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APRIL, 1902.

VOL. XVI, No. 1.

# THE OTTAWA NATURALIST.

Published by the Ottawa Field-Naturalists' Club.

## CONTENTS.

	PAGE
1. List of Members of the Ottawa Field Naturalists' Club....	4
2. The Report of the Council of the Ottawa Field Naturalists' Club for the year ending March 18th, 1902. ....	7
3. Treasurer's Report for the year 1901-02....	13
4. A Remarkable Spring, by Dr. J. Fletcher ....	13
5. Birds of Sable Island, N.S., by W. E. Saunders ....	15
6. Five New Ranunculi, by Edw. L. Greene ....	32

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(ISSUED APRIL 8, 1902.)

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VOL. XVI.

1902.

THE  
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Being Vol. XVIII. of the

TRANSACTIONS

OF THE

OTTAWA FIELD-NATURALISTS' CLUB.

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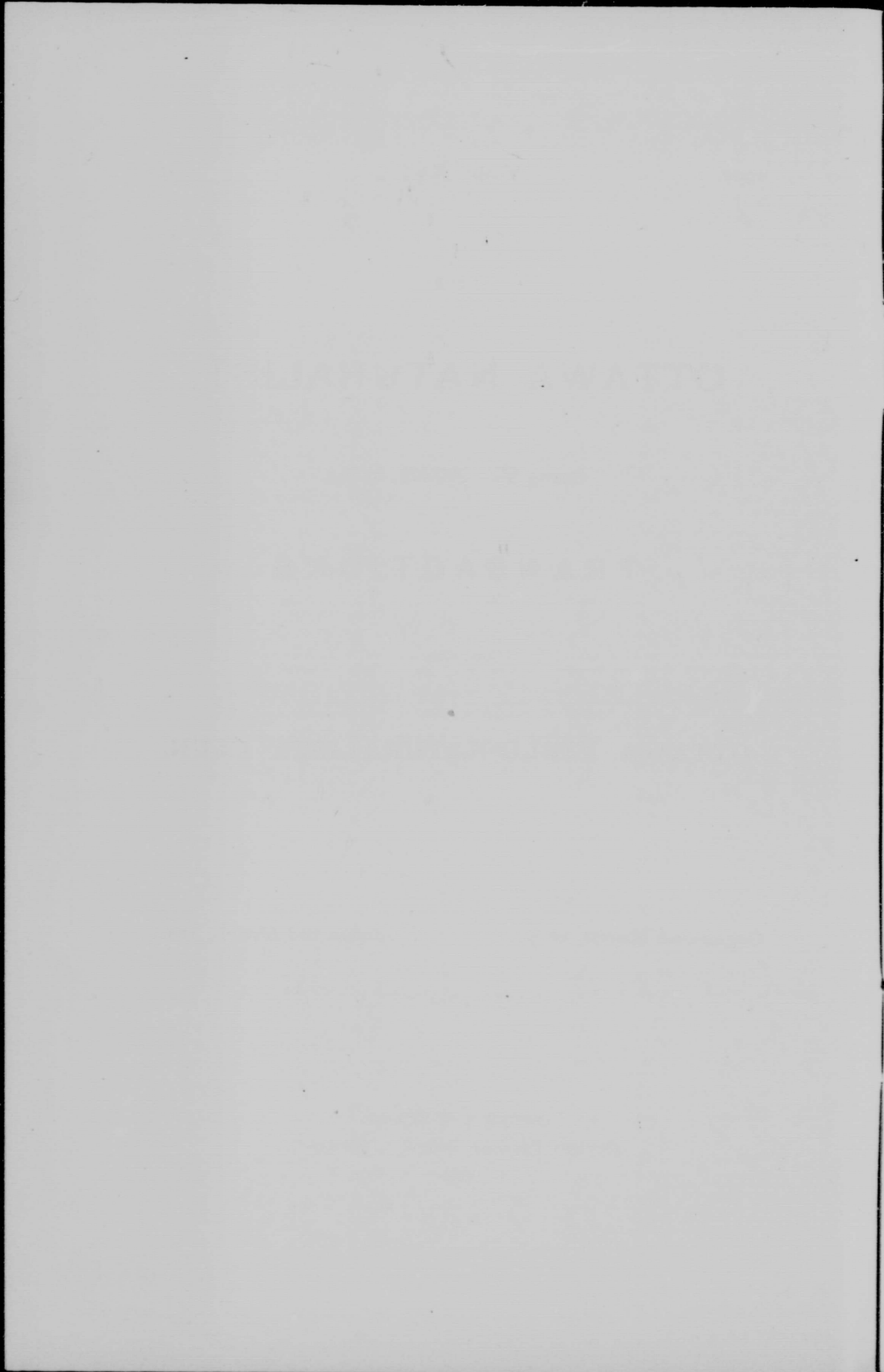
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# THE OTTAWA NATURALIST.

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VOL. XVI.

OTTAWA, APRIL, 1902.

No. 1.

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## THE REPORT OF THE COUNCIL OF THE OTTAWA FIELD-NATURALISTS' CLUB FOR THE YEAR ENDING MARCH 18TH, 1902.

The Council of the Ottawa Field-Naturalists' Club beg leave to submit the following Report of the work of the Club for the year just closing :

### MEMBERSHIP.

The total membership of the Club at the present time is about 250 ordinary members and seven corresponding members.

Mr. W. J. Wilson, the Secretary, represented the Club at the meeting of the Royal Society of Canada held in this city in May last, and read a brief statement of the Club's work during the year.

### SPECIAL LECTURES.

Dr. James Fletcher delivered a lecture on "Nature Study" before the Normal School students.

### SOIRÉES.

The Soirée Committee deemed it advisable to depart somewhat from the usual custom in preparing the winter course of lectures, and secured prominent lecturers outside of Ottawa for three out of the seven evenings. These gentlemen were: Rev. Robert Campbell, of Montreal, who spoke on "The Ferns of Canada"; Prof. E. W. MacBride, of McGill University, Montreal, who spoke on "The Present Position of the Evolution Theory"; and Mr. W. E. Saunders, of London, Ont, who lectured on "Native Birds." The success of the whole course both in interest and attendance amply justified the Committee in making the change.

The programme was published on page 214 of THE OTTAWA NATURALIST. The course was carried out as published except that Prof. Prince was called away to British Columbia and was not able to give us his address on "Whales and Whale Hunting."

In addition to the above, Dr. Conway MacMillan, of Minnesota University, delivered a most interesting lecture under the auspices of the Club on "Marine Biological Stations on the Strait of Fuca, B.C.," on Saturday evening, February 22nd.

The attendance at all these lectures was good, in some cases reaching 300 or 400. Five of these lectures were illustrated by lantern slides, and the Council desire to express their appreciation of the very efficient manner in which Mr. J. P. Dunne managed the lantern.

