

DECEMBER, 1910

VOL. XXIV, No. 9

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. LANBE, 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:

Note on the Parietal Crest of <i>Centrosaurus apertus</i> and a Proposed New Generic Name for <i>Stereoscephalus tutus</i> . By Lawrence M. Lambe, F.G.S., F.R.S.C.	- - - - -	149
The Birds of Ottawa. By C. W. G. Eifrig	- - - - -	152
The Migration of Some Native Locusts. By Norman Criddle	- - - - -	164
Book Notice	- - - - -	166
The Entomological Society of Ontario	- - - - -	167
Note: The Clarke Nutcracker in Manitoba	- - - - -	168

COPELAND-CHATTERSON-CRAIN LIMITED

ISSUED DECEMBER 8, 1910.

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 395 1 687 Wellington St.

WOODS, Limited

SLEEPING BAGS

OTTAWA AND WINNIPEG,
Factory - HULL.

SILK TENNIS

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

For Quotations Phone 3512

DRS. MARK G. AND GEORGE M.
McELHINNEY

DENTISTS AND ORTHODONTISTS
109 Metcalfe St., OTTAWA

THE BANK OF OTTAWA

Capital authorized - \$5,000,000
paid up 3,297,550
Rest 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.
Cartier St.
Main St., Hull.
Bridge St., Hull.

SAVINGS BANK DEPARTMENT
INTEREST AT CURRENT RATES.

A. ROSENTHAL & SONS, LTD.
JEWELLERS AND OPTICIAN

Goldsmith's Hall Ottawa

THE R. J. DEVLIN CO.

High Grade Hats Limited
Fine Furs

Fur Department
Phone 4828 76 Sparks St.

INSURE IN
Mutual Life of Canada

H. MOONEY & SON
General Agents
111 Sparks Street Ottawa

THE 2 MACS, LIMITED

ROBT. MULHALL, HARDWARE, PAINTS, ETC. 3 STORES 231-233 Bank St. 806 Somerset St.

GRIP LIMITED,
48-52 TEMPERANCE ST., TORONTO

ARTISTS DESIGNERS ENGRAVERS



PARIETAL CREST OF CENTROSAURUS APERTUS.

(One-Sixth Nat. size)

THE OTTAWA NATURALIST

VOL. XXIV. OTTAWA, DECEMBER, 1910 No. 9

NOTE ON THE PARIETAL CREST OF CENTROSAURUS APERTUS AND A PROPOSED NEW GENERIC NAME FOR STEREOCEPHALUS TUTUS.*

BY LAWRENCE M. LAMBE, F.G.S., F.R.S.C.,
Geological Survey, Canada.

The defensive frill or crest of *Centrosaurus*, so singular in its general form and contour, has lately been found to be even more grotesque than it appeared to be at the time of its discovery.

This crest, made up almost exclusively of the coalesced parietals, was originally (1902†) described as appertaining to the species *Monoclonius dawsoni*, Lambe, but was later (1904‡) made the type of the genus *Centrosaurus*. When found by the writer in 1901 in the Judith River (Belly River) formation, on the west side of Red Deer river, Alberta, a short distance below the mouth of Berry creek, a straight, laterally compressed bone, tapering toward one end was with it immediately beneath its lower surface. This bone was at the time supposed to be a horn-core and was described as such in the original reference to the crest and when the genus *Centrosaurus* was established, the parietal crest and the so-called nasal horn-core constituting the type material of the new genus. The discovery during the past summer of the true nature of the "horn-core" is of interest and calls forth the following remarks.

In my description of the crest in the paper published in the Transactions of the Royal Society of Canada, vol. X, 1904, the following references to the hinder portion of the specimen are to be found: "The parietal expansion, for the purpose of descrip-

*Communicated by permission of the Director of the Geological Survey.

†Geological Survey of Canada. Contributions to Canadian Palaeontology, vol. III. (quarto), part II., On Vertebrata of the Mid-Cretaceous of the North-west Territory, p. 58, 1902.

‡THE OTTAWA NATURALIST, vol. XVIII., p. 81, On the squamosoparietal crest of two species of horned dinosaurs from the Cretaceous of Alberta.

tion, may be said to consist of a longitudinal or axial part, a transverse portion forming the posterior border, and lateral or alar extensions that complete the sides and front margin.

The posterior bar near the median line presents a backwardly directed vertical face, which becomes rounded and less robust in the neighbourhood of the hooked processes; it is not, however, quite bilaterally symmetrical, its transverse section near the left hooked process being nearly circular, whilst in the corresponding position on the other side it is decidedly thickened next to the fontanelle. . . . A shallow groove, *g*, more clearly shewn on the right side of the specimen, extends on the anterior side of the posterior bar from the upper surface near the median line downward and then upward in a regular curve, ending at a point in advance of the base of the hooked process. Above this groove the face of the bar presents a broken surface. On the left side the corresponding groove is only faintly indicated, and the bone above it is intact." It is this broken surface on the anterior right margin of the posterior bar which is of special interest at the present time. To this surface the lower broken base of the "horn-core" fits exactly in perfect contact. To Mr. Barnum Brown of the American Museum of Natural History, New York, belongs the credit of having made this discovery whilst on a visit to the Geological Survey at Ottawa during the past summer.

What was at first considered to be a nasal horn-core is thus proved to be a strong, forwardly directed outgrowth or spur from the anterior surface of the right lateral half of the posterior bar passing directly across and over the right fontanelle, the front end of the spur being about one inch only above the surface of the bone forming the anterior border of the opening. Thus the above-mentioned groove, *g*, passes beneath what is now known to be the base of the robust outgrowth. What is surprising is, that there was no corresponding outgrowth from the posterior bar on the left, the surface of the bone there being quite smooth, as already stated.

The figure of the parietal crest accompanying this notice shews the newly discovered outgrowth in its proper position somewhat marring the symmetry of the specimen, but certainly providing food for speculation as to its true nature.

