

JUNE-JULY, 1913

VOL. XXVII, Nos. 3 and 4

THE OTTAWA NATURALIST

Published by The Ottawa Field-Naturalists' Club.

Editor:

ARTHUR GIBSON,
CENTRAL EXPERIMENTAL FARM,
OTTAWA.

Associate Editors:

HARLAN I. SMITH,
Anthropology.

M. O. MALTE, PH. D.
Botany.

PROF. JOHN MACOUN, M. A.
Conchology

W. H. HARRINGTON,
Entomology.

H. M. AMI, D.Sc.
Geology.

OTTO KLOTZ, LL.D.
Meteorology.

P. A. TAVERNER,
Ornithology.

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

C. GORDON HEWITT, D.Sc.,
Zoology.

CONTENTS:

Revision of the Silurian of South-western Ontario..	By M. G. Williams	37
The Shade Trees of Ottawa.	- - - - -	38
Useful Wild Plants of Canada.	By J. W. Eastham,	40
Early Winter Bird Notes: 1912-1913.	By L. McI. Terrill.	43
Meetings of Botanical Branch.	- - - - -	46
Poisonous Plants of Canada.	- - - - -	46
Excursions	- - - - -	56
Bird Notes	- - - - -	56

THE ROLLA L. CRAIN CO., LIMITED

ISSUED JULY 12, 1913.

Entered at Ottawa Post Office as second class matter

Crown Lithographing Co. Ltd.

LITHOGRAPHING, PRINTING
AND EMBOSSING

Wedding Invitations and Society Stationery a Specialty

180-188 Wellington St., Ottawa



**BIRKS' AUTOMATIC
EYE-GLASS HOLDER**
(GUARANTEED)

In Gunmetal Finish, 50 Cents.
In Gold Finish, \$1.25

HENRY BIRKS & SONS, LTD.
99-101 SPARKS ST., OTTAWA

THE OTTAWA PHOTO ENGRAVING CO.

Makers of Fine Cuts in Half Tone and Relief Line.
Colour Work and Embossing Plates for all purposes.
Prices right. Service the best.

180-190 Wellington St.

Phone Queen 6217

L. C. SMITH & BROS. TYPEWRITER

BUILT LIKE A WATCH
MOST POPULAR TYPEWRITER TO-DAY
OTTAWA TYPEWRITER CO. Limited

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

AGENCIES THROUGHOUT CANADA

THE TOPLEY COMPANY

PHOTOGRAPHIC MATERIAL
SCIENTIFIC APPARATUS

132 SPARKS ST., OTTAWA

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.

The Rolla L. Crain Co., Limited

Printers, Bookbinders and Loose Leaf Manufacturers

145 Spruce St., Ottawa

THE MORTIMER CO. LIMITED

OTTAWA - MONTREAL - TORONTO

Designers, Illustrators, Photo Engravers, Printers, Lithographers
Bookbinders, Makers of Fine Catalogues, Manufacturers
and Devisers of Loose Leaf Systems

Business
Man's
Lunch
Full Course
Special 50c.

MURPHY-GAMBLE LIMITED

Phone Queen 6-2-0-1

Smoking
Room
Annexed
To Tea
Room

Modern Tea Room Distinguished

for the Variety and Quality of
its Menues and its Dainty Service

Murphy-Gamble Limited

Pure Spring
Water used
in
Tea Room
Kitchen

Pure Spring
Water
served on
Tea Room
Tables.

THE OTTAWA NATURALIST

VOL. XXVII

JUNE-JULY, 1913

Nos. 3-4

REVISION OF THE SILURIAN OF SOUTH-WESTERN ONTARIO.

By M. G. WILLIAMS.*

At the 1912 meeting of the Paleontological Society of America, Professor Charles Schuchert read a paper entitled "The Cataract, a New Formation at the Base of the Silurian in Ontario and New York." During the summer of 1912 the writer was engaged by the Geological Survey of Canada in revising the Silurian of Manitoulin Island and Georgian Bay, and was with Professor Schuchert during his field observations in these regions. A preliminary statement of the results of the work will appear in the Summary Report of the Geological Survey of Canada for 1912. In the meantime, it may be stated that the "Cataract" formation in the Georgian Bay region consists of two very distinct divisions—a lower dolomite member 11 or 12 feet thick near Collingwood, and 50 feet or more in thickness on parts of Manitoulin Island; and an upper shale member of varying thickness.

For the dolomite division of the Cataract formation the name "Manitoulin member" is proposed, because of its importance on Manitoulin Island. Here it rests upon soft green shale at the top of the Richmond formation. At Cabot Head 6 feet or more of soft, red shale intervene between the green Richmond shale and the base of the Manitoulin dolomite.

The red clay-shale, which forms the upper division of the formation on Manitoulin Island, is well exposed along the road between the villages of Kagawong and West Bay, at a locality north-east of Kagawong Lake. For this division, the name "Kagawong member" is proposed. In the Manitoulin region the Kagawong shale is overlain by about 6 feet of green shale about 6 feet thick which appears to grade upward into the argillaceous dolomite of the Lockport formation. At Cabot Head probably 16 feet of firm red shales underlie soft red clay-shale similar to that on Manitoulin Island. Firm red shale,

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

containing bryozoa, overlie the Manitoulin dolomite along the south side of Georgian Bay. According to the interpretation of the writer, all the red shales are to be included in the Kagawong member. The age and complete stratigraphic relations of a considerable thickness of gray to green shales, occurring above the red shales at Cabot Head, are not yet definitely determined, although they may, in part at least, represent a later phase of the Kagawong sedimentation. They are overlain by about 6 feet of green shale beneath argillaceous dolomite of Lockport age, as is the case with the Kagawong shale on Manitoulin Island.

THE SHADE TREES OF OTTAWA.

(Continued from page 36).

ACERACEÆ.

The Maple family. It is difficult to decide which is the most valuable among so many useful species.

The Sugar or Rock Maple, *Acer saccharum*, probably ranks first because of its well known and valuable qualities. It is among the finest forest trees, and it is handsome and thrives well in the city as long as there is not too much dust and coal smoke. The bark is rugged or shaggy with deep long furrows; the trunk is straight and opens into a shapely oval outline. It is a slow-growing tree, but long-lived.

The Black Sugar Maple, *A. nigrum*, grows near the city and may grow along the streets, but it is difficult to distinguish it in winter.