#### EXCURSIONS.

The Excursion Committee made early arrangements for a number of sub-excursions for Saturday afternoons and also for a general excursion to Chelsea, but unfortunately circumstances over which the Committee had no control seriously interfered with successfully carrying out all of them.

The first sub-excursion was to the vicinity of Beechwood, 27th April, and was attended by about 80 members. Fifteen species of *Utica* fossils were collected, and twenty-three species of plants were found in bloom.

The second sub-excursion was held on May 4th, at Britannia, where over 100 attended. Many interesting specimens both of plants and rocks were collected. The sweet coltsfoot, a plant rare in this district, was found on that day. Heavy rain on the two following Saturdays made it unfit to go out, but on the 24th of May, about twenty members, a large number of whom were ladies, met at the Exhibition Grounds, Bank street, and walked out to Hog's Back and round by Billings' Bridge. The interesting rock formations at Hog's Back were studied and several facts in Pleistocene geology observed.

The general excursion to Chelsea was arranged for the 1st of June, but that day proved most unfavourable. About seventy members and friends met at the Central Station and decided to go notwithstanding the downpour of rain. Considering the inclement weather considerable work was done. Large numbers of plants

were secured and two or three species of Pleistocene shells. A smaller number went to the same place the following Saturday, June 8th.

A most gratifying feature of these excursions is the large number of young boys who attend, and who are becoming enthusiastic collectors and close observers.

#### THE OTTAWA NATURALIST.

THE OTTAWA NATURALIST, the official organ of the Club, was issued regularly during the year under the able editorship of Mr. James M. Macoun. Vol. XV. is made up of twelve numbers containing 286 pages, also three maps, six botanical plates and five palæontological plates. There are over fifty titles of papers, of which the most important are :

Bird Notes from Point Pelee, Ont., by Harry Gould.

Ancient Channels of the Ottawa River, by R. W. Ells, LL.D.

Notes on a Supposed New Species of *Lytoceras*, by J. F. Whiteaves, LL.D.

The Sources and Distribution of the Gold-bearing Alluvions of Quebec, by R. Chalmers.

Allies of *Stellaria Media* (L.) Cyrillo, by Theo. Holm.

New Plants from Alberta, by Edw. L. Greene.

The Late George Mercer Dawson, and Bibliography, by H. M. Ami, D.Sc.

Ross's Gull, by Prof. E. E. Prince.

The Golden Eagle, an Addition to the Fauna of Middlesex County, by J. E. Keys, London, Ont.

Notes on a Turtle from the Cretaceous Rocks of Alberta, by Lawrence M. Lambe.

Contributions to Canadian Botany, by James M. Macoun.

The Algonquin National Park of Ontario, by Archibald M. Campbell.

The Extinction of the Elk in Ontario, by L. H. Smith.

The Canadian Species of the Genus *Whittleseya* and their Systematic Relations by David White.

Some New Canadian Gentians, by Theo. Holm.

The Physical Geography of the Red River Valley, by D. B. Dowling.

My First Namesake, by Samuel H. Scudder.

On the Autumn-Flowering of Various Wild Plants in 1900,  
by Cephas Guillet.

Tringites Rufescens, Buff-breasted Sandpiper, by G. A. Mc-  
Callum.

Fat in the Animal Body ; its Function and Origin, by A. T.  
Charron.

Prehistoric Camping Grounds along the Ottawa River, by T.  
W. Edwin Sowter.

Notes on the Winter Birds of the Cariboo District, B.C., by  
Allan Brooks.

Some of the Birds of Algoma, by C. T. Scott.

Rattlesnakes and Scorpions, by J. R. Anderson.

On Some Canadian Species of *Gentiana*; *Sectio Crossopetolæ*,  
Frœl, by Theo. Holm.

An African Dipnoid Fish, by Andrew Halkett.

Certain Canadian Violets, by Edw. L. Greene.

Alligator and Turtles as Pets, by W. S. Odell.

Fauna Ottawaensis, by W. Hague Harrington.

Nesting of Some Canadian Warblers, by Wm. L. Kells.

On the Genus *Panenka*, by J. F. Whiteaves.

Some New Northwestern *Compositæ*, by Edw. L. Greene.

The Spots on the Eggs of the Great Blue Heron, by W. E.  
Saunders.

Mammals of the Chilliwack District, B.C., by Allan Brooks.

Synopsis of the Birds of the Saskatchewan, by Eugene  
Coubeaux.

Some New Canadian *Senecios*, by Edw. L. Greene.

Besides these and other papers, THE OTTAWA NATURALIST  
contains ornithological notes by W. T. Macoun and Dr. Whit-  
eaves, book reviews, and reports of excursions and soirées, etc.

The Treasurer reports that the finances of the Club are in a  
satisfactory condition, and that there is a balance on hand of  
\$129.28.

The Geological Branch reports that considerable progress has  
been made, much additional material obtained and reports and  
papers published bearing on the Geology of the Ottawa District.  
Besides the collections of fossils which were obtained on several

sub excursions, notes bearing on the stratigraphy and character of the rock formations were made and a number of interesting photographs prepared which show the nature of the strata at many points where they had not previously been observed. Some of these photographs are used in illustrating points of interest in the geology of Ottawa and vicinity in Dr. R. W. Ells' Report on the Geology of the Ottawa District. The report mentions many interesting features in connection with the geology of this district, and gives a list of fossils from the Utica formation, also a list of fossil sponges from geological formations about Ottawa, and a list of Pleistocene shells from the sand-pit about two miles above Hog's Back on the Rideau River. Reference is made to the Geological Map of Ottawa and Vicinity just issued by the Geological Survey Department, and the report points out how useful such a map will be to working naturalists.

The Botanical Section reports that as usual the Club's excursions were well attended by those interested in Botany. At all of these excursions one or more of the botanical leaders was present and assisted in the determination of the different species collected.

Several new species have been added to the local list during the year. These include four violets new to science, of which descriptions have appeared in THE OTTAWA NATURALIST. It is proposed to complete the publication of Dr. Fletcher's Flora Ottawaensis this spring.

In the report of the Zoological Branch it is pointed out that "it is difficult to present new matter annually in the field of local zoology, and that it is hardly to be expected that many additions to the vertebrate fauna excepting in the lower orders, such as fishes, reptiles, etc., can be made. However, some interesting facts have been placed on record." Among these may be mentioned Mr. Halkett's study of a Dipnoid fish (*Protopterus annexens*), a full account of which will be found on page 184 of THE OTTAWA NATURALIST. Reference is also made to specimens of the bow-fin and gar-pike from the Bay of Quinte, which were preserved in formaline, thus preventing the disappearance of the natural colours of the fish. A quantity of Pacific herring was obtained for the purpose of investigating a remarkable case of mortality in these fish near Nanaimo in January last. It is stated

that the waters of the straits off Nanaimo were covered for an extent of hundreds of acres with dead herring lying two or three feet thick. Reference is also made to the Biological Report from the Marine Scientific Station founded by the Dominion Government on the Atlantic Coast, and to the Marine Invertebrates of Eastern Canada by Dr. J. F. Whiteaves.

