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APRIL-MAY, 1900.

VOL. XIV, No. 1 & 2

THE OTTAWA NATURALIST.

Published by the Ottawa Field-Naturalists' Club.

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Sub-Excursion to Beaver Meadow, Hull, May 12, 3 p.m.

First General Excursion to Ghelsea, May 26.

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THE OTTAWA NATURALIST.

VOL. XIV. OTTAWA, APRIL AND MAY, 1900. No. 12

ANNUAL REPORT OF THE OTTAWA FIELD NATURALISTS' CLUB, 1899-1900.

The Council of the O. F. N. Club beg leave to submit the following report for the year now ending. Forty members have been elected during the year, and thirty have resigned, or had their names struck from the list on account of non-payment of dues. The total number now enrolled is about 235. Fourteen council meetings have been held.

The President, Dr. Ami, represented the club at the meeting of the Royal Society of Canada, held in this city in May last.

The following elementary lectures were arranged for at the first meeting of Council, and were held on the respective dates :

April 10th, *Geology*, by Dr. H. M. Ami.

“ 17th, *Ornithology*, by Mr. A. G. Kingston.

“ 24th, *Entomology*, by Dr. James Fletcher.

May 1st, *Conchology*, by Hon. F. R. Latchford.

“ 8th, *Botany*, by Mr. R. B. Whyte.

“ 15th, *Zoology*, by Mr. W. S. Odell and Prof. J. Macoun.

“ 22nd, *Planting and Care of Forest Trees*, by Sir Henry Joli de Lotbinière.

Dr. MacCabe kindly placed the Assembly Hall of the Normal School at the disposal of the Club for these lectures, and the attendance was most encouraging to all concerned, a large number of the ladies and gentlemen attending the Normal and other city schools being present at every lecture, of which they took copious notes.

As usual the sub-excursions were an important feature of the year's work, though in the first half the lateness of the spring made it necessary to confine the observations largely to a study of the rocks, and to the collection of fossils. All of these excursions

sions were well attended, in some cases over 150 members and friends of the Club being present.

The first general excursion was to Chelsea, and was attended by nearly 300. Two prizes were offered for the best collections of plants, and evoked much interest among the botanists. The second general excursion was to Aylmer Park, where seventy-nine species of plants were noted. The geology and archæology of this district and of Lighthouse Island proved of much interest to those studying these subjects. The third general excursion was to Cumberland and, though not largely attended, was of much interest. The elementary lectures, the sub-excursions and the general excursions have been described at length in THE OTTAWA NATURALIST.

During the winter the usual evening meetings were held, and many valuable lectures were given and papers read, of which the full programme was given in THE OTTAWA NATURALIST for December, 1899, the only change in the original programme being that on March 6th, instead of Mr. T. W. E. Sowter's paper, Mr. D. B. Dowling gave an illustrated address on Lake Winnipeg, and Mr. W. S. Odell read a paper "On a Salamander."

At the kind invitation of the Rector of the University of Ottawa, one of our evening meetings, that of February 20th, was held in the Academic Hall of that institution and was very largely attended. The two Conversazioni held in the Normal School were also well attended; at these many interesting specimens were exhibited.

THE OTTAWA NATURALIST has been published every month, and the eleven numbers already out contain 276 pages. Six pages of plates and many interesting articles have appeared, among which the following may be mentioned :

The Mineral Resources of the Ottawa District. Dr. R. W. Ells.

Progress of Geological Work in Canada. Dr. H. M. Ami.

Ottawa Coleoptera. Extra—limital Insects Found at Ottawa, by W. H. Harrington.

On Reptilian Remains from the Cretaceous of North-western Canada. Lawrence M. Lambe.

The Bermuda or Easter Lily. H. B. Small.

Some Recent Additions to the Labrador Flora. M. L. Fernald and J. D. Sornborger.

Notes on Fresh-water Polyzoa. Walter S. Odell.

The Birds of a Garden, and My Feathered Jester. A. C. Tyndall.

List of Fresh-water Fishes of the Gaspé Peninsula and a Preliminary List of Batrachia of Gaspé Peninsula and the Maritime Provinces. Dr. Philip Cox.

Winter Birds of the Okanagan District. Allan Brooks.

Some Plants from the North-west Shore of Hudson Bay. M. L. Fernald.

Paddle-nosed Sturgeon in Ontario. Prof. E. E. Prince.

Notes on a Geological Trip over a Portion of the North-west Territories. T. C. Weston.

Notes on some Botanic Gardens. W. T. Macoun.

Belinurus grandævus, a new species of Palæozoic Limuloid Crustacean. Dr. H. M. Ami.

List of Plants Collected by J. B. Tyrrell in the Klondike Region, 1899. Prof. John Macoun.

Archæology of Lake Deschenes. T. W. E. Sowter.

Rangifer Dawsoni; preliminary description of a new species of Caribou from Queen Charlotte Island. E. Seton-Thompson.

Annual Address of the President. Dr. H. M. Ami.

The different branches report a successful year's work. In Geology the work done has been in tracing out the boundaries of formations and collecting fossils. Some of the fossils were found to be new to this locality.

The Botanical Branch reports that four species of mosses new to science, and five to the Ottawa flora have been discovered. A sedge new to the Ottawa flora was found at Chelsea by Prof. J. Macoun. They also report that Mr. Cowley, besides locating many rare specimens, discovered in Osgoode Township two forms of *Botrychium ternatum* not before collected here, viz., *B. ternatum dissectum* and *B. ternatum obliquum*.

Entomology.—A full report of this branch has been published in THE OTTAWA NATURALIST. In this report the leaders draw special attention to original work in the critical study of insects.

Archæology.—One of the leaders in this branch, Mr. Sowter, discovered a beach workshop on the Quebec side of the Ottawa River just below the little Chaudière Rapids. The workshop extends along the whole west shore of Squaw Bay from the southerly end of Mountain street in Tétéreauville, a distance of

about 800 feet. The shore at frequent intervals is strewn with the usual flint chippings.

Full reports of all the branches will be published in THE OTTAWA NATURALIST at an early day.

The Treasurer reports that the finances of the Club are in a satisfactory condition. After paying all indebtedness we have on hand for the new year a balance of \$146.30. The Treasurer's report, as usual, will appear in the first number of the new volume.

The Club acknowledges with thanks the kindness of Dr. J. A. MacCabe in providing rooms in the Normal School for council meetings, for the library, and for public meetings. Our thanks are also due to the Young Men's Christian Association for the use of their Assembly Hall; to the Rector of the University of Ottawa for placing at our disposal the Academic Hall of that institution for one of our meetings; to the Ottawa Electric Light Company for putting in wires and lamps for the microscopes free of charge; and to the daily newspapers for inserting notices of our meetings.

W. J. WILSON,

Secretary.

HENRY AMI,

President.

TREASURER'S REPORT FOR THE YEAR 1899-1900.

To the President and Members of the Ottawa Field Naturalists, Club.

