

FEBRUARY, 1911

VOL. XXIV, No. 11

THE OTTAWA NATURALIST

Published by The Ottawa Field-Naturalists' Club.

Editor:

ARTHUR GIBSON,
CENTRAL EXPERIMENTAL FARM,
OTTAWA.

Associate Editors:

W. T. MACOUN, <i>Botany.</i>	W. J. WILSON, Ph.B. <i>Geology.</i>	REV. G. EIFRIG, <i>Ornithology.</i>
REV. G. W. TAYLOR, M.A. <i>Conchology.</i>	ALEX. MCNEILL, <i>Meteorology.</i>	L. M. LAMBE, F.G.S., <i>Palæontology.</i>
W. H. HARRINGTON, <i>Entomology.</i>	J. W. GIBSON, M.A. <i>Nature Study.</i>	PROF. E. E. PRINCE, <i>Zoology.</i>

CONTENTS:

Preliminary Notes on the "Chazy" Formation in the Vicinity of Ottawa. By Percy E. Raymond. - - - - -	189
The Birds of Ottawa. By C. W. G. Eifrig. - - - - -	198
Book Notices: A List of the Insects of New Jersey; The Ottawa Horticulturist. - - - - -	207
Notes: Change in Lecture Programme; Maps of Ottawa; A New Field-Naturalists' Club - - - - -	208

COPELAND-CHATTERSON-CRAIN LIMITED

ISSUED FEBRUARY 11, 1911.

Entered at the Ottawa Post Office as second class matter.

WE DEAL WITH OUR ADVERTISERS

GEO. E. PRESTON & SONS,

MERCHANT TAILORS
217-219 RIDEAU ST., OTTAWA

THE BUSY STORE
ON THE BUSY CORNER

JARVIS' "THE BOOKSTORE"
157 Bank St. Phone 732

Any book you see advertised, if we have it not, we will order it for you promptly. We solicit book business.

"Merit" placed **ALLEN & COCHRANE**
THE RED CROSS DRUGGISTS at
the head in the drug business of
Ottawa—on merit they seek your
trade. 4 STORES, OTTAWA, CANADA

ASK FOR OUR CELEBRATED
**FLOOR AND HOUSE
PAINTS**

MADE IN OTTAWA

OTTAWA PAINT WORKS

Phone 3857 687 Wellington St.

WOODS, Limited

**SLEEPING
BAGS**

OTTAWA AND WINNIPEG,
Factory - HULL

SILK TENTS

Wholesale Manufacturers
Lumbermen's and Contractors' Supplies,
Outfitting Survey Parties,
Exploration and Outing Parties of any kind,
A Specialty

For Quotations Phone 8512

**DRS. MARK G. AND GEORGE M.
McELHINNEY**

DENTISTS AND ORTHODONTISTS
109 Metcalfe St., OTTAWA

A. ROSENTHAL & SONS, LTD.
**JEWELLERS AND
OPTICIAN**

Goldsmith's Hall Ottawa

THE BANK OF OTTAWA

Capital authorised \$5,000,000
paid up 3,297,550
Res. etc. 3,753,469

OFFICES IN OTTAWA AND HULL

Head Office, Wellington St.
Bank St. and Gloucester St.
Bank St. and Gladstone Ave.
Bank St. and Fourth Ave.
Lloyd St. and Queen St. West
Rideau St.
Somerset St.
Carleton St.
Main St., Hull.
Bridge St., Hull.

SAVINGS BANK DEPARTMENT
INTEREST AT CURRENT RATES.

THE R. J. DEVLIN CO.

High Grade Hats hatted Fine Furs

Fur Department
Phone 4828 76 Sparks St.

INSURE IN
Mutual Life of Canada

H. MOONEY & SON
General Agents
111 Sparks Street Ottawa

ROBT. MULHALL, HARDWARE, PAINTS, ETC. 3 STORES 231-233 BANK ST. 808 SOMERSET ST.

THE 2 MACS, LIMITED

GRIP LIMITED,
49-53 TEMPERANCE ST., TORONTO

**ARTISTS
DESIGNERS
ENGRAVERS**

Library Bureau of Canada

HEAD OFFICE—ISABELLA ST., OTTAWA, ONT.
BRANCHES—Toronto, Montreal and Winnipeg.

Inventors of the Card System,
Vertical Filing and
various Office Devices.

Special Insect Cases
and Natural History
Cabinets made to
order.

Steinway Pianos

THE BEST IN THE WORLD

SOLD ONLY BY C. W. LINDSAY, Limited
189 SPARKS ST., OTTAWA

Crown Lithographing Co., *Limited*

189-190 WELLINGTON ST., OTTAWA

Society and Wedding Stationery, Calling Cards, At Home,
Dinner Cards, etc.

Copeland=Chatterson=Crain, Limited

Printers, Bookbinders and Loose Leaf Manufacturers

174-178 Wellington St., Ottawa

When in want of High Grade Furniture
Call and See Our Stock

AGENTS for the Celebrated - - -
CREX PRAIRIE GRASS FURNITURE
And OSTERMOOR MATTRESSES

STEWART & CO.

34 Rideau Street
Just Below the Bridge

THE BUSY STORE

THE 3 MACS LIMITED

MICROSCOPES
MAGNIFIERS AND READERS
KODAKS AND SUPPLIES

THE TOPLEY COMPANY

132 SPARKS ST., OTTAWA

Repairing Gold

Our workshops enable us to restore
impaired articles of Jewellery to
their original beauty and usefulness.

HENRY BIRKS & SONS, LTD.,
66 SPARKS STREET.

THE OFFICE SPECIALTY MFG. CO.
LIMITED

**OFFICE FURNITURE AND
EQUIPMENT IN WOOD AND STEEL**

PHONE 835

143 SPARKS ST.

**Dominion Express Company
Money Orders**

**FOREIGN AND TRAVELLERS'
DRAFTS AND CHEQUES**

Issued in

Dollars, Pounds Sterling, Francs, Marks, Roubles, etc.
Payable all over the World.

Money transferred
by Telegraph
and Cable

OTTAWA CITY OFFICE
Corner
SPARKS AND ELGIN STS.

Foreign Money
Bought and Sold.

THOUSANDS OF AGENCIES THROUGHOUT CANADA

THE OTTAWA NATURALIST

VOL. XXIV. OTTAWA, FEBRUARY, 1911

No. 11

PRELIMINARY NOTES ON THE "CHAZY" FORMATION IN THE VICINITY OF OTTAWA.*

BY PERCY E. RAYMOND.

The strata which lie between the Beekmantown and the Black River in the Ottawa Valley have been referred to the Chazy, principally on account of their stratigraphic position. Their character and distribution have been described in the "Geology of Canada," 1863, pp.123-130, and in more detail by Dr. Ells in reports accompanying the various maps covering the region.

The fauna of this formation is unlike the fauna of the typical Chazy of the Champlain Valley in New York and Vermont, and its extension in Canada, and the writer has recently begun some studies at various places between Ottawa and Montreal, with the hope of finding the reason for this change. The present paper is a preliminary one, prepared for the purpose of showing the lithological characters and the range of the principal fossils in the formation near Ottawa.

