

JANUARY, 1911

VOL. XXIV, No. 10

THE OTTAWA NATURALIST

Published by The Ottawa Field-Naturalists' Club.

Editor:

ARTHUR GIBSON,
CENTRAL EXPERIMENTAL FARM,
OTTAWA.

Associate Editors:

W. T. MACOUN,

Botany.

W. J. WILSON, PH.B.

Geology.

REV. G. EIFRIG,

Ornithology.

REV. G. W. TAYLOR, M.A.

Conchology.

ALEX. MCNEILL,

Meteorology.

L. M. LAMBE, F.G.S.,

Palaeontology.

W. H. HARRINGTON,

Entomology.

J. W. GIBSON, M.A.

Nature Study.

PROF. E. E. PRINCE,

Zoology.

CONTENTS:

Club Mosses. By F. J. A. Morris, Port Hope, Ont.	-	-	-	169
Notes from Pembroke, Ont. By Ernest Thompson Seton.	-	-	-	175
Personal.	-	-	-	175
The Birds of Ottawa. By C. W. G. Eifrig.	-	-	-	176
Lecture Programme, 1910-11.	-	-	-	183

COPELAND-CHATTERSON-CRAIN LIMITED

ISSUED JANUARY 9, 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

THE 2 MACS, LIMITED

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 | 687 Wellington St.

WOODS, Limited

SLEEPING BAGS

OTTAWA AND WINNIPEG,

SILK TENTS

Factory - MULL.

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

A. ROSENTHAL & SONS, LTD.

JEWELLERS AND OPTICIAN

Goldsmith's Hall Ottawa

THE BANK OF OTTAWA

Capital authorized \$5,000,000
paid up 3,297,550
Reserve 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.

THE R. J. DEVLIN CO. Limited

High Grade Hats 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. 806 Somerset St.

GRIP LIMITED,
48-52 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

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, JANUARY, 1911

No. 10

CLUB MOSSES.

BY F. J. A. MORRIS, PORT HOPE, ONT.

Few who worship Nature in her primeval shrine of the ancient wood can fail to have noticed some of these pretty evergreens on the forest floor. One kind with conspicuous fruiting spike woodmen and others know as Club Moss *par excellence*, but apparently the plants have always been favorites of the more simple peasantry, and in England their household names are legion. Many of these folk-names are of the quaintest—Foxtail, Staghorn, Buck-grass, Creeping Bur, Forks and Knives, Foxes' Claws, Lamb's-tail, Running Moss, Robin Hood's Hat-band, Tod's Tail, Traveller's Joy, Wolf's-claws; of these a few have migrated with early settlers, and occasionally in Canada you hear the names "Staghorn" and "Wolf's Foot" applied, but more generally the common species are distinguished as "Hemlock Club Moss", "Ground Pine", "Running Pine", and "Ground Cedar" or "Trailing Christmas Green".

Even the unhappy town-dweller gets glimpses from time to time of the fairer scenes of boyhood or the home of his rustic ancestry; for cartloads of *Lycopodium* are drawn to the city markets in December for Yule-tide decorations. The spores, too, of some species are gathered for commercial purposes, being dusted over pills to prevent them from sticking together; as a fixative for dyes; and for flashlights in photography, in pyrotechnics and on the stage, the spores containing more than half their bulk in a highly inflammable oil. On the mountain-sides of Cumberland in the English Lake District, I have sometimes shaken the fruiting spikes of *L. clavatum* over a lighted match and seen how instantaneous the combustion was.

These points of curious interest fade into nothingness compared with the importance of the plant to a student of evolution. The systematic botanist may be content with placing the Club Mosses among ferns and fern allies as sporophytes, but they throw a highly illuminative side-light on the doctrine of descent.

The spore-producing plants occupy a position mid-way between the lowest forms of vegetation, which are purely aquatic, and the highest, which are terrestrial. They are all more or less amphibious, their spores requiring water to germinate in. But with *flora* as with *fauna* there are amphibians and amphibians. The Club Moss among plants, like the Duck-billed Platypus among animals, is a living fossil, and the importance of its bearing on the question of origins can hardly be over-estimated. It may be said recently to have come into its own and reaped the reward of its conservatism; for it has been given a prominent place in that splendid floral tribute to Darwin, Prof. Bower's "Origin of a Land Flora"; easily the most notable contribution (in English) ever made by Botany to the Theory of Evolution, and the first philosophic treatise on the subject since the labours of men like Hooker and Gray were supplemented by their greater contemporary's "Origin of Species".

The Club Moss has been a hide-bound conservative ever since the Coal Age, pursuing the even tenor of its way uninfluenced by change and progress towards higher forms as evinced by the more adaptive members of the vegetable kingdom. *Æon* after *æon* its policy has been the same; its stock argument, that what was good enough for its primitive ancestors is good enough for it. Clad in the same simple armour and wielding the same weapons as when first it left its aquatic home and started on the war-path in its daring conquest of earth, this pigmy of the forest still subsists; and strange sights it must have seen in its time.

It saw the first forests ever formed, those dense jungles of rank vegetation, tree-ferns and giant horse-tails—*quorum pars magna fuit*, indeed, for Club Mosses abounded then. It saw the ancient whorled or radial outgrowth—such as is preserved in the Horse-tails, in the branching of certain Conifers, the foliation of the Juniper, or the parts of a flower—superseded by a more and more complex system of spiral symmetry as in the phyllotaxy of our modern forest trees; it saw its cousins the ferns evolve larger and larger leaf-areas, and it saw the idea adopted and adapted all down the line, each new type bettering the instruction till they reached the umbrageous foliage of more recent vegetation as it dominates to-day. It watched plants pass from the primitive strobiloid form of terminal fruiting spike, such as survives in the *Lycopodiums* and *Equisetums*, with their analogies in *Ophioglossum* or the cones of pines and spruces. It was present at the inception of seed formation whereby the earliest Gymnosperms (Cycads) first broke away from the aquatic nursery to which the Lycopod still clings; and it witnessed the miracle of the floral envelope replacing the wasteful vagaries of the wind by the ordered efforts of myriad insect myrmidons, a marshalled

host of winged allies. With what astonishment it must have seen its neighbours, the Lady's Slipper, the Wood Lily and the upland Harebell, blossom forth in all their glory to repel the wanton advances of the spendthrift breeze, turning a deaf ear to all its airy whisperings and yielding to the embrace of the frugal honey-gathering bee.