The hooked processes on the posterior margin of the crest of *Centrosaurus* were probably of some use in a protective sense. Projecting beyond the back of the frill, and with a horny covering, they would play an important part in the marginal armature of the frill. The outgrowth over the fontanelle, however, as it lay but little above the general plane of the lateral expansion of the crest was probably enveloped by the covering of the frill and did not shew to any extent above its surface; to be of use

as a spine for defensive purposes it would have projected freely above the crest. Centrosaurus and Monoclonius are regarded as antecedent to forms in which the size of the fontanelles is much reduced, culminating in Triceratops with an entire frill. We could scarcely, however, consider the spur of bone crossing the fontanelle a little above its general plane, as an attempt on the part of Centrosaurus to reduce the size of the opening, although if we accept a Monoclonius-Triceratops phylum as one of the two lines of descent in the Ceratopsia,* we would expect a strong tendency to close the parietal fontanelles in both Monoclonius and Centrosaurus. The presence of the outgrowth on one side of the crest only, further inclines one to the belief that this spur has no morphological significance, but has been induced rather by an inherent tendency on the part of the species to add to the defensive armature in this part of the skeleton.

The figure here given is from the drawing reproduced in plate 1, Transactions Royal Society of Canada, vol. X, 1904, in the writer's paper "On the squamoso-parietal crest of the horned dinosaurs Centrosaurus apertus and Monoclonius canadensis from the Cretaceous of Alberta," to which is added the outgrowth from the posterior bar in its true position, the original drawing for figure 3 of the above plate being used; one-sixth natural size; a, squamosal suture; b, post-frontal suture; g, groove passing beneath base of bony outgrowth.

THE GENERIC NAME EUOPLOCEPHALUS PROPOSED IN PLACE OF STEREOCEPHALUS (PREOCCUPIED).

In 1902 the writer described a new genus and species of herbivorous dinosaur from the Judith River (Belly River) beds of Red Deer river, Alberta, under the name *Stereocephalus tutus* (Contributions to Canadian Palæontology, vol. III. [quarto], part II., p. 55). As the term Stereocephalus has been already used for a genus of insects it is necessary to suggest another generic name for the species from Red Deer river represented by the upper part of a heavily armoured cranium and a transverse, semicircular series of five keeled scutes from the neck or tail. Euoplocephalus (Gr., *euoplos*, well armed, and *kephale*, head) is therefore now proposed as an appropriate name for the genus to take the place of Stereocephalus as applied to the Cretaceous stegosaur *S. tutus*.

*Monographs of the United States Geological Survey, vol. XLIX. The Ceratopsia by John B. Hatcher, based on preliminary studies by O. C. Marsh, edited and completed by R. S. Lull.

THE BIRDS OF OTTAWA.

BY C. W. G. EIFRIG.

The first list of the birds of Ottawa, published by members of the Ottawa Field-Naturalists' Club, appeared in the third number of the Transactions of the Club, pages 29-34. It was prepared by Messrs. G. R. White and W. L. Scott, and enumerates, as a result of their observations up to 1881, the sum total of 169 species, four of which were later cancelled as erroneous. The second general list, which was to fix the ornithological knowledge of the district for some time, appeared ten years later, 1891 (OTTAWA NATURALIST, Vol. V., April, 1891). Additions, migrations and seasonal lists have since been published.

Then why this new list? A number of reasons make it desirable. 1. Quite a number of additional species have been added since the list of 1891, which enumerates 224 species, the present one 246. 2. The status of quite a number of species has since then been found to be different than given, *e.g.*, many are given as migrants for the district which have since turned out to be summer residents, *i.e.*, breeders. 3. The surroundings of Ottawa, and therewith the haunts of birds, are being changed so rapidly by man, that it seems desirable to make another record of the favorite localities for birds in the neighborhood as they existed in the first decade of the twentieth century, before they are no longer recognizable. 4. Many of the present members of the Club do not possess those early volumes, and many have repeatedly requested the writer to prepare a new list. Besides, it is a labor of love for the writer, who during six years spent all available leisure time in the study of the birds of the region. Never will those delightful hours and days be forgotten, when, whether in the fields or swamps, or woods, or on the lakes of the district, the birds furnished him with varied and interesting experiences, and allowed him many a glimpse into the wonders and mysteries of nature.

The members of the Club who reside at Ottawa, of course, know the topography of the region around the city and even casual visitors to the Capital are filled with pleasant recollections when hearing names like Britannia, Aylmer, Rockcliffe, Experimental Farm, etc., favorite resorts for Ottawans in the neighborhood, where also many of the observations recorded in this list were made. But, for the ever-increasing number of members living far from Ottawa, I quote from the introduction of the second list, pp. 31-32: "The district covered by this list is embraced within a circle of thirty miles radius, with the city of

Ottawa as its centre. It includes, roughly speaking, the Counties of Carleton and Russell in Ontario, and the southern portion of the County of Ottawa in Quebec, and lies between 45° and 46° north latitude. The northern portion of this district is covered by what may be termed the first range of the Laurentian Hills, one of which, known as King's Mountain, has an elevation of 1,125 feet above sea level, and rises about 900 feet above the large alluvial plain lying between it and the Ottawa River. These hills are covered with a great variety of deciduous and evergreen trees, and among them are numerous mountain lakes, varying in size from mere ponds to lakes of five miles and upwards in length (e.g., Meach Lake). Flowing from the north through this range of hills the rapid river Gatineau empties, opposite the city, into the Ottawa, which flows from the west across the centre of the district, widening above the city with a southward sweep into a broad and beautiful sheet of water known as Lake Des Chenes, and again narrowing at the city where, falling over a limestone ridge, it forms the well-known Chaudiere Falls. Below these its course is straighter and narrower, and about twenty miles down it receives from the north the waters of another rapid stream, the Du Lievre. South of the Ottawa is a somewhat undulating tract of country, drained principally by the Rideau, which joins the Ottawa at the city. It is rather a sluggish stream in its upper reaches, through being dammed back at various points for canal purposes, and thus affords several excellent resorts for marsh birds. Much good farming land, with occasional hardwood ridges, is to be found in this part of the district, as well as swamps overgrown with tamarack, cedar, and other cone-bearing trees. The largest of these swamps is a peat-bog in Gloucester Township, known as the Mer Bleue, which covers several thousand acres of land, carpeted to a great depth with sphagnum moss, and producing immense quantities of berries of many kinds, notably cranberries and blueberries."