The Treasurer begs to again report that although the finances of the Club are in a satisfactory condition, so far as the balance is concerned, they are in a *very unsatisfactory state* with regard to the payment of subscriptions by members at the time they are due. By an expenditure of much time and labour, a large amount has been collected for arrears ; but the payments on account of the current year's subscriptions are not at all what they ought to be. The Treasurer makes an earnest appeal to the members to pay in their subscriptions at the beginning of the Club year instead of waiting until the end. The printers must be paid month by month, and, were all fees paid when due, the Council could carry out much good work which has to be left undone, owing to uncertainty as to when funds will be available. Further, owing to neglect on the part of members to pay their fees unsolicited, the Club is put to much extra expense for postage, and the work is much more than doubled.

Another matter which the Treasurer considers it his duty to again bring prominently before the members of the Club, is the patronage of those firms who help the Club by advertising in *THE OTTAWA NATURALIST*. These are all first class houses who will supply goods at least equal in quality to those to be obtained anywhere else, and it is only reasonable that they should expect to receive an increase of business from the members of the Club, whose interests they serve by advertising in the Club organ.

Your obedient servant,

JAMES FLETCHER,

Treasurer.

SUBSCRIPTIONS ARE PAYABLE IN ADVANCE, and are due on the day of the annual meeting each year.—J. F.

OTTAWA FIELD-NATURALISTS' CLUB.

Treasurer's Statement for the Year ending March 20th, 1900.

RECEIPTS.		EXPENDITURE.	
1899.		1900. March 20.	
March 14. Balance	\$67 33	Printing OTTAWA NATURALIST, including wrapping and postage, April, 1899, to March, 1900, (12 numbers)	\$312 78
Subscriptions received—		Less discount	18 41
1899-1900	\$128 97		
Arrears	83 00		
	211 67		294 37
Government grant	200 00	Authors' extras \$37 33	
Advertisements	69 40	Illustrations	23 25
Authors' extras sold	30 40		60 58
OTTAWA NATURALISTS sold	11 30		\$354 95
		Miscellaneous printing—Circulars, Spring Announcements, etc., and postage	45 10
		Stationery	5 25
		Binding sets of THE OTTAWA NATURALIST for the Governor General and the Paris Exposition	7 75
		Conversazione expenses	24 50
		Postage	4 75
		Prize for Excursion No. 1	1 50
		Balance	146 30
	\$590 10		\$590 10

Audited and found correct.

J. BALLANTYNE,	} Auditors.
R. B. WHYTE,	

March, 1900.

JAMES FLETCHER,
Treasurer.

SUB-EXCURSION No. 1, 1900.

The first sub-excursion of the season was held on the 28th April to Rockliffe, and thence to Beechwood. About twenty were in attendance, the majority of whom were Normal School students. Two of the Club's Leaders were present, viz., Messrs. Wilson and Gibson. The afternoon was pleasantly spent but the backwardness of the season, owing to the cold, late spring made it very difficult to find specimens of interest. Hepaticas, a few Trilliums, and Dogtooth Violets, with Aspens, Willows, Red and Silver Maples, together with a few other common spring flowers were all that rewarded the naturalists. Mr. Gibson secured some specimens of *Grapta Faunus*, Edw., an uncommon species in this district.

SOME INTERESTING MOTHS TAKEN AT OTTAWA.

BY ARTHUR GIBSON, CENTRAL EXPERIMENTAL FARM.

(Read at meeting held 12th Dec, 1899.)

The Order *Lepidoptera* is divided into two sub-orders, viz. : *Rhopalocera* and *Heterocera*, or in other words, Butterflies and Moths.

In America, north of Mexico, there are over 5,400 different distinct species of moths. all of which have their interest, some on account of their size, some on account of their beautiful markings, and others on account of their rarity. In other words, each has its own peculiar interest to the student or to the collector. To a person not interested in entomology, specimens mounted and arranged neatly in a cabinet, generally attract attention ; but to the student this interest is aroused not only on account of this charm, but chiefly centres around those species about which little is known, either with regard to the earlier stages in their life histories, or in connection with the mature forms of these insects. Of course, the systematist is especially interested in classifying as complete a collection of specimens as he can possibly gather together, studying them and making known the result of his observations as to their points of difference and the characteristics peculiar to each genus and species. In later years more work has been done by the student studying the earlier stages of our moths, telling us the appearance of the eggs laid by the females, what the larvæ in their different moults look like, what is the shape, colour, et., of the pupæ and cocoons, in fact everything bearing upon a complete knowledge of the earlier stages of these insects.

Very few new moths are found nowadays, except in localities where collectors are few. There are, however, in Canada many places which have never been worked up, and, if these points were visited and collections made, undoubtedly new species would be discovered. But it must be remembered that this branch of natural science is sadly neglected by naturalists, only a very small number being really interested in entomology from a scientific standpoint, notwithstanding its enormous importance economically.

In view of this it is altogether likely that some time will elapse before information as to the local forms frequenting such districts will be made known. In the United States a vast amount of work has been done in studying the fauna of the different States, but little is known about the habits of the greater number of moths native to Canada.

Collectors of moths use various methods in order to secure specimens. Some entomologists record good success in securing the imagoes by certain means, which others find unprofitable. For instance, traps made of sheets of glass so arranged in a wooden box, that when a moth once enters it cannot return, have given excellent results in the hands of some. The attraction to such a trap is due to the rays of a bright light, which is placed behind the sheets of glass, and, when the moth gets as far into the box as the trap allows it, the fumes of some poisonous substance, such as chloroform, either kills the insect at once, or else keeps it quiet until the collector comes to examine the captures of the night.

In cities and large towns the attraction which the electric light has for night-flying insects, probably furnishes the best general results for a collection of moths. Where the electric light is placed on the outskirts of a settlement, particularly close to the woods, a visit on dark, close nights, in the month of June especially, will generally be very productive. Some moths, however, which mature in early spring or in August, and even as late as October and November, are, of course, to be looked for in these months, but those which hibernate in the mature form may be found both in the autumn and in the spring.

Another way in which these insects are collected is that of "sugaring" trees, that is, painting a daub of molasses mixed with sour beer over a small portion of one side of a tree. Moths are very fond of such mixtures, and if the application is made in localities where insects are at all plentiful good results will be certain. June and July I have found to be the best months for "sugaring," and if warm, close evenings are selected many moths undoubtedly will be secured.

Another plan is to visit flowers in the early part of the evening, as many species are exceedingly fond of nectar and will be

found frequenting certain flowers. Caraganas, or the so-called Siberian pea-trees, honey-suckles, lilacs, petunias, etc., have a great attraction for many moths, and, if these plants are visited in the early evening before dark, many specimens can easily be captured.

The Ottawa locality undoubtedly offers a good field for investigation, and much useful work can be accomplished in studying the moths occurring in this district. During the past summer in my official duties it was my privilege to do considerable work in the collection of these insects, and, when asked by Dr. Fletcher to contribute a paper to read before the Ottawa Field-Naturalists' Club, it occurred to me that a brief mention of some of the moths which I had taken this year at Ottawa might be of interest. As the moths have always been special favourites of mine, I may be privileged in time to contribute some further notes for THE NATURALIST in reference to Ottawa Heterocera, which may not be without interest to those who study these forms of insect life.