More than all, from amphibian through reptile to bird and beast, it has watched unfold the whole drama of animal life on earth, through scenes grotesque and monstrous, to culminate in the grandeur of man; and in all probability it will see that drama draw at long last to its tragic close.

It has been outdistanced in the race and nearly all its compeers and contemporaries have passed to their grave. Yet still on that grave it grows green and lives undaunted beneath the shadow of alien giants no longer sporophyte, claiming elbow room among flowering herbs and other such new-fangled forms of life.

Of all the members of this conservative family probably the archetype of our land plants is *Lycopodium selago*, or its woodland next of kin *L. lucidulum*. The plants are very similar, and an examination of either will serve to show the underlying *idea** (to use a Platonic term) that informed their prototype. It is that of a simple vegetative shoot of unlimited apical growth, with a radial output of small leaves, each leaf subtending a sporangium or spore-case. The lines of development shown in the genus as now extant are all subservient to the two great functions of nutrition and reproduction, they consist in the formation of (a) branches, (b) roots, (c) cones (i.e., terminal fruiting spikes or strobiles). In the simplest forms the branching is dichotomous, that is, by the forking of the apex into two growing tips; the process being repeated again and again so that the plant in time has many leafy shoots on which to produce its spore-cases; the development of branches in *L. selago* usually stops here, the species growing for the most part on rocks and exposed mountain sides. But in *L. lucidulum* a further step has been possible owing to its growing in damp shady situations; when the erect stem has branched and re-branched several times, it becomes top-heavy and sinking under the weight of the superstructure totters and falls into a recumbent position on the forest floor; here a pall of dead leaves and decay settles down upon it and in the darkness the shining green leaves that fringe it densely from end to end forsake their office, grow yellow and die. The mother stem is buried; but she is not dead, and she thrusts down rootlets on the under side into the rich vegetable

*Vide Bower's *Lana Flora*, pp. 288-365.

mould, thus nailing herself down inch by inch to the ground and enabling the vigorous shoots at her head to get a good foot-hold and stand erect some inches away from where in her day she stood and flourished.

The first step made, then, in locomotion by the individual plant is by branching dichotomously, and the second is by rooting laterally as in the overweighted stems of *L. lucidulum*. This second mode of land-grabbing is an important advance on *L. selago* and leads to the formation by a single plant of extensive colonies, say a yard in diameter. At first the plant, rooted at the base, grows erect for a term of years; then it begins converting the lowest length of its stem from an upright leaf-bearer to a prostrate root-bearer. The next step in the division of labour is to make these successive acts of the vegetative and the locomotor simultaneous.

The beginnings of this advance are seen in *L. inundatum*; the stem is weak and prostrate and creeps along from 2 to 4 inches a year by thrusting rootlets into the sand (or peat) at its growing tip; in fact, it walks along by loops like a geometrid caterpillar or the Walking-leaf Fern; soon after the part beyond the root-anchor has found its sea legs, so to say, the brittle stem severs connection; the growing tip is cut adrift and left to steer a course for itself. It is not often that you find a plant more than 5 inches long and it may have 2 or 3 sets of roots on its creeping stem; the stem, meantime, carries on the vegetative function and is closely fringed with small leaves all along and all round—though those on the under side curve upwards for light and air. The stems also branch laterally 3 or 4 times in their few inches of length; some of these branches are weak and prostrate, rooting at their tip, but one at least (usually the first) is strong and erect, surmounted by a terminal fruiting spike.

The other species which stand higher up in the scale of evolution have stems that are regular runners and extend for yards, sending out at intervals more or less complex systems of lateral branches for vegetative and reproductive purposes. In one species (*L. obscurum* or *dendroideum*) the running stem is subterranean and destitute of leaves; in the other three (*L. annotinum*, *L. clavatum* and *L. complanatum*) they are surface-runners and more or less leafy.

Throughout this course of upward progress the Club Moss may be regarded as attempting by various means to make its way over the ground. From this point of view, the production of a horizontal runner is the most important step in the whole line of advance, since it enables the plant to throw out branches and fertile shoots laterally at various points without interfering with its continuous forging ahead. On this principle of classification

we have two kinds of Club Moss, viz., those without running stems and those with running stems.

The first class comprises *L. selago* and *L. lucidulum*, the two species we have seen reasons for considering primitive; and as though to compensate for the defects of their upright terminal growth, they have both devised the expedient of *detachable branches*. Near the apex of the annual growth, just above the region of fertile sporangia, 2 or 3 deciduous gemmæ or viviparous buds are formed. These detach themselves from the growing axis or are blown away by the wind and form new plants by striking root on contact with the ground. It is a purely vegetative form of reproduction and dispenses with the intermediate stage of the prothallus. It has its analogy in the bulbils of *Cystopteris bulbijera*. In many plants it is the roots that thus reproduce, e.g., the tubers of the potato; and in one species of Club Moss, *L. cernuum*, a more or less tropical kind, are found similar subterranean nuclei for plant-multiplication.

These gemmæ represent the plant's supreme effort at land-grabbing; their attempt to jump a claim. This is borne out by a curious fact I have noticed in *L. lucidulum*: the deciduous buds are centrifugal in nature; they nearly always are thrust forth on the side remote from the older and prostrate stem; if they do not always face in the direction towards which the plant has been struggling forward, they never look straight back towards the centre from which the plant started. In structure they seem to be modified leaves, for they take their regular place in the whorl of leaves, each being in its whorl a substitute for the normal leaf. Usually even when as many as three gemmæ are produced, they are all in the same whorl, or at most in two successive leaf-whorls.

