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THE OTTAWA NATURALIST

VOL. XXI.

OTTAWA, JANUARY, 1908

No. 10

DATES OF DEPARTURE IN THE FALL MIGRATION OF THE MORE COMMON BIRDS OF OTTAWA.

By G. EIFRIG

The appended list does not claim to be complete or quite exact. This would take several observers, who would have to have much time and opportunity at their disposal for making observations. However, the list gives an approximate idea. Some years certain birds stay longer than in others. Of many species the bulk leaves at a fairly regular time, while single skulking, belated individuals of their kind linger much longer and people accidently seeing such a one, e.g., a robin, will feel in position to impugn any list, even if its dates were accurate for the species in general. At its best the Fall migration cannot be studied so successfully as the one in Spring. Then the birds come with a greater regularity, they can be seen better on account of the bareness of the trees and fields, they are livelier, in many cases in a more flashy plumage than in Fall, when many are averse to being seen, are not given to song, and travel in smaller flocks. A few only are more noticeable in Fall than in Spring, as the blackbirds. The writer would again urge members of the O.F.N.C. to next year begin to keep a list of the birds that they know seen by them; when they saw the first and last ones, and send in such lists to him. The writer must acknowledge his indebtedness to Mrs. Brown and Miss Lees of Ottawa East, without whose co-operation this list would be much more incomplete than it is now. Several dates were also furnished by Mr. C. H. Young.

	1905	1906	1907
Bluebird.....	Oct. 20	Oct. 16	Oct. 17
Robin.....	Dec. 2	Oct. 30	Oct. 29
Hermit Thrush.....	Oct. 21		Oct. 10
Wilson's Thrush.....			Oct. 4
Olive-backed Thrush.....			Oct. 2

	1905	1906	1907
Ruby-crowned Kinglet.....	Oct. 23	Oct. 16	Oct. 14
Golden-crowned Kinglet.....	Oct. 23	Oct. 16	Oct. 19
White-breasted Nuthatch.....	Dec. 4	Nov. 25	Nov. 21
Brown Creeper.....		Dec. 4	Nov. 23
Winter Wren.....	Oct. 16	Oct. 16	Oct. 11
House Wren.....			Sept. 30
Catbird.....			Sept. 22
Redstart.....			Sept. 6
Canadian Warbler.....			Sept. 10
Wilson's Warbler.....			Sept. 10
Northern Yellowthroat.....			Aug. 21
Mourning Warbler.....			Sept. 9
Waterthrush.....			Sept. 14
Ovenbird.....			Sept. 6
Yellow Palm Warbler.....	Sept. 20		
Black-throated Green Warbler...	Sept. 20		Oct. 10
Blackburnian Warbler.....			Sept. 11
Blackpoll Warbler.....			Sept. 18
Bay-breasted Warbler.....			Sept. 8
Chestnut-sided Warbler.....			Sept. 10
Magnolia Warbler.....			Sept. 9
Myrtle Warbler.....	Oct. 16	Oct. 16	Oct. 17
Black-throated Blue Warbler...	Sept. 6		Sept. 6
Yellow Warbler.....			Sept. 22
Black and White Warbler.....	Sept. 20		Sept. 18
Blue-headed Vireo.....	Sept. 6		
Warbling Vireo.....	Sept. 11		Sept. 22
Red-eyed Vireo.....		Sept. 26	Oct. 10
Migrant Shrike.....		Oct. 13	
Cedarbird.....		Dec. 1	Sept. 16
Bank Swallow.....			Sept. 14
Barn Swallow.....	Aug. 29		Oct. 5
Purple Martin.....			Aug. 25
Rose-breasted Grosbeak.....			Sept. 16
Fox Sparrow.....	Oct. 16		Oct. 24
Swamp Sparrow.....	Sept. 29		Oct. 3
Song Sparrow.....	Nov. 1	Oct. 23	Nov. 23
Junco.....	Oct. 23	Oct. 23	Nov. 4
Chipping Sparrow.....	Oct. 12	Oct. 9	Oct. 11
Tree Sparrow.....	Oct. 25	Oct. 23	Oct. 17
White-throated Sparrow.....	Oct. 23	Oct. 16	Oct. 17
White-crowned Sparrow.....	Oct. 12		Oct. 3
Savanna Sparrow.....	Sept. 20		Oct. 5
Vesper Sparrow.....	Oct. 20	Oct. 16	Oct. 5
Goldfinch.....	Sept. 28		Oct. 16