The Entomological Report draws attention to the continued investigation of the life-histories of many of our insects, especially at the Central Experimental Farm, where Dr. Fletcher and his assistants have bred various interesting species and where a fine series of inflated skins of larvæ has been prepared by Mr. Gibson. Mr. Young has also continued his excellent work in the same line. The report also mentioned some of the more interesting insects observed during the year, and the entomological papers which have been published in THE OTTAWA NATURALIST and elsewhere.

The Ornithological Branch reports that the usual notes and records have appeared in THE OTTAWA NATURALIST, and that the active work has been about the same as in former years, though much of this has been done by ornithologists residing outside of the Ottawa district. In this connection mention is made of the excellent work done by Mr. W. E. Saunders. The dates of the arrival of 107 species of birds have been published and about 20 more dates of other species have come to hand but not yet published.

From reports received from various places in Canada and one place in Michigan, the ornithological editor of THE OTTAWA NATURALIST has been able to publish a comparative table of the first arrival of birds in different parts of the country.

The Club again desires to publicly express its thankfulness to Dr. J. A. MacCabe, Principal of the Normal School, for the free use of rooms in that building for our library and for Council meetings, and for the Assembly Hall for four evenings. Our thanks are also due the Young Men's Christian Association for the use of their Assembly Hall for four evenings; and to the daily newspapers for inserting free notices of our meetings.

ROBERT BELL,  
President.

W. J. WILSON,  
Secretary.

## THE OTTAWA FIELD-NATURALISTS' CLUB.

*The Treasurer's Statement for the year ending March 18, 1902.*

RECEIPTS.		EXPENDITURE	
1901		1902	
March 20—To balance . . .	\$256 46	March 18.—By printing OTTAWA NATURALIST, Vol. XV. 12 numbers pp. 286 . . .	\$267 70
1902		Illustrations . . . . .	98 70
March 18—Subscriptions		Authors' extras . . . . .	64 50
1901-02 . . . . .	144 00	Wrapping and mailing . . . . .	6 00
Arrears . . . . .	54 10	Postage . . . . .	23 15
Advertisements . . . . .	198 10	Editor . . . . .	50 00
Authors' extras sold . . . . .	42 60		510 05
OTTAWA NATURALISTS sold . . . . .	34 09	Less 5% on printers' bill, for cash . . . . .	21 04
Government Grant . . . . .	200 00		489 01
		Miscellaneous printing—	
		Circulars . . . . .	9 15
		Advertising . . . . .	3 60
			12 75
		Soiree expenses . . . . .	92 70
		Excursion expenses . . . . .	63
		Stationery . . . . .	1 20
		Postage . . . . .	6 83
		Balance . . . . .	129 28
			732 40
	\$732 40		\$732 40

March 18, 1902.

Audited and found correct.

JAMES FLETCHER,  
*Treasurer.*J. BALLANTYNE,  
R. B. WHYTE, } *Auditors.*

## A REMARKABLE SPRING.

Not even the proverbial "oldest inhabitant" can remember a spring which opened at Ottawa as early as the one we are now enjoying. From the beginning of February till the end of March the weather has been almost uniformly fair and mild. March 3rd was cold and blustery, but from that on the days were bright, and the snow melted away gradually without floods or an undue amount of slush or mud. The return of the spring birds and the blossoming of native plants are good indications of the progress of the season. Certainly no spring within the recollection of the

writer has been so early as the present one, and the following dates seem worth putting on record for future reference.

The Horned Lark, which generally may be looked for in the middle of February, was this year three weeks behind time. Every other record, however, is far in advance of the usual date at Ottawa. Leaving my house on the morning of March 15, a lovely warm day, I first noticed a pair of English Sparrows carrying straws to their nest. On a mountain ash tree Pine Grosbeaks and Cedar Waxwings were seen eating the berries. Bohemian Waxwings were looked for but none were observed. On the road to the Experimental Farm, flocks of Pine Siskins and Chickadees were busy in the cedars as though to add their testimony to that of the last named and to remind us that winter was not yet gone. In contradiction to this idea, Song Sparrows were on this day heard for the first time—not a single bird, but several—singing their joyous song from the topmost branches of the alders in a piece of swamp land. Robins appeared in numbers also on this day, although single birds had been seen several days earlier. As the Experimental Farm was reached, numerous Crows, some of which had wintered in Dow's swamp, were noisily proclaiming that spring was actually here, and the modest little song of the Horned Larks echoed the good news. Later in the day Red-winged Blackbirds were seen among the rushes on the banks of the Rideau canal. The next record was of the Cowbird on March 22, Bronzed Grackles came in flocks on the 23rd, the Bluebird on the 24th, and the Slate-colored Junco on March 27. As a rule the Song Sparrow is the first arrival and may be expected about March 28.

"Frogs" were heard whistling vociferously at the very early date of March 25.

The first flowers of the year were Snowdrops on March 26, in sheltered spots, Crocusses on March 29 in similiar places, and Siberian Squills on 31st. The Silver Maple, usually our first wild plant to blossom, had fully expanded flowers on March 30, but Mr. W. J. Wilson observed some blossoms on his record James street tree on the 26th; my earliest previous record was April 2 in 1898. On March 30 also Hepaticas in bloom were collected at Hull, and on March 31 the swamp Alders had some catkins fully expanded.

J. F.



## BIRDS OF SABLE ISLAND, N.S.

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By W. E. SAUNDERS.

Sable Island lies about sixty miles south of the nearest coast of Nova Scotia, and 150 miles a little southeast, from Halifax. Most people who have any idea at all about Sable Island think of it as a desert sandbar, over which shaggy ponies glean a scanty subsistence from the tough native grasses and on whose shore many lives have been sacrificed by shipwreck during the past three hundred years ; but I viewed the island from an ornithological standpoint, and as usual the point of view made all the difference in the world. Instead of being a desert island on which there was scarcely anything to interest one, it had for several years been known to me as the only home in the world of the Ipswich sparrow, and so far as I knew only one ornithologist had enjoyed the privilege of seeing this bird during the season of housekeeping. It is called the Ipswich sparrow from the fact of the first specimen having been killed by C. J. Maynard near Ipswich, Mass. Had its life history been fully known when it was named it would of course have been called the Sable Island sparrow, and such should be its name now, for not only is Sable Island the only breeding ground in the world, but an island upon which no other land bird breeds. When an ornithologist has an opportunity of visiting a bird whose summer home is so little known, there is small wonder that he should forget all about the reputation of the island as a desert and think only of the rare treasure, ornithologically-speaking, which is to be obtained there.

So it may be imagined that I very gladly accepted the invitation to be one of the party that was to reach Sable Island on May 16, and remain till the 23rd to make some experiments in planting the island with forest trees ; and looking back on our trip it must be said that not only were my own expectations of enjoyment more than realized, but even other members of the party who had no great expectations were very loath indeed to leave when the last day came.