The White or Silver Maple, *A. saccharinum*, is one of the commonest, and is deservedly popular. It is a fast grower. The trunk soon divides into 3 or 4 secondary stems with an upward sweep, from which side branches droop outward and downwards. The bark on the branches is smooth and of a light grey color until of considerable size. Both in poise and outline this tree suggests the elm, and the method of city pruning increases the effect. It is one of the first trees to blossom in the spring.

The Norway Maple, *A. platanoides*, is an introduced species and deservedly ranks high. The leaves resemble the Sugar Maple, but are thicker and of a darker green. They remain on the tree a week or more longer than the other maples, and fall without turning color. The petioles exude an acrid milky juice which coagulates. This is characteristic, and is a test easily made. The bark closely resembles the White Ash. On the upper limbs it is of a brownish-grey color. The trunk is apt to divide too low into numerous small branches, forming a broad, rounded head. At an early stage it should be pruned well up.

The Red or Swamp Maple, *A. rubrum*, is somewhat allied to the White Maple. It is also a soft maple and a rapid grower. It does not grow to such a large size, and its branches are more upright. It is in its native home in the forest that it appears in all its glory and sheds its characteristic halo of beauty over all the autumn woods. The Red Maple is appropriately named. Its first blossoms flush to a bright red before the leaves appear, the keys ripen scarlet in June, its leaves swing on scarlet stems all summer, and its young twigs are reddish, and in autumn its leaves turn a magnificent scarlet before they fall, and there is a characteristic tinge of red in the bark in the winter.

The Striped Maple, *A. Pennsylvanicum*, and the Mountain Maple, *A. spicatum*, hardly attain to the dignity of trees.

The Box Elder or Manitoba Maple, *Acer negundo* or *N. aceroides*, comes last in value among the maples as a shade tree. It grows very rapidly, and for this reason it may be grown as a protection for more valuable trees. The trunk divides into several wide-spreading branches and numerous long straggling branchlets. This is the only maple that has compound leaves. These leaves have no beauty in the fall. And the pendulous bunches of keys remaining on the tree all winter are not attractive; and sooner or later its thicket of branchlets so cut off the light that the whole tree has to be cut down.

SAPINDACEÆ.

The well-known Horse Chestnut, *Æsculus hippocastanum*, is a handsome tree in summer, but in the winter is homely. It is recognized by its large terminal buds, which are covered with a resinous gum. The branches have the double compound curve, and the terminal twigs point upwards. This tree is much more common in Toronto and other western cities. We might well have more of them here.

TILIACEÆ.

The Linden, or Basswood, tree may be considered famous in that it gave its name to the father of the great botanist, Linneus (or in its Swedish form, Linné).

Our species, *Tilia americana*, deserves to be planted more frequently in the city than it is. It has a fairly characteristic outline. The large trunk gradually tapers as it gives off numerous side branches with a double compound curve. The trunk is not lost until fully two-thirds way up in the oval-columnal outline of branches. The leaves are larger and unequal-sided. The flowers come out in June and are very sweet-scented, and attract large numbers of honey bees.

The European Linden, *T. europea*, is distinguished by its smaller and more regularly heart-shaped leaves.

OLEACEÆ.

The family is represented by the Ash, *Fraxinus*, of which the common White Ash, *F. americana*, is the best species. The bark is a brownish-grey tinged with red. It is furrowed on old trees, but smoother on the upper branches. This is a forest tree, but is well adapted to city life. Its lower branches have the compound curve. They can be pruned off, and leave a tall, columnar stem reaching above the highest dwellings and casting a grateful shade.

BIGNONIACEÆ.

Represented by the Catawba or Catalpa, *C. speciosa*. The bark is very rugged. The pods remain on the tree all winter and appear to be longer in the cultivated tree than in the wild one. They grow nearly a foot long. The fragrant flowers grow in an erect terminal panicle somewhat like the horse-chestnut, and are very beautiful. Two large specimens of this tree grow in front of the porch at Rideau Hall.

There are two trees, both closely related to the evergreens, that deserve to be more commonly planted as shade trees. One is the European Larch, *Larix Europæa*, which is of a deeper shade of green than our native larch, *L. laricina*; its needles are a trifle longer, its branches droop more, and its cones are longer, and have more scales.

Finally, the Japanese Ginko tree or Maidenhair Tree, *Ginko bilobata*, although a slow grower, is quite hardy and deserves special mention as a shade tree. The terminal twigs are upright. In summer, when clothed in its bright green, thickish leaves, it is indeed very beautiful. The leaves somewhat resemble the leaflets of our Maidenhair Fern, hence its common name.

USEFUL WILD PLANTS OF CANADA.

By J. W. EASTHAM, B.Sc.

With a flora so extensive and as yet so little studied from an economic point of view as that of Canada, it is reasonable to expect that future investigation will bring to light many plants of economic value amongst those which at present we do not consider useful. A brief account indicating the richness of our flora in such useful plants, even with our present knowledge, may help to stimulate interest and enquiry in this direction.

FOOD PLANTS. Our supply of such important fruits as Cranberries, Blueberries and Huckleberries is derived largely from plants growing without cultivation, while the Wild Raspberry and related species of *Rubus* and the June or Service-berry (*Amelanchier*) are also well known and appreciated. Such nuts as the Butternut and Hickory must also not be omitted. Most, however, of our other wild fruits and nuts will not be considered by most people satisfactory substitutes for our common cultivated ones. There is, however, one large group of food plants almost ignored by the majority of people, namely, the Fleshy Fungi. Most people classify these plants into one particular kind which they term "the mushroom" and lump the rest together under the name of "toadstools," a name intended to imply properties if not actually poisonous at any rate more or less disagreeable. This is unfortunate since many of these fungi are as good for table purposes as the Common Mushroom (*Agaricus campestris* L.) and some of them are much more abundant in many places or at certain times of the year, e.g. the Morels (*Morchella*), the Fairy Ring Mushroom (*Marasmius oreades*), the *Lepiotes*, the Coral fungi (*Clavaria*), the Shaggy Mane *Coprinus* and others. No doubt the fact that certain fungi are very poisonous has caused the whole group to be viewed with suspicion, but with a very little trouble it is possible to recognize at sight at least a dozen common and delicious kinds.

Another plant which may be mentioned here is the Wild Rice (*Zizania*), the large seeds of which are esteemed by many as a delicacy. If due care is taken in the selection of a suitable locality and in the introduction of the seeds or plants, it is fairly readily established, and apart from any value it possesses in supplying an article of human food, it affords food and shelter for water fowl wherever it may be desired to encourage them.