	1905	1906	1907
Redpoll.....		Dec. 13	
Purple Finch.....			Oct. 2
Bronzed Grackle.....	Oct. 10		Oct. 3
Rusty Blackbird.....	Oct. 10		
Meadowlark.....		Sept. 26	Oct. 11
Redwinged Blackbird.....		Nov. 6	Oct. 28
Baltimore Oriole.....			Aug. 17
Bobolink.....			Aug. 21
Crow.....	Nov. 4		Oct. 26
Prairie Horned Lark.....	Oct. 9		
Wood Pewee.....	Sept. 6		Sept. 11
Phoebe.....	Oct. 10	Sept. 26	Oct. 2
Kingbird.....	Aug. 31		Aug. 10
Hummingbird.....	Sept. 14		Sept. 20
Chimney Swift.....			Sept. 10
Nighthawk.....	Aug. 21		Aug. 24
Whip-poor-will.....	Oct. 5		Sept. 16
Flicker.....	Sept. 28	Sept. 26	Oct. 1
Yellow-bellied Sapsucker.....	Sept. 11		Oct. 1
Downy Woodpecker.....			Oct. 17
Hairy Woodpecker.....	Dec. 1		Oct. 26
Kingfisher.....	Sept. 23	Oct. 29	Oct. 15
Black-billed Cuckoo.....			Aug. 21
Sparrow Hawk.....	Sept. 6		
Marsh Hawk.....	Nov. 7		Oct. 7
Killdeer.....	Sept. 11	Oct. 8	Sept. 13
Wilson's Snipe.....	Oct. 30	Nov. 5	Oct. 15
Woodcock.....	Oct. 16	Oct. 29	
Great Blue Heron.....	Nov. 6	Nov. 3	Oct. 15
Bittern.....		Oct. 30	Oct. 15
Canada Goose.....	Nov. 6		Nov. 20
Bonaparte's Gull.....			Oct. 7
Herring Gull.....		Nov. 3	Dec. 7
Holboell's Grebe.....		Oct. 16	Oct. 22
Loon.....	Nov. 9	Dec. 18	Oct. 3

LATE BIRDS AT GALT.

On December 19th, 1907, a female, or immature male, hooded merganser was shot on the Grand River within the town limits and about a half hour later a coot appeared at the same spot, which was also taken, the last named being an unusually late record for this species. Golden-crowned kinglets were observed January 18th in some numbers. W. HERRIOT.
 Galt, Ont., January 18th, 1908.

NOTES ON EXPERIMENTS RELATING TO THE ORIGIN
OF LIFE-FORMS.

By Mark G. McElhinney.

On January 17th, 1908, while examining several slides, made on May 6th, 1906, I made an interesting find.

Near the centre of slide No. 3 was an object, very different from the surrounding crystals. It closely resembled a small star fish, having six radiating arms. Five of these were slightly wavy, while the sixth had a decided curve to its outer third. It lacked the rigid geometrical form and outlines of the usual crystals, and the arms appeared to be rounded in section.

After it had been examined by myself, my assistant and several members of my family, I lost it on the field. After some minutes of searching it was found and then again lost. Being called away I did not look for it again for several hours and was disappointed in not rediscovering it. Some two hours of further search failed to again reveal it, and, as the slides change somewhat rapidly when removed from the incubator, I concluded that further search would be useless.

It was identical in form with a diatom described by Carpenter as *Bacteriastrum jurcatum* which is frequently found in the stomachs of Ascidians, Salpae, Holothuriae and other marine animals.

My highest power being a quarter inch, I was unable to examine its structure and so am unable to say whether it was the true diatom or a crystal prototype. Its disappearance would incline one to the latter view. There not being time to stain and cover it, it may have become detached from the slide. Generally when crystals become detached, an outline remains on the slide; in this case I could find no outline.

Near it was a large crystal by which I tried to locate it. After the disappearance of the starlike form I saw an object which before had been unnoted; it resembled a large irregular amoeba, but I cannot say that it was not there before.

All of the slides are covered by an open network of fine lines which branch out irregularly, like rivers and their tributaries on a map. They appear to be a primitive form of vegetable life.

The slides were made by evaporating drops of a three percent. solution of sodium chloride, containing certain proportions of the elements found in animal life, and to which were added bisulphide of carbon and silicic acid.

On the morning of the 18th, I found, on the same slide, a form resembling a ciliated columnar cell. No movement was detected in either form. When my photographic apparatus is completed, I hope to be able to make positive records of the slides.

LIST OF BIRDS SEEN ON SABLE ISLAND, N.S., FROM
MARCH 28TH, 1906, TO JAN. 1ST, 1907.

BY JAMES BOUTEILER.

NAME OF SPECIES.	DATE SEEN.	NO. SEEN.
American Crow.....	Mar. 28.....	One.
Robin.....	April 5.....	Seven or eight.
Common and Arctic Terns.....	" 25.....	In numbers.
Junco.....	" 23.....	One.
Semipalmated Ringed Plover....	" 25.....	Several.
Piping Plover.....	" 30.....	Several.
Least Sandpiper.....	" 30.....	Several.
Ruby-crowned Kinglet.....	May 4.....	One.
Barn Swallow.....	" 10.....	One.
Various Swallows.....	" 10.....	About a dozen.
White-throated Sparrows.....	" 10.....	Several.
Spotted Sandpiper.....	" 15.....	One.
Yellowlegs.....	" 15.....	Several.
Catbird.....	" 16.....	Several.
Henslow Sparrow.....	" 16.....	Several.
Vesper Sparrow.....	" 16.....	One.
Black-poll'd Warbler.....	" 18.....	One.
White-throated Sparrows.....	" 20.....	In numbers.
Roseate Terns.....	" 20.....	In numbers.
Red Phalarope.....	" 21.....	In numbers.
Hermit Thrush.....	" 24.....	One.
Magnolia Warbler.....	" 24.....	One.
House Wren.....	" 24.....	One.
Swamp Thrush.....	" 26.....	One.
Chimney Swift.....	June 3.....	One.
Gulls.....	" 7.....	About a dozen.
Pine Warbler.....	" 17.....	One.
Black-throated Green Warbler..	" 17.....	One.
Yellow-bellied Flycatcher.....	" 20.....	One.
Long-tailed Squaws.....	" 26.....	A pair.
Red-breasted Nuthatch.....	" 27.....	One.
Pine Siskin.....	July 2.....	One.
Yellowlegs.....	" 9.....	One.
White-rumped Sandpiper.....	" 14.....	Three.
Wilson Snipe.....	" 20.....	About a dozen.
Curlew.....	" 20.....	About a dozen.
Crossbill, American.....	" 21.....	One.