Since the first description of the formation two members have been defined. The lower portion consists of sandstone and shale, and the upper portion of limestone. The two members have been mapped separately by Dr. Ells, and their distribution in the vicinity of Ottawa is well shown on his map of the region. At the base of the formation are layers of coarse-grained conglomerates and sometimes arkose, lying on the fine-grained dolomites of the Beekmantown. The top of the formation does not appear to have been definitely defined, but it would seem from the maps and descriptions that all the limestone up to the black, lumpy, cephalopod-bearing beds of the Black River were included in the Chazy.

In the vicinity of Ottawa both the sandstone and limestone are fairly well exposed, but no one exposure presents a good

*Published by permission of the Director of the Geological Survey of Canada.

section of the entire thickness. In order to get an idea of the whole formation, it is, therefore, necessary to measure the rocks exposed at each favorable outcrop, and correlate the various sections. Fortunately there are a few beds which may easily be recognized by their lithology and fossils. One of the most useful of these beds is a very black thin-bedded shale containing *Isochilina? clavigera*, a large and easily recognized ostracod. This bed is exposed opposite Mr. Sowter's house on Broad Street, Aylmer, beside the electric railway one mile west of Westboro, near the ruins of Skead's Mill, and was revealed in a trench on Buena Vista Road, at the corner of Minto Place, Rockcliffe, during excavations made this last summer. A second horizon is indicated by thin-bedded limestone containing *Onchometopus simplex*, and always followed by a layer full of a species of *Beatricea*. This horizon was found at Aylmer, Mechanicsville, and on a road leading to the river from a point just east of Robilliard's quarries on the Montreal Road. A few other easily recognized beds have been found useful in checking up the correlations made on the basis of the two just described.

SECTIONS.

The lower portion of the formation is best displayed at Rockcliffe, where the following section was measured, the beds being given in descending order:—

	Ft.	Ft.
4. Green shale with numerus <i>Lingula</i>	5	5
3. Heavy-bedded, light gray sandstone.	10	15
2. Rather heavy-bedded light gray sandstone with some cross-bedding, and thin layers of coarse grains of sand. <i>Camarotoechia plena</i> and <i>Hebertella imperator</i> at the base.	10	25
1. Shaly, thin-bedded, light colored sandstone with lenses of heavy-bedded sandstone. <i>Rusophycus grenillensis</i> and other burrows and trails are common.	53	78

At this locality the base of the black layer with *Isochilina? clavigera* is about 31 feet above the top of this section. A large part of the intervening strata are concealed here, but are well exposed at the Hog's Back, where the following section was measured.

	Ft.	In.	Ft.	In.
7. Dark brown and black shale with ostracods.	4		4	
6. Rather pure, dark gray limestone with ostracods and bryozoa.	1		5	

5. Gray shale, calcareous in places, with 6 in. pure coarse-grained limestone 4 ft. below the top.....	11	6	16	6
4. Impure sandy limestone and shale.....	6		22	6
3. Hard, greenish limestone with abundance of <i>Camarotæchia plena</i>	10	23	4	
2. Greenish limestone and shale, with <i>Camarotæchia plena</i> near the top.....	10	33	4	
1. Calcareous shale with thin layers of limestone and many thin sandy layers. <i>Glossina belli</i> common.....	20	6	53	10

Isochilina? clavigera was not found in No. 7, although other ostracods were plentiful, but this is undoubtedly the *clavigera* horizon. The hard greenish limestone with *Camarotæchia plena* outcrops again in a small cutting in Rockcliffe Park, just below the Buena Vista station on the Electric railway, and is especially well shown in the first bluff south of the town at Rockland, 30 miles east of Ottawa.

The strata immediately above the *clavigera* zone are not fully exposed in any one section, but portions are well shown both at Westboro and at Aylmer. The section at Westboro is as follows:—

	Ft.	In.	Ft.	In.
13. Rusty dolomite, "cement bed".....	2		2	
12. Heavy-bedded, light blue limestone, the upper bed full of large undetermined corals.....	10	9	12	9
11. Concealed.....	16		28	9
10. Heavy-bedded, dark gray limestone. One of the upper layers shows wavy bedding, and the highest layer is full of fossils; <i>Lophospira</i> , <i>Helicotoma</i> , etc....	5		33	9
9. Rusty dolomite, "cement bed".....	3		36	9
8. Black shale and very thin layers of dark gray limestone.....	2	6	39	3
7. Concealed.....	1	6	40	9
6. Blue-black, wavy bedded limestone, <i>Cornulites</i> and <i>Isochilina</i> abundant.....	6		46	9
5. Concealed.....	2	6	49	3
4. Cream-colored sandstone, full of black phosphatic fragments.....	3		52	3
3. Sandstone and brown shale, the sandstone full of badly preserved bryozoans....	3		55	3
2. Black shale with <i>Isochilina? clavigera</i> and other ostracods.....	2		57	3
1. Blocky, greenish limestone.....	1		58	3

The strata immediately overlying the *clavigera* zone were well exposed in the trenches at Rockcliffe, especially on Buena Vista Road in front of the residence of Mr. Elfric Drew Ingall of the Geological Survey, who made a large collection of the fossils. A large species of *Loxoceras*, and *Modiolopsis parviuscula* were common in the sandstones, and a few thin beds of limestone associated with them were full of *Leperditia canadensis nana*. A bryozoan, which Dr. Bassler has identified as a *Dekayella* similar to *D. simplex*, Ulrich, was abundant in the sandstone.

Within 20 feet above the *clavigera* zone at Aylmer there are a number of thin layers of limestone almost entirely made up of ostracods, and with the ostracods are found *Helicotoma whiteavsiana*, *Bathyrus angelini*, and a *Crytodonta*.

The strata above those exposed at the station on the electric railway are well exposed at the Hogs Back:—

	Ft.	In.	Ft.	In.
8. Blue-gray limestone mostly rather heavy-bedded. Some layers very fossiliferous	10	6	10	6
7. Rather pure dark gray limestone with irregular wavy bedding.	5		15	6
6. Heavy-bedded, fine grained light gray to cream-colored sandstone with <i>Vanuxemia</i> and other lamellibranchs.	4	6	20	
5. Dark gray shale, with two or three thin layers of limestone.	1	8	21	8
4. Heavy-bedded sandstone with many replaced bryozoa.	3	9	25	5
3. Shale and thin-bedded black limestone with ostracods.	4	9	30	2
2. Thin-bedded sandstone and shale.	5	9	35	11
1. Heavy-bedded, greenish limestone.	8	6	44	5

No. 1 of this section is believed to be the same as No. 12 of the section at Westboro.