Thus it will be seen that we have here all the conditions conducive to making habitats for all kinds of birds. Only *Limicola*, the shore-birds, find conditions here less and less congenial, as the floods of the Ottawa in May and early June cover all the available sand banks with water, and in August and the following months they are given no rest by the hordes of boys and men who make a practice of going up and down the river in boats armed with all kinds of shooting irons, blazing away at every living thing. This is done all summer, especially on Saturdays and Sundays, so that even breeding birds and fledglings are wantonly slaughtered, so much so, that certain localities that would otherwise teem with bird-life, as Kettle

Island, have become almost devoid of it. The provincial or other authorities ought to put a stop to this practice.

Other localities frequently mentioned in the list are: Beaver Meadow, a delightful dell between wooded ridges, adjoining Hull on the west, north of the first toll-gate on the Aylmer Road; "water-front" which means the wooded shore of the Ottawa between Hull and Tetreauville, on either side of the Canadian Pacific Railway bridge; the Rifle Range the character of which is denoted by its name; the woods beyond it, on the south shore of the Ottawa, which are rich in some of the rarer birds as well as plants; Beechwood, a large tract of park-like hardwood near the cemetery, and Chelsea, on the Gatineau River, five miles north of the city, have yielded rich returns in the study of the birds; Meach Lake, a charming lake about ten miles north of the city, has furnished some records, as also Osgoode with its adjacent swamps along the Rideau, and Cranberry Creek has been visited by the writer and his co-workers. This locality, as well as Shirley's Bay, six miles west of Britannia, the Ottawa River with Kettle and other islands near the Rifle Range, as well as the extensive marshes and swamps near the mouth of the Lievre River, furnish favorite haunts for numerous marsh birds like the rails, ducks and other water-birds.

On a map in possession of the writer, on which distances from Ottawa are indicated by concentric circles, it is found that High Falls, Labelle County, Quebec, is just on the thirty-mile circle, and Inlet, in the same county, a trifle beyond. As the writer made numerous visits to these localities, notes made there are also included in the list.

Two conclusions have forced themselves on the writer as a result of his study of the Ottawa birds, which, however, can only be mentioned here, namely: 1. *That the Ottawa River is an important boundary line in the breeding ranges of birds for this part of Canada; that is, certain species like the Canada Jay, Rusty Grackle, Pine Grosbeak, Three-toed Woodpeckers and probably several others, do not breed south of it, and for certain southern species it forms the northern limit of their occurrence,* as, for the Chewink, Wood Thrush, Yellow-throated Vireo, Grasshopper Sparrow, and, to a certain extent, the Indigo bird and others. 2. *That the Ottawa River is a migration route for birds of much greater importance than is generally known. Great flocks of migrant land and water birds travel over it or along its banks, and even flocks of sea-birds use it as a highway, probably to and from James Bay.*

In compiling the following list the writer has been given much assistance by several more or less ardent ornithologists, most of whom belong to the Ottawa Field-Naturalists' Club.

In work of this kind, when one observer usually cannot give all his time to it, co-operation on the part of many painstaking and conscientious observers is especially desirable, as indeed in all biological and other investigations. Therefore, this list embodies not only the results of the writer's work, extending over a period of six years, but also many notes and data furnished by Messrs. G. R. and E. G. White, A. G. Kingston, H. U. Morris, and H. Groh, who, together with the writer, frequently held meetings as the ornithological section of the Club. Mr. W. T. Macoun of the Central Experimental Farm and the late lamented Dr. J. Fletcher also furnished a number of valuable items. Especially valuable, however, has been the co-operation of Mrs. R. D. Brown and Miss Lees of "The Pines," Ottawa East, whose charming home with its beautiful surroundings is a perfect thermometer, so to say, for bird-life, be it for the migrant or resident species, their coming and going, greatest frequency, etc. The same can be said of Mr. E. Bedard, the keeper of the Rifle Range, and of his station of observation; he has indeed been of much assistance to me, and his many, often surprising records, were usually borne out by the specimen mounted. To these and several others who have occasionally furnished notes to the writer, also to Prof. J. Macoun, of the Geological Survey, who has always kindly allowed him free access to the collection of skins in the museum, the writer would once more express his sincere thanks.

The order and arrangement of the list is that of the American Ornithologists' Union, which is the standard. The scientific names are also brought up to date, they being those of the third check-list of the Union of 1910, with the exception that the trinomials have been left as binomials for the species, and retained for the subspecies only, for which they are really only necessary. The numbers, however, are continuous, as any others are of no use in a list of this kind. The meaning of the designations of frequency is as follows: rare, 1-5 individuals of that species seen during a whole season; moderately common, 1-2 in a day spent in their proper haunts; common, 5-10; abundant, more than 10. The name of the order is given first, that of the family second.

ORDER PYGOPODES—DIVING BIRDS.

PODICIPIDÆ—GREBES.

1. *Aechmophorus occidentalis*, Western Grebe. Rare accidental visitor. A specimen was caught alive on February 26th, 1904, in the grounds of the Ladies' College and kept alive several days.

2. *Colymbus holballi*, Holbøll's Grebe; Red-necked Grebe.

A none too rare migrant, probably commoner than suspected. It occurs on the river in April and May and again from September to November. A number are brought every autumn into the market by rivermen. On November 25th, 1908, two were caught in nets on the river and kept alive on the market for several days.

