road leading into Beechwood. Then by a fault the chazy limestone comes up on the left and a narrow band of Black River limestone on the right. About half way from Beechwood gate to McKay Lake chazy shale appears, and this is the surface rock to the river where it is well seen at Rockcliffe. The pleistocene formation round McKay Lake is of much interest. The water in this lake was at one time at least twenty-five feet higher than at present, and was then held in by a deposit of Leda clay through which the small stream which drains it has slowly cut a deep channel to the Ottawa River. All along the eastern shore there are large deposits of shell-marl, composed chiefly of fresh water species, many of which are now living in the lake. Under these deposits are beds of stratified sand and clay which hold marine shells, though we were not fortunate in finding any specimens of these on Saturday. In a sand pit recently opened there is a splendid section of the stratified material. The lower part is very irregular and shows false bedding, while the upper part is in horizontal layers.

At five o'clock the company assembled on a hill overlooking the lake and listened to short talks by some of the leaders on the specimens collected during the afternoon. Professor Macoun spoke on the plants and pointed out many interesting facts about the trees growing close by as to their mode of growth, branching, etc. Mr. Andrew Halkett showed a number of Zoological speci-



mens and explained their structure and habits, and the President, Mr. W. T. Macoun, spoke of the birds seen.

In addition to the plants mentioned above Mr. J. M. Macoun reports that he found the dogs-toothed violet (*Erythronium Americanum*) and *Trillium grandiflorum* in bloom at Kingsmere on the same date.

W. J. W.

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The second sub-excursion of the Club for this season was to Blueberry Point, near Aylmer, P.Q., on April 18th, when about fifty members and others attended. The day was fine but cool, although in the woods it was very pleasant. While there was little growth in the woods the trailing arbutus and hepaticas were in full bloom, and large quantities of the former were gathered. There were few other species, however, in flower in the woods at the point. A number of trees of the Banksian pine (*Pinus Banksiana*) which is rather rare near Ottawa, were noticed on the point. The red bellied snake, *Storeria occipitomaculata*, was found to be quite common under the stones in the woods, and one specimen of the grass snake was also procured. Two species of newts were taken. Few birds were seen, and none of special interest. The geologists and entomologists obtained some interesting specimens. Before returning to the city short addresses were given by Dr. James Fletcher, Dr. H. M. Ami, Mr. Andrew Halkett and the Rev. Mr. Bland on the specimens which were obtained and on other natural history topics. It was a pleasure to the president and leaders to find so many young people interested. One boy was noticed kissing a snake, and a young lady was persuaded to stroke one. If no other good came of this excursion than the convincing of the young people, and older ones as well, that these little creatures are perfectly harmless and should be protected and not killed, the Club was well repaid for having this outing.

W. T. M.

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The sub-excursion to Rideau Park, better known as "Billings' Bush," April 25th. was the most largely attended of the season. More than one hundred Normal School students and about fifty members of the Club met at Billings' Bridge and guided by the

leaders in the several branches of the Club's work entered the woods from the west and spent nearly two hours in collecting and studying plants, insects and birds. The leaders present were: Geology, Mr. W. J. Wilson; Botany, Messrs. J. M. Macoun, A. E. Attwood and S. B. Sinclair, Entomology, Messrs. James Fletcher, C. H. Young and A. Gibson; Ornithology, Prof. John Macoun and Miss Harmer; Zoology, Mr. Andrew Halkett. The number of species of plants in flower was not great and the attention of the majority of those present was devoted to the study of trees and shrubs, and the characters by which they may be identified by the twigs and buds. Several interesting insects were collected and identified.

About five o'clock the entire company gathered near the northeast corner of the wood where a convenient pile of logs afforded comfortable seats for the ladies. The president, Mr. W. T. Macoun, was the first speaker, and described briefly the characters by which the various trees could be identified from their twigs. He was followed by Prof. Macoun who in a characteristic speech impressed upon the students the necessity of a basis of definite knowledge upon which to build in studying Natural History. Each fact as acquired would then naturally fit itself into its proper niche, and as the years went on a vast amount of valuable knowledge would be accumulated. Dr. Sinclair's announcement that Nature Study was to be given a more prominent place in the Public School curriculum was received with applause. He pointed out briefly the advantages of such study and said that public school teachers would now be trained so that they would be equipped with all the knowledge necessary to teach children to understand what they saw and heard when in the woods and fields. Dr. Fletcher was the last speaker, and taking for his text a handful of specimens he described their chief characteristics and uses. The great variety of material collected was not apparent until student after student came forward with some specimen different from what anyone else had seen.

The excursion was one of the most successful and enjoyable ever held under the auspices of the Club.

## NATURE STUDY—No. 1.

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By JAMES FLETCHER, Ottawa.

There is probably no subject which has so suddenly taken hold of the minds of educators, particularly during the last five years, as that which is now known in North America under the name of Nature Study.

It has been decided by the Publishing Committee, with the permission of the Editor, that a continuous series of articles upon the common objects of the country should appear this year in *THE OTTAWA NATURALIST*. It is believed that such articles will be found of value and interest both to our general readers and also to the many teachers and students who read the monthly magazine and attend our excursions. The Ottawa Field-Naturalists' Club is essentially an educational institution, and the officers are always anxious to make use of every opportunity of widening its scope of usefulness.