The sandstone, No. 6 of this section, is a very important one, as from it Mr. W. R. Billings obtained the various species of lamellibranchs described by the late Dr. Whiteaves in vol. XXII, No. 6, of THE OTTAWA NATURALIST. This same layer, with the same fossils, was found on the road leading down to the river just beyond the Robillard quarries on Montreal Road, about 3 miles east of Ottawa. The section there is as follows:—

	Ft.	In.	Ft.	In.
12. Massive, impure, dark gray lumpy limestone with <i>Columnaria halli</i> and <i>Ormoceras tenuiflum</i> near the base. Top not seen. Black River.	6		6	

11. Massive buff limestone, the whole surface covered with <i>Phytopsis tubulosum</i> and <i>Tetradium cellulatum</i>	9	15		
10. Concealed. Loose fragments of limestone with surface covered with <i>Beatricea</i> were seen just above the top of No. 9. About.	6	21		
9. Shaly, buff limestone with <i>Onchometopus simplex</i> and numerous large ostracods. . .	3	10	24	10
8. Light buff limestone, thin-bedded at top and heavy-bedded at bottom.	7	6	32	4
7. Concealed, below quarry.	5		37	4
6. Rusty yellow dolomite, "cement beds." . .	5		42	4
5. Massive blue-black and dark gray limestone.	10	6	52	10
4. Hard, cream-colored sandstone with <i>Vanuxemia</i> and other lamellibranchs. . .	3		55	10
3. Mostly concealed, but with two layers of hard, dark blue limestone exposed. . . .	5	2	61	
2. Thin-bedded shale.	2		63	
1. Impure, dark blue, heavy-bedded limestone with large ostracods, <i>Cyrtodonia</i> , and <i>Bathyurus angelini</i>	2	3	65	3

No. 4 of this section is believed to be the same as No. 6 of the section at the Hogs Back. No. 5 is the same as the cement beds which were formerly quarried at the Ottawa river at Mechanicsville, and at that locality there is a thick layer of dolomitic limestone 3 feet below the base of the cement beds, which yielded the types and a large number of other specimens of the *Bathyurus superbis* described by the writer in the November (1910) number of THE OTTAWA NATURALIST.

The layer with *Beatricea*, which is not well shown in this section, is an important one. It is especially well exposed near the top of the hill north of Aylmer, and it may also be seen about 15 feet below the base of the Black River at Mechanicsville. The section along the river at Mechanicsville is an excellent one for showing the upper and most fossiliferous part of the Lowville. It is as follows:—

	Ft.	In.	Ft.	In.
9. 6 feet of shaly and nodular blue-black limestone, resting on 8 feet of heavy-bedded, impure, dark gray limestone. <i>Strophomena incurvata</i> , <i>Maclurites logani</i> , <i>Columnaria halli</i> , <i>Gonioceras anceps</i> , etc. Black River	14		14	

8. Pure, buff colored limestone full of <i>Tetradium cellulosum</i> and <i>T. columnare</i> . Top of Lowville.	3	17	
7. Pure, buff limestone with numerous molluscan fossils.	2	10	19 10
6. One layer rather coarse grained limestone. Full of fragments of <i>Bathyurus spiniger</i>	10	20	8
5. Thin-bedded blue and buff limestone; numerous specimens of <i>Bathyurus extans</i> in the upper part.	7	6	28 2
4. Blue-black limestone with <i>Tetradium cellulosum</i> and <i>Stromatocerium</i>	1	29	2
3. Light gray limestone with numerous limestone pebbles and mollusca.	4	29	6
2. Dark gray limestone, the surface covered with <i>Beatricea</i>	10	30	4
1. Dark gray limestone full of large flat limestone pebbles and many fossils.	1	9	32 1

THE FAUNA.

At a number of horizons fossils are quite abundant, but as they do not weather out readily they are not easily obtained in identifiable condition.

From the sandstone and shale of the lower part of the sections at Aylmer, Britannia, Deschenes and Rockcliffe, the following species are known:

<i>Hebertella imperator</i> ,	<i>Ctenodonta parvidens</i> ,
<i>Camarotachia plena</i> ,	<i>Archinacella deformata</i> ,
<i>C. orientalis</i> ,	<i>Raphistoma striatum</i> ,
<i>Lingula lyelli</i> ,	<i>Lophospira billingsi</i> ,
<i>Glossina belli</i> ,	<i>Isotelus arenicola</i> .

At Aylmer, about 86 feet above the base of the section the following species were collected by Mr. T. W. E. Sowter:

<i>Lingula lyelli</i> ,	<i>Ctenodonta parvidens</i> ,
<i>Camarotachia plena</i> ,	<i>Modiolopsis sowteri</i> .

From the greenish limestone above the shale and sandstone at the Hogs Back and elsewhere we have only:—

<i>Glossina belli</i> ,	<i>Hebertella borealis</i> ,
<i>Camarotachia plena</i> ,	<i>Isotelus</i> sp. ind.

In the *clavigera* zone or in the limestone and sandstone within 20 feet above it we find:—

<i>Modiolopsis parviuscula</i> ,	<i>Isochilina ottawa</i> ,
<i>Sowteria canadensis</i> ,	<i>Isochilina?</i> <i>clavigera</i> ,
<i>Helicotoma whiteaviana</i> ,	<i>I?</i> <i>clavigera clavigera</i> ,
<i>Loxoceras</i> sp. ind.,	<i>Primitia logani</i> ,
<i>Bathyurus angelini</i> ,	<i>Leperditia canadensis</i> ,
<i>Leperditella labellosa</i> ,	<i>L. amygdalina</i> .

Heavy-bedded limestones from 20 to 40 feet above the *Beyrichia* zone are very fossiliferous in places, but it is difficult to get good specimens. A *Cornulites* is very abundant in some of the layers. The species which have so far been recognized are:

<i>Zygospira recurvirostris</i> ,	<i>Lophospira bicincta</i> ,
<i>Raphistomina lopicida</i> ,	<i>Pterotheca</i> sp. ind.
<i>Lophospira perangulata</i> ,	

The next bed above this which has furnished any good fossils is the cream-colored sandstone which is exposed at the Hogs Back and near Montreal Road. Nearly all the species identified were described by Dr. Whiteaves.

<i>Lingula lyelli</i> ,	<i>Vanuxemia parvula</i> ,
<i>Clionychia ottawaensis</i> ,*	<i>Sowteria canadensis</i> ,
<i>C.?</i> <i>gibbosa</i> ,	<i>Holopea</i> sp. ind.,
<i>Modiolopsis jabajformis</i> ,	<i>Spyroceras</i> sp. ind.,
<i>Orthodesma antiquatum</i> ,	<i>Isochilina?</i> <i>armata</i> .†

In a dark gray dolomitic limestone within 10 feet above this layer, the following species have been found:—

<i>Tetradium columnare</i> ,	<i>Bathyurus superbus</i> .
<i>Dalmanella</i> sp. ind.,	

About 15–20 feet above this layer are beds of shaly limestone in which the following species are rather common:—

<i>Dalmanella circularis</i> ,	<i>Bathyurus extans</i> .
<i>Strophomena incurvata</i> ,	<i>Onchometopus simplex</i> ,
<i>Cyrtodonta huronensis</i> ,	<i>Isotelus</i> sp. ind.