3. *Colymbus auritus*, Horned Grebe. A moderately common summer resident. Breeds on Kettle Island, in cat-tail sloughs, and similar bays in the river and on lakes. Earliest date of arrival April 10th; latest date, October 27th.

4. *Podilymbus podiceps*, Pied-billed Grebe; Dipper. A common summer resident. Earliest date of arrival, April 6th (1909); latest, November 7th. Breeds in similar places as the preceding species. By virtue of its diving ability it is able to keep out of sight much longer than its abundance warrants.

GAVIIDÆ—LOONS.

5. *Gavia imber*, Loon. A moderately common summer resident, which arrives as soon as the ice begins to open up in the rivers, about April 20th, but sometimes before, as in 1908 one was seen on March 25th. They are usually gone by the middle of November, when their favorite resorts, the lakes to the north of us, are freezing over, but in 1905 one was seen as late as December 18th. By May 24th they usually have their set of two eggs laid. This bird is a great ornament to our lakes and its shooting for sport or pastime should in every way be discouraged.

6. *Gavia stellata*, Red-throated Loon. A very rare accidental visitor. The last and only date for Ottawa is November 12th, 1885, when a young female was shot by Mr. T. R. Coursolles.

ALCIDÆ—AUKS, MURRES AND PUFFINS.

7. *Fratercula arctica*, Puffin. This queer-looking marine bird is also a rare accidental visitor. The only one recorded from here was shot in October, 1881.

8. *Uria lomvia*, Brunnich's Murre. The record of this bird, a northern marine species, is a strange and interesting one. It was first noticed in this vicinity November, 1887, near Papineauville (G. White), but in December, 6-12, 1897, it came to Ottawa in numbers for the first time. Since then the bird comes almost every year, and about the same time. In 1907, they began to arrive on November 25th, but in 1908 the first ones, 400-500, were seen on December 19th. The bulk of these flights seems to be heading towards the Great Lakes via the Rideau River, and lakes; the remainder presumably towards James Bay. Probably none of these birds ever get back to their native sea coast; they are picked up dead and dying in the country traversed by them. They die of starvation. Why they should

thus migrate to their doom with such persistency is difficult to explain. Many are, of course, also shot by gunners.

ORDER LONGIPENNES—LONG-WINGED SWIMMERS.

STERCORARIIDÆ—SKUAS AND JAEGERES.

9. *Stercorarius parasiticus*, Parasitic Jaeger. Another marine species of the north which can only be a rare accidental visitor here. A young bird was shot on September 4th, 1909, on the Ottawa, near the mouth of the Lievre River, and is now in the writer's collection.

LARIDÆ—GULLS AND TERNS.

10. *Larus hyperboreus*, Glaucous Gull. This arctic species has been but lately added to the Ottawa list. On December 2nd, 1905, Mr. E. Bedard of the Rifle Range shot the first specimen. He claims that this species forms a part of the enormous flights of gulls and terns moving regularly up and down the river. They are easily distinguished from the Herring Gulls. Other dates of Mr. Bedard are: March 26th, 1907, eleven seen; April 5th, 10th, and 12th, 1908, and March 31st, 1909.

11. *Larus marinus*, Great Black-backed Gull. A casual visitor. May 2nd, 1885, one was seen near Kettle Island (G. White); also one at the same place April 9th, 1906, by the writer.

12. *Larus argentatus*, Herring Gull. This fine bird is a moderately common breeder here and a sometimes abundant migrant. The bulk come at end of March and beginning of April, the earliest date being March 26th, 1904. The species breeds along the Ottawa in suitable localities and on the lakes northward. The bird has been seen here as late as December 7th (1907).

13. *Larus delawarensis*, Ring-billed Gull. This common species of the Great Lakes and the sea coast undoubtedly has always been among the hosts of migrant birds passing up and down the Ottawa, still the first definite record of it for Ottawa was only made in December, 1908, when Mr. E. Bedard captured one alive. He kept it with several ducks in a small enclosure, where it developed an unsuspected amount of viciousness in attacking, killing and then eating his fellow-captives.

14. *Larus philadelphia*, Bonaparte's Gull. This is a not uncommon migrant, which in early May is sometimes found in numbers over the river. It probably nests on some of the lakes not far north of here, as young birds are found here in August. Earliest and latest dates are: May 2nd (1908), and October 7th (1907).

15. *Sterna hirundo*, Common Tern; Wilson's Tern. A casual visitor and probably a more common regular migrant

than known. For, after a few isolated records of its occurrence here had been made up to 1909 it suddenly, on the 30th of May and 1st of June of that year, appeared in great numbers over the river, flying westward. Many surprises like that and probably a number of unrecorded species would undoubtedly await one who could give his whole time to watching the river during migration.

16. *Sterna paradisæa*, Arctic Tern. This delicate, beautiful "sea-swallow" has been seen and taken for the first time on the same day, 30th of May, 1909, as the preceding species. They were probably heading for James Bay. The presence of these ocean birds in numbers on certain days, shows that the Ottawa is a migration route of greater importance than has hitherto been supposed.

17. *Hydrochelidon nigra surinamensis*, Black Tern. This inhabitant of large inland marshes is a rare casual visitor here. On May 28th, 1888, Mr. E. White saw six on the Ottawa, and Mr. McCarthy took one at Britannia, August, 1908.

ORDER STEGANOPODES—TOTIPALMATE SWIMMERS.

SULIDÆ—GANNETS.

18. *Sula bassana*, Gannet. This is another marine species that can now be taken into a list of Ottawa birds for the first time, it having been first recorded and taken at Shirley's Bay on October 14th, 1909. It, otherwise, is found only in the Gulf of St. Lawrence and along the northern coasts and islands both in the Old and New World, and even here in certain circumscribed localities only.

PHALACROCORACIDÆ—CORMORANTS.

19. *Phalacrocorax auritus*, Double-crested Cormorant. A casual visitor. One was taken about 1st October, 1890, at Shirley's Bay; a later date is October 17th, 1904, when one was brought in to Mr. Henry, the taxidermist. Finally, on May 27th, 1906, Mr. Gemmill shot one on the Ottawa River. Probably commoner than supposed.