So far we have seen how the Club Moss by adopting a more and more complex system of branching and rooting has progressed as a plant; we have yet to note the steps of advance it has made as a sporophyte. These steps are still on the principle of division of labour and consist in the separation of the vegetative from the reproductive tract. I said a little way back that all the various kinds of differentiation subserved the two functions of nutrition and reproduction. Of course the life-ambition of the plant is to perpetuate its kind; but to be fertile it must first be vigorous, and if you look at a young Club Moss you will see that its first care is the output of a vegetative system, a leafy shoot that will support the later output of sporangia.

In the archetype postulated by Prof. Bower, each of the leaves all round and all up the simple shoot performs a vegetative function and supports a sporangium at its base. The first change is by the lower leaves becoming abortive and no longer bearing

spore-cases in their axils, but simply serving as a nutritive basis for the sporophyte tract above them. This is the point where development has ceased in *L. selago* and *L. lucidulum*; the lowest leaves of the shoot are purely vegetative, the upper are both vegetative and sporangia-bearing, and next season the growth of the main axis goes on uninterruptedly above this year's apex into another similar tract, vegetative below and fertile above. This is the first step in the formation of a cone; two points are to be noticed: the sporophylls are unmodified, performing a purely vegetative function; and the main axis grows on above the fertile area. The second step was made when the Club Moss put out lateral branches as well as lateral roots, *i.e.*, when the runner was developed. This is seen in *L. inundatum*, where the sporangia are limited to a compact terminal spike, the sporophylls are still vegetative and hardly modified, but being appressed and directed upwards they serve to clamp down the sporangia to the main axis and partly protect them; two points are to be noticed: there is no growth possible above the fruiting spike; and the leaves of the spike are still vegetative.

The third step was made when a more or less compound system of lateral branches was introduced, and it consists in a further separation of fertile from vegetative tracts by the leaves of the terminal spike ceasing to be assimilative and becoming scales closely imbricated to protect the sporangia within their folds. In *L. annotinum* and *L. obscurum* these terminal cones or strobiles are sessile immediately on the apex of the leafy vegetative tract; in both the cones are single, in the former on primary branches as well as secondary, in the latter on branchlets only.

The last step, seen in *L. clavatum* and *L. complanatum*, is further to separate the reproductive from the vegetative, by raising the scaly cone on a naked or nearly naked peduncle; in *L. clavatum* this is usually compound, branching near the top into short pedicels, each surmounted by a cone; the branching of the peduncle is usually somewhat one-sided or alternate, and the stronger pedicel is frequently re-divided, so that 3 cones at different distances appear on the peduncle; in *L. complanatum* it is always compound and more symmetrical, by terminal dichotomy of the peduncle, so that a level-topped cluster of cones is the result, often 4 in number by dichotomy of the pedicels.

That this story of the development of the Club Moss from the simple to the complex is not a mere figment of the imagination is shown by various species "throwing back"; instances of this sort of atavism or reversion are not infrequent: evidence of the terminal strobile having evolved from an earlier form of

shoot fertile throughout is found in the occasional appearance of sterile sporangia at the base of the fertile branch in *L. inundatum*, i. e., in the vegetative tract below the cone; the identity of the scaly cone with the leafy branch is seen in the occasional prolongation of the cone of *L. obscurum* into a vegetative tract above; and sometimes in *L. clavatum* the peduncle with its aborted foliage fails to produce a cone at its apex, showing the bare branch to be a modified leafy shoot.

It is noteworthy that in every member of the family the shoot or branch or branchlet destined to bear sporangia rises sturdy and erect from the ground. Presumably this is to help distribute the spores, the wind having thus a chance to get under them and bear them away on its back. Fern-lovers will readily find analogies in the upright fertile fronds of *Cryptogramma*, *Asplenium angustifolium*, *Aspidium cristatum*, *Onoclea*, *Osmunda*, *Botrychium* or *Ophioglossum*.

NOTES FROM PEMBROKE, ONT.

BY ERNEST THOMPSON SETON.

On November 7th, I called on Dr. G. H. Belaire, V.S., of Pembroke. In his collection I found some interesting local birds and mammals and made the following notes on certain of them.

BLACK SQUIRRELL (*Sciurus carolinensis*).—This specimen, a pure black, was killed one mile west of Pembroke, in November, 1909. It is exceedingly rare here, but others have been seen and two were taken about 1904.

CORMORANT (*Phalacrocorax diplophus*).—This, an immature specimen of the double-crested species, was killed at Mud Lake, 7 miles south-east of Pembroke, about 1907, by an Indian named Pappin. This is the only one ever seen.

WOODCOCK (*Philohela minor*).—This, a very small specimen, was found dead in the town of Pembroke in the summer of 1903. It had killed itself by striking a wire. This is the only one ever seen.

PERSONAL.

Mr. Andrew Halkett, President of the Ottawa Field-Naturalists' Club, and Naturalist to the Department of Marine and Fisheries, left Ottawa on December 8th for Europe. Unfortunately he will be absent from our winter meetings, but we hope to see him back again before the date of the annual meeting. Mr. Halkett's trip is mainly for the purpose of visiting Natural History Museums, Zoological Gardens, Aquaria, etc. He has arranged to spend most of his time in Germany.

THE BIRDS OF OTTAWA.

BY C. W. G. EIFRIG.

(Continued from page 163).

ORDER PALUDICOLÆ—CRANES, RAILS, ETC.

RALLIDÆ—RAILS.

57. *Ralluse elegans*, King Rail. Rare accidental visitor. Mr. G. R. White identified one that had been shot at Billing's Bridge, May 7th, 1896.