Just above the preceding are thin layers in which a species of *Beatricea* and *Cyrtodonta huronensis* are abundant. In the upper 15 feet of the section fossils are rather abundant, but there does not seem to be a very great variety. The following are the more common ones:—

<i>Tetradium cellulatum</i> ,	<i>Bathyurus extans</i> ,
<i>T. columnare</i> ,	<i>B. spiniger</i> ,
<i>Strophomena incurvata</i> ,	<i>Bumastus milleri</i> ,
<i>Helicotoma planulata</i> ,	<i>Isotelus gigas</i> .
<i>Spyroceras</i> sp.,	

These lists, incomplete as they are, show at once that all the fossils which belong to the typical Chazy are beneath the *clavigera* horizon, and the deposits of Chazy age end with the limestone which at the Hogs Back and Rock-

*Dr. Ulrich writes me that this is probably an *Ambonychia*, and *C.?* *gibbosa* a *Vanuxemia*, while *Vanuxemia parvula* is a *Ctenodonta*. The types are not accessible at this writing.

†Identified by Dr. Ulrich.

land is so full of *Camarotoechia plena*. There is nothing in the typical Chazy which corresponds to the ostracod layers such as the *clavigera* zone and the limestone in the 20 feet above it. Excepting the ostracods, nearly all the fossils from this horizon upward are species found also in the Black River and Trenton. The fauna found in the upper 15 feet is evidently Lowville. *Tetradium cellulosum* and *Bathyrurus extans* being the guide fossils. Many of the fossils found below this layer are known in the Lowville but the absence or rarity of *Tetradium cellulosum* gives the fauna a slightly different aspect. It may be significant that this *Tetradium* first becomes common in beds above the "pebble beds" (No. 1. in the section at Mechanicsville.) The pebbles in these beds are from 1 to 3 inches in diameter and have well rounded edges. They are somewhat greenish in color, and remind one of some of the green limestone layers in the upper part of the Chazy at the Hogs Back. They are in a rather pure limestone matrix which is very fossiliferous, *Cyrtodonta huronensis* being abundant, and cephalopods common. Though it cannot be called a conglomerate, this bed indicates some sort of a physical change, and, coupled with the slight change in fauna, may prove to be of some importance.

While the pebble bed may be the base of the Lowville, it seems more probable that the line should be drawn 35 feet lower down, at the base of the sandstone containing *Clionychia* and *Vanuxemia* (No. 6 of the second section at the Hogs Back and No. 4 of the section on the road beyond Robillard's quarries.)

At the Hogs Back there are two of these thick beds of sandstone, which, coming as they do in the midst of a series of limestones, indicate a pronounced change in the conditions governing sedimentation. The change in the fauna at this point, though not striking, can be seen. The principal difference noted is in the ostracods, which, below this sandstone are often so abundant as to make up the entire mass of certain layers, and, moreover, these ostracods are usually smaller than those found above. Certain species, such as *Isochilina? clavigera* and *Bathyrurus angelini*, are not found above this sandstone.

These rocks which lie above the highest bed containing *Camarotoechia plena* and below the sandstone with *Vanuxemia* and *Clionychia* are similar, lithologically, to a formation which occurs in northwestern New York. This formation was described by Dr. H. P. Cushing,* who gave it the name Pamela. The formation, in New York, is from 60 to 150 feet thick, and consists of 10 to 20 feet of shale and sandstone at the base.

*Bull. Geol. Soc. Am. Vol. 19, p. 55, 1908

followed by beds of blue-black limestone, dove limestone, and gray magnesian limestone. The upper portion of the formation is said to lack the black limestone and to consist of alternations of dove limestone and gray magnesian limestone, light gray to white thin-bedded, impure limestone, and yellow water-lime. It will be noted that this succession is very similar to that shown in the sections presented above. The fauna has not yet been described, but it is said to contain numerous small ostracods, an undescribed *Bathyurus*, gastropods, cephalopods, and several species of *Tetradium*.

SUMMARY.

The sections in the vicinity of Ottawa show about 250 feet of strata between the Beckmantown and the base of the Black River. These strata are characterized by two groups of species. The lower 125 to 135 feet contain a small fauna, some of whose species are found in the upper part of the Chazy formation of the Champlain Valley, and this portion is undoubtedly to be correlated with the Upper Chazy, or at least with the Upper Chazy as exhibited north and west of Montreal. The writer some years ago suggested the name Aylmer* formation for the Chazy of the Ottawa Valley, and it will probably be well to restrict this term to the beds characterized by the Chazy fossils, and use it as the local designation of these lower beds.

The upper portion of the section consists of 115 to 125 feet of limestone, sandstone and shale, with fossils more nearly akin to those found in the Black River and lacking the typical Chazy species. The fauna of these beds is very imperfectly known, and, owing to the poor state of preservation of the specimens at most localities, its elucidation will require a considerable amount of field work and study. This portion of the section, while united by several species which range throughout the whole thickness, is capable of subdivision into two members, the lower of which contains most of the shale and sandstone, and the upper the pure limestone. The lower portion contains an immense number of small ostracods, and, in the middle, great numbers of gastropods and other fossils. This member is from 65 to 75 feet in thickness.

The upper member is composed mostly of pure limestone, has a larger fauna than either of the other formations, the upper 15 feet being especially fossiliferous. This is the Lowville of the New York section and the thickness is about 50 feet.

*Annals Carnegie Museum, Vol. III, p. 380, 1905.

THE BIRDS OF OTTAWA.

BY C. W. G. EIFRIG.

(Continued from page 187).

145. *Corvus corax principalis*, Northern Raven. A rare resident, becoming common in the northern parts of the district. On the larger lakes there, e.g., Hawk and Green Lakes in Labelle County, Quebec, small bands are seen every winter and a few usually succumb to the poisoned bait or to the traps put out. In the immediate vicinity of Ottawa it is a rare winter visitor.

146. *Corvus brachyrhynchos*, Crow. An abundant summer resident and rare permanent resident. A few remain about the slaughter houses on the outskirts of the city. About March 15th the large flocks of migrant crows pour in from the south, returning again about November 4th.

ICTERIDÆ—BLACKBIRDS, ORIOLES, ETC.

147. *Dolichonyx oryzivorus*, Bobolink. This charming con-artist of the meadows is a common summer resident with us, rarer in the more wooded portions of the district. It arrives from the 5th to the 12th of May and returns at the end of July and August, the 21st of the latter month being the latest date.

148. *Molothrus ater*, Cowbird. This, our only real parasite among birds, is a far too common summer resident with us. Extreme dates for arrival and departure are: March 21st and October 17th. In 1901, one was seen even in December. On June 16th, 1909, I found a Red-eyed Vireo incubating two of its own eggs together with three of the Cowbird; and on June 30th, another instance of the same kind, only, that one Cowbird egg had already hatched out. Both nests were on the Experimental Farm. The young of the smaller species almost invariably have to perish.

149. *Agelaius phoeniceus*, Red-winged Blackbird. An abundant summer resident. Found in large and small cat-tail swamps. They first arrive March 21st; the local breeding birds move away about August 7th. A little after that the migrants of this species from farther north begin to arrive and once more enliven the temporarily deserted swamps. On October 19th, 1908, about 1,000 were in the marshes near Rockland, some of which remained till November 1st.