PELECANIDÆ—PELICANS.

20. *Pelecanus erythrorhynchos*, White Pelican. This fine large white bird is entitled to a place on this list on the strength of a specimen captured at Manotick, 12 miles from Ottawa, May 26th, 1904, and reported by the late Dr. Whiteaves in THE OTTAWA NATURALIST.

ORDER ANSERES—LAMELLIROSTRAL SWIMMERS.

ANATIDÆ—DUCKS, GEESE, SWANS.

21. *Mergus americanus*, American Merganser. A common migrant and a not uncommon breeder. It may almost be said to be a resident, as witness these dates: 12th November, 20th

December, 1908 (17 seen), 12 January, 1909 (3 seen). The bulk of the species, however, arrive from about April 6th to 18th. At Arnprior Mr. H. U. Morris saw a female with eight young on June 12th, 1909.

22. *Mergus serrator*, Red-breasted Merganser. A much rarer migrant and breeder than the preceding. Breeds in the sloughs and ponds near Templeton, where on June 20th, 1897, Mr. G. White saw ten young able to follow their mother. Dates: April 1st, October 20th.

23. *Lophodytes cucullatus*, Hooded Merganser. A common summer resident and abundant migrant. In autumn many are brought to the market by gunners. Like the American Merganser it breeds in cavities in hollow trees or stumps. Dates from April 3rd (1906), to November 6th (1905).

24. *Anas platyrhynchos*, Mallard. A regular but rare spring and fall visitor. Much less common than farther west or south. On April 6th, 1909, Mr. E. Bedard saw one and on October 19th and November 6th, 1905, Mr. E. White saw several in Lochaber Bay, near Rockland.

25. *Anas rubripes*, Black Duck. The old well-known and well-beloved Black Duck, *Anas obscura*, has of late been made into two species, *A. rubripes* and *A. tristis*, the Red-legged and the Black-legged Black Duck, by Mr. William Brewster, of Cambridge, Massachusetts. He claims for the red-legged kind larger size, more northerly breeding range and some differences in coloration from the other, the black-legged species. Other authorities, like Dr. Dwight, of New York, claim that these differences are only due to difference in age, so that there would, after all, be but one species. Without entering into a discussion of this matter here, we can say that, if there are two kinds, we have both. However, most of the Black Ducks shot in this vicinity are the large, red-legged kind, *Anas rubripes*. This is a common migrant and breeder here, arriving from the 2nd of April on, and some staying well into November (17th, 1909). They breed in sloughs and similar localities.

26. *Anas tristis*, Black-legged Black Duck. In October, 1908, Mr. E. Bedard captured two from a small flock and kept them alive for a long time. One had blackish feet and bill, the other red legs and green bill; both, however, were of small size, and both were taken from what seemed to be one family. This would lend color to the contention that these differences are but phases in the appearance of the one species.

Anas platyrhynchos, *Anas rubripes* or *tristis*, Brewer's Duck. The hybrid form between Mallard and Black Duck is one of not too infrequent occurrence here.

27. *Chaulelasmus streperus*, Gadwell. Rare accidental visitor.

A female was shot on the Ottawa from a small flock October 29th, 1885, by Mr. W. F. Whitcher.

28. *Mareca americana*, Baldpate. A regular but rather scarce spring and fall visitor; more common formerly. Dates: April 20th, 1906, a pair at the Rifle Range; November 6th, 1905, three seen in Lochaber Bay.

29. *Nettion carolinense*, Green-winged Teal. A rare migrant or spring and fall visitor; apparently much rarer in spring than fall, when a small number of young ones are to be seen in market. On October 12th, 1908, three were taken at Shirley's Bay and in the same year three spent all August in a small pond near Hurdman's Bridge.

30. *Querquedula discors*, Blue-winged Teal. A moderately common migrant and breeder. More common than the preceding species. Arrives about May 1st and leaves about middle of October. On May 24th, 1908, one was seen dabbling in shallow water along Beaver Meadow water-front. They breed also on Kettle and Duck Islands and similar localities.

31. *Spatula clypeata*, Shoveller. A scarce fall visitor. The following are all the available dates: fall of 1882; two seen October, 1883; two shot in 1886 by Mr. W. P. Lett; on September 16th, 1908, Mr. G. White shot two near Rockland and on November 2nd of the same year, he saw four at the same place, all birds of the year.

32. *Dafila acuta*, Pintail. A rare spring and fall visitor. Arrives about middle of April and leaves in November. Mr. E. White saw several at Bear Brook April 13th, 1905, and saw many and shot several at Lochaber Bay, November 6th, 1905.

33. *Aix sponsa*, Wood Duck. This most beautiful of all ducks still holds its own with us as common migrant and breeder. Along wooded streams and on sylvan lakes and ponds, where it can find cavities in trees and stumps for its nest, the Wood Duck may be found over all the Ottawa district throughout summer. In fall many are brought into the market by gunners, mostly plainly plumed young birds, but also a number of the fine adult drakes. These should not be shot, for it is a pity to destroy and pluck so much beauty, besides the bird is on the vanishing list over a large part of its territory. They arrive during the first half of April (dates: April 6th, 12th, 15th, 16th), and leave in October (October 19th, 1905, twenty seen in Lochaber Bay). The latest date I have is November 6th, 1903.

34. *Marila americana*, Redhead. A rare fall visitor. On October 17th, 1907, Mr. E. White saw a flock on Shirley's Bay.

35. *Marila vallisneria*, Canvas-back. This desideratum of all epicures is an even rarer fall visitor than the Redhead. On October 28th, 1906, one was shot here.

36. *Marila marila*, Scaup Duck; Greater Blue-bill; Black-head. One of our most common migrants. In April large flights can be seen travelling westward over the Ottawa and in October eastward. This species, together with the Black Duck, Hooded Merganser and Golden-eye, furnish the greater number of the ducks brought into our market in fall, it being second in point of numbers. Dates: April 6th, (1909); November 9th (1908).