More than forty persons have their constant residence there, and the men of these families are employed in the work of the life saving stations and the two lighthouses. Every morning and

every evening the entire shore of the island north and south, from end to end, is inspected. In bright weather this inspection is made from the lookout by means of field glasses, but when, as was almost always the case during our visit, a fog lies over the land, the inspection must be made on horseback so that no person could get wrecked upon the island and remain undiscovered for more than about 12 hours. Immediately after the completion of each inspection, a telephone message is sent to the main station, reporting the result. A definite hour is set for these reports, so that they are all sent in together. At the time of our visit this hour was half-past six in the morning, and the same time in the evening; but, of course, as the seasons alter, these hours would need to be changed.

The temperature, while not high is extremely stable. Our visit lasted seven days, during which time the thermometer varied only 21 degrees, namely, from 38° to 59°, the variation for each day being only about 12°; and the greatest daily variation we experienced was only 17°, from 42° to 59°. This was on May 22 which was a very warm, bright day. Fogs are of almost daily occurrence, and while we had the good fortune to have sunshine on three days of our seven, there was only one on which we did not have fog, and on some we had nothing else. There is a record of nine consecutive weeks of fog at about this time of the year, but we were told that later on in the summer during August and September, the weather was all that one could wish, and the bright, warm days were exceedingly enjoyable.

As the inhabitants are all government employes, there is no commerce on the island. All supplies have to be brought from the mainland, and most of these are provided by the government, which sends a vessel twice a year to supply the needs of the inhabitants. Sometimes these visits are postponed as was the case in October, 1900, when it was found impossible to send supplies at all; and the boats which should have reached the island at that time landed its cargo, after two attempts, in the month of March. This delay caused a waste of 100 barrels of cranberries, which had been picked for the market and which are about the only agricultural export the island yields.

The superintendent, Mr. Robert J. Boutilier, has now been in office for about seventeen years, during which time he has brought the life-saving work up to a high standard of excellence, and he is certainly entitled to the highest credit for the present efficient state, which is in marked contrast to the condition of affairs before his incumbency. His kindness and that of his family was very much appreciated, and cannot be too highly spoken of. We were made to feel at home from the moment we landed, and when we left, our farewell was a pressing invitation to come back at the first opportunity and make a further visit. When Mr. Boutilier went there he had the landsman's dislike of drinking surface water, and instead of settling down to use the rain water from the roof he sank a well in order to get pure water, at some depth. What was his surprise to find that the fresh surface water was merely floating upon the salt water beneath, and no matter how deep the well was sunk only salt water was obtained.

The island is in the form of an elongated crescent, with its concave side to the north. It is nearly 25 miles long and only about a mile wide in most places. At each end it tapers down to a point of bare sand without any sign of vegetation whatever, and over which the sea sweeps at every high tide, and with every stormy wind. Approaching the island as we did from the north, the first view we received of it rather confirmed our ideas of a desert. All along the north side there is a line of sandy cliffs, varying from 40 to nearly 100 feet high. These are occasionally broken by gulleys which the wind has made, but the general effect is of one continuous cliff. The face of it is, of course, of bare sand, with very little vegetation, so that one receives the impression of white sand with only a scanty covering of grass upon the top of the hills. As the steamer approached closer we could see but little more of the island, as the cliffs barred our vision. But soon we could make out the men bringing the surf boat from its shelter to the water's edge, and it was not long before the first of the Sable Islanders stood on the deck of the *Minto*. We were, of course, eager to land, and took the first opportunity of doing so. While we were waiting for the boat to come out we were much interested in watching the large school of codfish which

swam around the vessel so thickly that scores were in sight at once. The crew tried to catch some, but stale bait did not seem to appeal very strongly to the taste of the fish. One or two only were hooked and none captured. As we approached the shore in the surfboat, we saw quite a number of seals, which permitted a very close approach, but they did not seem so inquisitive about a boat as they did subsequently about a person or a dog on shore. We had no difficulty in landing, as the sea was quite calm. The boat was simply rowed towards shore till it stopped. Then, as the waves retreated, some of the party jumped out, while those less agile were lifted by the crew and carried to dry land. Starting up for the centre of the island we were all interested to find many specimens of the eggs of the skate, which Capt. Knowlton, of the *Minto*, told us he had always known as a boy, under the name of "the devil's wheelbarrow." The body of the egg is about  $1\frac{1}{2}$  by  $2\frac{1}{2}$  inches square and  $\frac{1}{2}$  to  $\frac{3}{4}$  inch thick. From each corner projects a curved horn about from 4 to 6 inches long, and from the sides are string-like substances by which the mother fish attaches the egg to the sea weed in the bottom of the ocean, where it remains until torn from its moorings by current or storms, when it is cast upon the shore. These we found in large numbers, not only at the landing-place but in most other localities on the island.

The boat house was in the mouth of one of the gullies, which had been torn through the sand cliff by the wind. Near the west side of the gully stood a conical pyramid of sand, which had originally been a part of the continuous hill running from east to west. Apparently the gully had been made in two parts, and when the second one had been excavated this pyramid was left standing between the two. It is a perfect cone of about 30 or 40 feet in height, and gives one a good idea of the power of Sable Island winds.

The records show that winds of 40 to 60 miles an hour are common, and even 80 miles has been reached. Unfortunately we were not favored with any extremes of weather; most of us would have enjoyed the experience of meeting a wind travelling at the rate of 60 miles an hour at least; but although on one or two occasions we had one of 30 miles, it never went any higher. To

one accustomed to a land breeze, however, a 30-mile wind feels quite strong, and one has to bend forward considerably in walking against it.

Passing up through the gully we got our first sight of the interior of the island, and at once our idea of a desert was dissipated. From the hill tops on the north the land sloped away southward in an undulating manner until it almost reached the level of the ocean, and while the higher hills were but thinly covered by the long, creeping grass, *Ammophila repens*, there was a variety of plant growth on the lower ground which was as green as it would have been in any other part of the world before the new spring shoots become conspicuous. Before us lay the superintendent's house, painted white, and its front yard consisted of an acre or two of timothy and clover, which was as green as an Ontario field. Beyond the house lay a couple of small ponds, and south of them again the large inland lake of salt water, which extends fifteen miles through the interior of the island. Across this lake is a long, low sandbar separating it from the ocean. At times this bar attains the height of ten or twenty feet, and is then covered with creeping grasses and other beach plants.

At one time an opening in the bar permitted the entry of fishing schooners into the lake; but once two of these that took refuge from a storm through this passage, were caught, as the storm from which they fled closed the passage, and thus prevented their exit, unless it could be made overland, which was eventually accomplished.

From east to west the island is of the same general character, except that towards the east, there are many large patches of cranberry and crowberry, the former of which is gathered in quantities for the market.

