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# THE OTTAWA NATURALIST

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1912.

Volume XXVI.

1913.

THE

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Being Volume XXVIII of the

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REPORT OF THE COUNCIL OF THE OTTAWA FIELD-  
NATURALISTS' CLUB FOR THE YEAR ENDING  
MARCH 19TH, 1912.

During the past year eight meetings of the Council have been held, at which the attendance has been good. For the most part these meetings were for routine work of passing accounts, receiving reports, electing new members, arranging for excursions in the spring months, and lectures in the winter, and so forth. The items of special interest were the meetings of the Royal Society of Canada, which were held in the Carnegie Library, on the 16th, 17th and 18th of May. The President of the Club was elected as delegate, and presented a report of our work to be printed in the Proceedings of the Royal Society. Several other members were present and took part in the proceedings.

How to obtain more funds for the publication of THE OTTAWA NATURALIST was a question that came up several times. The arrangement proposed by the Publications Committee will be presented.

Shortly after the arrival of H.R.H. the Duke of Connaught, a letter was sent to him requesting that he continue the custom of other Governors-General and act as Patron of the Club. To this he graciously consented.

The Committee appointed early in 1909 to deal with a suitable memorial to the late Dr. James Fletcher, have completed their labors. In addition to the memorial fountain placed on the Experimental Farm, and unveiled on July 19th, 1910, they purchased with the surplus a painting by Mr. Franklyn Brownell, R.C.A., pronounced an exceedingly good likeness of Dr. Fletcher; this painting was unveiled at a meeting of the Club, held on Jan. 9th, 1912, and it is now hung in a prominent place in the Carnegie Library. Our thanks are due to the Committee for the very satisfactory manner in which they have discharged their duties.

MEMBERSHIP.

During the past year 16 new members have been elected, 15 members have sent in their resignation, and 3 have died. This leaves our present membership 309, composed of 302 active members and 7 corresponding members.

We regret to record the death on the 12th of March of one of our oldest corresponding members, Prof. John B. Smith, D.Sc., of Rutgers' College, New Brunswick, N.J.

## PUBLICATIONS COMMITTEE.

During the past year several meetings of the Committee have been held. One of the most important matters discussed was the expense of publishing THE OTTAWA NATURALIST, and how more funds could be obtained, so as to relieve as much as possible our somewhat straitened financial circumstances. The Committee recommends that in the next volume the numbers for June and July, as well as those for August and September be combined. This will reduce the numbers published by two, and, of course, help to lessen expenses.

We desire to express our appreciation of the good work done by our Editor, Mr. Arthur Gibson, during the past year. In the face of many embarrassing difficulties he has continued to issue creditable numbers. We trust that these difficulties will soon be overcome, and that the Club may be able to publish a larger and even more creditable edition in future.

We also wish to congratulate the Club on its choice of Librarian, Mr. A. E. Attwood. Through his excellent work, assisted by Mr. A. E. Currie, at the Osgoode Street Public School, the publications of the Club have been arranged in suitable quarters and in convenient position.

The Report of the Librarian is as follows:—

The library of the Club, consisting chiefly of about 325 bound volumes, is placed on the north-west stack of the second floor of the Carnegie Library building. On the shelves of the same stack are a considerable number of unbound volumes and also magazines received in exchange for THE OTTAWA NATURALIST. Among the latter are:—

The Auk,  
The Ohio Naturalist,  
The Wilson Bulletin,  
The Nature Study Review,  
The Journal of Geography,  
Le Naturaliste Canadien,  
The Canadian Entomologist,  
Torreya,  
The Journal of the New York Entomological Society.

A little over a year ago the surplus copies of THE OTTAWA NATURALIST were transferred from the Geological Survey Museum to a room in the attic of the Osgoode Street School. All the copies of the Naturalist issued since April, 1895, that is, from Vol. IX onwards, have been arranged in a very orderly manner by Mr. A. E. Currie, who did this work voluntarily some months ago.

It has been frequently mentioned that there were about ten complete sets of the Naturalist still available. From Mr. Currie's work, however, it would seem as if this is not the case. There are five parcels each bearing the legend, "Nos. required to complete this set, Sept., 1891; Apr., 1892; Jan., 1895; Feb., 1895, and Mar., 1896." If these five missing numbers were supplied to each parcel, the Club would then possess five complete sets.

It is quite possible that there are several members of the Club who would be glad to present the Council with copies of the numbers required to make these sets complete.

#### EXCURSIONS COMMITTEE.

In accordance with suggestions made at the last Annual Meeting, the number of outings arranged for the spring months was reduced to one a fortnight, and this was further reduced when the June ones were omitted on account of wet weather or other causes. It is a regrettable fact that far too few of the members availed themselves of the opportunities thus afforded for study; for many of us these are the best and almost the only occasions when field study is possible.

The outings held were:—

April 29th—Mechanicsville.

May 13th—Beaver Meadow.

May 27th—Gilmour's Grove, Chelsea.

A full report of each of these has appeared in THE OTTAWA NATURALIST.