NAME OF SPECIES.	DATE SEEN	NO. SEEN
Yellowlegs.....	Aug. 4.....	In numbers.
Semipalmated Sandpiper.....	" 4.....	A few.
Black-bellied Plover.....	" 4.....	A few.
Sparrow Hawk.....	" 4.....	One.
Pectoral Sandpiper.....	" 4.....	One.
Nuthatch.....	" 4.....	One.
Yellowlegs.....	" 4.....	In numbers.
Black-bellied Plover.....	" 4.....	In numbers.
Nuthatch.....	Aug. 3.....	Several.
Curlew.....	Sept. 7.....	In numbers.
Great Blue Heron.....	" 8.....	One.
Bittern.....	" 8.....	One.
Plover and Yellowlegs.....	During Sept.....	In numbers
Hawks.....	During Sept.....	Several kinds.
White-throated Sparrow.....	Sept. 23.....	Several.
Rusty Blackbird.....	" 24.....	Four or five.
Black and White Warbler.....	" 24.....	One.
Black-billed Cuckoo.....	" 25.....	One.
American Pipit.....	" 26.....	Several.
Flycatchers.....	" 26.....	Various kinds.
Terns, all left.....	During Sept.....	
Sanderlings.....	During Sept.....	In flocks.
Myrtle Warbler.....	Sept. 29.....	In numbers.
Pine Warbler.....	" 29.....	Several.
House Wren.....	" 29.....	One.
Fox Sparrow.....	" 29.....	One.
Golden-crowned Kinglet.....	" 29.....	One.
Knot.....	Oct. 6.....	One.
Canadian Goose.....	" 9.....	Seven.
Least Bittern.....	" 9.....	One.
Florida Gallinule.....	" 13.....	One.
House Sparrow.....	" 14.....	Several.
White-winged Crossbill.....	" 22.....	Several.
Long-tailed Squaws.....	Nov. 1.....	A few flocks.
Kittiwakes.....	" 1.....	In numbers.
Blue-winged Teal.....	" 1.....	One.
Mallard.....	" 1.....	Six or seven.
Robins.....	" 5.....	In numbers.
Juncos.....	" 5.....	
Yellow-bellied Nuthatch.....	" 5.....	
Hermit Thrush.....	" 5.....	
Fox Sparrows.....	" 13.....	Two or three.
Scaup Ducks.....	" 13.....	About thirty.
Killdeer Plover.....	" 13.....	Two.

NAME OF SPECIES.	DATE SEEN.	NO. SEEN
Baldpate.....	Nov. 13.....	Two.
Grebe.....	" 13.....	Two.
Common Gallinule.....	" 22.....	One
Crow.....	" 23.....	One.
Cormorant.....	Jany. 1.....	

NOTES.—The terns were seen in April only about the bars at either end of the island. When the red phalaropes arrived there were dozens of flocks of from 50 to 100 in each. The curlew were more abundant than they have been for many years. October 6th, nearly all the migrants left. The Florida gallinule taken October 13th was the first one ever taken on the island. The robins, juncos, nuthatches and hermit thrushes seen Nov. 5th were all noticed after a heavy gale.

SOME OF THE INFLUENCES AFFECTING SEED PRODUCTION.

(MEETING OF THE BOTANICAL BRANCH).

A meeting of the Botanical Branch of the Otawa Field Naturalists' Club was held at the house of Mr. E. R. Cameron on December 21st, 1907.

The members present were: Messrs. Fletcher, Whyte, Prof. Macoun, W. T. Macoun, E. R. Cameron, Roy Cameron, Attwood and Ami.

The chair was taken by Prof. J. Macoun who proposed a discussion on the "Influences Affecting Fruit and Seed Production." This subject had been brought to his attention by a paper prepared and read to him by his son, Mr. W. T. Macoun. After introducing the subject, Prof. Macoun asked his son to give some of the points brought up in his paper. This was done and the following extract from this paper will give some of the matter presented for discussion.

SEED PRODUCTION IN NATURE.—The principal means of reproduction in nature is by seeds, although plants frequently increase by their vegetative parts as well. In nature, individual plants do not necessarily produce their maximum crops, for in the struggle of many species for existence individual specimens may often be so crowded that they have little opportunity of producing much seed. Under cultivation many plants will produce much more seed than in nature, while others will scarcely

thrive at all, or fail utterly. Plants may be divided for the purposes of this paper into "Shade Enduring," "Light Enduring," "Shade Needing," "Light Needing."

Plants which need shade will not endure bright sunlight, hence many wild flowers growing naturally in very shady woods soon die if exposed to bright sunlight. On the contrary, plants which need light will soon die in dense shade. Examples of these are the birch and poplar, which, when they have abundant light, grow rapidly, but if shaded, will soon die. Then there are the shade enduring trees, such as the spruce, cedar, beech and hemlock, which will live for years under dense shade; and there are the light enduring species, such as some of our wild flowers, which succeed best in shady places, but will also thrive well in bright sunlight.