In the Heterocera, the *Sphingidæ*, or Hawk-moths, are classified first, according to Prof. J. B. Smith's standard list of the Lepidoptera of Boreal America. In the genus *Hemaris*, or Bee moths, of the family *Sphingidæ*, only two species were met with, viz.: *H. diffinis*, Bdv., and *H. thysbe*, Fabr. These are both day-flyers frequenting flowers, particularly lilacs, and, unless the eye is experienced, are easily taken for the ordinary bumble bees. Although many of the hawk-moths are found around the flowers in early twilight, the electric lights furnish a much better attraction. Some of these moths taken the past season are as follows: *Deilephila chamanerii*, Harr., and *D. lineata*, Fabr., which when flying resemble very much humming birds; *Protoparce celeus*, Hbn., which, although rare here in the imago state, commonly occurs destructively to tomato plants as a larva; *Sphinx drupiferarum*, S. & A., also injurious in the caterpillar state, particularly to plum trees; *Sphinx gordius*, Cram., a rare moth, two specimens being taken; *Sphinx chersis* Hbn., one of the largest of the genus, and which occurs injuriously at times to ash and lilac; *Triptogon modesta*, Harr., a large moth, one of the handsomest among the sphingids; and *Smerinthus*

cerisyi, Kirby, which is an exceedingly rare insect in eastern parts of Canada, being only occasionally met with.

The *Sesidæ*, or Clearwings, follow the *Sphingidæ*, and are all small moths with slender bodies. They have much the appearance of wasps, and like these insects fly by day. Their larvæ are known as Borers, and often cause much damage to maple, peach, and other trees, besides injuring seriously certain plants, such as the squash, etc. The species are very interesting; they are also hard to get, especially so in the adult stage. *Sesia tipuliformis*, Linn., occurs here, and often causes injury to currant bushes. Besides this species, Dr. Fletcher tells me that he has taken in the past at Ottawa, *Podosesia syringæ*, Harr., and *Sesia acerni*, Clem., with the statement that they both occur rarely.

Of the *Arctidæ*, often called the Tiger Moths, nearly twenty representatives have been found in this locality. *Callimorpha contigua* Walk, and *C. confusa*, Lyman, are both interesting, and being day-flyers, frequent open places in woods. *Euprepia caja*, *L. a americana*, Harr., the large tiger moth, expands about 2½ inches, and is a beautiful species. I was fortunate enough to secure two specimens of this moth on the 31st July last, and, from one, got some eggs, and had the pleasure of breeding the species through all its different stages during the past season. The full grown larva is about an inch and three-quarters in length, and in general appearance is a black caterpillar with rusty red sides, and covered with long sweeping silvery hairs.

Of the *Notodontidæ*, the most interesting species taken the past summer, are *Notodonta simplaria*, Graef., *Lophodonta ferruginea*, Pack., *L. georgica*, H.-S., *Pheosia rimosa*, Pack., and *Nerice bidentata*, Walk. These moths average about an inch and a half in expanse of wings, and are brownish or reddish in appearance.

The large moths belonging to the family *Saturniidæ* always attract attention. *Actias luna*, Linn., the large delicate green species with long tail-like appendages, is one of the most handsome moths in Canada. *Attacus promethea*, Dru., *A. cecropia*, Linn., and *Telea polyphemus*, Cram., also among our largest

moths, while common from the collector's standpoint, are likewise worthy of much admiration.

In the *Hepialidæ*, two specimens of *Hepialus argenteomaculatus*, Harr., were taken at the electric light by Mr. C. H. Young, who very kindly presented one to the Division of Entomology at the Central Experimental Farm. This is a beautiful moth of a brownish and ashy-gray colour, the wings bearing silvery white spots. When the wings are expanded, it measures about four inches across:

The *Noctuidæ* make up the largest family we have, and comprise in North America no less than 2,900 different species. They vary greatly as to size, markings and colour, and many are exceedingly difficult to classify. These moths are those which are mostly attracted to "sugar," and in this way many can be captured. A great many of the noctuids are extremely scarce. A rare species reared during the past summer is *Barathra occidanta*, Grt., the larvæ of which were collected by Mr. J. A. Guignard feeding on a perennial Delphinium. No detailed description of the larvæ was taken further than that they were "black caterpillars with a yellow irregular line on each side of the back. They fed on both the leaves and the flowers." Previous to this there was no knowledge of the preparatory stages of this species. About fifteen different species of the genus *Mamestra* were met with during the past season: *Mamestra atlantica*, Grt.; *M. subjuncta*, G. & R.; *M. rosea*, Harv.; *M. legitima*, Grt.; *M. adjuncta*, Bdv.; *M. meditata*, Grt., and *M. assimilis* Morr. are the most interesting secured. In addition to these, Mr. C. H. Young took a specimen of *Mamestra olivacea*, Morr. One example of *Arsama diffusa*, Grt., was taken on the Experimental Farm by Dr. Fletcher, and although not a very handsome species is interesting owing to its rarity. *Orthosia euroa*, G. & R., also an unassuming species with regard to beauty, was likewise met with but once, at the electric light. While collecting at the Mer Bleue on the 30th Aug., in company with Mr. Young, Dr. Fletcher captured a specimen of *Epiglaea atata*, Grt. This is a beautiful species and is the first record of its occurrence in this locality; when taken it was in excellent condition. A single specimen of *Scopelosoma sidus*, Gn., was taken at the electric light, as was also one of

Scopelosoma morrisoni, Grt. The moths of this genus are always welcome captures and are amongst those which mature in autumn, hibernating in the perfect state. The genus *Plusia* contains some very attractive insects. Eight different species were met with last season, those which occurred rarely being *P. balluca*, Geyer; *P. contexta*, Grt.; and *P. striatella*, Grt., all of great beauty. The moths of this genus are beautiful glossy insects, usually spotted or striped on the front wings with silvery markings.

In the *Noctuidæ* probably the genus which attracts the most general attention, especially to a beginner, is the genus *Catocala*, which comprises over 80 species in North America. These moths are handsome creatures and of large size, often expanding three inches, or more. The forewings are usually of a brownish or greyish colour, marked with wavy or zigzag lines. The ground colour of the hind wings varies with the species, but in many instances these wings are conspicuously banded with red, yellow or white: owing to this peculiarity they are often termed Underwings. In the daytime the moths have the habit of resting on the trunks of trees, but it needs experienced eyes to detect them, as the colours of the forewings of these insects are usually protective. During the past season very few species were observed, and, as I was constantly on the look out for them during the months they fly, I judge that they were scarce. On the 31st May Dr. Fletcher and I found eleven full grown larvæ of *C. cerogama*, Gn., feeding on basswood, the general colour of four being greenish, while the remainder were greyish. These caterpillars spun a light cocoon between the leaves in about a week's time, and gave us the perfect moths on the 13th July. Other *Catocalæ* taken the past season were *C. briseis*, Edw.; *C. concumbens*, Walk.; *C. relictæ*, Walk.; *C. ultronia*, Hbn., and *C. grynea*, Cram.

In the early days of spring, towards the end of April and beginning of May, a beautiful little moth of red and blackish colour is sometimes seen flying around birch trees. This is *Breplos infans*, Moeschl., a day-flyer, and being uncommon in Canada is always an interesting capture.

Some of the moths mentioned in this paper have been brought to the meeting to-night and no doubt will prove of interest to those who may care to look at them.

BOTANY.

MANITOBA'S WILD FLOWERS.

There are few countries which can vie with Manitoba in the number of beautiful flowering plants which from early Spring to late Autumn make her glorious prairies one blaze of magnificent colour.