58. *Rallus virginianus*, Virginia Rail. A moderately common summer resident. Breeds in large and small cat-tail marshes, like the small ones at Blueberry Point, near Aylmer. On July 13th, 1909, Mr. C. N. Robertson and the writer found the marsh along Cranberry Creek near Osgoode full of the little young ones, which are pitch black. They arrive during the first half of May, just when is hard to say, as they are retiring and secretive. They leave about September 10th.

59. *Porzana carolina*, Sora. Of the same status and habits as the preceding species, perhaps a little more numerous. On May 8th, 1906, one was found dead in New Edinburgh, having probably flown against a wire over night, and on October 29th, 1906, Mr. C. H. Young saw one along the Rideau.

60. *Coturnicops noveboracensis*, Yellow Rail. Being small, in addition to its skulking habits, and in more or less impassable haunts, it may eventually be found commoner than the now available dates warrant. There are only two, October 22nd, 1895, and October 20th, 1909, both records made by Mr. G. R. White. Accordingly, we have to put it down now as a very rare accidental visitor or breeder.

61. *Gallinula galeata*, Florida Gallinule. It is interesting to record this bird in our list, as it probably finds its northern limit of distribution for this part of Canada in the Ottawa district, where it is a rather common breeder in the marshes along the Rideau River at Osgoode and Kars. A nest with seven eggs, partly incubated, was taken there by Messrs. W. E. and F. A. Saunders, July 9th, 1890. Mr. G. R. White shot one still farther north, namely at Hurdman's Bridge, Ottawa.

62. *Fulica americana*, Coot. A moderately common summer resident in its chosen haunts, the marshes along the Ottawa. There, Mr. E. Bedard shot one May 11th, 1909, and Mr. E. White saw one as late as October 19th, 1905, at Lochaber Bay, and in the same marshes Mr. G. R. White found three nests.

ORDER LIMICOLÆ—SHORE BIRDS.

PHALAROPODIDÆ—PHALAROPES.

63. *Phalaropus fulicarius*, Red Phalarope. A rare accidental visitor. Two only have been taken here, one October 21st, 1886, by Mr. E. White; the other September 1st, 1888, by Mr. G. R. White.

64. *Lobipes lobatus*, Northern Phalarope. Rarer than the preceding species. A specimen was shot September 10th, 1890, at Burritt's Rapids, and identified by Mr. A. G. Kingston.

SCOLOPACIDÆ—SNIPES, SANDPIPERS, ETC.

65. *Philohela minor*, Woodcock. A moderately common summer resident. Extreme dates are: May 8th, 1908, and October 31st, 1908, when Mr. Bedard, Jr., saw a flock of eleven on Kettle Island, out of which he took several. This is considerably after the soft spongy ground in the woods, out of which they extract their staple article of food, earthworms, is frozen over several times.

66. *Gallinago delicata*, Wilson's Snipe, Jack-snipe. An abundant migrant and moderately common breeder. Extreme dates: April 14th (1904), and November 5th (1906), at which latter date Mr. N. Lachance shot one at Shirley's Bay, which he gave to the writer.

67. *Macrorhamphus griseus*, Dowitcher. A rare accidental visitor. A pair were shot May 22nd, 1890, by Mr. E. White.

68. *Tringa canutus*, Knot. Rare, accidental visitor. A male in full breeding plumage was shot by Mr. E. White on June 4th, 1890.

69. *Arquatella maritima*, Purple Sandpiper. Rare, accidental visitor. One was shot on the Rideau, October 29th, 1885, by Mr. W. Forbes.

70. *Pisobia maculata*, Pectoral Sandpiper. A common migrant in spring and fall. Extreme dates, April 14th, 1909, when several were taken by Mr. E. Bedard, and October 28th, 1907, when Mr. N. Lachance shot one on Shirley's Bay.

71. *Pisobia juscicollis*, White-rumped Sandpiper. A rare migrant. One was shot in 1883, and two on the 8th, one on the 18th, and two on the 27th of October, 1884, three by Mr. E. White and two by Mr. S. Herring.

72. *Pisobia bairdii*, Baird's Sandpiper. A very rare accidental visitor, the only record being one taken by Mr. G. White, September 11th, 1894.

73. *Pisobia minutilla*, Least Sandpiper. A moderately common migrant. I took one in Hull, September 6th, 1905.

74. *Pelidna alpina sakhalina*, Red-backed Sandpiper. A rare migrant. On October 28th, 1908, Mr. E. Bedard shot three immature ones.

75. *Ercunetes pusillus*, Semipalmated Sandpiper. A moderately common fall visitor. As early as August they are seen in company with the Sanderling and Semipalmated Plover, nimbly scurrying over the sand at the water's edge along the beaches of Kettle Island and similar localities. On August 24th, 1906, Mr. G. R. White saw some at Kettle Island, and on August 12th (1904), specimens were seen by the writer.

76. *Calidris leucophæa*, Sanderling. A moderately common migrant. On October 1st, 1908, Mr. E. Bedard shot two. Its habits are like those of the preceding species.

77. *Limosa jedoa*, Marbled Godwit. A rare accidental visitor. The only record is that made by Mr. G. R. White, who took one of these birds on June 4th, 1902.

78. *Limosa hæmastica*, Hudsonian Godwit. Like the preceding. The only record is October 20th, 1900 (G. R. White).

79. *Totanus melanoleucus*, Greater Yellow-legs. A common migrant. Extreme dates, April 27th (1897), and October 29th (1908).

80. *Totanus flavipes*, Yellow-legs. A moderately common migrant; it arrives and departs at about the same time as *melanoleucus*.

81. *Helodromas solitarius*, Solitary Sandpiper. A common migrant and rare breeder. Mr. E. White has found young, recently out of the nest, along the Ottawa. Extreme dates, May 11th and October 10th.

82. *Tryngites subruficollis*, Buff-breasted Sandpiper. Rare accidental visitor. One was shot near Templeton by Mr. E. White on August 24th, 1886.