150. *Sturnella magna*, Meadowlark. A common summer resident, which seems to be increasing in numbers. The first-comers arrive March 21st; by May 11th a nest with five eggs was found. Our local breeding birds move away about August 8th, but the species becomes common once more in autumn.

Then, most move south in the second half of October, but some are seen in November, and even in December, as on the 27th in 1907, 1st in 1908, and one on January 10th, 1909.

151. *Icterus galbula*, Baltimore Oriole. A common migrant in spring, but rather rare as a breeder, at best only locally moderately common. They first arrive May 6th, increasing in numbers till the 15th, when they decrease again. They disappear unostentatiously in August, and often before. In 1886, one was seen as late as September 16th.

152. *Euphagus carolinus*, Rusty Blackbird. An abundant migrant, whose breeding range, however, begins with the northern limits of our district. On July 12th, 1905, the writer found, on the banks of a pond near Inlet, Que. (32 miles in a straight line from Ottawa), a pair with four recently fledged young. While small bands of this Grackle arrive in April (1st, 10th, 12th, 13th, 18th), the larger flocks come only in May. Their return journey southward brings them through here from September 25th to October 7th.

153. *Quiscalus quiscula œneus*, Bronzed Grackle; Blackbird. An abundant summer resident. They first arrive March 23rd, although in 1906 some were seen as early as March 2nd. Many take up quarters in gardens in the city, where there are large spruce trees, much to the detriment of other nearby nesting birds, the eggs and young of which they like to rob. Their own young are able to fly by May 31st. The last sombre flocks leave about November 1st.

FRINGILLIDÆ—FINCHES, SPARROWS, ETC.

154. *Hesperiphona vespertina*, Evening Grosbeak. A rare, accidental winter visitor; may, however, become temporarily abundant. On March 12th, 1901, two were shot in Rideau Hall grounds. But, they emphatically established their claim to a place on our list by the long stay a flock made in and near the city from February 7th to May 15th, 1909, about which see THE OTTAWA NATURALIST, vol. XXII., p. 263.

155. *Pinicola enucleator leucura*, Pine Grosbeak. An irregularly abundant winter resident, that is, may be abundant one winter and nearly absent the next; may come early one season, late another. Extreme dates of stay: October 30th to April 21st. Lives on rowan and sumach berries, old apples, buds of maple, tamarack, etc. (See THE OTTAWA NATURALIST, vol. XXII, p. 263.)

156. *Carpodacus purpureus*, Purple Finch. An abundant migrant and wanderer, and common breeder. This species also shares the spirit of irregularity that characterizes a number of the truly Canadian birds. It usually arrives from the 1st of March

on, but has been seen as early as February 11th; and leaves up to October 2nd, but has been seen as late as December 29th (1885). Breeds at Blueberry Point, Beaver Meadow, Experimental Farm, and in gardens in the city containing a number of the larger trees.

157. *Loxia curvirostra minor*, Crossbill. Another highly irregular, rare, or abundant migrant or winter resident, and probably a breeder in the northern part of the district. Dates: April 21st, 1883; May 9th, 1907; May 10th, 1882; May 16th, 1905; May 24th, 1905; June 19th, 1889; July 3rd, 1890; August 4th, 1887; October 28th, 1908; November 15th, 1908; November 23rd, 1904.

158. *Loxia leucoptera*, White-winged Crossbill. Status like that of the American Crossbill, if anything somewhat rarer and more roving. In October and November, 1908, large and small bands were roaming about in the vicinity of Ottawa. On February 8th, 1909, Mr. Groh made a Northern Shrike give up its prey, which proved a bird of this species, and a large flock was seen in June, 1882, in Beechwood Cemetery.

159. *Acanthis hornemanni exilipes*, Hoary Redpoll. A rare accidental winter visitor. On January 24th, 1908, three were seen in a flock of common Redpolls (É. White), and Mr. W. L. Scott took several in the spring of 1883.

160. *Acanthis linaria*, Redpoll. An irregularly abundant winter resident and migrant. Some probably breed in the northern part of the district. In 1908 they were present continually from February 14th to May 13th, and in 1909 from January 24th to May 10th. In fall, they arrive about November 1st (earliest October 26th) and are then more or less abundant during the winter months. Summer dates, pointing to their probable breeding, are May 22nd, 1890, June 3rd, 1888, and June 6th, 1882.

161. *Astragalinus tristis*, Goldfinch. Abundant summer resident and occasionally permanent resident, as large flocks wintered here in 1888-89, and a few may be seen nearly every winter. The coming of the migrant individuals is as irregular as that of its congeners; they follow no set rule. They come in March, or April, or May, and leave again, in the same desultory manner, in September, or October, or November.

162. *Spinus pinus*, Pine Siskin. A common winter resident and rare breeder. It has been found here every month from October (14th) to June (7th), and its nest has been found by Mr. Garneau.

163. *Passer domesticus*, English Sparrow. This introduced species has become here, as elsewhere, an unmitigated nuisance.

While being a permanent resident, numbers of the local birds move somewhat farther south in fall. On some of the first mild days in spring I have noticed certain individuals of this species producing a rather pleasing song. A case of erythrism in this species is reported in THE OTTAWA NATURALIST, vol. XXII, p. 64.

164. *Plectrophenax nivalis*, Snow Bunting. An irregularly common and abundant migrant and winter resident. They arrive end of October (earliest 19th) and in November, and disappear in March (latest April 18th).

165. *Calcarius lapponicus*, Lapland Longspur. A migrant of uncertain status, probably far less rare than supposed, as they are difficult to see and flush, when on the ground, and often wild and high up when on wing. First recorded here in 1890, when some stayed in the company of Horned Larks (*O. alpestris*) till May 25th, and again from October 3rd to November 18th (W. E. and F. A. Saunders).

166. *Poæetes gramineus*, Vesper Sparrow. A common summer resident. Preeminently a bird of the plowed fields and of the roadside, hence its popular name "Groundbird." The first ones arrive about April 6th, and the last depart about October 16th.

167. *Passerculus sandwichensis savanna*, Savannah Sparrow. A common summer resident and inhabitant of moist meadows. Its high-pitched trill may be heard within the city limits, as near the Isolation Hospital. Dates: 31st of March to 29th of September.

168. *Ammodramus savannarum australis*, Grasshopper Sparrow. This more southerly form seems to be among those that are trying to extend their range northward. It has been recorded three times from our district: one seen at Hull by Mr. F. A. Saunders, June 24th, 1898, and again by him in the rear of the Experimental Farm on the 26th, 27th, and 28th of the same month. Then it was not reported again until 1909, when Mr. C. N. Robertson and the writer found it on June 30th in the northwest corner of the Experimental Farm.

169. *Passerherbulus caudacutus*, Sharp-tailed Sparrow. One was shot here in 1882 and subsequently identified by Dr. Coues.