At the *Conversazione* held in the Normal School, Ottawa, on Monday evening, February 6th, was exhibited a beautiful collection of 100 water colour drawings of Manitoban plants, all collected and painted by Mr. Norman Criddle, at Aweme, Manitoba. This collection was very much admired by everyone. The drawings were particularly characterised by their botanical accuracy and the artistic taste with which each species was delineated. The facies of each plant was well shown and the colouring of the flowers was admirable.

Aweme is situated about twenty miles south-east of Brandon, thirteen miles south of Sewell, and six miles north of Treesbank, among the sand hills, and in the vicinity of a large swamp. Among the paintings were several rare plants, and many others were of interest for their beauty or for their occurrence at the locality where they were found. Perhaps the most admired of all these paintings was a white-flowered form of the truly magnificent Drummond's Thistle (*Cnicus Drummondii*), a giant species calculated to charm the heart of every Scotchman with its enormous flowers between three and four inches across. There are two forms of this Thistle, one with many heads arranged up a stout stem over two feet high, and an entirely caulescent form with one large flower lying close to the ground, in the centre of a mat-like rosette of acanthus-like leaves, every prickle of which is tipped with purple.

The very rare yellow-flowered variety *lutescens* of *Aster ptarmicoides* was well represented. I have had this variety growing vigorously for four years; the root was collected at Virden, Man., and since the first year after transplanting has borne each year three or four strong stems, the flowers retaining their yellow tinge as well in the East as on its native prairies. A specimen of

this rare plant was also collected at Griswold, Man., some years ago. Mr. Criddle's painting represents the variety admirably.

Another rare plant of interest to botanists, of which the drawing was much noticed, was *Townshendia sericea*. *Boltonia asteroides*, which has been seldom collected in Canada, was found by Mr. Criddle at Aweme.

Some of the interesting varietal forms represented in this collection were albinos of *Lutris punctata*, *Monarda fistulosa*, var. *mollis*, *Silene antirrhina*, and *Anemone patens*, var. *Nuttalliana*. There was also a yellow-fruited form of wild raspberry (*Rubus strigosus*) and a pale-yellow-flowered form of *Lilium Philadelphicum*. *Polygala paucifolia* was of interest as the first record of this pretty flower in Manitoba. *Corallohiza striata*, a widely distributed but always rare plant, attracted much notice on account of its rarity in the Ottawa district. *Oxytropis Lambertii* was shown with both colour varieties, the ordinary yellowish white and the rose purple. This plant is the "Loco weed" of the South-western States, but no ill effects to horses on our plains have ever been recorded. A variety of *Lepachys columnaris* with the golden-yellow flowers blotched with seal-brown, which is not very uncommon on the plains, would be a valuable acquisition in the flower garden.

These paintings of Mr. Criddle's are only a part of his collection, as he has previously sent down two equally large packets similar to the present one, every plant in which was drawn with the same accuracy and taste as those above referred to. Mr. Criddle is also making a collection of drawings of the insects of Manitoba, from which some new records for the Province have been made. It is just such careful individual work as Mr. Criddle is doing which is of most value to specialists when working up the scientific geographical distribution of plants and animals.—
J. FLETCHER.

ORNITHOLOGY.

BIRD NOTES.

BY W. T. MACOUN.

Spring is the best time to begin a study of our birds. Almost every day for several weeks there are new arrivals to help maintain one's enthusiasm once it has been aroused. There are few species of birds in Canada, compared with the number of insects and plants, and they are so readily recognized after a little study that it is surprising more people do not know a greater number of them. Will not some of the younger members of the society begin a study of our birds this spring? They will find themselves well repaid.

Few birds were noted last winter, and the Pine Grosbeaks which often come in great numbers were seen but rarely. Birds were again late in coming this spring, though not quite so late as last year. The following list has been compiled from notes made by various observers this spring. As a rule, when a bird is observed several days after the first record, the date is not published as it would make the list too cumbersome.

1899.

- Nov. 2—WHITE-WINGED CROSSBILL, *Loxia leucoptera*. Flock of a dozen. Miss Harmer. On Nov. 16th, Mr. C. Guillet saw seven feeding on alder seeds near Patterson's creek, three of which were males. He saw two more on Dec. 4th.
- Jan. 9—SHARP-SHINNED HAWK, *Accipiter velox*. One seen by Mr. Geo. R. White.
- 18—PINE GROSBK, *Pinicola enncleator*. Flock of a dozen eating tamarac buds. Dr. James Fletcher. A flock of six was seen by Mr. Geo. R. White on March 9th. There are no other records of this bird.
- Feb. 4—SAW-WHET OWL, *Nyctala acadica*. One seen by Mr. White, and one found dead in a shed in January by Mr. J. A. Guignard.
- 11—PRAIRIE-HORNED LARK, *Otocoris alpestris praticola*. Two seen by A. B. Rowan-Legg near Hurdman's Bridgs. Seen by Dr. Fletcher at the Experimental Farm on Feb. 14th. Numerous after that date.
- 12—AMERICAN CROW, *Corvus americanus*. Mr. Geo. R. White. Crows could be seen from time to time at the Experimental Farm all winter, but this is the first definite record. Mr. White says the migration occurred on March 17th.

- 18—RED POLL, *Acanthis linaria*. Flock of thirty. Mr. White.
- 23—CEDAR WAXWING, *Ampelis cedrorum*. Five seen by Dr. Fletcher
- March 1—PINE SISKIN, *Spinus pinus*. Flock seen by Dr. Fletcher. Flocks seen by Mr. White on March 17th, and April 10th and 15th.
- 18—AMERICAN GOSHAWK, *Accipiter atricapillus*. A male seen by Mr. White.
- 29—AMERICAN ROUGH-LEGGED HAWK, *Archibuteo lagopus sancti-johannis*. Mr. C. H. Young.
- 31—SONG SPARROW, *Melospiza fasciata*. Mr. C. H. Young; April 1st, Dr. Fletcher. Belated specimens were seen by Mr. Young on Jan. 11th, and by Dr. Fletcher on Jan. 18th. Recorded first on March 11th in 1898 and on April 6th in 1899.
- April 1—ROBIN, *Merula migratoria*. Dr. Fletcher and A. B. Rowan-Legg; April 2nd, Miss Harmer and Mr. White. Recorded first on March 15th in 1898 and on April 6th in 1899.
- 1—BLUEBIRD, *Sialia sialis*. Dr. C. E. Saunders and A. B. Rowan-Legg; April 2nd, Mr. Young and Mr. W. T. Macoun.
- 2—BRONZED GRACKLE, *Quiscalus quiscula*. Mr. White; April 3rd, Miss Harmer.
- 2—MEADOWLARK, *Sturnella magna*. Mr. Macoun.
- 5—CANADA GOOSE, *Branta Canadensis*. Mr. White.
- 5—HOARY REDPOLL, *Acanthis Hornemannii exilipes*. Mr. White. Seen also by him on April 8th.
- 9—RED-WINGED BLACKBIRD, *Agelaius phœniceus*. Dr. Fletcher; April 10, C. H. Young.
- 9—MARSH HAWK, *Circus hudsonius*. Mr. Young.
- 10—COW-BIRD, *Molothrus ater*. Mr. Young.
- 12—SLATE-COLOURED JUNCO, *Junco hyemalis*. Miss Harmer.
- 12—BLACK DUCK, *Anas obscura*. Flock of thirty. Mr. White.
- 15—VESPER SPARROW, *Pooecetes gramineus*. Miss Harmer; April 17th, Mr. Macoun.
- 15—PHEBE, *Sayornis phœbe*. Miss Harmer.
- 15—LONG-TAILED DUCK, *Clangula hyemalis*. Mr. White.
- 15—TREE SWALLOW, *Tachycineta bicolor*. Mr. White.
- 16—WOOD DUCK, *Aix sponsa*. Mr. White.
- 17—TREE SPARROW, *Spizella monticola*. Miss Harmer; April 18th, Mr. White. Numerous at the Experimental Farm on April 21st.
- 17—YELLOW-BELLIED SAPSUCKER, *Sphyrapicus varius*. Mr. White.
- 17—GOLDEN-CROWNED KINGLET, *Regulus satrapa*. Mr. White.
- 17—GREAT BLUE HERON, *Ardea herodias*. Mr. White.