FODDER PLANTS. There are many situations in which the natural plants will probably always have to be depended upon for fodder purposes, as being better adapted to their environment than any likely to be introduced, as, for example, the Marsh or Cord grasses (*Spartina*) of the Salt Marshes of the Maritime Provinces and the Buffalo Grasses (*Bouteloua*) and Western Rye Grass (*Agropyron tenerum* Vas.) of the West. It is also possible that amongst the great variety of Western leguminous plants some will be found of special value as forage plants.

DRUG PLANTS. A large number of plants are credited in a greater or less degree with medicinal properties, from such popular remedies as Burdock and Dandelion to official drug plants like Golden Seal (*Hydrastis canadensis* L.) and Seneca Snake-root (*Polygala Senega* L.) and *Rhamnus Purshiana* DC., a British Columbia plant from which the well-known Cascara

Sagrada is obtained. In certain localities these drug plants may be sufficiently abundant to make the collection of them remunerative, although in most cases the plants are specially cultivated for the preparation of a drug on a commercial scale. In such cases it is necessary to reproduce as nearly as possible the natural environment of the plant. While there is a considerable demand for drug-plants on the part of many wholesale firms and druggists, it may be said that with the present high price of labor in Canada the cultivation of drug plants is not likely to prove very remunerative, and the collecting and drying of the wild plants is in most cases a somewhat precarious source of income. In addition to these plants of established medicinal value we have in our native flora plants belonging to the same genera as certain drug plants of the Old World, e.g. *Arnica*, *Aconitum*, and some of these may be found to be of value for the same purposes, while again, other drug plants of foreign origin as the Henbane (*Hyoscyamus niger* L.) and the Thorn-apple (*Datura Stramonium* L.) have become established in certain localities. In connection with medicinal plants mention must be made of the Ginseng (*Panax quinquefolium* L.). This plant is not now valued very highly by the medicinal practitioner of western countries, but is regarded as possessed of almost supernatural virtue by the Chinese, with whom there is an extensive demand for it at very high prices. It is a native of the rich, cool woods of Eastern Canada, but owing to its scarcity and slowness of growth those who wish to profit by its high market value will find it necessary to cultivate it.

HONEY PLANTS. As the desirability of bee-keeping as a source of income receives greater recognition, the subject of honey-yielding plants becomes one of importance. While there are probably no wild plants in this country which occur in such masses as to influence the location of apiaries in the same way as the Heather moors do in Britain, the Basswood (*Tilia americana* L.) is exceedingly valuable and so to a less degree are the Maples (*Acer*), and an adjacent "bush" of this kind is a valuable adjunct to an apiary. The planting of these trees for ornamental and shade purposes where bee-keeping is followed can, therefore, be recommended. The Boneset (*Eupatorium perfoliatum* L.), a common plant of swampy ground, is a very heavy yielder of honey, and its growth in such places should be encouraged, but although many other wild plants are valuable sources of honey it is probably not worth while to cultivate or encourage the growth of them in preference to such plants as white clover, buckwheat or orchard trees and bushes which are of so much more use in other ways.

In addition to those already mentioned there are other wild plants which find employment in various ways, as, for example, the Sugar Maple (*Acer saccharum* Marsh) whose sap yields maple syrup and maple sugar, the Wild Bergamot (*Monarda fistulosa* L.) often cultivated in gardens for its fragrant essential oil, Wintergreen (*Gaultheria procumbens* L.) yielding the well-known "oil of wintergreen," the Cherry or Sweet Birch (*Betula lenta* L.) which also yields the same oil, and whose sugary sap when fermented gives Birch Beer, while closer study will possibly reveal amongst our native flora, fibre plants of commercial value.

EARLY WINTER BIRD NOTES: 1912-13.

BY L. McI. TERRILL, ST. LAMBERT, QUE.

Though winter conditions set in fairly early, during the latter part of November, lengthy intervals of mild or rainy weather have left us at present (January 25th) with very little snow—perhaps an average of three or four inches—many wind-swept fields being practically bare.

The following notes are from two localities: Montreal, and Bury, a village in Compton County, 125 miles east of Montreal. This latter place is in the heart of a hilly, well-wooded district, where the snowfall is more uniformly retained and birds are more evenly distributed than in the level, wind-swept and sparsely-wooded district about Montreal.

My walks, in the vicinity of Montreal, were taken chiefly on the south shore of the St. Lawrence.

HERRING GULL, *Larus argentatus*.—Seen almost daily above the river, at St. Lambert, until January 12th, when the last bird was noticed.

GOLDEN-EYE, *Clangula clangula americana*.—Both of these ducks fairly common on the river near Laprairie; last seen January 12th.

CANADA GOOSE, *Branta canadensis canadensis*.—Last seen at Bury, December 13th, when two flocks of four and five birds flew south over the St. Francis River.

CANADA SPRUCE PARTRIDGE, *Canachites canadensis canace*.—One shot December 9th, at Bury. (Becoming quite scarce in this district).

CROW, *Corvus brachyrhynchos brachyrhynchos*.—One heard at Bury, December 14th. December 18th, saw about 35,

singly, and in companies of two and three, at several points between South Stukely and Montreal. December 29th, commonly noted throughout the day at Ahuntsic, a few miles from Montreal. Though there was a considerable flock in this locality, I have not seen them elsewhere near the city. Probably the many fields of uncut corn, fringed with woods in the background, offered the best food and shelter. Following their tracks near the woods I came across several places where the Crows had uncovered the two or three inches of snow from clusters of Sumac seed (probably *Rhus glabra*). The same tracks led me into a second-growth thicket where a greater depth of snow had been removed from other piles of sumac debris. Apparently it was not chance that led the birds to the dozen or more isolated clusters of seed. As a parallel instance, I have seen piles of potato parings and other refuse, in ditches by railway tracks, exposed in hollows in the snow at a depth of six inches. Have crows a well-developed sense of smell? On the other hand the abundance of fruit panicles adhering to sumac shrubs seem to be untouched by the Crow, though I have seen Robins, in late fall, feeding on them, and Grouse and Pine Grosbeaks, during the winter.

BLUE JAY. *Cyanocitta cristata cristata*.—December 13th, one heard at Bury; apparently unusually scarce; at least very seclusive.

NORTHERN HAIRY WOODPECKER. *Dryobates villosus leucomelas*.—Noted daily at Bury during my stay in the locality from December 9th to December 17th inclusive. December 15th, Bury; watching one at work 30 feet from the ground, was surprised to see it fall, an inert bundle, to pick up its fallen prey from the snow. Occasionally noted at Montreal to date.