170. *Zonotrichia leucophrys*, White-crowned Sparrow. This handsome finch is an abundant migrant here, passing through Ottawa from May 1st to 23rd in spring, and from September 27th to November 1st in fall. An unusually early one was seen by Mrs. R. D. Brown, April 12th, 1909. During the second week of May their numbers and music attain their high-water mark.

171. *Zonotrichia albicollis*, White-throated Sparrow. This bird, which to most is but a voice which from its retreat in the

thickets and swamps seems ever to be whistling, *dear Canada*, *Canada*, etc., is a common summer resident, breeding numerously in wet thickets in Beechwood, Beaver Meadow, Rockcliffe, and even within the city limits. It may be found here from April 11th to October 23rd.

172. *Spizella monticola*, Tree Sparrow. An abundant migrant from and to the Hudson Bay region. In fall it passes through from September 17th to October 30th, and in spring from March 23rd to May 3rd. Its song, a sweet *tsewee, tsewee, tsewee wee wee a wee*, is seldom heard.

173. *Spizella passerina*, Chipping Sparrow. This sociable little finch is a common summer resident, making its nest in bushes and small trees, both deciduous and evergreen, as closely as possible to houses. It extends its stay with us from April 5th to September 28th. In 1884, one was seen as early as March 28th.

174. *Spizella pusilla*, Field Sparrow. This dainty little finch with pink bill and feet is a rare summer resident with us, although found to be rather common at Kazabazua, 48 miles north of Ottawa. I have only seen three in six years near Ottawa. Being a southern bird, it should be, other things being equal, more common at Ottawa than north of it. It should be looked for in bushy clearings, pastures, etc.

175. *Junco hyemalis*, Slate-colored Junco. An abundant migrant and moderately common summer resident. In dry or moist evergreen woods, like at Blueberry Point, Rockcliffe, etc., a pair or two may be counted on any day in summer. They begin to come March 23rd (earliest March 3rd), but reach their climax April 25th, after which their numbers decrease rapidly until only the few remaining breeding pairs are left. On July 6th, 1908, I found a nest with four eggs at Meach Lake. The migrant hosts return again in September, the last leaving about October 28th.

176. *Melospiza melodia*, Song Sparrow. This cheerful har-binger of spring is an abundant summer resident. It arrives from the 11th of March on, although the first larger band can only be expected between the 23rd and 25th of that month. The latest date is November 25th.

177. *Melospiza lincolni*, Lincoln's Sparrow. A rare migrant, but owing to its extremely secretive habits, it may be commoner than thought and may even breed within the district. One was taken May 16th, 1884, by Mr. G. R. White.

178. *Melospiza georgiana*, Swamp Sparrow. A common summer resident. Every large and small cat-tail swamp, and even swampy corners in fields, overgrown with willows, harbors one or more pairs. Time: April 21st to October 11th.

179. *Passerella iliaca*, Fox Sparrow. This large, handsome sparrow is a moderately common migrant. If one goes, during the latter half of April, to the fringe of bushes along the railway beyond Britannia, he can be tolerably certain of meeting them. They can usually be heard scratching among the dry leaves on the ground. To hear their flute-like song, a performance between the song of the Purple Finch and Baltimore Oriole, is a rare treat, heard not often south of us. It passes through from April 15th to May 10th, and again from October 4th to November 11th. In 1897 one was even seen on December 4th.

180. *Pipilo erythrophthalmus*, Chewink; Towhee. This is a new arrival in our district and on our list. While it has once been seen far out of its range, in 1894 by Mr. F. A. Saunders, 80 miles north of Ottawa, the first record for Ottawa was made in 1904 when, in July, one was shot by Mr. E. Bedard, in Beechwood and later identified by the writer. Mr. Warwick, of Buckingham, Quebec, has taken one there, in 1902. On June 28th, 1908, two males were seen in Beechwood Cemetery by Mr. E. White, but the year 1909 has so far furnished the most records, as between May 10th and 20th no fewer than five observations of it were made at three different places. This seems to indicate that it also wants to extend its range northward. It should be encouraged in this, and not hindered by persecution.

181. *Zamelodia ludoviciana*, Rose-breasted Grosbeak. A moderately common summer resident. At Meach Lake I found it most common in an old orchard adjoining a deciduous wood. It usually arrives May 11th, and the last are seen about October 1st. In 1908, Mrs. R. D. Brown saw one April 23rd during a heavy migration.

182. *Passerina cyanea*, Indigo Bunting. A rare summer resident, temporarily and locally commoner. While I have seen only six all told in six years, Mr. A. G. Kingston saw, at Meach Lake, about ten at one time, in July, 1909. In certain small circumscribed localities a pair will be nesting year after year, for instance at the northern side of Fairy Lake at the end of Beaver Meadow, Hull. Those seen by the writer were here from May 3rd to at least August 12th.

183. *Spiza americana*, Dickcissel. This more southerly bird of uncertain, ever changing range of distribution, is entitled to a place on our list by the protracted stay of a fine male in June, 1895, at the Experimental Farm, where it was watched closely by Mr. F. A. Saunders and also seen by Messrs. W. A. D. Lees and A. G. Kingston.

TANGARIDÆ—TANAGERS.

184. *Piranga erythromelas*, Scarlet Tanager. This gleam of tropical coloration is a common migrant and a moderately

common breeder in the hills north of Ottawa. In the immediate neighborhood of the capital it is rarely seen in summer. Its stay covers the time from May 13th to October 3rd. On May 23rd, 1909, I saw as many as three in one tree in Major's Hill Park, Ottawa.

HIRUNDINIDÆ—SWALLOWS.

185. *Progne subis*, Purple Martin. A common summer resident. While in many parts of the United States people complain that this fine bird is rapidly decreasing in numbers, it is rather increasing here. Many flourishing colonies are found in martin houses and in the cornices of buildings in Ottawa, and I found usually at least one colony in every town and village in Carleton, Renfrew and Russell Counties, Ontario, and in Labelle County, Quebec, which I visited. They begin to come as early as April 13th and assemble in huge migratory flocks towards the middle of August. On the 22nd of August, 1909, a flock of 5-10,000 was on the Rifle Range all day, all leaving for the south at 7 o'clock p.m. The last stragglers are seen September 5th.

186. *Petrochelidon lunifrons*, Cliff Swallow. A moderately common summer resident. It may be abundant around a certain farm yard, and then no more be seen for miles of territory. Its colonies of gourd-shaped, sometimes two-storied mud nests under the eaves of barns, etc., are a very interesting sight. Time: April 27th (1908) to September 30th (1908).

187. *Hirundo erythrogastra*, Barn Swallow. A common to abundant summer resident. They arrive about the 21st of April (earliest 7th) and the last go September 21st. On August 7th, 1909, I saw a flock of about 500 along the wires of fences, and on the road, near Blanche P.O., Quebec. While many species slip away quietly and unnoticed for their fall migration, all the Swallows, Night Hawks and Blackbirds make their migration very noticeable, by gathering into large armies, the first two in August, the last later.

188. *Iridoprocne bicolor*, Tree Swallow. An abundant summer resident. For an insectivorous bird it comes very early, March 27th being the earliest date, when more or less snow is on the ground and ice in lakes and rivers; but it apparently thrives. On August 14th, 1909, Mr. G. R. White saw thousands with other Swallows on the Chaudiere Islands in the Ottawa River. The last seen to go was on August 25th.