- 18—CHIPPING SPARROW, *Spizella socialis*. Mr. White.
 18—RUSTY BLACKBIRD, *Scolecophagus carolinus*. Mr. White.
 23—BELTED KINGFISHER, *Ceryle alcyon*. Mr. White.
 23—GREAT NORTHERN SHRIKE, *Lanis borealis*. Dr. Fletcher.

The following notes taken near London, Ont., and sent by Mr. William Saunders of that city for publication in THE NATURALIST are interesting for comparison.

Robin, Junco, March 11th; Meadowlark, March 12th; Bluebird, March 13th; Tree Sparrow, Brown Creeper and Golden Eye, March 17th; Song Sparrow, March 18th; Red-shouldered Hawk, March 20th; Red-winged Blackbird, Bronzed Grackle, Kildeer, Golden-crested Kinglet, Sparrow Hawk, March 23rd, Red-tailed Hawk, Bufflehead, March 25th; Cowbird, March 27th; Hooded Merganser, March 29th; Phoebe, Yellow-billed Sapsucker, April 3rd; Marsh Hawk, Wood Duck, Great Blue Heron, Sharp-shinned Hawk, Canada Goose, Cooper's Hawk, Mallard, April 5th; White-rumped Shrike, April 7th; Vesper Sparrow, April 8th; Towhee, April 9th; Belted Kingfisher, Mourning Dove, April 13th; Chipping Sparrow, April 16th; Flicker, Ruby-crowned Kinglet, Field Sparrow, April 19th.

Departure for the north from London, Ont.: Snowflake, March 21st; Red Poll, April 5th.—W. E. S.

EARLY NESTING OF PRAIRIE HORNED LARK.

Prairie Horned Lark (*Otocoris alpestris praticola*). A nest with four eggs, already slightly incubated, was found by Mr. C. H. Young at Hurdman's Bridge on April 11th. The earliness of this date this season is remarkable, the ground being still in many places covered with snow, and up to the present we have had very few days which even by the greatest stretch of politeness might be called "spring-like." The location of the nest for this species was no less remarkable than the early date of its construction. It was on the ground between the ends of two ties on the Canadian Pacific Railway, and was passed over by several trains every day and night.—J. F.

CONTRIBUTIONS TO THE NATURAL HISTORY OF THE NORTHWEST TERRITORIES.

By EUG. COUBEAUX, Prince Albert, Sask.

I.

THE BIRDS OF SOUTHERN SASKATCHEWAN.

The following annotated list is the result of a few researches during the last five years in the southern part of the Saskatchewan Territory, mainly in the region between 105° and 106° west longitude, and $50^{\circ} 30'$ and $53^{\circ} 20'$ north latitude. This small portion of the "rolling" prairie belongs chiefly to the partly wooded prairie, its south-west corner however showing the vicinity of the open prairie country. In the middle of it runs the Birch Hill range, with its three summits, the "Matinasse," the Birch Hill and the Red Deer Hill, that cut the south branches of the Saskatchewan.

Throughout the country are found a number of drainage basins, marshes, ponds, and lakes of considerable size, of these only one, the head waters of the Carrot River, is teeming with fish. These waters are more or less alkaline and contain a species of *Amblystoma*. West of these hills are found a great number of erratic boulders of the glacial period and a great number of dried up rivers, showing there was at one time an epoch of greater humidity. The commonest tree is the Aspen, *Populus tremuloides*, of which with *Salix rostrata*, the "bluffs" or "iles" throughout the country chiefly consist. With the exception of a few small areas in the south, the coniferous forest begins north of Prince Albert.

NATATORES—SWIMMING BIRDS.

Order PYGOPODES.

1. *Colymbus auritus*. This bird is here a common summer resident, breeding in great numbers in all the marshes and ponds of the prairie. It arrives about the middle of May and remains rather late in the autumn.
2. *Colymbus nigricollis californicus*. Sometimes met with, but much rarer than the preceding.
3. *Urinator imber*. This splendid bird breeds on every large lake or pond, preferring those where fish are plentiful. It arrives in May and remains till late in the fall, like the above mentioned species.

Order LONGIPENNES.

4. *Larus argentatus smithsonianus*. Summer resident, most plentiful during the spring and fall migrations about the larger bodies of water; probably breeding in the country.
5. *Larus delawarensis*. } These three species are pretty common, and breed
 6. *Larus franklinii*. } on nearly every large body of water in the
 7. *Larus philadelphia*. } country. They arrive about the middle of May
 and remain together in large flocks till the end of September, except during the breeding season when they disappear suddenly.
8. *Sterna hirundo*. Summer resident, but not very common. Only on large bodies of water, and undoubtedly breeding, as I met with a few specimens once on Crooked Lake, the head waters of the Carrot River, on July 7th, 1897.
9. *Hydrochelidon nigra surinamensis*. A very common summer resident from about the end of May to the middle of September, and breeding in great numbers in all the marshes and on ponds of any size. Seems to prefer however the wettest and most inaccessible marshes, where it breeds in large colonies.

Order STEGANOPODES.

10. *Phalacrocorax dilophus*. A tolerably common summer resident about the large lakes and bodies of water; breeding in all suitable but retired places.
11. *Pelecanus erythrorhynchos*. Not very common, seen chiefly during its migrations; probably breeding on the larger and retired lakes. First observed in the country in large numbers on the 27th of July, 1896, but subsequently more commonly in large flocks, transient.

Order LAMELLIROSTRES.

12. *Lophodytes cucullatus*. A common summer resident found in all the smaller ponds and lakes.
13. *Anas boschas*. An abundant summer resident breeding in nearly all the small marshes, chiefly those in the woods. Sparingly and early during the migratory season, and in flocks or associated with flocks of other Anatinae in the fall.
14. *Anas strepera*. This species seems to be rare here. I have shot a few in the autumn, 1896, and since then one or two occasionally during the same season.
15. *Anas americana*. Not very common, but frequently met with and breeding in the region.
16. *Anas carolinensis*. } Both tolerably common and breeding abundantly
 17. *Anas discors*. } throughout the prairie.
18. *Spatula clypeata*. Quite common and breeding abundantly throughout the country.
19. *Dasyla acuta*. Common, but less common than the Mallard, with which it arrives early. Breeding in nearly all the ponds and marshes of the country.