37. *Marila affinis*, Lesser Scaup Duck, Lesser Blue-bill. A much less common migrant than the preceding. On October 12th, 1908, Mr. N. Lachance took one on Shirley's Bay; November 6th, 1905, Mr. E. White a fine adult male on Lochaber Bay, and November 15th, 1903, one on the Rideau.

38. *Marila collaris*, Ring-necked Duck. Another far from common spring and fall visitor. May probably sometimes be overlooked and taken for the Greater Scaup, which it much resembles. On October 27th, 1907, Mr. N. Lachance shot several on Shirley's Bay.

39. *Clangula clangula americana*, Golden-eye; Whistler. An abundant migrant, and not a few remain with us all winter on open places in the rivers, as along the Des Chenes Rapids. The first migratory ones are seen along the Ottawa, March 24th (1908), and the remaining days of March, but during the first half of April large flights can be seen ascending the river, the last date for the spring migration being May 3rd (1908). The return movement is heaviest in October and early in November.

40. *Chariionetta albeola*, Buffle-head; Butter-ball. This rotund little duck is a moderately common migrant. In the flocks of migrating ducks usually a few of this species are seen, as on April 17th, 1908, when Mr. E. Bedard saw five among hundreds of other ducks at the Rifle Range. On October 22nd, 1906, Mr. N. Lachance saw nine on Shirley's Bay, among them a fine adult male, one of the latter also being brought to the market on the 26th of the same month.

41. *Harelda hyemalis*, Old Squaw; Long-tailed Duck. An abundant migrant from and to Hudson Bay and the far north. The vanguard arrives about April 2nd, but from the 16th to May 16th large flocks pass westward via the Ottawa, returning during the end of October, well into November, on the 9th of which (1905) a male was shot on Brewery Creek and presented to the writer.

42. *Somateria dresseri*, American Eider. A rare accidental visitor, though it probably is sometimes overlooked. A young male was shot by Mr. G. White on the Ottawa, November 9th, 1889. This is the only positive record so far.

43. *Somateria spectabilis*, King Eider. This is another northern marine species which now makes its appearance on the

Ottawa list for the first time. Up to November 2nd, 1908, there were no records of it, when Mr. E. Bedard shot four young birds at the Rifle Range, out of a flock of about 75, which went up the river as far as Pembroke, where they were also seen. On December 2nd of the same year, another flock came along, out of which ten or more were shot near Ketchum's boathouse. Next day more went up. Finally, May 8th, 1909, Mr. E. Bedard claims to have seen 28 passing up the river. Either this species is now changing its habits and migration routes, or they have, until 1908, been overlooked.

44. *Oidemia americana*, American Scoter. An irregular and rather rare spring and fall visitor, unless they also will deign to visit us more often in future. On May 4th, 1909, and May 5th, 1908, Mr. E. Bedard saw several flocks of Scoters passing up the river. On September 1st, 1908, a fine adult male was in the market here, shot nearby, and on October 7th of same year two immature specimens.

45. *Oidemia deglandi*, White-winged Scoter. Of the same undecided status as the preceding species. The dates I have are: October 28th, 1904, one in the market; October 22nd, 1906, Mr. N. Lachance saw seven at Shirley's Bay, out of which he shot two immature specimens; May 4th, 1909, Mr. E. Bedard shot one near the Rifle Range.

46. *Oidemia perspicillata*, Surf Scoter. Like the foregoing, if anything rarer. On October 13th, 1908, Mr. E. Bedard shot an adult male, and on October 29th of same year three immature ones.

47. *Erismatura jamaicensis*, Ruddy Duck. A rare irregular fall visitor. On October 15th, 1907, Mr. N. Lachance shot a young female on Shirley's Bay.

48. *Chen hyperborea nivalis*, Greater Snow Goose. Apparently other geese than the Canada Goose pass over our district, but until more are secured this species must be put down as a very rare accidental visitor. The only available record goes as far back as 1867, when Dr. Van Cortlandt shot one above the Chaudiere Falls, the head and wings of which were in the possession of the Ottawa Literary and Scientific Society until destroyed by moths.

49. *Chen caerulescens*, Blue Goose. Another extremely rare accidental visitor here from the far north. Three specimens of this goose were shot by Mr. G. R. White within a few miles of the city on October 11th, 1886.

50. *Branta canadensis*, Canada Goose. This magnificent and truly Canadian bird is a common migrant here and until within comparatively recent years undoubtedly bred in the district. I was told by natives that it nested, till lately, at Echo

Beach Lake, Quebec, about 35 miles in a straight line from the city. The earliest date for its arrival here from the south which I have is March 16th (1898). From then till well into May (9th, 1907) its wedge-shaped flocks enliven the air, and again in the fall from October 11th to about November, 20th.

51. *Branta bernicla*, Brant. This abundant eastern migrant is only a very rare accidental visitor with us, the only record being a specimen shot some thirty miles down the river by Mr. P. Thompson in the fall of 1887.

ORDER HERODIONES—HERONS, STORKS, IBISES, ETC.

ARDEIDÆ—HERONS, BITTERNS.

52. *Botaurus lentiginosus*, Bittern. A common summer resident, breeding in large and small swamps and sloughs. They come in the spring as early as April 6th, and stragglers remain as late as October 30th.

53. *Ixobrychus exilis*, Least Bittern. A very rare summer resident at Shirley's Bay.

54. *Ardea herodias*, Great Blue Heron. This large bird, popularly but erroneously called "Blue Crane," is still a common figure with us, though most possessors of guns deem it a piece of great heroism and marksmanship to kill every one they see. Its heronies, collections of big bulky nests up in trees in swampy, flooded woods, are found here and there in the district. Extreme dates of arrival and departure are: March 17th (1907), and November 17th (1909).