Plants which grow naturally in shade are not great seed producers, but to make up for this they often increase very rapidly by offsets, layers and suckers. It is interesting to note that a large proportion of the plants in woods are spring flowering species which bloom before the leaves of the trees are fully out and before there is dense shade. Most plants need abundant sunlight for great seed production as it is through sunlight and by the aid of the leaves that the nourishment necessary for the production of seed is secured. For example, take the weeds which are great seed producers. Of the many plants which have become weeds here there are very few which are natives of this country, as most of our species are woodland plants and also do not succeed well in the open, while the introduced weeds have been grown in open ground for centuries. The asters and golden rods, which are abundant seed producers, are native plants. These grow naturally in meadows or open woods.

Most of our cultivated fruits are light needing plants thriving best and producing the largest crops in full sunlight and the foregoing information has been given with a view to impressing this fact on fruit growers. Plants take food from the soil and air. From the soil, the plant food passes up through the young wood in crude sap, which, on being distributed through the leaves, is changed by the action of sunlight and other agencies and becomes what is known as "elaborated" or made fit to add new tissue to the plant. This elaborated sap returns between the bark and the young wood and is distributed over the plant as required. It descends to the roots and in the case of herbaceous biennials and perennials it accumulates there and this plant food is stored up and made available for leaf or seed production the following year, as in the beet, turnip, carrot, mangold, and onion, which in

order to produce a good crop of seeds must have abundant foliage the previous year. It is our belief that when shrubs and trees have accumulated a certain amount of this elaborated sap they are induced in nature to bear fruit, but just what proportion of such sap it is necessary for each tree to have is not known. What is known, however, is that certain methods of cultivating fruits will induce fruitfulness. Most fruits require bright sunshine for the development of fruit buds, but with the sunshine there must be an abundant supply of leaves to convert the crude sap into the elaborated form.

There are many examples showing that when a certain proportion of elaborated sap is in the branches of trees, that fruit production will follow. If a branch of a tree is injured in some way so that the flow of elaborated sap downward is checked it accumulates in the branch above, and that branch having more than its proportion develops fruit buds. When the roots of a tree are severely pruned and the flow of sap downward and into them is checked the top has a larger proportion of elaborated sap than is necessary for the development of leaves merely and it develops fruit buds. A spell of dry weather at the right time in summer will probably induce the production of fruit buds as growth is checked and there is a larger proportion of elaborated sap available than there would otherwise be. When one variety of fruit is grafted on another the sap at the point of union is more or less checked in its downward course and the top retains a larger proportion of elaborated sap than it needs for its healthy development and fruit buds are produced before they would be if the tree were grown as a standard tree. Some plants and some varieties take longer to come into bearing than others, but what the vital principle is which governs this is not known, but it is evident that just as soon as there is a surplus of elaborated sap then fruitfulness is induced, hence methods of cultivation should be adopted which are known to induce fruitfulness.

PLANT FOOD AND TILLAGE.—The relation of the supply of plant food to fruit and seed production should be, and is, of the greatest interest to fruit growers. Plant food, however, is of little value unless there is moisture and heat. Some kinds of fruit require more moisture than others, and some more heat. It has been already explained that the place of origin of the original type may have much to do with the kind of soil that they will do best in.

While there is vigorous growth there is usually little seed production. Herbaceous plants, as a rule, have made most of their growth before they bloom. Woody plants also have made their strongest growth before they begin to fruit. An excess of a

nitrogenous fertilizer induces an abnormal vegetative development and this is taken advantage of by man where the vegetative part of the plant is needed for some special purpose. The large amount of nitrogenous plant food near the surface of the soil in nature is, perhaps, an important factor in inducing vigorous growth to the exclusion for a time of the fruiting tendency. In cultivating fruits it is important to have a good supply of nitrogen in the soil when the trees are young in order that the vegetative habit natural to young trees should be encouraged, as to get good crops of fruit in the future there must be a good sized tree to bear the fruit.

There was considerable discussion on the views presented by Mr. Macoun, which, in a few words were "that the production of seed depended on the proportion of elaborated sap in the tree." Dr. Jas. Fletcher did not think there was much in this theory, and took the ground that it was maturity, or in cases of trees producing seeds when they were in a weakened condition, an endeavor on the part of the tree to reproduce its kind.

Mr. R. B. Whyte thought that there was something in the evidence given and said that he had noticed it was vigorous plants which produced the largest amount of seed eventually.

Prof. Macoun was not prepared to make a definite statement as to his views, for he confessed that the points brought up had made him think there was something in Mr. Macoun's argument. He had, in the past, believed that the fruiting of the tree was a question of maturity, or an endeavor to perpetuate its kind, but was willing to believe there was something in the theory his son had advanced until it was disproved.

After this discussion some time was devoted to "Mendel's Law," Mr. Roy Cameron and Mr. A. E. Attwood taking part in what was said on this most interesting subject.

W. T. M.

BOTANICAL NOTES.

BY JAMES M. MACOUN.

PICEA ALBERTINA, S. Brown, *Torreyia*, VII, 125.

For many years Canadian botanists who have worked in the Rocky Mountains have recognized a spruce that was referable to neither *P. Canadensis* nor *P. Mariana*, and specimens were repeatedly sent by Prof. Macoun to Dr. Sargent, to Mr. Elweis and other tree specialists with the request that they should name and describe what he was convinced was an undescribed species. All these authorities, however, persisted in referring this very characteristic tree to *P. Canadensis*, and it was left to Prof. Brown to describe it. He separates it from the white and black spruces by the following characters: It differs from *P. Canadensis* in the longer, strongly reflexed sterigmata, shorter, broader and darker colored cones with broadly rounded scales and minute sharply angled bracts, and from *P. Mariana* in the lighter colored smooth twigs with longer sterigmata, and light-blue or blue-green leaves, and cones with broader, entire scales with angular tipped bracts. This is the common spruce throughout the Canadian Rockies between the Canadian Pacific Railway and Crow Nest Pass, growing generally in low ground, and in the Bow River valley near the railway it is the most abundant tree. Near the museum at Banff.