20. *Aythya americana*. Common summer resident and breeder.
21. *Aythya vallisneria*. Uncommon, migrant; shot only during the migration seasons.
22. *Aythya marila nearctica*. As uncommon as the preceding, and only seen during its migrations.
23. *Aythya affinis*. Exceedingly abundant; one of the most abundant species, breeding throughout the prairie on every marsh and pond. Remaining quite late in the fall.
24. *Glaucionetta clangula americana* } These two species may be said to
 25. *Charitonetta albeola*. } be not uncommon, but still not quite common; breeding in the region but more frequently seen during their migrations.
26. *Oidemia deglandi*. The most abundant of the Anatidæ with *Aythya affinis*, and breeding in nearly all the marshes and ponds of the country. Remaining rather late in the fall.
27. *Chen hyperborea*. Occasional and only transient.
28. *Anser albifrons gambeli*. Several times heard and noted, but only during the migratory season.
29. *Branta canadensis*. } Both early in spring, as soon as the ice
 30. *Branta canadensis hutchinsii*. } begins to break up; going northward, and passing down to the south in vast flocks in the fall. Formerly breeding here but rarely now, and only in the most retired places; the region begins to be too much settled for them.
31. *Olor columbianus*? I noted, but only during the season of migration, a few flocks of Swans and I suppose them to be of the *Olor columbianus*.

CURSORES—TERRESTRIAL BIRDS.

Order HERODIONES.

32. *Botaurus lentiginosus*. Occasionally heard and seen, but not very common; probably breeding, for they can be shot and heard during the whole summer.
33. *Nycticorax nycticorax nævius*. A regular but not common summer resident; individually seen during the whole summer, and breeding here and there on the most retired marshes and ponds,

Order PALUDICOLÆ.

34. *Grus americana*. } Both tolerably common but only seen in large flocks
 35. *Grus mexicana*. } during the seasons of migration.
36. *Porzana carolina*. Common summer resident, breeding in all suitable marshes.
37. *Fulica americana*. A tolerably common summer resident and breeder.

Order LIMICOLÆ.

38. *Phalaropus tricolor*. Common, but an irregular visitor; breeding in the region as I have killed it during summer.

39. *Recurvirostra americana*. A rather rare straggler. Chiefly around saline ponds and lakes.
40. *Macrorhamphus scolopaceus*. Common, but chiefly as a migrant, in company with the Yellow-legs and the following.
41. *Tringa minutilla*. As common as the preceding, chiefly too, as a migrant; must breed as it has been killed in summer.
42. *Limosa fedoa*. A regular summer straggler that may breed in the region.
43. *Totanus melanoleucus*. Rather common, summer resident and breeder, but not so abundant as the common Yellow-legs.
44. *Totanus flavipes*. Exceedingly abundant throughout the region,—breeding in great numbers and forming large flocks in fall.
45. *Bartramia longicauda*. Extremely abundant throughout the prairie and breeding pretty early.
46. *Charadrius squatarola*. } Both common in spring and fall as migrants, in
47. *Charadrius dominicus*. } small flocks and in company with the Yellow-legs and the Long-billed Dowitcher.
48. *Aegialitis vocifera*. Abundant throughout the prairie, and breeding in all suitable places. Rather early in spring in very small flocks of four or five and very soon paired. Living then a very long while in family.

Order GALLINÆ.

49. *Bonasa umbellus*. } Both common residents wherever there
50. *Bonasa umbellus umbelloides*. } are woods.
51. *Lagopus lagopus*. Rare, and probably in severe winters only. Only one shot in winter of 1897, and another in 1898. Very few heard of.
52. *Pediocates phasianellus*.
53. *Pediocates phasianellus campestris*. Both abundant and permanent residents throughout the prairies. The former, however, seeming to migrate a little from the north in winter.

INSESSORES—AERIAL BIRDS.

Order COLUMBÆ.

54. *Ectopistes migratorius*. Common; a straggler during the migrating season, and oftenest seen in fall.

Order RAPTORES.

55. *Cathartes aura*. Not rare but not very frequently seen. I have not observed it myself, but have heard about it very often. Probably breeding in the region, but in the most retired places.
56. *Circus hudsonius*. Abundant summer resident, breeding throughout the prairie and frequently seen in both plumages, From middle of April till November.
57. *Accipiter velox*. } Both common but not so abundant as the preced
58. *Accipiter cooperi*. } ing.

59. *Accipiter atricapillus*. Frequently seen as a migrant, chiefly in the fall.
60. *Buteo borealis*. } Both rather common residents from the end of April.
61. *Buteo lineatus*. }
62. *Buteo swainsoni*. Very abundant throughout the prairie in summer.
63. *Haliaeetus leucocephalus*. In summer only and somewhat rare. I shot a male and female of this bird breeding near a lake where fish were abundant in June, 1895, and last year in May (26th) I noted another pair of this powerful bird nesting at the same place.
64. *Falco columbarius*. } Both frequently seen and breeding throughout
65. *Falco sparverius*. } the country; the former rarer than the second.
66. *Asio accipitrinus*. Common resident, undoubtedly breeding; more often seen in the fall, especially about the marshes surrounded by bushes.
67. *Ulula cinerea*. A very rare winter visitor. Only two seen and shot in five years.
68. *Bubo virginianus subarcticus*. Common resident, breeding throughout the prairie in all suitable places.
69. *Nyctea nyctea*. A regular and tolerably common winter visitor.
70. *Surnia ulula caparochi*. A somewhat rare straggler, only noted in the fall and at the beginning of the winter.

Order COCYGES.

71. *Ceryle alcyon*. Rare; first seen and shot on September 19th, 1896, near a lake without fish but with plenty of amblystomæ. Probably more frequently seen in the vicinity of bodies of water frequented by fishes, but nevertheless rare.

Order PICI.

72. *Dryobates villosus leucomelas*. Abundant permanent resident, breeding throughout the prairie.
73. *Sphyrapicus varius*. Nearly as common as the preceding, in summer-only, and breeding in the region.
74. *Colaptes auratus*. Very abundant throughout the prairie, breeding wherever there is timber, and arriving somewhat early in the spring.

Order MACROCHIRES.

75. *Chordeiles virginianus Sennetti*. A very abundant summer visitor, breeding in numbers throughout the region.
76. *Trochilus colubris*. Rare, occasional in summer. Not yet noted but heard about very much as specially visiting the sunflowers of gardens.
77. *Tyrannus tyrannus*. One of the commonest summer visitors, breeding wherever there are any trees or bushes.
78. *Empidonax minimus*. Very abundant, nearly as common as the Kingbird and breeding in numbers in thickets.

Order PASSERES.