189. *Riparia riparia*, Bank Swallow. An abundant summer resident. This is the last of our Swallows to arrive from the south, coming from May 13th to 20th, although the advance guard in some years comes on the 1st, 3rd, or 8th. As soon as they arrive they at once begin to tunnel their nesting burrows in sand banks, not minding traffic and people in the least.

September 6th is the last date for them.

BOMBYCILLIDÆ—WAXWINGS.

190. *Bombycilla garrula*, Bohemian Waxwing. A rare, irregular winter visitor from the north. The last stay of this beautiful bird at Ottawa took place in the winter of 1908-09, when a flock of 22 took up quarters in the rowan-trees on a much used corner in the city. They remained from December 15th to March 6th. (See THE OTTAWA NATURALIST, vol. XXII, p. 266.) Now and then a solitary one is seen, as in December, 1906, when one came to a small mountain-ash tree on Russell Avenue and stayed there for a week.

191. *Bombycilla cedrorum*, Cedar Waxwing. A somewhat irregular, but usually abundant summer resident. Some years they turn up in March, in others in April or May, and in 1907 they only were seen in June, but then in great numbers. Unusual dates are: December 1st, 1906; February 22nd, 1908. As a rule, the last ones disappear about September 12th.

LANIIDÆ—SHRIKES.

192. *Lanius borealis*, Northern Shrike. A moderately common winter resident. They arrive from the north about October 30th, frequently taking up residence in the city, where they feast on English Sparrows; the latest date for leaving is April 18th (1884).

193. *Lanius ludovicianus migrans*, Migrant Shrike. This, the local breeding form, is a moderately common summer resident, some years rarer than others. The earliest date on which it has been recorded so far is March 25th (1907), and the latest, October 10th (1905).

VIREONIDÆ—VIREOS.

194. *Vireosylva olivacea*, Red-eyed Vireo. An abundant summer resident, although more often heard than seen. In summer, in almost any deciduous woods, one is hardly ever outside of the reach of its somewhat monotonous, prattling song. Time of stay: May 6th to September 26th. How it is often victimized by the Cowbird, was noted under that species, which see.

195. *Vireosylva philadelphia*, Philadelphia Vireo. A rare migrant and probable breeder. As it is small and elusive it may be commoner than supposed. It seems to be one of our latest migrants. On May 17th, 1905, I saw one at Britannia, and May 30th, 1906, in a large warbler wave, four to five near Cyrville. September 4th, 1884, is the only fall date available.

196. *Vireosylva gilva*, Warbling Vireo. A common summer resident, found oftener in the shade trees of the cities than in the woods outside. Like the Red-eyed Vireo, it is a persistent singer, even after all other bird notes have stopped in the heat of

summer, and thus betrays its presence. Time of stay: 6th of May to 22nd of September.

197. *Laniivireo flavifrons*, Yellow-throated Vireo. A rare summer resident. In six years I have seen four here, two of which were on King's Mountain, July 20th, 1905. They arrive about May 11th.

198. *Laniivireo solitarius*, Blue-headed Vireo. A moderately common migrant, but rare breeder. They arrive May 7th, and the latest date for them is September 11th (1909). On May 28th 1898, a nest was found at Chelsea, and on August 21st, 1907, I saw fully grown young on Kettle Island.

MNIOTILTIDÆ—WOOD WARBLERS.

199. *Mniotilta varia*, Black and White Warbler. A common migrant and moderately common breeder. This frequenter of the more open, deciduous second-growth woods arrives from April 28th to May 13th; the last are seen September 21st. Breeds in Beaver Meadow, Blueberry Point and similar places.

200. *Vermivora rubricapilla*, Nashville Warbler. A moderately common migrant and breeder, but only in its chosen haunts, viz., the stands of small poplar and birch in low, wet places in woods. In such a spot at Blueberry Point a pair or two can be found any day in summer. More common in the poplar stands around the Mer Bleue. They begin to arrive May 7th, reaching their climax in numbers May 15th. On July 13th, 1881, a nest with four eggs was found at Dow's Swamp. The latest date for them is September 25th.

201. *Vermivora celata*, Orange-crowned Warbler. An extremely rare migrant. On September 27th, 1885, one was taken by Mr. E. White near the eastern end of the city. This is the only record.

202. *Vermivora peregrina*, Tennessee Warbler. A rare migrant; will probably be found breeding in some of the tamarack swamps in the northern part of the district. It passes through Ottawa from May 12th to June 7th (1907), at which latter date Messrs. Chapman and Fuertes saw some in Major's Hill Park. The last are seen September 30th. Its song is a high, sharp *tsip, tsip, tsip, pit it it itereeeee*.

203. *Compsothlypis americana usneæ*, Northern Parula Warbler. A moderately common migrant and rarer breeder. Its habitat is tall deciduous trees, as on the west side of Beaver Meadow, where it may be found in summer. It begins to arrive May 7th, reaching its climax May 20th to 23rd. The last are seen September 13th. The song is a somewhat scratchy, *dreer, dreer, dreer*, last note highest and loudest; also a trill like *re-e-e-e-e-e*.

(To be continued.)

BOOK NOTICES.

A LIST OF THE INSECTS OF NEW JERSEY. By Dr. John B. Smith, Professor of Entomology at Rutgers College, State Entomologist and Entomologist to the Agricultural College Experiment Station at New Brunswick, N.J. Annual Report of the New Jersey State Museum, 1909; Trenton, N.J., 1910.

This report, with the exception of 13 pages, is devoted to Dr. Smith's new List of the Insects of New Jersey. It is now ten years since a similar list was prepared by the same author, who is one of our valued Corresponding Members, and who has always been exceedingly helpful to Canadian students of insects, particularly those who study the *Noctuidæ*. The present list, which has recently come to hand, is an extremely valuable publication. The book contains 888 pages, the printing and paper are good and the many illustrations excellent. No less than 10,385 different species are listed, comprising 3,486 genera and 331 families. In the 1899 list 8,537 species were included. It will thus be seen that considerable progress has been made in a knowledge of the insects of the State of New Jersey. Entomologists generally will be grateful to Dr. Smith for this extremely useful contribution to the literature of American entomology. Through the example which he has set in the preparation of these New Jersey Lists of Insects, similar lists are now in preparation for other States in the Union, and in Canada a list of the insects of the Province of Quebec is being prepared by members of the Montreal Branch of the Entomological Society of Ontario and the Quebec Society for the Protection of Plants from Insects and Fungous Diseases, largely through the untiring efforts of Messrs. A. F. Winn, G. Chagnon and J. M. Swaine.

In the preparation of the new list, Dr. Smith has had the assistance of many recognized specialists in the various orders. Unfortunately the edition of the New Jersey State Museum report is a very limited one, and it will be impossible to supply everyone who will want this work with a copy. It is distributed by the Curator of the Museum. Dr. Smith has, however, had some extra copies printed, and the price has been fixed at \$1.50 each. These copies will be available as long as this extra edition lasts.