SAGITTARIA CUNEATA, Sheldon.

Dr. J. H. Faull has collected this species at Bond Lake near Toronto for three successive years. Its occurrence, so far from its known range, is remarkable, but there seems no doubt about Dr. Faull's diagnosis being correct.

MUHLENBERGIA SCHREBERI, Gmel.

M. diffusa, Willd., *Cat. Can. Plants*, II, 194.

Southwestern Ontario between Niagara and Amherstburg.

MUHLENBERGIA TENIUFLORA (Willd.) B. S. P.

M. Willdenowii, Trin.: *Cat. Can. Plants*, II, 195.Southern Ontario from Belleville (*Macoun*) west to Galt (*Herriot*).MUHLENBERGIA MEXICANA, (Linn.) Trin.: *Macoun, Cat. Can. Plants*, II, 184, in part.

Culms diffusely branched throughout from the base; panicles numerous, oblong-ovoid or subpyramidal, rarely linear, the base usually enclosed within the subtending leaf-sheath.

Apparently rare in Canada, all our specimens having been collected between Ottawa and Galt, Ont.

MUHLENBERGIA MEXICANA, (Linn.) Trin. subsp. COMMUTATA, Scrib. Rhodora, IX, 18.

M. Mexicana, Macoun, Cat. Can. Plants, II, 194 in part.

Lemmas awned; awns 4-10 mm. long. Otherwise as in the species. Our specimens range from Ottawa to Pelee Point, Lake Eric.

MUHLENBERGIA FOLIOSA, Trin.

M. Mexicana, Macoun, Cat. Can. Plants, II, 194 in part.

M. sylvatica, Macoun, Cat. Can. Plants, II, 195 in part.

Culms branched above rarely to the base, branches elongated; panicles narrowly lanceolate to filiform, long-exserted, densely flowered, more or less interrupted especially towards the base. A very common species from New Brunswick west to Winnipeg.

MUHLENBERGIA FOLIOSA, Trin., var. AMBIGUA (Torr.) Scribn. Rhodora IX, 20.

Lemmas awned; awns 4-10 mm. long. Otherwise as in the species. Owen Sound, Ont., No. 26,244. (*John Macoun*). Galt, Ont. (*W. Herriot*).

MUHLENBERGIA RACEMOSA, (Michx.) B. S. P.

M. glomerata, Trin.; Macoun, Cat. Can. Plants, II, 194 and 391.

From Newfoundland to British Columbia.

SPOROBOLUS FILIFORMIS, (Thurb.) Scribn.

Growing at the edge of a little pool where water dripped over rocks at the S.E. end of Chilliwack Lake, B.C., alt. 3,500 ft. No. 26,430 (*J. M. Macoun*). New to Canada.

LUZULA PIPERI, (Coville). Con. U.S. Nat. Herb. XI, 185.

Growing in dense clumps on gravelly "snow-slides" at 7,000 feet altitude on the first summit west of the Skagit River, B.C. No. 70,307. (*J. M. Macoun*). New to Canada.

HABENARIA STRICTA, (Lindl.) Rydb., Bull. Torr. Bot. Club, XXIV, 189.

H. gracilis, Macoun, Cat. Can. Plants, II, 15.

All the localities cited for this species by Prof. Macoun are on

the B.C. coast or Vancouver Island. It has since been collected at many places in the interior. Emerald Lake, Rocky Mountain Park, No. 65,652; Revelstoke, B.C., No. 27,160 (*John Macoun*); Revelstoke, B.C., No. 69,981 (*C. H. Shaw*). Trail, Columbia River, B.C., No. 65,656; Sophie Mountain, south of Rossland, B.C., No. 65,657; several localities in the Skagit Valley, B.C., Nos. 70,241, 70,242, 70,245 and 70,246; Chilliwack Valley, B.C., Nos. 65,651, 65,654 and 65,655 (*J. M. Macoun*). Chilliwack Valley, B.C., Nos. 70,243 and 70,244 (*W. Spreadborough*).

PARNASSIA MONTANENSIS, Fernald and Rydb, N.A. Fl. XXII, 79.

P. palustris, Macoun, Cat. Can. Plants, I, 159 in part.

Easily separated from *P. palustris*, with which it was formerly included, by its shorter petals and conspicuous hypanthium. *P. palustris* has petals nearly twice as long as the sepals, in *P. montanensis* they barely exceed the sepals; the hypanthium is inconspicuous in the former and fully half as long as the sepals in the latter. *P. palustris* has usually 9-15 staminodia, *P. montanensis* 7-9. Our specimens are all from the Rocky Mountains and were collected at Laggan (No. 65,294), Cascade (No. 8,580), Wapta Lake (No. 65,295), Crow Nest Pass (No. 20,170) and Moose Mountain, Elbow River (No. 20,171). The Moose Mountain specimens were collected at an altitude of 6,500 feet.

RHUS OCCIDENTALIS, (Torr.) Blankinship, Mon. Agr. Coll. Sci. Stud., I, 86.