The vegetation on Sable Island is strongly modified by the fierce winds which hurl particles of sand at one's face with such a force that their sting is felt severely; and so thickly that there seems to be a stratum of mist just above the beach. The effect of this assault on soft-leaved plants can readily be guessed, and Mr. Boutillier told us that on his willow tree, which is planted in a fence corner and grows three feet above the fence each year, the leaves turn black and die after some of the strong winds in

summer. It seems hardly worth while for this tree to bother growing above the fence at all, as it is killed back each winter to the level of the protection. At the time of our visit the dead wood of last year's growth was still on it, but all the living buds were below the fence-level. As a result of these strong winds, all the plants of the island seem to grow dwarf; the common juniper, which is a variety of *Juniperus communis*, curls and twists its trunk around on the ground, while the little branchlets grow more or less upright to the height of a foot or two. Even the blackberry, *Rubus* (sp ?) creeps along the surface, which method is greatly appreciated by the visitor from the mainland, who has been accustomed to work his way through their tangle with much caution and considerable laceration of cuticle. The blueberries, which are numerous and large, are quite frequently lifted completely free of the sand in which their mother-plant is growing, but very often the sand has to be blown or washed off before eating. The meadow rue, *Thalictrum* (sp ?), which had its first leaves unfolded at the time of our visit, showed no sign of any intention of leaving the earth any further beneath it than was absolutely necessary.

Yet it would be unfair to condemn the vegetation of the island by its appearance at that period of the year, when the maximum day temperature had barely reached 60; for the residents told us that the grasses, goldenrods, etc., are "waist-high," in the late summer, and Prof. John Macoun, is reported to have found over 190 species of flowering plants there. Of ferns, we found three species—Polypody, *Polypodium vulgare*—the Lady Fern, *Dryopteris spinulosum* (var ?), and the Cinnamon Fern, *Osmunda cinnamomea*. The two latter were scarcely above ground, but roots were taken which proved to be of these species. With all this variety present, it will be readily understood that in the lower and more fertile parts of the interior, the upper layer of soil has become turfy and black, and could doubtless be used to grow fine crops were it not for the reason that, if it were turned under and cultivated, the wind would probably blow a lot of it into the Atlantic during the succeeding winter.

Gulches 50 yards wide and more, torn through the sand cliffs on the north coast, were frequently seen. Around the telephone

poles and fence posts, wind is said often to scoop a round hole, often of considerable depth ; at other times, when Boreas is in a building mood, it is piled up around the telephone poles, until once it occurred that the line had to be moved to prevent the wires from burial. Some of the poles we saw had only about six feet left projecting out of an original height of 25 or 30 feet.

My first thoughts on Sable Island were not for the success of the forestry experiment, but for the little birds who made this strange island their only home, and my ears were on the *qui vive* for the first notes ; and although it was foggy and rainy, as we approached the superintendent's house I could hear some sparrow-like chirps, and in a moment or two I heard the first song of the Ipswich sparrow, and was delighted to think that I would have them at such close range as the front yard of the house in which I was to stay. They proved to be very common, and one could hardly go to the door without seeing on the board walk which stretched away through the hay field, a pair or more, while their song could be heard at almost every moment of the day from the same point of observation.

As the rain continued, and it was therefore deemed unnecessary to proceed with the work of the trip at once, I took advantage of the opportunity in spite of the weather, to start off on a tramp up the island. By far the most numerous of all birds there were two terns—the common tern and the arctic. These are the small gull-like birds with the forked tail, whose skins have been used so much in the past few years for the decoration of hats. On Sable Island they are in thousands ; one can never go out of the house without having them in sight and in hearing ; nor is there any place on the island where it is possible to escape their presence. The common tern probably outnumbered the arctic by about two or three to one, but the habits of the two are so familiar that they may be considered together. The roseate tern, a more southern form, breeds in small numbers, and had just arrived at the time of our visit. The nesting places of the other terns were scattered all over the island. They breed as a rule in communities, although we saw a few places where it seemed as though perhaps less than half a dozen pairs would nest together. We were too early for the height of the breeding season, but the birds had begun to lay, and

perhaps every third or fourth nest would have from one to three eggs in it. These are used by the inhabitants very largely for food, and a hungry man can dispose of a good many such small eggs, but the birds are in such numbers, and are such persistent layers, that it is not very long before the inhabitants tire of eggs as a diet, and the birds are thus allowed to raise their young in peace. Even before this period arrives it is impossible for the inhabitants to eat all the eggs that are laid by so many tens of thousands of birds; therefore many nesting places are left untouched, and the egg collecting is largely confined to those localities more accessible and convenient to the houses. Although too early for the main crop of eggs, yet three of our party one evening gathered over a hundred eggs in about twenty minutes. They reported the nests as being so close together that one could step from nest to nest, and this was also the case on a small island in one of the fresh-water ponds, which I visited, where there were probably a hundred nests in a space not more than twenty yards long. The majority of the nests were merely a hole scooped in the sand, but a fair number had more or less straw and dry grass as a lining; and a very few had quite a compact and thick lining of the same material. The eggs vary much in color, the normal type being clay color with blackish spots, probably  $\frac{2}{10}$  of the eggs being thus colored. A few are of a rich dark brown, similarly spotted while at the other extreme about one of the hundred is of a clean pale blue, almost or quite unspotted. At least two common species of gulls show a similar variation. The birds are exceedingly graceful flyers, living almost entirely upon the wing, and catching their prey, which consists of small fish, by darting down and taking it from the water, sometimes without wetting more than the bill, while at other times the force of the plunge is not sufficient to carry the bird deep enough to catch the fish. They feed largely upon a long, slender fish, called the lance, and also upon sticklebacks, which grow to a length of about  $3\frac{1}{2}$  inches. Over every favorable piece of inland water the birds may be seen hunting at all times of the day, and thousands more are out upon the ocean, following the schools of cod, which chase the small fish, driving them to the surface, where they become the prey of the terns. Their call is heard everywhere, and at all times. Even in



the night, when the wind permits, one can hear an occasional call, and in the day time I do not suppose that one could locate himself in so remote a spot that he would hear their calls as seldom as every half minute, and when one visits a nesting ground the other extreme is reached and it is often impossible to converse with one's companion except by great exertion.

The Ispwich sparrow, which was the chief attraction to me on Sable Island, is an insular race of the Savanna sparrow of eastern North America. In the struggle for existence for thousands of years on this bleak little islet, the bird has become considerably larger and much paler than the continental form. The increase in length is about 13mm., or 8 per cent. The breeding ground of this bird was for many years unknown, and not until 1894 was the bird fully studied and written upon. Previous to that time it was known as a migrant from Georgia to Maine and Nova Scotia, and as a straggler to Newfoundland, but it then disappeared from sight, though it was vainly hunted in the breeding season on Prince Edward and Cape Breton islands and in Newfoundland. At last a few shrewd guessers surmised that it must breed on Sable Island, and finally a skin sent from there in summer settled the matter, but its summer history was not known until Dr. Jonathan Dwight, jun., of New York, braved the inconveniences of the passage to the island, and spent three happy weeks there in May and June, studying the summer habits, song, etc., of this interesting species. Shortly afterwards he published a complete and very interesting monograph of this sparrow, including also an account of the history, climate and other features of the island, thus giving to the world the details that had so long been wanting.