We desire here to add our sincere appreciation of this recent result of Dr. Smith's labours. May our esteemed Corresponding Member be spared many years to continue the good work he is doing for the advancement of applied and systematic entomology in America.

A. G.

THE OTTAWA HORTICULTURIST: The official organ of the Ottawa Horticultural Society. This new monthly made its first appearance with the January, 1911, issue, and is highly creditable to those who are responsible for its publication. It is not in any way intended to take the place of other horticultural journals, but will be used chiefly for matters of local interest. Besides publishing announcements of meetings, exhibitions, etc., and the Society's Premium and Prize Lists, special articles will appear from time to time on subjects of practical interest to members of the Society.

We extend to our sister Society our best wishes for the future success of The Ottawa Horticulturist.

A. G.

NOTES.

CHANGE IN LECTURE PROGRAMME.—The Lecture Committee announce that the lecture before the Club, for the evening of March 7th, will be given by Mr. R. H. Campbell, Superintendent of Forestry of the Department of the Interior, instead of by Mr. W. E. Saunders, of London, Ont. The title of Mr. Campbell's lecture will be, "How the Forest Grows." It will be held in the assembly hall of the Normal School, and will be illustrated with lantern slides. It is hoped that Mr. Saunders will lecture before the Club at a later date.

MAPS OF OTTAWA.—The Club has still on hand a number of maps of the Ottawa District, which the Treasurer would like to dispose of. Copies can be had from Mr. Herbert Groh, Central Experimental Farm. The charge to members is 5 cents each; to non-members, 10 cents.

A NEW FIELD-NATURALISTS' CLUB.—A society has recently been formed at Picton, Ont., under the name "The Prince Edward County Field-Naturalists' Club" for the purpose of Nature Study and protection and study of birds and native wild flowers, etc. The Ottawa Field-Naturalists' Club extends to this new society its warmest greetings and best wishes for its future prosperity. Our Club was honored by receiving an invitation for our President, Mr. Halkett, to address the new society at one of its winter meetings.

James Hope & Sons Booksellers, Stationers Sparks St. Ottawa
 Bookbinders, Printers

Excolor Market

By Ward Market
 Windsor Market
 Primrose Market

8 SHOPS

Importer and Manufacturer of
 FINE TABLE DELICACIES

B. SLATTERY,

J.G. BUTTERWORTH & Co.
 ALL-RAIL SCRANTON COAL
 HAS NO EQUAL
 86 SPARKS STREET, OTTAWA

THE C. C. RAY CO. Ltd.
 BEST QUALITY **COAL** LOWEST PRICE
 58 SPARKS ST. Phone 461

The TORONTO GENERAL TRUSTS CORPORATION.

A Quarter of a Century's
 Successful administration of ESTATES ranging in value from \$500 to \$5,000,000 each, is the best guarantee that you may confidently name as your EXECUTOR and TRUSTEE this Corporation

JAMES DAVEY, Manager
 OTTAWA BRANCH:
 Cor. SPARKS and ELGIN STS.

CHARLES WATT
 Specialist in
 Phone 1350 ARTISTIC BRASS GOODS
 AND KITCHEN FURNISHINGS
 116 Sparks Street

American Entomological Co.
 DEALERS IN
 Insects and Entomological Supplies

The only makers of the genuine Schmitt Insect Boxes. Manufacturers of Cabinets and Cases for Insect Collections, and of the

American Entomological Company
 Insect Pins

Supply List No. 8 and List of Entomological Publications for sale just out. Write for it. Insect List No. 8 still in force

GEORGE FRANCK, Manager
 55 Stuyvesant Av., BROOKLYN, N.Y.

GATES & HODGSON,
 Successors to
WALKER'S
 CONFECTIONERS, &c.
 Phone 750 128 SPARKS ST.

R. McGIFFIN
 MEN'S FINE FURNISHINGS
 3 STORES { 76 Rideau St.
 106 Sparks St.
 306 Bank St.

STOREY'S
 FURNITURE OF ALL DESCRIPTIONS
 LUMBER, TURNING, AND SCROLL SAWING
 403-5 BANK ST., OTTAWA

THE SMITH PREMIER
The World's Visible
Best Typewriter Writer

E. R. McNEILL, Agent
 166 SPARKS ST., OTTAWA

HENRY J. SIMS & Co.
 Furriers and Hatters
 110-112 SPARKS ST. - OTTAWA.

MASSON'S



SHOES

72 Sparks Street, Ottawa

OTTAWA DAIRY

PURITY

INSPECTED MILK

ICE CREAM

Backache Try **MUSGROVE'S K. & L. SPECIFIC**
 SURE CURE 212 BANK STREET, OTTAWA

JUN 1 3 1966

The Ottawa Field-Naturalists' Club.

Patron:

THE RIGHT HONOURABLE EARL GREY.
GOVERNOR-GENERAL OF CANADA.

Council 1910-1911

President:

Mr. Andrew Halkett.

Vice-Presidents:

Mr. A. G. Kingston.

Mr. L. H. Newman, B.S.A.

Secretary:

Mr. J. J. Carter.
(521 Somerset St.)

Treasurer:

Mr. Herbert Groh, B.S.A.
(Experimental Farm)

Editor:

Mr. Arthur Gibson.
(Experimental Farm)

Librarian:

Mr. C. H. Young.
(Geological Survey)

Mr. Alex. McNeill.

Mr. W. J. Wilson, Ph.B.

Mr. T. E. Clarke, B.A.

Miss McKay Scott.

Mr. J. W. Gibson, M.A.

Miss A. L. Matthews.

Mr. W. T. Macoun.

Miss Q. Jackson.

Past President:

Mr. A. E. Attwood, M.A.

Standing Committees of Council:

Publications: L. H. Newman, Alex. McNeill, C. H. Young, A. Gibson,
Miss McKay Scott.

Excursions: A. Halkett, W. J. Wilson, J. W. Gibson, A. G. Kingston,
H. Groh, Miss A. L. Matthews.

Lectures: A. G. Kingston, T. E. Clarke, L. H. Newman, J. J. Carter,
Miss Q. Jackson.

Leaders at Excursions:

Archaeology: T. W. E. Sowter, J. Ballantyne.

Botany: W. T. Macoun, John Macoun, D. A. Campbell, L. H. Newman,
T. E. Clarke, H. Groh.

Conchology: S. E. O'Brien.

Entomology: W. H. Harrington, A. Gibson, C. H. Young, J. W. Baldwin.

Geology: H. M. Ami, W. J. Wilson, T. W. E. Sowter, W. A. Johnston.

Meteorology: A. McNeill, Otto Klotz., D. A. Campbell.

Ornithology: A. G. Kingston, A. H. Gallup, H. Groh, H. U. Morris.

Zoology: E. E. Prince, A. Halkett, E. E. Lemieux, E. LeSueur.

Auditors:

R. B. Whyte.

J. Ballantyne.

**Membership Fee to O.F.N.C., with "Ottawa Naturalist,"
\$1.00 per annum.**