R. glabra var. *occidentalis*, Torr.; Macoun, Cat. Can. Plants, II, 505.

R. glabra, J. M. Macoun, Can. Rec. Sci. 1895, p. 11.

Though perhaps to be considered only a variety of *R. glabra*, *R. occidentalis* is distinguished from it by its longer, usually less spreading leaves, usually larger number of leaflets, shorter calyx and linear-oblong anthers. All our specimens are from west of the Selkirk Mountains. Deer Park, Columbia River, B.C., No. 4,471; Spence's Bridge, B.C., No. 4,473 (*John Macoun*). West of Cascade, B.C., No. 63,749; Pend d'Oreille River, B.C., No. 63,748 (*J. M. Macoun*). Kamloops, B.C., No. 70,323 (*E. Wilson*). Kamloops, B.C., No. 4,472 (*Fowler*). Apparently not abundant anywhere in British Columbia.

SONCHUS ARVENSIS, L.

Recorded in THE OTTAWA NATURALIST, XXI, 150, from Golden, B.C., as only western station. Mr. E. Armstrong reports that he has seen it at Armstrong, B.C. for at least three years.

REPORT OF "THE ZOOLOGICAL BRANCH, 1907.

To the Council of the Ottawa Field Naturalists' Club:—

In presenting the Report of this Branch of the Club's work for 1907 your leaders have to announce that the interest manifest in the study of zoology, as evidenced at the Club's excursions and in the contributions published in THE OTTAWA NATURALIST, shews no signs of diminution. In the first place the members of the Branch feel bound to record their pleasure at the erection of a splendid new zoological station by the Dominion Government at St. Andrew's, N.B., and the publication in connection therewith of a scientific report which includes a number of valuable papers on Marine Biology, etc., by eminent Canadian Zoologists. A new station of a similar character is now being completed at Departure Bay on the British Columbia coast in the vicinity of one of the richest marine zoological grounds in the Pacific waters—perhaps one of the richest in the world. Prominence was given to these marine researches at the May meeting of the Royal Society, when Professor Prince, one of our leaders, gave an address on Canadian Marine Biology, and zoological subjects were dealt with in a number of able papers. The subject of abnormalities in various animals was discussed at the same meeting, and in connection therewith it may be stated that Professor Prince has secured a remarkable specimen of a small sturgeon in which the long and powerful tail is absent, and in the absence of a true caudal member the anal fin has grown round the blunt terminal stump and acts vicariously as a tail.

The same gentleman obtained a specimen of *Helix* which had evidently taken up a permanent position in a niche in the smooth bark of a wild cherry tree. That the snail moved a little was plain from a small patch of dried glistening mucus below the niche; but as the smooth cuticle of the tree had apparently grown over the shell of the living animal, it appeared as a small protuberance. The patch of mucus alone revealed the fact that the small rounded prominence like a button was the shell of a living snail. If the marine crabs like *Inachus* are protected by overgrowths of sea-weeds on their backs, this land *Helix* in the case mentioned was as effectually protected. Professor Sydney Hickson says: "If the plants be artificially scraped off the crab will go in search of fresh ones . . . and then deliberately decorate the carapace with them as before. There are some mollusks that artificially decorate themselves with little shells and other objects in such manner as to completely hide their general form. . . . In both these cases it is clear that the reason of the phenomena described is that of affording a covering

or mantle which hides or obscures the real form and character of the living animals." The specimen of *Helix* is in many ways even more remarkable if the covering of its shell be really an overgrowth of the outer bark of the tree upon which it was found resting—the tree being one on the banks of the Gatineau near Wakefield.

Mr. Andrew Halkett spent the Summer collecting and observing in the two new provinces of Saskatchewan and Alberta, and devoted his attention especially to the fishes, numerous specimens of which were collected, and the following list of determined species from the chain of lakes in the Qu'Appelle Valley, Saskatchewan, and from Beaver, Hastings, and Cooking lakes, Alberta, are here given as follows:—

- Buffalo-fish (*Ictiobus bubalus*).
- White Sucker (*Catostomus commersonii*).
- Red Horse (*Moxostoma aureolum*).
- Spawn-eater (*Notropis hudsonius*).
- White-fish (*Coregonus clupeiformis*).
- Tullibee (*Argyrosomus tullibee*).
- Common Pike (*Lucius lucius*).
- Brook Stickleback (*Eucalia inconstans*).
- Nine-spined Stickleback (*Pygosteus pungitius*).
- Sand Roller (*Percopsis guttatus*).
- Pike-Perch, or Doré (*Stizostedion vitreum*).
- Yellow Perch (*Perca flavescens*).
- Johnny Darter (*Boleosoma nigrum*).
- Burbot, or Ling (*Lota maculosa*).

Besides these certain small cyprinoids and percoids, and one or two larger fishes await determination.

Besides fishes, numerous specimens belonging to other classes of the animal kingdom were collected or observed. Some batrachians are plentiful in the two provinces, and specimens of frogs (*Rana*), toads (*Bufo*) and salamanders were collected. Both provinces appear to be poor in reptiles; no turtles were seen, but rattle-snakes (*Crotalis*) are known to inhabit certain localities in Alberta. A few specimens of a garter-snake (*Eutainia*), with a bright orange dorsal band were obtained in the Qu'Appelle Valley.

The valley of the Qu'Appelle is a regular paradise of birds, and so is Beaver Lake in Alberta, but as birds are the theme of the ornithological branch, they are not referred to further here; and in the same way, it may be said, that some insects are being submitted to Dr. Fletcher, and no doubt the entomological branch will bring to light anything about them which may happen to be worthy of mention.