83. *Actitis macularius*, Spotted Sandpiper. An abundant summer resident. Seems to be increasing in numbers. Extreme dates are April 24th (1893) and October 30th (1908). The bulk arrives during the first half of May. In the first week of June, their nests, with usually four eggs, may be found, often in gardens or fields far away from water.

CHARADRIIDÆ—PLOVERS.

84. *Squatarola squatarola*, Black-bellied Plover. A moderately common fall migrant, apparently becoming rarer. On October 19th, 1905, Mr. E. White shot one at Lochaber Bay.

85. *Charadrius dominicus*, Golden Plover. Status same as last species. Quite a few are offered for sale in the market each fall, nearly all birds of the year. Dates: September 3rd (1906) to November 4th (1908).

86. *Oxyechus vociferus*, Killdeer. A common migrant and moderately common breeder. In the meadows near Holland Avenue and in those between the city and Blackburn on the

Canadian Pacific Railway, several pairs may usually be seen all summer. It is one of the first arrivals in spring, which announces its presence in no uncertain way, by its shrill call, *killdee, killdee*. Dates: March 27th (1907) to October 15th (1909).

87. *Ægialitis semipalmata*, Semipalmated Plover. This diminutive plover is found in the groups of other small shore-birds on the same beaches along our rivers and lakes, from August to September, the 29th of the latter month being the latest date at hand. It thus may be classed as a moderately common fall migrant.

APHRIZIDÆ—TURNSTONES.

88. *Arenaria interpres*, Turnstone. In the list of 1891 this is called a rare migrant. I have not met with it.

ORDER GALLINÆ—GALLINACEOUS BIRDS.

TETRAONIDÆ—GROUSE, PARTRIDGES, ETC.

89. *Canachites canadensis canace*, Canada Grouse, Spruce Partridge. Formerly a common if not abundant permanent resident, but now a rare one. The Mer Bleue, a large bog a few miles east of the city, was formerly a favorite haunt. It probably is still found in some of the densest and most impassable spruce thickets in the district. In the winter of 1908-1909 Mr. E. Bedard saw one in a thicket at the river's edge on the Rifle Range, and Mr. C. H. Young once told me of several he had seen in a woods near Billings' Bridge.

90. *Bonasa umbellus togata*, Canadian Ruffed Grouse. A common permanent resident. Frequently still found in the small pieces of woodland near the city limits. It should be protected more, otherwise its days will soon be numbered.

[*Lagopus lagopus*, Willow Ptarmigan. It is very doubtful whether this northern species should have a place in our list. The reference to it in the 1891 list: "One shot on the Gatineau in the winter of 1885-6," refers to the shooting of several at Gracefield, which is far beyond the accepted limits of our district. However, having come down so far, they may be expected to turn up any winter within our territory.]

ORDER COLUMBÆ—PIGEONS.

91. *Ectopistes migratorius*, Passenger Pigeon. Formerly a common summer resident, but now evidently extinct here. The last positive dates of its occurrence in the district are the following: on June 6th, 1884, an adult male was shot in Cumming's woods; on May 10th and on August 25th, a male was seen in Col. W. White's garden, and on June 25th of the same year a female and one young were shot near McKay's Lake;

on April 15th twelve, and on May 24th, 1886, one was seen at the same lake; and, finally, in 1887, one was seen on August 23rd in the above-mentioned garden, and on September 3rd one on Kettle Island (Messrs. G. R. and E. G. White).

92. *Zenaidura macroura carolinensis*, Mourning Dove. This desirable, more southerly species can now be added to our list. Specimens were seen near Shirley's Bay on August 20th, 1903. Several were also seen in the summer of 1908. On August 9th, 1910, a young one in the first plumage was shot near Dow's Swamp, thus clearly establishing its breeding here.

ORDER RAPTORES—BIRDS OF PREY.

BUTEONIDÆ—FALCONS, HAWKS, EAGLES, ETC.

93. *Circus hudsonius*, Marsh Hawk. A common summer resident. Can be seen harrying back and forth over extensive meadows having here and there a marshy place. The bulk of the species arrive in early April and depart in October, but extreme dates are, March 25th (1907), and November 7th (1905), when Mr. N. Lachance shot one on Shirley's Bay.

94. *Accipiter velox*, Sharp-shinned Hawk. This little terror to small birds is a common summer resident and less common permanent resident, *i.e.*, a few remain here over winter and then work havoc among the English Sparrows in the city. Favorite nesting sites are the small black spruce trees in the Mer Bleue, where on June 30th, 1909, we found a nest with four nearly fresh eggs. On July 11th, 1904, I found several families of young in the spruce stand near Blackburn Station.

95. *Accipiter cooperi*, Cooper's Hawk. A rare summer resident, and fortunately so, because it is a very destructive species. It arrives in April (17th, 1904), and is still seen in September.

96. *Astur atricapillus*, Goshawk; Blue Hen-hawk. The three accipitrine hawks are the only really harmful ones to farmers and poultrymen. The Goshawk is the largest and fiercest of them, but again, fortunately, it is only a winter resident with us, though a few undoubtedly breed in the big woods in the northern part of the district. A great part of their number migrate, following the ducks, etc., south in October, and return with them in April. In these two months, therefore, they are mostly seen here. Dates at hand range from October 18th (1906) to May 13th (1908). For an account of a migration of this species see OTTAWA NATURALIST, vol. XX., p. 217; and of their ferocity, vol. XXI., p. 96.

97. *Buteo borealis*, Red-tailed Hawk. This large, slowly sailing buzzard is a moderately common summer resident. A pair of either this or the next species may be seen sailing over

most of the larger woods in the district. Dates range from April 11th (1908) to November 1st (1908).

98. *Buteo lineatus*, Red-shouldered Hawk. Of about the same degree of frequency as the Red-tailed. Dates: from March 28th (1909) to November 6th (1907).