I was far more favored in my visit than he, as the season was more advanced, and the weather brighter and more favorable and I found that the intervening period of time had been auspicious for the sparrows, as they were much more abundant than he represented them to be in 1894. I found many nests, most of them being incomplete, but in seven instances I was able to take sets of eggs, four containing 5 eggs, and the remaining three 4, showing a marked difference from the Savanna sparrow, which almost invariably lays 4 eggs in this locality.

The variation in the colors and markings of eggs is very great, some resembling those of the Savanna sparrow, others with a lighter ground and larger blotches resemble those of the vesper sparrow, while one set has very small spots and is of a general slaty hue, resembling the eggs of the horned lark, and yet another closely resembles some sets of the bobolink. The nest is built in a similar manner to that of the Savanna sparrow, an excavation of nearly an inch being made among long, fallen grass of last year's growth, and the nest is seated in this excavation and built up about two inches above the ground level. It is well concealed, and would be difficult to find were it not that the bird is very particular as to the proper condition of grass, and as this condition is rather unusual, one's search is reduced to a trifle. Towards the eastern end of the island where the crowberry, *Empetrum nigrum* grows abundantly, a patch of it is often selected as a nesting site, and the task of discovery becomes more difficult.

The song resembles very closely that of our species, but the ending, instead of being a grasshopper-like buzz, as with us, is aptly described by Dr. Dwight as "pre-e-e-a." Reading these letters in a book conveyed no very definite idea of the sound to my mind, but when I heard it I realized that not only was the description very accurate, but that the sound was almost exactly the same as the call of the tern, which, doubtless, the bird has acquired by dint of hearing this cry thousands of times each day, all summer long. That such changes do take place was proved to me some years ago by hearing a junco that lived in a region of white-throated sparrows, render his song, not a plain series of "chips," as usual, but "chip-chip-chip....chip-chip-chip," etc., in triplets, exactly as the white-throat does.

While the Ipswich sparrows are found during the migration as far south as the Carolinas, it is a remarkable fact that a fair proportion of them reside on Sable Island all winter, the number remaining being usually estimated at about one-fifth of the total. During severe weather many of these are sometimes picked up exhausted and chilled, and are then sheltered and fed till a better season arrives. And not only are the birds themselves thus cared for, but the foxes, which are the chief enemies of this and other birds on Sable Island, are unmercifully pursued at every oppor-

tunity, and in the winter a systematic attempt is made to kill them by traps, poison and the gun. Their numbers are now very much reduced, and the good work still proceeds, so that there is quite a possibility of their utter extermination within a few years.

After the terns and sparrows, the most abundant bird is the semi-palmated plover, well known through most parts of the country in the migration, but which is absent in the breeding season, except in the more remote regions of the north. Sable Island is perhaps its most southerly breeding ground, and this probability made the study of this bird very interesting. Along the edges of the large inland lake there is cast up in the spring a fringe of eel grass, varying from one to four feet in width. In this eel grass the plover chooses to place its nest, and it seemed to be of no use whatever to look anywhere else. Each pair excavates three or more nests as a rule, and sometimes lines them as well, using the same material among which it is built. When a person following the shore comes to a pair of these plovers, all he has to do is to follow along this fringe of eel grass and search carefully for a depression, where the nest may be; and my experience was that where one hollow was found, close by would be several others. But I was too early for the main nesting season, and saw but two nests with eggs. The male bird has a curious two-syllabled call, which it gives in rapid succession while on the wing. Its flight at this time, as well noted by Dr. Dwight, closely resembles that of the night hawk, and may extend over two or three minutes at a time with constant calling.

#### THE BELTED PIPING PLOVER.

The only other plover breeding upon the island is the belted piping plover. This is the western variety of the piping plover, and Dr. Dwight noted as one of the surprises of Sable Island that this bird, whose main breeding ground is on the western plains, should be found so far to the east, while the eastern part of the continent is almost entirely inhabited by the other variety. These birds excavate their nest-hollow in the bare, open sand, which makes them exceedingly difficult to find, as the bird leaves the nest at sight of an intruder. One such that I found was on a bare patch of sand in the mouth of a gully, which the wind had cut

through to the North Atlantic, and there was not so much as a single blade of grass within twenty feet of the nest. It is rather a misnomer to call the place where their eggs were laid a "nest," as it was merely a hollow, which contained a single small piece of shell. Later on, the boys told me, the Piping Plover lines its nest very extensively with pieces of shell; but in this case there was only the one fragment, though the set was complete, and the other nest that I found contained only one small bone of a bird about an inch long. The substances must surely be more in the line of decoration than for any assistance in the task of incubation. One of these nests I stumbled upon while skirting the lake one afternoon having just shot the female under the impression that she belonged to the species rather than to the variety; but on picking her up I found that my surmise was incorrect, as the band across the chest by which the distinction is made, really did extend right across, although very faint in the centre, and her mate, who was seen but not killed, had a wide black bar completely across. The other nest, however, cost me much thought and trouble, and were it not that one welcomes difficulties for the sake of overcoming them, it is not likely I should ever have found it.

The male bird seemed to pass most of his time on the shores of the lake about two hundred yards south of the nest and here, on some little sandy knolls, I searched on several occasions without success. Each time the male would run along before me apparently quite concerned, and after a while his call would bring the female. At last I caught a glimpse of her coming through the gully before mentioned leading to the North Atlantic and that gave me the hint I needed. I went back to the gully and the birds followed, but search as I would I could not find that the numerous tracks, which could be readily followed on the loose sand, led to any nest at all. Leaving them for that time, I returned the next day, crept carefully to the top of the hill overlooking the gully, and fired off my gun, in the hope of starting the bird from the nest. But there was no response. After waiting perhaps five minutes the male began calling at me from below, and with the aid of my glass I located him, standing still; soon I saw the female standing near him, and I descended and made another fruitless search. A second time I went back and crept again to the

top of the hill, this time making no noise, but just sitting down to wait and see what might happen. After some minutes I heard the call of the plover, and soon located the male, standing still as before. In a short time the female came down the shore and lit near by; but so long as I remained in sight the birds would do nothing but stand still for a long time, run a short distance, and then stand again. However, I marked carefully the place where I first saw the male and went down to it, took up his back track, and trailed him to the nest, which contained four eggs, laid in the bare sand. I found that on my search of the previous day I had passed within six feet of the nest without seeing it, and during the night preceding my success, a fox passed within ten or fifteen feet of the sitting bird, but, fortunately for me, had not winded her.

These eggs have a beautiful creamy buff ground, dotted with small spots of black, and harmonize very well with the color of the sand in which they are laid, as, indeed, does the color of the bird itself, which is almost light enough to persuade one that a running bird is a fleck of foam being blown along the beach.