55. *Butorides virescens*, Green Heron. A rare visitor to us from further south, in the fall. It has been taken once by Mr. W. E. Saunders on the banks of the Rideau. As it nests not far to the south of us, along the St. Lawrence, and as this species has the habit in common with other herons to take a little ramble northward from their breeding grounds before departing to the south in fall, it should be looked for more assiduously and will probably be found more regularly.

56. *Nycticorax nycticorax naevius*, Black-crowned Night Heron. This is a summer resident of circumscribed local distribution. It nests on Kettle Island, and there it is not rare, otherwise it is. But even at Kettle Island, birds in the adult plumage are rare and none had been taken here till September 10th, 1907, when Mr. E. White shot two adult males in a little spruce and cedar thicket near Hurdman's Bridge. One was seen by him also late as October 19th (1905) in Lochaber Bay.

(To be continued.)

THE MIGRATION OF SOME NATIVE LOCUSTS.

BY NORMAN CRIDDLE, TREESBANK, MANITOBA.

We read from time to time, and have done so for many years past, of vast hordes of locusts darkening the sky, as they sweep onward, from unknown breeding grounds; how they devastated the crops and ate up every living leaf in any locality they happened to make a stopping place, and in fact left behind a desolate and leafless waste where a few hours previous all had been luxury and beauty. Such is said to be the case, at times, in parts of Africa, India and certain South American countries. There is, however, no longer any mystery connected with these visitations. Science has explained all that; has discovered the breeding grounds and is doing much to eliminate the injury by guarding against attacks and providing for them when they occur.

We are not, as a rule, apt to associate our common grasshoppers—many of which, however, are true locusts—with those devastating species. In fact, of all our many different kinds we usually claim but one as truly migratory, namely, the Rocky Mountain Locust, *Melanoplus spretis*, the locust made famous by having a special commission appointed to investigate its ravages. This species, in the past, has done immense damage to vegetation mostly in the United States, but it also invaded a great portion of Manitoba in the seventies, and is specially remembered on account of its having practically swept the Red River Valley clear of vegetation. Since then there have been two minor outbreaks confined to southern Manitoba, the locusts having evidently flown from somewhere south. In spite of the prevalence of this species in Manitoba at times it is very doubtful whether it can be classed as a native, a distinction which, after all, we are not anxious for.

Leaving out *M. spretis* we have still several destructive species, foremost among them being the Lesser Migratory Locust, *Melanoplus allanisi*, with several minor lights such as *M. gladstoni*, *M. femur-rubrum*, *M. angustipennis*, *M. packardii*, *M. minor*, *M. bivittatus* and others, all of which are very injurious at times and migrate regularly during the months of July and August.

It is a wonderful thing this migration. Few animals are free from a desire or instinctive stimulus to move to other parts and so spread the species. Plants, also, are constantly doing it by means of their seeds, and those that cannot go far by their own exertions, fasten themselves to such as can, and so, as with ourselves, air, land and water, are all made use of for the purpose of travel.

With regard to grasshoppers, it is strange that their regular periodic movements have been largely overlooked, though no doubt this is partly due to a lack of knowledge as to where to look. At Aweme, Man., where locusts have been troublesome of recent years, one instinctively looks up towards the sun, taking care to get behind some building, or in some way hide the sun's disc and then, if there are any flying, they will be easily observed within a radius of from one to fifteen diameters from the sun.

When a locust has the instinctive incentive to fly it is said to inflate the air sacks along the side of its body; it then rises with a spiral movement, round and round, higher and higher, until reaching a height of some hundred feet or more and feeling the resistance of the wind, it sails slowly away, usually flying with its head facing the breeze if it is at all strong, and gradually getting higher as it moves along with it, until it becomes a mere speck of glistening whiteness, when close in line with the sun and invisible elsewhere. When there is no breeze it will return obliquely to earth to await a more favourable opportunity.

That this desire, or instinct, to fly elsewhere is no sudden impulse is shown by the fact that a locust when disturbed seldom flies any great distance, and in fact seems incapable of doing so, while those that are prepared rise easily. Nor is the movement due to lack of food, as one often sees them rise in the midst of plenty. No, it is Dame Nature's way of spreading her children over the country, and she has taught them, through the law of natural selection, to go and also how to prepare for their journey.

The migratory season commences soon after locusts reach maturity, that is when they have passed their final moult, and some three or four weeks before they commence laying eggs. It lasts almost a month. There is not, however, a continual movement, only hot sunny days are chosen and even then the locust is dependent on the wind which not only carries it along but also indicates its direction. The days most preferred are those when the breeze averages some fifteen miles an hour, though lesser winds, as well as higher, are used to advantage; locusts seldom fly, however, when the wind is blowing hard.

It is interesting to watch these movements on a gusty day, when calm one moment and breezy the next. Then every fresh gust is taken advantage of and one sees hundreds of locusts rise on such occasions, as if having waited their opportunity. It is the same while looking up towards the sun, one moment will only discover a few, the next a perfect swarm moving at different angles owing to the breeze having slightly different directions at

different heights. And so the journeys continue, first east, then west, south or north, as the wind varies. At night they apparently drop to earth* to infest new neighbourhoods or perchance rise and move elsewhere next day. But not all go, among the Orthoptera especially Nature has made a wise provision. Some are endowed with long wings; these are built specially for locomotion and conveying the insect long distances. Others of the same species have short or rudimentary wings which oblige them to stay at home. So that while the long-winged forms seek new homes, there are enough short-winged brothers and sisters to carry on the family at home and incidently the work of destruction also.

BOOK NOTICE.

DISTRIBUTION AND MIGRATION OF NORTH AMERICAN SHORE BIRDS. By Wells W. Cooke, U. S. Department of Agriculture. Biological Survey, Bulletin No. 35, 100 pages and four half-tone plates, by Fuertes.