99. *Buteo platypterus*, Broad-winged Hawk. A moderately common summer resident. This useful hawk is smaller than the two last named and rather unsuspecting. On June 1st, 1907, while on an excursion of the Club to Chelsea, a section of the party found a dead one in the woods there. On May 8th, 1909, one was taken at the Rifle Range, and on October 16th, 1908, a bird of the year. This is the latest date for the year on record, the first being April 23rd (1908).

100. *Archibuteo lagopus sancti-johannis*, Rough-legged Hawk. This large, useful buzzard is a rare migrant. Dates are: March 16th, 1898, and November 1st, 1908. Probably commoner in migration than supposed.

101. *Aquila chrysaetos*, Golden Eagle. This majestic bird is a rare accidental visitor. It breeds sparingly in the Laurentian Hills north of us, and may do so near the northern limits of our district. A young one, but fully grown, was caught in a trap at High Falls, Quebec, on November 22nd, 1904, and given to the writer. The local taxidermist now and then gets a specimen, shot not far up the Gatineau, and Mr. E. Bedard reports one flying about, over the Rifle Range, for several days in January, 1910.

102. *Haliaeetus leucocephalus*, Bald Eagle. A rare accidental visitor and possibly a rare breeder. There was a nest formerly at Lake Wilson, near Wakefield. One was shot October 28th, 1892.

FALCONIDÆ—FALCONS, ETC.

103. *Falco rusticolus gyrfalco*, Gyrfalcon. Rare accidental visitor. One was shot by Mr. E. White on the bank of the Rideau below Cumming's Bridge, on December 23rd, 1890.

104. *Falco peregrinus anatum*, Duck Hawk. A rare migrant. One was seen April 28th, 1889, by Mr. G. R. White; another at King's Mountain, July 11th, 1890, by Messrs. W. E. and F. A. Saunders. The latter also shot but not secured, another on September 22nd, 1890.

105. *Falco columbarius*, Pigeon Hawk. A rare migrant. On April 9th, 1905, Mr. E. White saw one and on October 5th, 1904, secured another. On May 5th and 11th, 1905, one was seen about Col. White's garden, being attracted there by the presence of some pigeons.

106. *Falco sparverius*, Sparrow Hawk. A moderately com-

mon summer resident. It arrives in April, but usually diminishes in numbers before the fall migration, when it again becomes more numerous. Extreme dates: March 30th (1907) and September 21st (1904). A winter record is January 26th, 1890.

PANDIONIDÆ—OSPREYS.

107. *Pandion haliaetus carolinensis*, Osprey. A moderately common migrant and rare breeder. Its bulky nest may be seen on a few of the lakes in the Gatineau district, where campers may also see it perform its fishing tactics. Dates: April 11th (1908), to September 21st (1904). On May 3rd, 1908, Mr. E. Bedard saw a regular flight of them on the Ottawa, no less than eleven being in sight at one time.

STRIGIDÆ—HORNED OWLS, ETC.

108. *Asio wilsonianus*, Long-eared Owl. A rare resident or migrant. The latest dates of its capture are as follows: November 1st, 1901; October 28th, 1904; October 24th 1905; November 4th, 1905. Two of these are in my collection.

109. *Asio flammeus*, Short-eared Owl. Also of uncertain status. Dates of capture are: November 16th, 1894, on which date Mr. G. R. White shot several in a swampy wood, and again on the 6th of November, 1895; on October 20th, 1904, one was taken by Mr. E. White, and on December 2nd, 1905, one by Mr. E. Bedard.

110. *Strix varia*, Barred Owl. A rare resident, more common in the Gatineau district. For an account of a fight between one of this species and a Goshawk see THE OTTAWA NATURALIST, vol. XXIV., p. 97. A female in my collection was taken on November 24th, 1905.

111. *Scotiaplex nebulosa*, Great Gray Owl. This large northern species is an irregular accidental visitor here, becoming rather common at times. In November, 1905, one was taken by a farmer at South March; on February 1st, 1906, one near East Templeton, now in my collection; on January 10th, 1907, Mr. Henry got two to mount, which had been taken near the city a day or two previously; on March 19th, 1908, Mr. E. Bedard shot one on the Rifle Range.

112. *Cryptoglaux junerea richardsoni*, Richardson's Owl. A rare accidental winter visitor from the far north. Late dates are: December 15th, 1903; November 16th, 1906, and in February, 1907, Mr. E. Bedard shot one, which is now in the writer's collection, on the Rifle Range.

113. *Cryptoglaux acadica*, Saw-whet Owl. This diminutive species is a moderately common resident. It lives in thickets composed of spruce, cedar and alder, also in cemeteries and

similar places. On April 11th, 1901, a female was found dead in a yard in New Edinburgh, having a fully developed egg in the ovary. Other dates: October 16th, 1906; January 20th, 1907.

114. *Otus asio*, Screech Owl. This useful little owl has of late years put in an appearance here, and is now a moderately common resident, apparently becoming more numerous. Both the gray and brown forms are seen, the former predominating. On December 8th, 1908, a brown one flew into the kitchen of Dr. Saunders' residence on the Experimental Farm. They are more in evidence in winter than in summer, as they then seem to move into the city to live on the English Sparrow.

115. *Bubo virginianus*, Great Horned Owl. A moderately common resident of the large woods of the district. At High Falls I once saw two in one tree. For an account of one from Inlet, Quebec, which must have had an encounter with a porcupine, see the Auk, vol. XXVI., p. 58.

116. *Nyctea nyctea*, Snowy Owl. This large northern owl is usually a rare accidental winter visitor, but occasionally a big flight comes through, as several years ago, when the local taxidermist received about three hundred. Also, in November, 1906, and December, 1907 and 1908 he got several from the Gatineau valley, one being from Farrelton.

117. *Surnia ulula caparoch*, Hawk Owl. Another rare accidental winter visitor from the far north. Dates are: October 9th, 1906, one shot in Beechwood; November, 1906, one taken in Graham's bush, Ottawa East; January 20th, 1907; April 5th, and May 8th, 1908, on which dates Mr. E. Bedard shot several at the Rifle Range. Perhaps they are commoner and stay longer than usually supposed.