The following observations regarding mammals may be of interest. Rodents, especially the little gophers, were very plentiful all over the prairies, and a few specimens of different kinds of rodents obtained. A covote, or prairie wolf, was seen walking over a field, some 50 yards away, in the Qu'Appelle Valley; and having an opportunity Mr. Halkett paid a visit to the park in Alberta where the recently acquired herd of buffalo have been introduced. He saw about 30 of the bulls herding by themselves, but the park was too extensive to devote the time to go over the whole of it. They were massive animals, but whether owing to their transportation, or because the environment did not suit them, the most of them appeared to be in poor condition. The tracks of the escaped bull, of which so much was mentioned in the newspapers, were also seen along the shores of Beaver Lake. A shrew was found in the village of Chipman, Alberta, and three bats were obtained in the Qu'Appelle Valley.

Whilst horses and cattle appear to be in the finest condition in the valley of the Qu'Appelle, Mr. Halkett was struck with the entire absence of sheep on the ranches. On enquiring for the reason of this, he was told that it was impossible to keep them because they eat the leaves and plumose styles of a plant which the people call the prairie crocus (*Pulsatilla hirsutissima*) which are said to form masses in the stomachs of the sheep and cause their death. Cattle, on the other hand, are said to eat this plant with impunity.

An unusually handsome toad (*Bufo americana*) was obtained by Mr. E. E. Lemieux at Victoria Park, Aylmer, P.Q., and the same gentleman secured a specimen of the milk-snake (*Natrix sipedon*) in the vicinity of Chats Falls, containing over 40 perfect young, each about 6 inches long. The date was October 1st, and the capture is remarkable, not only as illustrating the viviparous character of this species, but extending its breeding season to a much later date than before recorded. Fuller notes on this capture will appear immediately in the 'Ottawa Naturalist.'

Several specimens of the lake sturgeon (*Acipenser rubicundus*) from Lake Deschene and the Ottawa River, near the Rifle Range, Ottawa, have been mounted and placed in the collection in the Fisheries Museum; but the most remarkable local find of the season, perhaps, is a specimen of the soft-shelled turtle (*Trionyx spinifer*) from l'Ange Gardien, Province of Quebec. This turtle belongs to the Super-family Trionychoidea, whereas the most of the turtles of Canada belong to the Super-family Cryptodira, and it is surely a rarity.

Two special reports entitled: 'The Local Movements of Fishes' and 'The Unutilized Fishery Products of Canada,' by Prof. Prince, Commissioner of Fisheries, have just been published in the 40th Annual Report of the Department of Marine and Fisheries; and a report of the Canadian Fisheries Museum by Mr. Halkett, treating mostly of the vertebrate portion, and especially of the fishes in the collection form Appendix 14 of the same official report.

EDWARD E. PRINCE,
ANDREW HALKETT,
W. S. ODELL,
E. E. LEMIEUX.

MEETING OF ENTOMOLOGICAL BRANCH.

Meeting held at the residence of Mr. W. Simpson, 16th Jan., 1908. Present: Messrs. Fletcher, Young, Baldwin, Metcalfe, Wilson, Letourneau, Gibson and Simpson.

Mr Young exhibited a beautifully prepared case showing the life-history of the Silver-spotted Hesperid, *Eudamus tityrus*. The food plant of this species, the Common Locust, specially dried and very life-like, was shown in the centre of the case with several of the larvae working in their characteristic manner, with the body hidden inside a case made from several of the leaflets spun together around it. While examining the case a discussion arose as to what effect intense cold and freezing have on insects, and several instances were given by those present of insects having been found embedded in ice and which had afterwards revived. Reference was also made to a paper in the 22nd annual report of the Entomological Society of Ontario, 1891, by Mr. H. H. Lyman, entitled "Can Insects Survive Freezing?"

Dr. Fletcher showed specimens of a fine collection of Tenebrionidae and a pair of *Dynastes tityus*, which had been sent to him by Prof. H. F. Wickham, of Iowa City, the well known coleopterist and an Honorary Member of our Club. He also showed an ant lion from Kaslo, British Columbia, sent by Mr. J. W. Cockle and gave a short account of the larval habits of this insect. From the same place and collector he also exhibited a handsome pair of the large and rare water fly *Chauliodes californicus*, which, in general appearance, resembles the well known Hellgrammite Fly, but has an entirely different head. The specimen had been named by Prof. J. G. Needham, of

Cornell University. Specimens of *Nisoniades icelus* and of *N. brizo* were shown and the differences between the two species pointed out. It is sometimes difficult to decide to which a certain specimen may belong, but there is no doubt if the male can be secured, because of the presence on the hind tibiae of the male of *icelus* of a long tuft of silky hairs which does not occur in *brizo*. Specimens were also shown of *Chrysophanus dorcas* and *epixanthe* and of the suffused female of *helooides* which has been named *florus*.