This publication is another valuable contribution towards a knowledge of the habits of North American birds. It deals, as the title indicates, with distribution, breeding range and migration, and also touches upon the economic side of the question which has hitherto received very little attention. The author claims that, so far as present knowledge goes, the evidence of food eaten is wholly in the birds favour, as no shore bird has yet been discovered to do harm to any appreciable extent; while many, such as the Upland Plover and Killdeer are of very great use to agriculture in destroying noxious insects. A special plea is made for the general protection of all shore birds in spring time, especially the Golden Plover, which is in a fair way to joining other extinct species.

The book is throughout an extremely useful work, covering, as it does, the range—both winter and summer—of birds inhabiting the whole of North America.

N. C.

*It is well known that some grasshoppers travel throughout the night. Such an instance is related by Prof. S. J. Hunter of *Dissosteira loricata*, and though I have no direct evidence, it is possible that some of the Manitoba species are also nocturnal during the migratory season.

THE ENTOMOLOGICAL SOCIETY OF ONTARIO.

The forty-seventh annual meeting of the Entomological Society of Ontario was held at the Ontario Agricultural College, Guelph, on November 3rd and 4th.

The important address of the meeting was delivered by Prof. J. G. Needham, of Cornell University, on "The Role of Insects in Water Life." No one is more fitted for a discussion of such a subject than the eminent investigator from that great seat of learning at Ithaca. For many years Prof. Needham has made a close study of aquatic insects and his work on certain of the groups is unique. After some introductory remarks on the existing relations between animal and plant life in our waters, he discussed the exceeding great importance of a thorough knowledge of the life habits of aquatic insects in its direct relationship to fish culture. Much information was given on the value of insects as food for young fish. He pointed out how certain species could be reared very easily in large numbers. The waters of Canada and the United States were as productive acre to acre as the land. Large areas of water which at present are practically worthless from an economic point of view, could by scientific water farming be made of greater value than the best of land farms. Beautiful lantern slides were shown which illustrated the life-histories of certain species of dragon flies, stone flies, may flies, etc. At the conclusion of the address Prof. C. C. James, Deputy Minister of Agriculture for Ontario, spoke briefly of the importance of the subject, as did also President Creelman, of the O.A.C.

During the afternoon of the first day's session, papers on economic entomology were presented by Messrs. Gibson, Williams, Morris and Treherne, dealing with the injurious insects which were complained of in their respective districts. In addition to these papers Mr. L. Cæsar spoke of the "Insects of the Year in Ontario," and Dr. Hewitt on "The More Injurious Insects in Canada during the Year 1910."

In the other sessions the following papers were read or presented by title: "Leaf-eating Beetles," by F. J. A. Morris, Port Hope; "The Pool" and "Notes on the Season of 1910," by Rev. Dr. T. W. Fyles, Hull, Que.; "Collecting in the White Mountains," by H. H. Lyman, Montreal; "Spread of Diseases Amongst Animals and Man by Acarids," by T. D. Jarvis, Guelph; "The Horse-radish Flea Beetle," by A. F. Winn, Montreal; "Further Notes on Basswood Insects" and "The Entomological Record for 1910," by Arthur Gibson, Ottawa; "The Migration of Some Native Locusts," by Norman Criddle, Treesbank, Man.; "Some Observations on the Practical Import-

ance of Parasitic Insects," by Dr. C. Gordon Hewitt, Ottawa; "Scolytidæ of the Larch," by J. M. Swaine, Macdonald College, Que.; "Notes on the Breeding of *Tropidopria conica* Fab.," by G. E. Sanders, Ottawa, and "The Bean Root Maggot," by J. E. Howitt, Guelph.

All of the above papers and addresses will be published in full in the forthcoming annual report of the Entomological Society of Ontario, which will appear early in 1911.—A. G.

NOTE.

THE CLARKE NUTCRACKER IN MANITOBA.—A bird has been received at the Experimental Farm which has been identified as the Clarke Nutcracker or Crow, *Nucifraga columbiana* (Wils) Aud., the specimen agreeing perfectly with published descriptions, and specimens in the Geological Survey, of that bird. This specimen was received early in September from Mr. W. D. Black, Margaret, Man., whose brother shot it on the banks of the Souris River in that province. The Clarke Nutcracker has not previously been recorded, to our knowledge, from any Canadian station east of the Rocky Mountains. In Macoun's Catalogue of Canadian Birds it is reported to have been "rather common at Banff, Rocky Mountains, in 1891, and breeding in the mountains; common in the Crow Nest Pass in August, 1897; in the summer of 1885, when the Canadian Pacific Railway was being built through the Rocky and Selkirk Mountains, the bird was very common around the camps, and apparently living on their refuse (*Macoun*)." It occurs widely in British Columbia and Alaska, keeping generally to mountainous country. In Coues' "Key to North American Birds," it is said to be a bird of the coniferous belt of the West, ranging from within the Arctic circle in Alaska, to Lower California and Mexico, and eastward to the eastern spurs and foothills of the Rockies, with casual appearances in Kansas, Nebraska, Missouri, and Arkansas. The States mentioned lie within the same meridians as Manitoba; therefore, while the present extension of the range of the species is a noteworthy one, it is not one which might not reasonably have been expected.

In his letter, Mr. Black makes some interesting observations on the habits of the Nutcracker, which are worthy of quotation here. "This bird made no sound or noise that I could hear, but perched on a tree or shrub, from whence it would suddenly swoop to the ground, and pursue a cricket or grasshopper, and, after catching it, it would return, and after hitting its prey against a limb of the tree it was sitting on, would devour it. The actions of this bird resemble a Canada Jay's somewhat, as does its color, but of course it is much larger."—HERBERT GROH.

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
187 SPARKS ST., OTTAWA

Crown Lithographing Co., *Limited*

189-190 WELLINGTON ST., OTTAWA

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

Copeland-Chaterson-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

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

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

Ex celisior Market

By Ward Market Windsor Market Primrose Market

6 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 \$8,000,000 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 L. Insect List No. 6 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.
305 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

31966

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.