ORDER COCCYGES—CUCKOOS.

CUCULIDÆ—CUCKOOS, ANIS, ETC.

118. *Coccyzus americanus*, Yellow-billed Cuckoo. A rare summer resident, arriving late in May. It may be found in bushy woods, vine-covered trees, etc., as at Blueberry Point and along the Base-line road, east of the Catholic cemetery on the Montreal road.

119. *Coccyzus erythrophthalmus*, Black-billed Cuckoo. A moderately common summer resident, locally even common; in 1909 it was more numerous than ever before. It is found in similar localities as the Yellow-billed, also in orchards. On September 7th, 1908, a dead one was found in Beechwood; most of these birds are gone, however, long before that time.

ALCEDINIDÆ—KINGFISHERS.

120. *Ceryle alcyon*, Belted Kingfisher. A common summer

resident. Dates extend from the 8th of April to the 23rd of October. One or two pairs usually nest in the gravel pit at Britannia. This bird, being a decided ornament to our rivers, creeks and lakes, should be protected and not made the target of prowling boys and men.

ORDER PICI—WOODPECKERS.

PICIDÆ—WOODPECKERS.

121. *Dryobates villosus leucomelas*, Northern Hairy Woodpecker. A rather rare resident, apparently becoming rarer, although it is difficult to assign a reason for this.

122. *Dryobates pubescens medianus*, Northern Downy Woodpecker. A common resident; on some days during migration in April or May it is even abundant. They are also frequently seen in the streets of the city. Dates of greatest abundance, April 8th and May 8th, 1905, at Beechwood and Britannia.

123. *Picoides arcticus*, Arctic Three-toed Woodpecker. Rare resident, more in evidence in the Laurentian Hills north of us than in other parts of the district. On June 14th, 1905, I observed one at Inlet, Quebec, calling and making much ado. Specimens were taken at Ottawa on October 12th, 1907 (Kettle Island); February 13th, 1908; October 28th, 1908; April 3rd, 1909; the last three at the Rifle Range.

124. *Picoides americanus*, American Three-toed Woodpecker. An even rarer resident than the foregoing. Seen 28th and 29th September and 12th and 13th October, 1890 (F. A. Saunders).

125. *Sphyrapicus varius*, Yellow-bellied Sapsucker. A moderately common summer resident and abundant migrant. The earliest arrivals come April 6th, but they reach their greatest abundance about the 26th of that month. Nests with nearly full grown young, in stumps and trees from three to forty feet up, were found June 24th and July 1st. Some remain till end of September.

126. *Phlæotomus pileatus abieticola*, Pileated Woodpecker. A resident which is rare and becoming rarer in most parts of the district, but moderately common in the northern portion of it. At High Falls, its loud, wild call and its striking form of black and white may often be heard and seen. It has even been seen on Parliament Hill. It is the largest of our woodpeckers.

127. *Melanerpes erythrocephalus*, Red-headed Woodpecker. This formerly common bird must now be called a rare summer resident, as one sees only about two to five in a season. The reason for this, undoubtedly, is the fact that there are fewer dead trees left standing than formerly. It arrives in May and remains till well into September.

128. *Colaptes auratus luteus*, Northern Flicker. This large, handsome woodpecker is a common or even abundant summer resident, apparently increasing in numbers. The earliest date of arrival is March 26th (1907), but the bulk arrive from the 5th to 21st of April. Those which breed locally leave by about September 9th, but migrants from farther north continue to pass through till September 30th. A pair had their nest in a hole in a trolley pole at one of the entrances to the Rifle Range, from which a total of 60 eggs were gradually taken, but nothing daunted, they finally brought out their brood of young.

ORDER MACROCHIRES—GOATSUCKERS, SWIFTS, ETC.
CAPRIMULGIDÆ—GOATSUCKERS.

129. *Antrostomus vociferus*, Whip-poor-will. A moderately common summer resident. It arrives in the first part of May, April 29th, 1908, being an exceptionally early date; the last are usually heard September 16th, but in 1909 one tarried until October 16th (G. R. White).

130. *Chordeiles virginianus*, Nighthawk. An abundant summer resident. It breeds on many of the flat roofs in the city and therefore may be seen any day performing its wonderful aerial evolutions overhead. It is also remarkable for the regularity of its coming and going, it arriving usually May 16th (some years May 11th), and departing about August 23rd, when large numbers are seen over or near the city. For an account of its nesting on a residence in the city see THE OTTAWA NATURALIST, vol. XIX., p. 56.

MICROPODIDÆ—SWIFTS.

131. *Chætura pelagica*, Chimney Swift. An exceedingly abundant summer resident. Flocks of hundreds may be seen nearly every evening in summer whirling over and into the large ventilator shafts and chimneys of the Parliament, and departmental, buildings, and of some of the public schools. The date of their arrival varies with the meteorological conditions of the seasons, the earliest date being April 22nd (1897), and the latest May 10th; they leave at the end of August and beginning of September (10th last date). In 1883 a live Swift was captured during the first week of February in the house of the late Dr. Whiteaves.

TROCHILIDÆ—HUMMINGBIRDS.

132. *Archilochus colubris*, Ruby-throated Hummingbird. A common summer resident. They arrive during the middle of May, the 9th being the earliest date, and leave about the middle of September (9th to 14th). In 1909, however, owing to the unusually mild autumn one was seen as late as October 16th (G. R. White).

ORDER PASSERES—PERCHING BIRDS.

TYRANNIDÆ—FLYCATCHERS.

133. *Tyrannus tyrannus*, Kingbird. A common summer resident. It arrives early in May (4th to 16th), and the last of the breeding birds leave about August 28th (Mrs. Brown).