Much has been done in the schools of Ottawa by prominent members of the Club to foster a love for Nature. Mr. William Scott, now of Toronto, Dr. Sinclair and Mr. Putman, of the Ottawa Normal School, have always appreciated the great value of Nature Study in the science of teaching. Miss Bolton, Mr. D. A. Campbell, Miss Harmon and Miss Lee, Mrs. Ross, Miss Matthews, as well as Mr. Attwood and particularly Dr. Guillet, all of them experienced teachers, have recently made a special feature of stimulating an interest in school work of all kinds by using the attractiveness of natural objects to create a studious habit. Some of our leading newspapers, having recognized the trend of public opinion, have made arrangements for a special department of Nature Study in their columns. A series entitled "In Field and Wood" has already been begun in the *Mail and Empire*.

Nor have the educators in other parts of Canada lagged behind in adopting this important means of arousing interest, enthusiasm, and application among the boys and girls who are being trained to be her citizens of the future. In every Province of the Dominion something has been done or some provision has

been made in the public schools for imparting to the pupils as part of their regular instruction some knowledge of the common objects which surround them on every side, and this has been found successful to a marked degree in stirring up that interest in all their school studies, which is so essential to advancement.

In education, no progress can be made until an interest is aroused in the subject taught, and nature study, above all things, stimulates mental activity. Its very essence is a spirit of enquiry and a desire for knowledge--to want to know about everything seen, what it is, why it is there, how it got there, and what are its uses. A thirst for knowledge is an instinct, too, which can be cultivated and developed to a wonderful degree. An illustration of the practical value of these studies is to be found in the North-West Territories and Manitoba, where remarkable results are now very apparent in the improved condition of the whole country as a direct outcome of the simple instructions on plant life (illustrated by the commonest plants found in each locality), which have been given in the rural schools during the past five or six years. This has been in connection with the vigorous campaigns which are being annually waged against noxious weeds. Good work has also been done by teaching the boys and girls of the country what is the true nature of hawks and other birds of prey, and how important a part they play as friends and not, as is generally supposed, as enemies of the farmer.

The usefulness of nature study has been recognized not only by the teaching profession, who are making use of it in schools, but also by those important educational institutions, the Exhibition and Fair Associations, which have done much, by offering small prizes, to draw the attention of farmers and their children to the value of a knowledge of the common, beneficial, and injurious plants, insects, birds, and animals of the country.

Let us then consider briefly what Nature Study is. Prof. Bailey, of Cornell University, one of the best known leaders in this work, says that it is "training the eye to see correctly what it looks at, and the mind to draw the right conclusions from what is seen." It is, in fact, a means of bringing about an equal and simultaneous working of each one of our senses--sight, hearing, taste, smell, and touch--with our minds, by which the perceptions

are brightened to a wonderful degree and the individual becomes more alert, self-reliant, and useful. Nature study, to be successful and take its most useful place in education must deal with the beginnings of things. It imparts an elementary knowledge of all the commonest things about us, which, from their very commonness, are of importance to us, because they touch us so frequently and enter so much into our everyday lives. Nature study is particularly suitable for training the young - even the lowest grades of scholars--whose senses are always keen to observe anything new or strange, and whose minds are always in a receptive state; but, also, it equally commends itself to the observant and thoughtful student whatever his age may be. It is essentially kindergarten work, and kindergarten work is essentially nature study.

The scope of nature study, as stated, should as much as possible be confined to the simple elements of knowledge. It is simply a means to an end. Its object is not to teach any branch of natural science, but to train the mind to acquire knowledge in any direction to which it may be specially directed. It should not be taught by the teacher to the scholar, but studied by the teacher with the scholar--the teacher merely using his superior knowledge and experience in directing and encouraging the scholars to strive to learn for themselves something about all things which come before them. In this way they will become self-dependent, and will not trust blindly to what is told them or what they find in books, but they will examine, consider, and confirm everything for themselves.

Wrong ideas about many things in nature are very widespread, and there is an inexplicable lack of knowledge on the part of a large proportion of the community with regard to many things concerning which some easily obtainable information would be of great benefit to them. All the foolish things, and nearly all the wicked things done in the world, are due to people not knowing many simple things which they ought to know. There is, perhaps, no such widespread and unnecessary cause of unhappiness or actual misery as the fear of being in the dark, which is felt by so many children, and even by many grown-up people, and, yet, if one will only think the matter out carefully, he will have to acknowledge that it is an almost unheard-of thing in Canada for any injury to



happen to anyone in the dark which is not liable to occur in daylight. If children were made to understand this by giving them definite information concerning the imagined sources of danger, how many pangs of anguish would be spared!

Inaccurate statements about animals, birds, insects and reptiles are the cause of much unfounded fear, which not only produces unhappiness, but prevents the doing of important duties or the performance of many kind acts. How much happier many would be, were they convinced of the fact that such a thing as a true record of an actual instance of a wolf attacking a human being in North America is unknown, notwithstanding the statements to the contrary, which frequently appear in the press and in books on natural history! Just as inaccurate are the accounts of supposed injuries by spiders, which are generally but falsely accused of biting children. Many other inoffensive insects, such as caterpillars, dragonflies and beetles are dreaded, and too frequently ignorantly destroyed as deadly enemies of the human race, which have no possible power to do us any harm.

Again, reptiles of all kinds are as a rule very much dreaded, but, except in the few localities where rattlesnakes occur, we have no venomous reptiles in Canada. In fact, it may be truly said that, if we leave out of consideration mosquitoes and a few other flies, there is practically no wild reptile, beast, bird or insect in our woods which will or even can do us any harm.

Nature study will do away with a vast amount of this lack of knowledge, and to a large degree will increase the happiness and contentment of those who are drawn to nature for solace, recreation and rest, and are thus enticed into the leafy woods and dewy fields to study the many beautiful, fascinating and instructive objects there to be found.

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