DOWNY WOODPECKER. *Dryobates pubescens medianus*.—About as numerous as *villosus*.

ARCTIC THREE-TOED WOODPECKER. *Picoides arcticus*.—First seen near Montreal on October 6th. Last noticed December 1st (3 birds).

NORTHERN PILEATED WOODPECKER. *Phloeotermus pileatus abieticola*.—Bury; seen or heard daily from December 9th to 17th. Their cackling calls were usually heard during or preceding mild weather. Several times saw their tracks in the snow encircling the bases of trees. A common permanent resident in this district.

PINE GROSBEEK. *Pinicola enucleator leucura*.—First seen at Montreal, December 1st. Fairly common to present date.

Very common at Bury. December 9th to 17th. December 15th, watched one extracting seeds from cones of White Pine trees; at the same time heard two singing from the tops of neighboring pines.

REDPOLL, *Acanthis linaria linaria*.—Not seen at Bury until December 14th; a few noted between that date and December 17th. Scarce at Montreal; noted small flocks on two dates only, December 29th and January 1st.

GOLDFINCH, *Astragalinus tristis*.—As notable by its presence as is the absence of the Redpoll. Bury; commonly noted daily from December 9th to 17th, generally in small flocks, sometimes singly. One evening, after dark, I brushed the lower branches of a Balsam in passing, and disturbed a Goldfinch, which tumbled out of its bed and went dipping away. As it flew, the sudden note of alarm was instantly followed by the musical flight notes. The Goldfinch has scarcely a harsh note in its repertoire and therein differs from the Redpoll. Montreal, December 29th, one flock of from 20 to 30 birds seen feeding on seeds in tops of Yellow Birches.

SNOWBIRD, *Plectrophenax nivalis nivalis*.—Bury; noticed several times in small flocks from December 9th to 17th. Montreal; first seen November 3rd; very common from that date to the present time. On November 10th unusually large numbers were seen near Laprairie, roughly estimated at 4,000 birds. They were feeding amongst grass and low weed growth about a chain of shallow surface pools. Continually shifting their position, small bands were constantly in view. As I slowly approached they kept bobbing into sight, from 15 to 25 feet ahead of me, alighting again after a short flight. It seemed incredible that so many conspicuously-colored birds could be so effectively concealed in the scanty growth, and it was only when an individual, plover-like, raised its wings above its head, that I discovered some of them squatting closely. Nearing the ponds I saw that the main body of birds were feeding about the margins—some of them wading into the water with a see-saw, sand-piper-like walk. Whilst thus feeding the chorus of notes reminded me strongly of the twitter of a flock of Bank Swallows about their nesting-place. As the birds arose, by little bounds, they invariably uttered the usual tremulous twitter, followed, on the second bound, by a single lark-like note.

NORTHERN SHRIKE, *Lanius borealis*.—Montreal, January 1st. Saw one fly to perch in tree-top. As I approached it again flew in a northerly direction, but almost immediately

swerved upwards and turned due south, in zig-zag pursuit of several Redpolls.

BROWN CREEPER, *Certhia familiaris americana*.—Montreal; three or four seen December 1st, and five on January 19th. Bury, December 9th to 17th; noticed daily; generally only two or three noticed in a flock, though there were probably usually more, as it is difficult to detect all in a flock.

RED-BREASTED NUTHATCH, *Sitta canadensis*.—Bury, December 9th to 17th; noted daily in considerable numbers. Seen more commonly on ridges of White Pine. During mild weather I was often attracted to flocks of this species, sometimes numbering fully 75 individuals, by their chorus of insistent call-notes—scarcely a well organized chorus, however, pronouncing their views with various degrees of feeling—at times a veritable babel. This species spends much more time amongst the foliage in tree-tops than the White-breasted. It is a common permanent resident in the vicinity of Bury—of course numbers may migrate, but enough remain to make it a common bird.

GOLDEN-CROWNED KINGLET, *Regulus satrapa satrapa*.—Montreal; last seen December 1st.

ROBIN, *Planesticus migratorius migratorius*.—Bury, December 10th; two plainly seen and heard chirping. Robins are usually gone from this locality by the end of October. Have only two records for November and none later. Montreal; last seen November 3rd.

I have omitted mention of the ever-present Chickadee and the Owls—of the latter I noticed only the Barred and Saw-whet at Bury.

MEETINGS OF BOTANICAL BRANCH.

Held at the home of Mr. James M. Macoun, Saturday evening, April 19th, the following members being present: James M. Macoun, G. H. Clark, A. Eastham, A. E. Attwood, R. B. White, Mr. Honeyman, Dr. M. O. Malte, J. R. Dymond, J. J. Carter, F. E. Buck and L. H. Newman.

Mr. Macoun reviewed Dr. L. H. Pammel's "Manual of Poisonous Plants" as follows:—

THE POISONOUS PLANTS OF CANADA.*

While it is not possible to summarize in a few paragraphs

*Part of a Summary of Pammel's "Manual of Poisonous Plants" made for the Botanical Branch of the Ottawa Field-Naturalists' Club, by J. M. Macoun. Published by permission of the Director of the Geological Survey of Canada.

an exhaustive work of nearly a thousand pages, a general idea of the nature and scope of Dr. Pammel's† book can be given and special reference may be made to the various kinds of vegetable poisons and the species or groups of species of plants which are most injurious to man and other animals. An idea of the completeness with which Dr. Pammel's work has been done may be gathered from the fact that 1,097 books and papers are enumerated in the bibliography of poisonous plants which concludes the volume.

The introductory chapters deal with Bacterial Poisons; Dermatitis or skin diseases caused by plants; Forage Poisoning, Ergotism and Aspergillois, the latter caused chiefly by moulds; and Poisoning from Fungi. It is, however, chiefly plants of the higher orders that will be referred to in this summary and only the commoner or best known species, the order followed in their enumeration being that of Engler and Prantl and Gray's Manual.