#### THE LEAST AND SPOTTED SANDPIPERS.

These complete the list of the four waders that breed upon the island. At the time of Dr. Dwight's visit, the spotted sandpiper was a very rare bird, only two pairs being reported from the whole island. At present it is quite common, and its numbers approach quite closely to those of the least sandpiper. Its habits are, of course, too well known to need any special mention, as they do not differ on Sable Island from those of the bird so familiar throughout Ontario.

#### THE LEAST SANDPIPER.

The least sandpiper, however, is a bird belonging to the far north, and found in only two or three isolated localities south of Labrador. I found them invariably in pairs, evidently mated, often sitting so close together that two could be obtained at a single shot if desired. But the very fact that two were always seen together proved that they had not yet begun nesting, nor did I see any sign of nest-building going on, although their presence was confined almost exclusively to the damp spots and edges of small inland ponds, where they are said to breed. Their

courtship flight was very interesting. The note they used resembled somewhat, to my ear, that of the spotted sandpiper, but was repeated far oftener than is the case with that bird. Sometimes both birds would be in the air at once, but whether the female gave the note as well as the male, I could not definitely ascertain without shooting the birds, which I was very loath to do. The note would be given continuously for perhaps three or four minutes, during which time the bird flies slowly, with steady flapping of the wings, mounting in the air gradually until, when watching them in the evening, one loses sight of them in the gloom.

#### THE DUCKS.

Two ducks, the red-breasted merganser and the black duck, complete the enumeration of the ten breeding birds of Sable Island. Both these species were usually seen in pairs, but on one or two occasions five or six of the black ducks were seen together. The pairs that were seen of this species were doubtless birds to whose nest an accident had happened, as it was too late for the regular laying period, and Mrs. Boutillier had at the house a little duckling, which had been hatched from a nest found two or three weeks before ; and from a setting of last year she has two handsome wild black ducks that will come at call and feed from her hand.

The merganser was less common than the black ducks, and while I saw two birds on three different occasions, I judged them to be but one pair which had not yet begun to nest. Both these species are now much rarer than formerly, Mr. James Boutillier putting an estimate of their numbers at about three dozen pairs of the two species combined, on the whole island. This decrease is, of course, due entirely to the ravages of the foxes, and not, as frequently happens, through the persecution of man, as it is certain that few other ducks are favored with such complete protection as those receive that live on Sable Island. Not only is spring shooting prohibited, and the birds left to breed unmolested, but even in the fall, when the young are fully fledged and fit to be eaten, none of them are shot. The inhabitants control their appetite for duck until the northern birds are travelling south, and the ducks that really belong to Sable Island are left to

migrate unharmed. In addition to this, as I have said before, the foxes are mercilessly persecuted, and no doubt should the present efforts to exterminate them result successfully, the number of ducks breeding on the island would be largely increased, and might even be added to by other species.

As may be supposed, there are no tree birds resident on the island, and it is a curious and noteworthy fact that not only is Sable Island the only breeding ground in the world of the Ipswich sparrow, but also that this is the only land bird that breeds on the island. Nearly all the commoner Nova Scotia birds are found there during the spring and fall migrations as stragglers. All that I saw were the barn swallow, king bird, black-poll warbler, white-throated sparrow, water thrush, and one specimen of the orchard oriole, the latter being exceedingly rare. All these birds are, of course, under unfamiliar circumstances, having to rest largely upon the ground or on fence posts and buildings. But they seemed happy enough, and apparently a few of them remained for several days, possibly waiting for a favourable wind to carry them north.

Of sea birds, three gulls were seen, the herring gull, the great black-backed gull and the kittiwake, the latter being the only one seen in large numbers; of it one flock of several hundred was noted at the west end on May 22nd, while numerous small flocks and individuals were seen all over the island, but they have not yet been found to breed. The greater yellow legs and the red phalarope complete the total list of 21 species of birds which I noted upon the island. The phalaropes live mostly out at sea, and I was told by one of the men on the Government steamer *Arcadia* that he usually sees them far from land, swimming among the beds of floating seaweed, where, no doubt, they feed upon the minute life which finds its home in such places. The sailors call them sea geese. A flock of these birds were flying around the island a few days before my arrival, when they encountered one of the telephone wires, with the result that three of them were injured, one fatally; another lost a wing, and a third recovered itself fully in a few days. I made a specimen of the one whose wing was cut off. A few days later on I was surprised to have the other injured bird fly past me and alight on the edge of the

large lake, where it proceeded to feed quite unconcernedly. After watching it for some time I shot it. I had been hoping that if I ran across any phalaropes I would have the pleasure of seeing them swim, but this one persistently dabbled in the mud and refused to go out into the water. Its breast feathers were quite soaked with water and mud when I took it up showing that it had ventured into the muddy water over the depth of its legs.

#### MAMMALS.

There are no native land mammals on Sable Island. The walrus was formerly abundant on its coasts, but was hunted to extermination long before the memory of the present inhabitants. Two species of seal are common, the larger one of which, the harp seal, was frequently seen off shore, at the time of our visit, among the dozens of the harbour seal, which was very common, several herds of over a hundred each being seen in driving a few miles along the North Atlantic shore. Some pups of the latter were found, evidently recently born, upon the beach, after the herd had wobbled into the sea. The inquisitiveness of the small seals is very great. Unless the sea is very rough, one cannot walk any distance along the beach without assembling an admiring audience of from five to twenty-five of these creatures, which swim along twenty, thirty or forty yards from the shore, with many heads constantly above water, staring at the intruder; and the general effect of their countenances is so human that it gives one the uncomfortable feeling of being stared at, and makes him inclined to let out a yell that will disperse his audience. But he very soon discovers that this does not accomplish the desired result, and is forced to endure their staring with philosophical fortitude. When one catches a pup of the harbour seal the mother swims in the water close to shore, with evident anxiety; but the inhabitants told us that when the pup belonged to the other species the anxiety very soon changed places and fell on the captor, who must run fairly fast to escape the mother of the youngster. The young of the harp seal are pure white, and are born in midwinter. When a band of the harbour seals is drawn out on shore, covering a surface of say 30 yards square, they are visible at a considerable distance, and when the team approaches they commence to pro-



gress towards the water, and as their limbs are so very short, they are forced to hunch themselves along much as does a many-legged caterpillar. Everyone has noticed how, in the progress of a caterpillar, a hump arises behind the head and travels back to the other end. With the seals the motion is very similar, and the effect of a whole section of a beach wobbling down into the water in this peculiar style is one of the most ludicrous sights I ever beheld, and the mainlanders broke into roars of laughter at the attempts of each successive band.