Mr. Metcalfe brought living larvæ of a *Calopteryx* and of *Sympetrum rubicundulum*. He also showed specimens of the imported beetle, *Naccerdes melanura* which he had found in large numbers on a wharf in the Canal Basin at Ottawa on the 13th July last. Dr. Fletcher stated that it had also been found under similar circumstances in Montreal and Mr. Harrington had once taken it at Ottawa. Mr. Metcalfe said that he had taken it abundantly and frequently in Toronto among the produce warehouses on Front street. Mr. Metcalfe also showed a small collection of insects taken at Namao, Alberta, by Rev. W. J. Conolly. Among these were noticed a specimen of the Horse Bot Fly, *Gastrophilus equi* and several specimens of *Colias eriphyle*. Mr. Metcalfe also made an exhibit of three boxes of determined Homoptera and Heteroptera, among these being some species new to the district recently named for him by Mr. Van Duzee, of Buffalo, and including *Ceresa constans* which he had found abundantly on three special basswood trees at Hull, P.Q. *Telamona reclinata* was also from the same tree. Several species of aquatic bugs were examined with great interest and many questions were asked as to the habits of the species shown.

Mr. Simpson exhibited some specimens of large water bugs, *Ranatra*, *Belostoma*, etc., which he had taken at Ottawa some years ago, and also a specimen of *Zaitia fluminea* with the eggs on its back. He also exhibited some photographs by Mr. A. J. Brabazon of the Grand Pacific glacier which he had visited 14 years ago, and also one of the same glacier taken by Mr. D. H. Nelles during the past summer showing the remarkable recession of this glacier of over 7 miles in 14 years. It was mentioned by Mr. Simpson that this tremendous wasting away of the glacier had been anticipated by Dr. Otto Klotz in 1894.

Mr. Baldwin showed a box containing insects which he had received at different times from the Ottawa Fruit Exchange, including several species of *Blatta*, a fine specimen of *Periplaneta americana*, and a large Lamellicorn beetle. Among specimens taken at Ottawa was a fine specimen of *Albana pyramidalis*.

Mr. Letourneau exhibited some specimens of the Wanderer,

Feniseca tarquinius, also the curious pupa and a well blown larva, all collected at Ottawa. The butterflies were rather abundant for one or two days near the Experimental Farm last season, but as a general thing this is rather a rare species at Ottawa. It was explained that the larva feeds upon the Woolly Aphis of the Alder.

Mr. Gibson showed specimens of the Oriental Moth, *Cnidocampa flavescens*, which had been reared from cocoons received from Prof. H. T. Fernald, of Amherst, Mass. The history of the occurrence of this insect was given as related by Prof. Fernald in his bulletin No. 114. Riker mounts were exhibited showing the development of the larvæ of *Halisidota caryæ* and *H. maculata*, both of which had been particularly abundant during the past summer in eastern Canada. Reference was made to the irritating hairs of these species which led up to a discussion on the Brown-tail Moth. An account was given of the wonderfully successful efforts being made by Dr. Howard and Mr. Kirkland in the New England States and also by the Government of Nova Scotia in that province towards the control of this serious pest. Mr. Gibson showed also a series of inflates of the larvæ of *Isia isabella*, running almost from pure red to black, without any admixture of the other colour.

W. S.

COUNCIL MEETING.

A meeting of the Council of the Ottawa Field Naturalists' Club was held on December 10th in the Normal School with the President, Mr. W. J. Wilson, in the chair. Members present were: Messrs. A. E. Attwood, A. Halkett, E. E. Lemieux, H. H. Pitts and T. E. Clarke, Miss Q. Jackson and Miss I. Ritchie.

The following were elected ordinary members: Messrs. R. W. Brock, M.A., Wm. Young, B.Sc., Jas. G. Wallace and W. E. Carson.

It was decided that all mail matter, unless specially addressed to other officers of the Club, should be delivered at the Secretary's address. This decision was caused by the difficulty of taking care of the exchanges received at the Normal School.

REVIEW.

SUMMARY REPORT OF THE GEOLOGICAL SURVEY FOR
THE CALENDAR YEAR 1907, pp. 132.

This report, as usual, records the additions that have been made to the Geological Museum during the year. These include a large number of mineral specimens and fossils collected chiefly by members of the staff. Mr. Spreadborough, who collected on Vancouver Island during part of the summer, sent in skins of 94 mammals and 172 birds, and in a few weeks Mr. Harold Tufts collected 171 skins of birds and mammals in Nova Scotia. From the Ottawa region two interesting specimens were secured, one an albino Virginian deer, from North Wakefield, the other a black chipmunk from Kingsmere. The museum staff, in anticipation of the completion of the new Victoria Museum, is collecting material for exhibition there and Prof. Macoun reports that in addition to the mounted specimens in the museum, 2,302 bird skins and 1,106 skins of mammals are stored in air-tight boxes and unless for purpose of comparison will not be disturbed until needed for the new Museum. Mr. Spreadborough is in the field this winter hunting and trapping large mammals. Of the mammal skins now stored away, 439 are of large mammals and 667 of small ones, sufficient material in itself to make a very creditable showing. Over 72,000 sheets of flowering plants in the herbarium have been catalogued and numbered. A collection of woods on a large scale was commenced last summer and trunks of 41 species of trees were secured. A series of tree photographs was begun at the same time, forty species being photographed. These photographs will be a permanent record of our forest trees and the condition of the forests at the present time. As is the case with all reports issued now by the Geological Survey, a very complete and carefully prepared index closes the volume.

THE NATURALIST WRONGLY PAGED.

For some unexplained reason the paging of the last number of THE NATURALIST was changed by the printer. The October number ended with page 120, but the November number begins with page 153. The error was not noticed by the Editor until after the November issue was distributed, and nothing can now be done to rectify it. Pages 121-152 inclusive will be missing from Vol. XXI.

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