The only fungi that need be mentioned are of the genus *Amanita* of which *A. muscaria*, Fly Agaric, and *A. phalloides*, Death Cup, are the commonest and most dangerous species. As distinguished from the ordinary mushroom, both species have white gills and a bulbous base, while the mushroom has pink or brownish gills and is without a bulbous base. Both species of *Amanita* grow usually in woods or along the borders of woods and seldom on lawns or in open fields. There are no ferns that are known to be very injurious to animals, although some are suspected of being so, but *Equisetum arvense* when in large quantity frequently poisons and sometimes kills horses. This has been proved by recent experiments, but fortunately it seems to be only the dried plant that is injurious. Hay which contains much *Equisetum* should not be used either for food or bedding. Many grasses are poisonous under certain conditions, but recent research shows that much of the poisoning that has been attributed to grasses is due to fungus growths rather than to the grasses themselves. *Lolium temulentum*, Poison Darnel, has long been known to be poisonous, its effects being usually seen when it is ground up with wheat. Some species of *Araceæ* such as *Acorus Calamus*, *Symplocarpus foetidus*, *Calla palustris* and both species of *Arisaema* are acrid and under some conditions poisonous. Only a few species of liliaceous and orchidaceous plants are poisonous. *Zygadenus* frequently poisons sheep and other stock in the west, but so far as experiments have gone only before the plants flower, and animals are usually killed by eating the leaves, or more frequently the bulbs, before the plant

†Manual of Poisonous Plants, by L. H. Pammel, Ph. D.: The Torch Press, Cedar Rapids, Iowa, U.S.A.

has blossomed in the spring. The local name for *Zygadenus* is in many places "Lobelia," and cases of poisoning are so common in Oregon and Nevada that the term "lobeliaed" has been used to indicate the result from this kind of poisoning. In one band of sheep 2,000 were poisoned and 100 died, in another 200 were poisoned and 90 died. *Zygadenus* is common in southern Alberta and throughout British Columbia. *Veratrum viride*, American Hellebore, is well known to be poisonous both to man and animals, but as the plant is acrid it is not relished by stock; young animals sometimes eat it with fatal results; chickens have been killed by eating the seeds. *Trilliums* have long been considered poisonous, and the roots are certainly emetic. The fruit should be regarded with suspicion. The underground roots of *Iris versicolor*, Blue Flag, are known to be very poisonous. As the roots are very acrid there would be little danger of their being eaten were it not for the resemblance of the commoner name to that of Calamus, Sweet Flag; if eaten it would prove seriously if not fatally poisonous. It was not until 1875 that it was discovered that at least two species of *Cypripedium*, *C. hirsutum* and *C. pubescens*, produce dermatitis very much resembling that produced by Poison Ivy. Prof. MacDougal's experiments with stems and leaves upon individuals have shown that more than half of them were affected. It was discovered that these plants are provided with glandular hairs which cover the whole surface of the stem and leaves and contain a poisonous oil which is especially abundant at the fruiting season. Later experiments by Nestler have shown that *C. hirsutum* is by far the most poisonous species.

Many species of *Ranunculaceæ* are poisonous, but the genus *Delphinium* is the only one to which the poisoning of stock in large numbers has been directly traced, and, in Alberta, *D. glaucum* has done the most injury to cattle. It is in the early spring, before green food is abundant, that the worst effects are noticed and experiments have also shown that the plants are more poisonous at that time. Observations in the United States have also shown that very frequently after a light snow-fall other vegetation is covered and larkspur, being the only green food, is eaten. Sheep are not often affected by this species probably because they are not on the high ranges where it grows at a time when more palatable food is not to be had. *D. Menziesii*, however, which grows in southern Alberta and throughout British Columbia is often eaten by sheep. Of 600 sheep that were affected on one range in Montana in May, 1897, 250 died. Other species of Canadian *Delphiniums* are nearly, if not quite, as poisonous as the two mentioned above, but, except on Vancouver

Island, do not grow in quantity where they are likely to be eaten by cattle. All the species of Aconite are more or less poisonous, but no injury to cattle has been recorded. *R. sceleratus* is the most dangerous species of the genus *Ranunculus*, growing as it does in marshes and along ditches where cattle are likely to eat it with other forage plants; it is also the most poisonous species. The juice of several species will, if rubbed on the skin, produce blisters and sometimes ulcers.

Although the berries of Mountain Ash, *Pyrus Aucuparia*, are poisonous to man, *Prunus* is the only rosaceous genus that causes serious injury either to man or stock. The leaves of all the species may be eaten while fresh; but when wilted contain a virulent poison, hydrocyanic or prussic acid. *P. serotina* is the most poisonous species in the north, although *P. pennsylvanica* and *P. virginiana* are almost equally so. Poisoning is frequently caused by cattle and sheep eating the wilted leaves, and children occasionally die from eating the kernels of the seed. So many sheep are killed by browsing *Prunus* leaves when being driven along trails in the west that in many places the bushes have been cut out, in others the dangerous places are marked by flags. Leaves wilted in bright sunlight to about 75 per cent. of their original weight, or until they appear slightly limp, yield the maximum amount of prussic acid.

Many of the *Leguminosae* are injurious to stock and it is to this family that all the "loco weeds" belong. Of these, in Canada at least, *Oxytropis* causes the greatest damage to sheep, horses and cattle. No Canadian species of *Astragalus* is known to cause injury. One effect of eating any of the "loco weeds" is that a depraved appetite is developed and the animals prefer the "loco weed" to wholesome food, and will even dig up the roots to satisfy their craving. The first stage of the disease is the effect on the nervous system, which in time drives the animal frantic; in the second stage there is emaciation, exhaustion and finally death from starvation. *Thermopsis rhombifolia*, which is common in the prairie country, is said to be injurious to stock, and several cases of children having been poisoned by eating the seeds are recorded by the Canadian Department of Agriculture. It is only in recent years that it has been shown that poisoning from lupine occurs almost always when the plant is fruiting, and experiments in Germany have shown that the active poison, ictrogen, is found chiefly in the seeds and pods. It is after the first frosts destroy other vegetation that the lupine is eaten in the greatest quantity. Of one band of 200 sheep let into a field of lupine for a short time when in a hungry condition, 100 had died within a few hours and 50 others succumbed later on, and on another occasion 150 rams were given a feed of lupine hay and

during the night 90 of them died. In the first instance the lupine pods were fully formed but the seeds not ripe; in another case 1,150 sheep died out of a band of 2,000, and in still another 1,900 out of 3,000. The first symptom after eating lupine is excitement followed by frenzy and then spasms and falling fits. In many cases death occurs within an hour. The common lupine in southern Alberta is *L. argenteus*, one of the most poisonous species.