134. *Myiarchus crinitus*, Crested Flycatcher. A moderately common summer resident. Its coming and going coincides with that of the Kingbird. But, while the latter is a bird of the open field and meadow, perching on fences and wires, this is distinctly a woodland bird. At Blueberry Point, Chelsea, etc., one or two pairs may usually be met with. At the former place a nest with four eggs, in a Flicker's hole, was found June 12th, 1909.

135. *Sayornis phæbe*, Phœbe. A common summer resident. For an insectivorous bird it comes very early, too early for its own welfare, one would think. The first date is March 28th. A nest with four eggs was found May 14th. The latest date is October 9th.

136. *Nuttalornis borealis*, Olive-sided Flycatcher. This interesting northern flycatcher is a rare summer resident over most of the district, although rather common in its chosen haunts, e.g., the western end of Meach Lake. In places like this, swampy borders of lakes and streams, fringed or overgrown with spruces, it breeds, and there its call: *hood take care*, may be heard all day long. The swampy widening of the canal at the Experimental Farm also harbored a pair in 1909. During their migration, from May 17th, they may be seen in the spruces along the water-front, Hull, and around Cache Bay. They leave unostentatiously in August.

137. *Myiochanes virens*, Wood Pewee. A common summer resident. Like most of the flycatchers it arrives late, during the second half of May, the 12th being a very early date. It breeds where there are large trees in open woods or in city streets, where their monotonous *pee-a-wee* may be heard at all hours of the day and sometimes of the night. The local birds have gone by the 1st of September, the 22nd being the latest date for any migrants.

138. *Empidonax flaviventris*, Yellow-bellied Flycatcher. A rare summer resident, breeding sparingly in the Mer Bleue and the silent moist evergreen woods in the northern part of the district. Dates: May 10th to August 15th.

139. *Empidonax traillii alnorum*, Alder Flycatcher. A common summer resident. The name well indicates its habitat. It is common in the alder fringe around the Mer Bleue, in the Beaver Meadow and similar places. Dates: May 19th, August 15th.

140. *Empidonax minimus*, Least Flycatcher, Chebec. A

common summer resident. One never needs to be in doubt whether it has arrived in the spring or not, for its call, *chebec*, hurled out in a somewhat scratchy voice, heralds its presence plainly enough. This is in the latter half of May (11th to 17th), and may be heard in any of our city streets lined with large trees. It leaves in July and early August (10th), the remarkable fall of 1909 again being an exception, when one was seen as late as September 14th.

ALAUDIDÆ—LARKS.

141. *Otocoris alpestris*, Horned Lark. A rare migrant, although when it comes at all it will, locally and temporarily, be abundant. The writer has never met with this bird here, despite careful looking for it. In 1890 a flock remained from April 19th to May 25th, and again from September 26th to October 28th.

141. *Otocoris alpestris praticola*, Prairie Horned Lark. A common spring and summer resident and abundant migrant. This is our earliest arrival from the south, as early as February 10th. The bulk of the species come in the first part of March, but by the end of that month these flocks have again moved on or have scattered into breeding pairs. Nests with eggs may be found in old meadows, etc., as early as March 28th, and fully fledged young in May. It is thus the earliest breeder of our common perching birds. In summer they make themselves less apparent. The latest dates for fall migrants are: November 22nd, 1908; January 12th, 1909, when one was seen.

CORVIDÆ—CROWS, JAYS, ETC.

143. *Cyanocitta cristata*, Blue Jay. A moderately common resident, although most of them move southward for the winter. Their number, for a certain locality, changes from season to season. Mrs. R. D. Brown noticed them fifteen times in January, 1908, but only four times from November 1st, 1908 to March 21st, 1909. In April it is locally abundant.

144. *Perisoreus canadensis*, Canada Jay; Meat Bird. This inhabitant of the northern woods makes the Ottawa River the southern boundary of its range, rarely, even in winter, going far south of it. It is a moderately common resident in the northern parts of the district. At the farm houses along the Gatineau and Lievre it is a daily visitor in winter, especially at butchering time. It nests even earlier than the Prairie Horned Lark, namely in February and March, when the thermometer is often far below zero. For an account of its fearlessness or rather greediness for food, see THE OTTAWA NATURALIST, vol. XXII., p. 65.

(To be continued.)

THE OTTAWA FIELD-NATURALISTS' CLUB.

LECTURE PROGRAMME

1910

December 6th—In the Normal School.

"Some Recent Developments in Canadian Fisheries."
(with lantern slide illustrations)

By Prof. E. E. Prince, Dominion Commissioner of Fisheries.

1911

January 10th—In the Normal School.

"Conservation, or the Protection of Nature."
(with lantern slide illustrations)

By Dr. C. Gordon Hewitt, Dominion Entomologist.

January 24th—In the Hall of the Carnegie Library.

"Local Geology—The Rocks and Their Fossils."
By Dr. Percy E. Raymond, of the Geological Survey.

February 7th—In the Normal School.

"The Natural History of a Hen's Egg."
(with lantern slide illustrations)

By Prof. F. C. Elford, of Macdonald College, Que.

February 21st—In the Normal School.

"Edible, Poisonous and other Fungi."
(with lantern slide illustrations)

By Mr. H. T. Gussow, Dominion Botanist.

March 7th—In the Normal School.

"Bird Study, from a Beginner's Standpoint."
(with lantern slide illustrations)

By Mr. W. E. Saunders, of London, Ont.

March 21st—In the Hall of the Carnegie Library.

ANNUAL MEETING.

President's Address—Mr. Andrew Halkett. Election of Officers, etc.

All Lectures are free and open to the Public. Each meeting will begin at 8 o'clock sharp.

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

Ex celator Market

By Ward Market
 Wholesale Market
 Primrose Market

5 SHOPS

Importer and Manufacturer of
 FINE TALE 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. 2 and List of Entomological Publications for sale just out. Write for 1. 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.
 108 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 CREAM

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

NOV 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:

- Archæology:** 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.