Almost at the opening of the history of the island, cattle were liberated on it, and gradually multiplied until there was quite a good herd there. These, however, were hunted by parties from the mainland, who came over in boats for the purpose, and finally all the wild cattle were exterminated. Horses were next introduced, and some of their progeny are there yet. Swine were at one time wild upon the island, but they were said to devour human bodies from the frequent wrecks, and they were killed off for this reason. Rats have once or twice been a plague to the inhabitants, on one occasion making such inroads into the food supply as almost to threaten their very lives. At another time rabbits were liberated in small numbers and multiplied very rapidly, having a serious effect upon the pasture for the horses; cats were therefore imported to kill them off, and when they had this last nearly accomplished a few foxes were liberated. It took the foxes but a single winter to kill all the rabbits and all the cats, and the inhabitants have been endeavoring ever since to get rid of this last and worst pest. Whether they will succeed or not is hard to say; but for the sake of the birds it is to be hoped that their efforts will not falter.

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## FIVE NEW RANUNCULI.

BY EDW. L. GREENE.

*R. HIRTIPES*. About a foot high, the ascending stems and long petioled leaves very hirsute with long white and shining spreading hairs, this indument extending copiously even to the petiolules of the rather ample ternate or quinate leaves, but not to the flowering branches and peduncles, these almost glabrous: leaves about 3 inches long, the leaflets 3-cleft and rather much incised: flowers very small for the plant, the round-obovate petals not more than  $2\frac{1}{2}$  lines long; sepals small, broadly ovate, obtuse, hirsute, but mostly with broad thin petaloid margins: achenes rather large, forming a large subglobose head, their beaks short, not much curved.

Obtained in woods near Sandwich, Ontario, 5 June, 1901, by Mr. John Macoun, the specimens being labelled by him as representing *R. hispidus*, Michx. and bearing the Canad. Geol. Survey number 33,582; but this is a plant very different from true *R. hispidus*, the foliage being much more dissected, the pubescence more copious and dense, the flowers altogether small and inconspicuous, in comparison.

*R. CARDIOPETALUS*. Low and slender, 4 to 8 inches high, with something of the habit and foliage of a small *R. hispidus* yet in no degree hispid, hirsute, or even villous, but finely appressed-pubescent throughout, thinly so on the older parts, but the half-developed later leaves appearing silky canescent: lowest leaves a half-inch long, truncate at base, 3-cleft to the middle and the segments crenately 3-lobed, the later ones twice or thrice as large, deeply cut into 3 crenate and trifid segments: peduncles 1 or 2, in flower little exceeding the leaves; sepals ovate-lanceolate, acute, strigose-hairy corolla nearly one inch broad, the 5 petals narrowly obcordate: fruit not seen.

At the Whirlpool Rapids, Niagara, Ont., 21 May, 1901, John Macoun (n. 33,581). As to habit, this plant lies between *R. hispidus* and *R. fascicularis*; being like the latter in size, and like the former as to its few and slender roots. Its pubescence is not that of either of those; while the remarkably narrow sepals, along

with broad distinctly obcordate petals must compel its recognition as a good species.

*R. OCTOPETALUS*. Perennial, of the size and the upright habit of *R. acris*, but lower part of stem and the long stout petioles densely and coarsely hirsute: leaves ample, pinnately ternate, the sessile lateral leaflets cleft into 2, the long-stalked terminal one into 3 slightly cuneiform or sometimes almost quadrate segments, these incisely toothed above the middle; the rather loose panicle glabrous; flowers small, the expanded corolla about  $\frac{1}{2}$  inch broad; petals commonly 8, sometimes 7 or 6, almost linear-oblong, obtuse: achenes small for the group, moderately compressed, sharply margined, tipped with a slender almost straight but distinctly inflexed style, not numerous, forming a small globose head.

In marshes of Knox Co., Tennessee, 10 June, 1893, T. H. Kearney; the specimens labelled *R. hispidus*, but surely very erroneously.

*R. RUDIS*. Perennial, the several very thick stems (often  $\frac{1}{2}$  inch in diameter) hollow, therefore weak and reclining, often 2 feet long, rather coarsely and loosely hirsute: leaves ternate, the radical on long petioles, the 3 primary leaflets on nearly equal stout petioles of an inch or less, each deeply cleft or parted into 3 broadly cuneate incisely lobed or toothed segments, glabrous above, villous-hirsute beneath along the veins; cauline leaves similar but short-petioled, the uppermost simple and sessile, incised like the segments of the lower: flowers small, numerous and somewhat paniced near the ends of the branches: sepals oblong-lanceolate, obtuse, hairy, persistent even under the head of full grown fruit: petals small, not even equalling the sepals, round-obovate: achenes little compressed, turgid, smooth, the ensiform beak about as long as the body, the whole forming a large subglobose or almost ovate head.

Discovered in a wet meadow in "Devil's Garden," northern California, (Plumas or Lassen County) June, 1895, by Mrs. R. M. Austin.

*R. INTERTEXTUS*. Stems many, slender, prostrate, interlaced, forming close mats either floating in very shallow water, or terres-

trial on muddy shores, all the stems rooting at the nodes ; herbage wholly glabrous : earliest leaves round-ovate, obscurely crenate, the later ones 3-lobed to the middle, the lateral lobes often 2-lobed all the lobes obtuse or retuse, the sinuses open ; flowers 3 or 4 lines broad ; sepals and petals each 5 ; stamens 8 or 10 : heads of achenes round-ovate, the gynophore oval, perfectly glabrous ; achenes many, small, little compressed, often turgid, tipped with a short stout blunt style.

Common almost throughout the Rocky Mountains, as an aquatic of subalpine ponds and swamps, and hitherto referred to *R. natans* of Europe ; thoroughly distinct from it (1) by leaf-outline ; the Old World plant having leaves 5-lobed and with closed sinuses ; (2) by its round-ovate rather than spherical heads : (3) by an oval and glabrous, rather than spherical and villous receptacle. The species resembles closely the species of *Batrachium* in habit ; yet forms no real connecting link.

A special lecture was given under the auspices of the Club in the Assembly Hall of the Normal School, Feb. 22nd, when Prof. Conway MacMillan lectured on the work of the "Marine Biological Station on the Straits of Juan de Fuca." The lecture was illustrated by a fine series of lantern slides. Prof. MacMillan in his opening remarks described the trip across the C. P. Ry. and exhibited some very beautiful views illustrative of alpine scenery. At the south end of Vancouver Island, where the station is located, a permanent camp has been made with accommodation for a large number of students. Last season's party was composed of men and women from all parts of America. All branches of natural history are studied, and a properly equipped laboratory and photographic dark room simplify the work of the student. Prof. MacMillan himself devoted his attention chiefly to the study of certain groups of sea-weeds, and slides showing many of the most interesting species growing on the rocks and under water were exhibited. The lecturer in closing expressed the hope that what had been said might result in students and teachers from eastern Canada joining his party next year, the special rates secured from transportation companies and the small cost of living at the biological station for the six weeks season making it possible for almost anyone to make the trip across the continent and spend a pleasant and profitable summer on the Pacific coast.

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