Poison Ivy, *Rhus Toxicodendron*, is known to everyone, though comparatively few people are affected by it. No case of poisoning among the lower animals has been recorded. Of the many cures recommended for Ivy poisoning the best is powdered sugar of lead dissolved in a 50 per cent. solution of alcohol. Various methods for the destruction of poison ivy patches have been tried; the certain way is, of course, rooting it out, but covering with tarred paper creosoted below is said to be effective and Dr. Pammel recommends pouring a solution of two pounds of commercial sodium arsenic to 10 gallons of water around the roots. Whether *R. Vernix*, Poison Sumac, *R. diversiloba*, Poison Oak, or *R. Toxicodendron* is the most poisonous has not yet been determined.

The family *Umbellifera* contains the best known and most poisonous plants, at least in the east, and the resemblance of innocuous species to those that are deadly poison has caused many deaths. *Conium maculatum*, Poison Hemlock, though not indigenous is a common species in waste places. Poisoning has arisen from eating the seed for that of anise, the leaves for parsley and the roots for parsnips, also from blowing whistles from hollow stems; many domestic animals have been killed by eating the plant. All the species of *Cicuta*, Water Hemlock, are very poisonous, especially *C. maculata*, Cowbane, in the east, and *C. vagrans* in the west; many cases of human poisoning, especially among children, have been recorded, the roots being mistaken for those of edible plants such as parsnips, horse-radish and artichokes; stock of all kinds are frequently killed, generally in the spring, when the ground is soft and the roots pull up easily. The deadly nature of the root has been shown by cutting one in small pieces, mixing it with carrot and feeding to a two-year-old heifer. It died in an hour and a half, though only a small portion was eaten; two grams were found in the stomach. A further experiment made with the same lot of roots showed that it was only when in the dormant state that they were poisonous. After some of them had been grown a month in a greenhouse they were found to have no injurious effect at all. So many persons believe the wild parsnip, *Pastinaca sativa*, to be poisonous that it is well to record the fact that there are no authentic cases of such

poisoning. Many experiments on man and other animals has proved conclusively that no ill effect results from eating the roots. The flowers and leaves do, however, sometimes produce dermatitis when brought in contact with damp skin, some persons are also affected by the carrot in the same way.

One would hardly expect to find poisonous plants among the *Ericaceæ*, but all the species of *Kalmia* are very poisonous, and *K. angustifolia*, Sheep Laurel, and *K. latifolia*, Mountain Laurel, destroy many sheep and cattle, and chickens are said to have been poisoned by eating the vomited matter from poisoned animals. The flesh of partridge is said to be rendered poisonous when the birds eat the buds, and honey derived from the nectar of the flowers appears to be poisonous. Many of the Solanaceous plants are more or less poisonous, but the genus *Solanum* is the only one that causes much injury. The berries of *S. nigrum*, Common Nightshade, are often cooked for food, but when green are poisonous to man, and cattle are poisoned by eating the leaves of either this species or *S. Dulcamara*.

A few species of *Compositæ* are poisonous. Among these *Senecio Jacobaea* has done the greatest damage, though its bad effects on cattle seem so far to be confined to parts of Nova Scotia and New Brunswick, where it is supposed to be the cause of what is known as Pictou disease. It is most dangerous in its young state. *Helenium autumnale* also occasionally causes death when eaten by cattle, and many genera such as *Artemisia* and *Tanacetum* are poisonous to man if the volatile oils are taken in large doses. *Eupatorium urticæfolium*, White Snake Root, is generally believed to cause the "trembles" in cattle, horses and sheep and milk sickness in man. The trembles cause many deaths among cattle, and butter and cheese made from the milk of affected animals is poisonous to man. Until quite recently there seemed to be no doubt that *Eupatorium* was responsible for the trembles, but recent investigators do not believe this to be the case unless it should be at times the carrier of some pathogenic organism. The pollen of several composite plants such as ragweed, goldenrod and chrysanthemum are said to cause hay fever. *Ambrosia artemisiifolia* is regarded as specially troublesome as an exciting cause with reference to hay fever. There is as yet, however, no conclusive proof that hay fever is ever caused by pollen or that pollen has any greater irritating effect on the air passages of sensitive people than any other dust of an organic character.

In the discussion which followed the above review some interesting observations were made as to the action of various plants which were believed to produce poisonous effects in man or beast.

The common rhubarb was claimed by Mr. White to be

exceedingly poisonous during the early stages of its growth when the early shoots were only an inch or two in length. The poisonous element here was believed to be oxalic acid, which, in the young shoots as well as in the tissue of the leaf, is very prevalent.

In discussing the effects of *Equisetum* (Horse Tail), reference was made to a statement in the book in question which claimed that this plant produces the same effect when fed to cattle as that produced by mouldy corn, viz., diarrhoea.

Reference was made to the claim by Freeman that *Lolium temulentum* is poisonous in one part of the United States and not in certain others.

An example to show the poisonous effects of *Zygadenus venenosus* Wats. on sheep, in southern Alberta, was cited by Mr. Clark.

In Lupines and certain other plants the seeds rather than the vegetative parts of the plants are poisonous.

In the well-known loco weed (*Oxytropis Lambertii*) barium is generally believed to be the poisonous element.

Water Hemlock was believed to be the most poisonous plant of all those belonging to the family Umbelliferae.

The Common Wild Parsnip was shown to produce dermatitis quite in the same manner as poison ivy and certain other plants.

In discussing the peculiar effects of *Ledum palustre*, Dr. Malte referred to the fact that the European form of this plant was used during the pre-Christian era in Scandinavia in beer to produce a certain effect.

An interesting experience was cited by Mr. White in connection with the common elderberry which had produced an intense secretion of saliva.

The Wonderberry, which is said to be a cross between certain western forms of *Solanum Nigrum* was claimed by some to have a poisonous effect, although the author of the above book seemed to think otherwise.

Seeds of *Lychnis Githago* were believed to be poisonous to poultry, although in Scandinavia and Russia these seeds are eaten by boys without any apparent effect.

Reference was made to an experiment at the Poultry Department of the Ontario Agricultural College at Guelph, Ont., where screenings were fed to poultry with injurious effects.

Reference was also made to an experiment in feeding common mustard seed to animals for a long period of time, which resulted in the production of ulcers and blisters which were believed to be identical with the blisters formed by the application of mustard plasters.

Before the meeting adjourned Dr. Malte outlined the work which had been done by Prof. Macoun, Mr. James M. Macoun

and himself in the production of a new "Ottawa Flora" and expressed the hope that the Botanical Branch would co-operate in seeking to perfect this work. He believed that each member of the Branch could assist very materially by specializing on a certain genus and in this way bring together information which might be of great value in connection with this work. He also thought that excursions of the Branch might be held to advantage. These excursions were not to take the place of the ordinary excursions of the Club, but would rather be supplementary to these. Excursions by a few persons desiring to do exact work would, in his opinion, contribute most to our present knowledge of the flora of the Ottawa district. The ordinary excursions of the Club are concluded just at a time when special work can be done to best advantage so that there should be no difficulty in arranging for this extra work.