79. *Otocoris alpestris praticola*. Abundant spring and fall visitant, in company with the Lapland longspurs. Probably breeding.
80. *Pica pica hudsonica*. Rare; only two noted and one male shot in five years, on November 16th, 1897.
81. *Cyanocitta cristata*. Not uncommon, resident and more frequently seen in winter along the wooded river banks of the Saskatchewan and in the well wooded parts of the prairie.
82. *Perisoreus canadensis*. Wisky-John, comes as soon as winter is here, and is then seen in numbers everywhere. When the cold is severe or when the weather is windy and bad, like many birds, if not all, it disappears suddenly for a little while; it retires into the woods, to come back again merrily as soon as the temperature is milder. It departs very early in spring, nearly as soon as the snow begins to melt.
83. *Corvus corax principalis*. Permanent resident but very scarce, and only seen in winter in the great woods or about them.
84. *Corvus americanus*. This is our first messenger in spring. As soon as the snow begins to melt and show the ground, they arrive, by twos, by threes, by fours, then more and more numerous, from every point, barking, croaking, like packs of small hounds, hunting for something to eat, for some carcass. They mate very early and begin to build their nests long before the leaves begin to appear.
85. *Dolichonyx oryzivorus albinucha*. Uncommon and seen only just now about Duck Lake and Carleton.
86. *Molothrus ater*. Abundant summer resident, and breeds throughout the region. In company with the blackbirds.
87. *Xanthocephalus xanthocephalus*. Scarce, though frequently seen in company with the red-winged blackbird. Breeding in the region.
88. *Agelaius phoeniceus*. Common summer resident, frequenting the willows and poplar edged sloughs and marshes where it breeds in numbers.
89. *Sturnella magna neglecta*. The Prairie lark is here a common summer resident, breeding throughout the country. Early in spring one hears his merry notes and ceaseless song from early in the morning till late at sunset.
90. *Icterus galbula*. The handsome Baltimore Oriole is a regular and not uncommon summer visitor; frequently seen and heard chattering in the thickets, where he hangs his pretty nest.
91. *Scolecophagus Carolinus*. }
 92. *Scolecophagus cyanocephalus*. }
93. *Quiscalus quiscula cæneus*. All three very abundant and wandering along in company. They arrive early in spring, for the ploughing and seeding time, in small flocks. They breed in great numbers in colonies,

among the thickets and the willow and poplar-edged marshes, where they gather into large flocks, which are much feared on account of the depredations they commit in the oat and wheat fields.

94. *Coccothraustes vespertina*. I have not yet seen this bird myself, but someone showed me two mounted specimens as having been killed in the vicinity of Prince Albert. However, it is scarce.
95. *Pinicola enucleator*. Tolerably common in small flocks and more frequently seen along the banks of both branches of the Saskatchewan. This bird is one of our regular winter visitors, arriving about the end of October and departing about the end of March.
96. *Carpodacus purpureus*. I saw this beautiful finch for the first time last year in the end of April and at the beginning of May, as the snow and the bad weather lasted a long while that year. In company with the *Spizella monticola*, the *Junco hiemalis* and some other sparrows. I think it is not so rare as it is irregular in its migrations.
97. *Acanthis linaria*. Common and a regular winter visitor. Arriving in small flocks nearly at the same time as the Pine Grosbeak, and remaining sometimes late in spring. I noted it feeding like *Spinus tristis* on the seeds of the *Solidagos* and the cottony heads of the *Cnicus*, and in the woods, on the fruit of the birch.
98. *Spinus tristis*. Tolerably common, summer resident, breeding throughout the region, but never seen in large flocks as during the seasons of migrations.
99. *Plectrophenax nivalis*. The Snowflake is very abundant every winter. It arrives as soon as the cold and the snow appear, usually about the middle of October, and remains as long as the weather is cold and bad. For the first time last year, early in spring, as the bad weather lasted a long while, I noted a large flock of them in summer plumage.
100. *Calcarius Lapponicus*. } Both numerous every spring and fall, in
101. *Calcarius ornatus*. } company with the Prairie Horned-Lark.
102. *Poicætes gramineus confinis*. Quite a common summer resident throughout the country, and to be seen running ahead on every trail. Breeding too in great numbers in the region.
103. *Ammodramus sandwichensis alaudinus*. Not uncommon, but in summer only, and breeding here in the prairie.
104. *Zonotrichia leucophrys*. First noticed in numbers last spring. Probably common, but irregular, transient.
105. *Spizella monticola*. Abundant summer resident every year and breeding in great numbers throughout the country.
106. *Spizella socialis*. Not uncommon, but much less abundant than the preceding; breeding in the region.
107. *Spizella pallida*. Commonly seen in company with the *Sp. monticola*, and probably breeding too here.

108. *Junco hyemalis*. Very abundant migrant in spring and fall, in company with *Spizella monticola* and *s. pallida*, but never seen in summer.
109. *Melospiza fasciata*. First noticed in numbers last spring, in company with *Spizella monticola*, *Junco hyemalis*, *Zonotrichia leucophrys*, and a few *Carpodacus purpureus* and *Passerella iliaca*. Probably not uncommon, but an irregular transient.
110. *Passerella iliaca*. Migrant, not very common.
111. *Habia ludoviciana*. Rare, only a few during summer; probably breeds in the country.
112. *Progne subis*. Not uncommon but local. Noted breeding every year in great numbers in the dead trees of a willow and poplar thicket among marshes.
113. *Tachycineta bicolor*. Abundant every year and breeding in great numbers throughout the region.
114. *Ampelis garrulus*. Uncommon straggler, shot once only, but twice noted in spring of 1895.
115. *Ampelis cedrorum*. More frequently seen than the last, but not common.
116. *Lanius borealis*. Very common and regular summer visitor, breeding throughout the country.
117. *Dendroica aestiva*. } Very abundant summer residents in thickets,
 118. *Dendroica coronata*. } arriving in May and breeding in company.
119. *Galeoscoptes carolinensis*. Uncommon; several times heard in the thickets, but only once seen; and, from the time of year in which it was seen, I have no doubt of its breeding in the region.
120. *Troglodytes aëdon astecus*. } Both frequently seen, but in summer only.
 121. *Troglodytes hyemalis*. }
122. *Parus atricapillus septentrionalis*. Common permanent resident, but, although it disappears during the summer months, I believe it breeds in the country, as I noted once a family late in summer, wandering among the low bushes and thickets.
123. *Turdus fuscescens*. Not uncommon and probably more common than I believe; breeding in the region, as I once found one nest with four blue unspotted eggs, and killed the hen near by.
124. *Turdus ustulatus swainsoni*. As frequently seen as the preceding and also breeding in the region.
125. *Merula migratoria*. Very abundant summer visitor, and breeding in great numbers throughout the country.
126. *Sialia sialis*. Local and not uncommon, and breeding in suitable places.

BOOK NOTICES.

A REVISION OF THE GENERA AND SPECIES OF CANADIAN PALÆOZOIC CORALS, by Lawrence M. Lambe, Assistant Palæontologist to the Geological Survey of Canada. Contributions to Canadian Palæontology, Vol. IV., Part 1.

Students of Palæontology owe a debt of gratitude to Mr. Lawrence M. Lambe for undertaking such a task as the revision of the Canadian Palæozoic Corals. The literature on the subject is very difficult to obtain. The work of Billings, although published in Canada, is out of the reach of ordinary students; that of Nicholson was only partly published in Canada, his recent and most valuable work appearing only in expensive monographs and journals in Great Britain. Professors Hall and Rominger, the most prominent investigators in the United States, of Canadian fossil corals, have naturally published the results in that country, so that the plight of the Canadian who desires to study these organisms, but who has not a large palæontological library at his command, has been well nigh hopeless. But to those who have access to the extensive and scattered literature of palæozoic corals the condition of the nomenclature combined with the lack of precision in description and the inadequate illustration of the details of structure, has deterred from the study of corals many who have been steady workers in other branches of palæontology. In the the nature of palæontological investigation this condition must be present more or less in each of the main divisions of the animal and vegetable kingdoms as represented by fossils, until, after the collection of ample material, someone undertakes a revision similar to that of Mr. Lambe. The recent work of Wachsmuth and Springer in the camerate Crinoids, and of Hall and Clarke in the Brachiopods affords ample evidence of the necessity for patience in the accumulation of information before revision is justifiable.

The material in the possession of our Survey, gathered during the last half century from widely separated areas, and the accumulation of observations on fossil corals by the scientific world during that time, make it clear that the time for revision has come. The labour involved in this revision must have been very great, and at first sight it might seem out of proportion to the result if

we judge merely by pages and plates. In the ninety-six pages forming Part I, the *Madreporaria Perforata* and the *Alcyonaria* are dealt with, the remaining sections of the *Zoantharia* being reserved for the second part. The first part contains five plates and the second will contain thirteen. This seems a small compass in which to cover so much ground, but Mr. Lambe has succeeded admirably, and if his monograph closes with a sufficiently full index it will be invaluable as a point from which both to commence the investigation of a species and to conclude it after the various references have been examined. Mr. Lambe's revision, as usual, has resulted in the discovering of many synonyms, and thus a number of specific names become obsolete, but many species hitherto imperfectly recorded, both as to description and illustration, have been firmly established, and there has been a rectification of the generic and specific nomenclature throughout. His descriptions are precise and ample, and yet as briefly expressed as one could wish, dealing especially with points of structure hitherto overlooked, misunderstood, or, inadequately described.

Mr. Lambe's ability as a palæontological draughtsman is well known, and the illustrations are artistically what we would expect from him, but they also give important evidence of his ability in the selection of points to illustrate. Five octavo plates provide a very small field for illustrating such a large subject, and yet we think we may safely say that more satisfactory illustrations of fossil corals are not often seen. Mr. Lambe has not, of course, space in which to provide figures of the various species referred to in his revision and is limited to the details of species which have been imperfectly illustrated hitherto. In studying corals we find that illustrations of the general appearance of specimens found in a particular locality are frequently quite accurate but are nevertheless of little real service, but illustrations of details which may be vital in studying genera and species are generally unsatisfactory, and in this respect Mr. Lambe's work is admirable.

Mr. Lambe has now made a special study of living sponges and of fossil corals. The writer ventures to suggest that he should take up the Stromatoporoids. His previous studies will all be most valuable in this connection, and as Canada is so rich in these interesting and difficult forms, a monograph bringing be-

fore Canadian students the good work done by Nicholson, brought up to date and revised by Mr. Lambe, would be acceptable to students and creditable to the Palæontological Department of our Survey.—B. E. WALKER.

STORIES OF INSECT LIFE, Series I and II. By Clarence M. Weed and Mary E. Murtfeldt. (Ginn & Co., Boston.)

Two charming little booklets, of 54 and 72 pages respectively, have been issued by the above named well-known entomologists. These little books are well printed and freely illustrated. The articles treat of many common and well-known insects, and the most interesting features in the life histories or structures of insects are well presented. The main object of the authors has been well adhered to, viz., to lead the pupil to fuller observation of the insects about him and develop his perceptive faculties in such a way as to create a desire to discover the significance of their structure, colour and habits of life.

Series I consists of twenty short chapters written in just the simple, earnest language calculated to catch the attention and gain the confidence of children. There is hardly a long word, and not a Latin name in either of the books. Series I is intended to be used in the spring months, and consequently such insects as then occur are treated of, *e.g.*, the Tent Caterpillars, Cabbage Worms, Red and Black Tiger Caterpillar, Spring Butterflies, May Beetles, Ant lion, Potato Beetle, Lace-winged Fly, etc.

Series II is to be used during the latter part of the summer and autumn; so we have chapters on insect musicians, including Cicadas, Crickets, Katydid; the Pear Slug, Fireflies, Fall Webworms, Ladybird Beetles, Tomato worms, Praying Mantis, etc. These little books will help, we believe, to open the eyes of many boys and girls to the delights to be found in the study of the common insects around them and perhaps, later, may prove to have been a means of first turning to the useful study of Economic Entomology, one who may develop into a shining light of that brand of science.

J. F.

GLEANINGS FROM NATURE. By W. S. Blatchley. 8vo. Indianapolis, 1899.

Elementary books of general natural history dealing in a scientifically accurate but popular way with common objects of the country are by far too few. The general statement may be made that everyone is largely interested in natural history, although many do not know it until an accidental occurrence turns their attention to something which forms a stepping-stone into the wondrous fairyland in which the naturalist lives.

Professor Blatchley has recently published some of his "Gleanings from nature" in a well printed, particularly well illustrated, neat volume of 350 pages. This book is based upon extensive observations made directly from nature in the woods and fields of Indiana, and is an effort, and a most successful one, to present, in language that all can understand, primarily, to the 800,000 boys and girls on the farms of Indiana to whom it is dedicated, facts concerning some of the commoner plants and animals which are our friends, our helpers and our neighbors in the country. The first chapter is appropriately entitled Harbingers of Spring. The chapters are, for the most part, short and are crisply written, showing that the matter presented has been gathered by the writer from his own observations and gives the idea that he knew more about the subjects treated of than it was convenient to write about in the present volume. Prof. Blatchley has made a special study of several branches of natural history. These, as might be expected, are treated of at rather greater length than others. It may be thought by some who do not live in the Hoosier State that an undue space is given to the Indiana caves, but it must be remembered that these are of special interest to those for whom the book was written, and others will be well repaid a perusal of *Gleanings from Nature* by several other chapters on subjects seldom written about: The chapters on Snakes, Birds, and Katydid and their Kin, are specially attractive. Twelve Winter Birds and Plants and Animals in Winter, will be read with pleasure by all whether naturalists or not.

Two or three of the illustrations are particularly beautiful.

Special attention may be drawn to these of the Skunk Cabbage, the Banded Rattlesnake, Washington's Monument in the Marengo Cave and Winter Birds.—J. F.

ANNOUNCEMENTS.

The first of the General Excursions of the Club will be held on Saturday afternoon, May 26th, when Chelsea, that favorite and most picturesque hunting ground of our local naturalists, will be again visited. This locality presents such a variety of attractions that it is never exhausted. The convenience of reaching it too by the Gatineau Valley Railway makes it possible to enjoy an excursion into this beautiful part of the country and return again to Ottawa thoroughly tired out and satisfied, at the expense of only half a day's time. As usual, leaders in all the different branches will be in attendance, willing and anxious to give assistance to all desiring information concerning their favorite studies. Addresses will be delivered at the end of the day, and the excursion will start at the ordinary time advertised by the railway, leaving Ottawa somewhere about 1 o'clock, and returning about 7 or 8 o'clock in the evening. The summer time-table is not yet published, but this will be about the time. Tickets will be obtainable from members of the Council, who will be in attendance at the railway station a quarter of an hour before the train starts. It is hoped that some Fellows of the Royal Society will be present.

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