Mr. Macoun offered an excellent suggestion to the effect that the meetings of the Botanical Branch should continue until the excursions are finished, a meeting being held on each evening of the Saturday on which the excursion took place. By this arrangement there would be an inducement for members of the Branch to attend the excursions for the purpose of collecting specimens which might be used as a basis for discussion at the evening meeting. As a beginning in this direction Dr. Malte agreed to discuss "The Plants of the Season" at a meeting of the Club on Saturday evening, May 3rd, an excursion of the O.F.N.C. being held on that day.

L. H. NEWMAN.

Held at the home of Mr. R. B. Whyte, Saturday evening, May 3rd, the following being present: Messrs. Whyte, Carter, Attwood, Dwight, R. Campbell, Dymond, Malte, J. M. Macoun, Newman.

An account of the different species and forms of violets growing in the vicinity of Ottawa was on this occasion given by Messrs. Macoun and Malte. The study of the wild violets to which this spring much attention has been paid by the said gentlemen has proven to be extremely interesting from many a point of view. At the meeting of the Club the members present were given an opportunity to study the characters of the different species on living specimens collected in the field and by the obliging kindness of Mr. R. B. Whyte, kept in pots for the meeting.

The discussion was opened by Mr. Macoun, who explained that many species are now recognized which had at first been lumped under one species or variety known as *V. cucullata* or

V. palmata var. *cucullata*. This fact, and the number of the species into which this group was subsequently divided, is explained in an article published by Mr. Macoun in a former number of THE OTTAWA NATURALIST.*

In connection with this discussion the interesting fact was brought out that practically all of the forms, first separated in the field by Mr. Macoun and described by Dr. Edward L. Greene, of Washington, D.C., have proven to be quite worthy of the species-rank given them by Dr. Greene.

Dr. Malte defined the different groups of violets as found in the vicinity of Ottawa and illustrated, by means of the specimens mentioned, the differences which are to be found between these groups. It was explained that the violets in this group belong all species with leafy stems and which produce flowers in the axils of the leaves. Under the second group are placed all species, the flowers of which are borne on peduncles produced directly from rootstocks (acaulescent violets).

From the first group two sub-divisions can be separated, one of which has *entire stipules* and the other *fringed stipules* and blue or violet flowers. In the first sub-division three well-defined species are found, namely, *V. pubescens* Ait., *V. scabriuscula* Schwein and *V. canadensis* L. To the second of these sub-divisions the following four species belong, namely, *V. labradorica* Schrank, *V. conspersa* Rehb., *V. rostrata* Pursh and *V. leucopetala* Greene.

Regarding the latter species the opinion was expressed that it might possibly better be regarded as an albino form of *V. conspersa* than a species proper.

Under the second main group of violets, namely, the acaulescent or stemless forms, two divisions are made. Under one division are placed all stemless violets having a fleshy and thickened rootstock without runners, while in the second division are placed those species, the rootstocks of which are long and filiform and generally produce slender runners.

The following species belonging to the first division of the stemless violets were demonstrated at the meeting, viz., *V. cucullata* Ait., *V. sororia* Willd., *V. septentrionalis* Greene, *V. Macounii* Greene, *V. venustula* Greene and *V. Fletcheri* Greene.

Of these only the three first mentioned are recognized as good species in the last edition of Gray's Manual of Botany. *V. venustula* is considered synonymous to *V. affinis* Le Conte. However this may be, the plant described by Dr. Greene as *V. venustula* is a very clearly defined species, flowering two weeks

*Notes on Some Violets, *Ottawa Naturalist*, 1899, pp. 181-187.

or more later than the other acaulescent violets.

V. Macounii is not mentioned in Gray's Manual. It is, however, a well defined species, growing on limestone foundation. It differs from all other acaulescent violets in having *all* petals hairy on the inside. (The other species have at most three petals hairy on the inside).

Regarding *V. Fletcheri*, its specific value is less clear and the opinion was expressed that it might turn out to be *V. septentrionalis* out of place.

Under the second division of the stemless violets, i.e., those which possess rootstocks which are long and filiform, seven species have been recorded from the Ottawa district. Of those the following were demonstrated and explained at the meeting, viz., *V. pallens* (Banks) Brain, *V. blanda* Willd and *V. renifolia* Gray.

The specimens of *V. pallens* presented at the meeting were collected at Blueberry Point by Messrs. Macoun and Malte. When collecting the specimens it was noticed that among the typical plants were growing individuals, characterized by having much larger flowers and by being much hairier all over. In other respects they resemble *V. pallens* very closely, and the opinion was expressed that they represent a hairy variety of *V. pallens* not sufficiently distinct from that species to be considered a species of its own.

An interesting discussion took place regarding the biology of violets, it being explained that while, in the acaulescent species, seed usually was produced from cleistogamous flowers developed after the showy spring flowers had disappeared, it was occasionally found that plenty of seed could be produced by the spring flowers which generally are sterile. Such a phenomenon had been observed, during one season, by Mr. Macoun to be quite frequent in *V. Macounii*.

One of the most interesting features in connection with the discussion of the evening was the exhibit and examination of a strange form which was believed to be a hybrid between *V. cucullata* and *V. septentrionalis*. An examination of the pollen by Dr. Malte had shown that at least 90% of this was undeveloped. Undeveloped pollen is an indication of hybridity.

Before closing the discussion, Dr. Malte announced that Mr. Macoun and he were arranging to study the different species and forms of violets during the fruiting season, and to note any peculiarities which might be utilized in distinguishing the different species. Any observation of value might be used, if necessary, in connection with the key to the genus, which key, it was hoped, would be available for distribution before the violet season opens next spring.

L. H. NEWMAN.

EXCURSIONS.

The first excursion of the year was held to Rockcliffe and vicinity on Saturday, May 3rd.

Owing to the warm weather of the previous two weeks, a large number of spring flowers were found. Hepaticas were almost gone, but *Claytonia virginica*, *Erythronium americanum*, *Trillium grandiflorum* and *T. erectum*, *Dicentra canadensis*, *Caulophyllum thalictroides*, *Urtularia grandiflora*, *Asarum canadensis*, *Dentaria diphylla*, *Viola pubescens* and *V. canadensis* were quite common. *Ranunculus abortivus*, *Sambucus canadensis*, *Thalictrum dioicum* and *Mitella diphylla* were also collected.

The Tent Caterpillars were just becoming prevalent.

At 5 o'clock short talks on collections made were given, at the pavilion, by Messrs. Halkett, Dymond, McGillivray and Carter and Miss Matthews.

J. R. D.

The second excursion was held to Leamy's Lake, Hull, on Saturday afternoon, May 10th. The day was rather cold, there having been severe frost during the previous night.

The party divided into three groups, with the following leaders: Mr. Halkett, Zoology; Dr. Williams, Geology; Mr. Newman, Botany. At 5 o'clock the divisions re-united for the usual talks by the leaders. Mr. Halkett spoke on *Daphnia*, a fresh-water crustacean, and of a species of Helicoid or air-breathing mollusc. Dr. Williams discussed Brachypods and Trilobites. In Botany, the interesting find was that of *Viola rostrata*, a rather uncommon species, by Miss Ruth Burpee. Other violets collected were *V. pubescens*, *B. scabriuscula*, *V. canadensis* and *V. conspersa*.

J. R. D.

BIRD NOTES.

On December 18th, 1912, while driving through the hills north of Kaladar Station, Lennox County, Ont., I saw a flock of seven or eight Canada Jays. When I next visited the same locality, January 28th of this year, although I kept a sharp lookout, I did not observe any; but a few days later, some distance south, I saw one flying about in a farmer's barn yard. It will be interesting to know whether these birds have been observed as far south in other parts of the province. None have been noted near Kingston, Ont.

On February 12th the first flock of Pine Grosbeaks was observed at Kingston, and on the 23rd, Evening Grosbeaks.

ED. BEAUPRE, KINGSTON, ONT.

WE DEAL WITH OUR ADVERTISERS

James Hope & Sons Booksellers, Stationers
Bookbinders, Printers 61 Sparks St. Ottawa

THE IMPERIAL LAUNDRY

384-390 WELLINGTON ST., COR. BAY ST. Phone Queen 2000

LAUNDERERS AND CLEANERS

DRY CLEANING A SPECIALTY

GIVE US A TRIAL ORDER

THE C. C. RAY CO. Ltd.

BEST
QUALITY

COAL

LOWEST
PRICE

58 SPARKS ST. Phone Queen 461

The **TORONTO GENERAL TRUSTS CORPORATION.**

CAPITAL \$1,250,000

RESERVE 1,100,000

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.

J. G. BUTTERWORTH & Co.

ALL-RAIL SCRANTON COAL
HAS NO EQUAL

86 SPARKS STREET, OTTAWA

American Entomological Co.

GEORGE FRANCK, Manager

MAIN OFFICE

55 Stuyvesant Av., BROOKLYN, N.Y.

FACTORIES

930 DeKalb Ave. 1785 Bergen St.

Telephone Con.

The only exclusive dealers in insects and entomological supplies.

Sole manufacturers of the genuine Schmitt insect boxes, cabinets and cases and of the

American Entomological Company
Insect Pies

Supply List No. 2 gratis, on application.

Insect List No. 7, 25 cts. Gratis to patrons

R. McGIFFIN

MEN'S FINE FURNISHINGS

3 STORES

78 Rideau St.
108 Sparks St.
308 Bank St.

THORBURN & ABBOTT
BOOKSELLERS and STATIONERS

NEW STORE, No. 113 SPARKS ST.
Opposite Murphy-Cable Ltd.

THE SMITH PREMIER AND
REMINGTON TYPEWRITERS

The World's Two Best Typewriters
THE FEDERAL TYPEWRITER CO.

Dealers

200 Queen St. Phone Queen 5367 & Q. 2913.
Ottawa

Demonstrations gladly given

HENRY J. SIMS & Co.

Hatters—Phone Queen 1444

110-112 SPARKS ST. - OTTAWA.

WEAR

MASSON'S



SHOES

72 Sparks Street, Ottawa

INSPECTED
MILK

ICE
CREAM

Ottawa Dairy

FRESH
BUTTER

BUTTER-
MILK

MULHALL HARDWARE LTD. 4 STORES

221-224 Bank St.
635 Somerset St.
1107-1109 Wellington St.
791 Bank St.

OTTAWA

JUN 1 3 1968

The Ottawa Field-Naturalists' Club.

Patron :

HIS ROYAL HIGHNESS, THE DUKE OF CONNAUGHT,
GOVERNOR-GENERAL OF CANADA.

Council 1913-1914

President :

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

Vice-Presidents :

Mr. Arthur Gibson.

Mr. Harlan I. Smith.

Secretary :

Mr. E. D. Eddy, *B.S.A.*
(Seed Branch, Dept. of Agriculture)

Treasurer :

Mr. W. T. Macoun.
(Experimental Farm)

Editor :

Mr. Arthur Gibson.
(Experimental Farm)

Librarian :

Mr. A. E. Currie.
(149 Henderson Ave.)

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

Dr. M. O. Malte.

Dr. C. Gordon Hewitt.

Mr. J. R. Dymond, *B.A.*

Mr. J. J. Carter.

Miss A. L. Matthews.

Mr. Andrew Halkett.

Mrs. W. D. Oakely.

Standing Committees of Council :

Publications: Dr. C. G. Hewitt, A. Gibson, A. E. Currie, W. T. Macoun,
H. I. Smith, E. D. Eddy.

Excursions: J. J. Carter, A. Halkett, J. W. Gibson, J. R. Dymond, Dr. M.
O. Malte, Miss A. L. Matthews, Mrs. W. D. Oakely.

Lectures: H. I. Smith, Dr. C. G. Hewitt, J. W. Gibson, J. R. Dymond, Miss
A. L. Matthews, Mrs. W. D. Oakely.

Leaders at Excursions :

Archæology: T. W. E. Sowter, J. Ballantyne, H. I. Smith.

Botany: W. T. Macoun, J. M. Macoun, T. E. Clarke, H. T. Gussow, Dr.
M. O. Malte, J. W. Eastham, J. R. Dymond.

Entomology: A. Gibson, W. H. Harrington, Dr. C. G. Hewitt, J. M. Swaine.

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

Ornithology: A. G. Kingston, P. A. Taverner, Miss M. B. Williams, *B.A.*

Zoology: Prof. E. E. Prince, E. E. Lemieux, E. A. LeSueur, S. E. O'Brien,
C. H. Young.

Auditors :

J. Ballantyne,

E. C. Wight.

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