#### LECTURES COMMITTEE.

Shortly after the last Annual Meeting there was a most interesting lecture on the Song Birds of England, by Mr. W. E. Saunders, of London, Ont. This lecture was the result of personal observations on the journey across the ocean, and during the course of a short visit to England. So many English birds are named from their song that, as the lecturer remarked, one has just to listen and the birds will tell their names. He gave good imitations of these, but the finest thing was the reproduction by the gramophone of the song of the nightingale.

During the winter season of 1911-12 there were eight lectures given under the auspices of the Club, including two that were given under joint auspices, the first with the Ottawa Horticultural Society, and our eighth with the officials of the Normal School. Six of these lectures were held in the Assembly Hall of the Normal School, and were illustrated with lantern views. They were well attended and of unusually great interest. The lectures under our own auspices were all given by leading scientists of Ottawa, whose services we were fortunate in secur-

ing. Two of these lectures were given in the Carnegie Library Hall, and were admirably illustrated with specimens. The last lecture of the series was given by Mr. C. W. Nash, Biologist of the Provincial Museum, Toronto.

The programme as carried out was as follows:—

- November 14th, 1911—"Landscape Gardening." Prof. F. A. Waugh, Amherst, Mass.
- November 28th, 1911—"The Big Game of the Ottawa Valley." Prof. E. E. Prince, Dominion Commissioner of Fisheries, Ottawa.
- December 12th, 1911—"Some Insect Friends and Foes." The President, Mr. Alex. McNeill, Chief of Fruit Division, Ottawa.
- January 9th, 1912—"Water and Health." Prof. F. T. Shutt, M.A., Chemist, Central Experimental Farm, Ottawa.
- January 23rd, 1912—"Habits of Some Turtles and Batrachians." E. A. LeSueur, Esq., Ottawa.
- February 13th, 1912—"Variation in Plant Life, its biological significance and practical value." M. Oscar Malté, Ph.D., Ottawa.
- February 27th, 1912—"The Evolution of the World." J. S. Plaksett, B.A., F.R.S.C., Dominion Observatory, Ottawa.
- March 12th, 1912—"Our Native Birds." Mr. Charles W. Nash, Biologist, Provincial Museum, Toronto.
- March 19th, 1912—ANNUAL MEETING. Election of Officers, Annual Reports, Etc.

#### REPORTS OF BRANCHES.

##### THE BOTANICAL BRANCH.

During the past session nine meetings have been held at the homes of different members. Three were held last spring, and the remainder during the past winter. These have on the whole been rather better attended. The subjects discussed have been interesting and practical.

The following is the list:—

- 1.—"A recent visit to Florida and Georgia." by Mr. R. B. Whyte. March 25th, 1911.
- 2.—"Hybrids. How to recognize them and their systematic value." by Dr. M. O. Malté. April 8th, 1911.
- 3.—"Variations in the Wild and Cultivated Species of the Rosaceæ." by Mr. W. T. Macoun. April 22nd, 1911.
- 4.—"Our Summer's Work." by Mr. R. B. Whyte. Dec. 1st, 1911.
- 5.—"Seed types in Fodder Plants: their practical and biological significance," by Dr. M. O. Malté, Dec. 16th, 1911.

- 6.—“Forest growth in Pontiac Co., and other notes,” by Dr. H. M. Ami. Jan. 13th, 1912. This was followed by a discussion on the formation of a botanical garden at Ottawa.
- 7.—“The Wild Oat, and its relations to the cultivated oats,” by Mr. G. Michaud. Jan. 27th, 1912.
- 8.—“Some specimens and results from plant selection,” by Prof. L. S. Klink, of Macdonald College. Feb. 10th, 1912.
- 9.—“How to make the most of a small garden,” by Messrs. R. B. Whyte and J. E. Buck. March 9th, 1912.

The field work, about Ottawa, in botany, in 1911, was confined mainly to the work done by Prof. John Macoun, who spent the summer in this district in order to complete a list of the Ottawa flora, on which he has been engaged for some time. All that remains now to be done is to get the records of one or two collectors whose specimens he has not yet been able to see. During the summer 40 species of flowering plants have been added to the list.

Preparations have been made and work has begun in the laying out of a botanic garden at the Central Experimental Farm, in which it is intended to grow the native Canadian plants. Mr. H. T. Gussow, Dominion Botanist, who has this work in charge, desires the co-operation of the members of the Club, and hopes to obtain many specimens from them. Permanent and conspicuous labels are now being prepared under his direction. These will have, in plain letters, the common and scientific names of the plant, the country or district to which it is native, and the date of planting.

In a visit to Sable Island in September, 1911, Mr. Gussow collected about 100 native species of plants, and added to the list of flowering plants the heather, *Calluna vulgaris*. He also obtained specimens of four species of the more conspicuous fungi, and a number of microscopic ones.

#### THE ENTOMOLOGICAL BRANCH.

The Entomological Branch reports that fair progress has been made in the compilation of the list of the Insects of Canada and Newfoundland, which is being prepared by a special committee of the Entomological Society of Ontario. In the preparations of this list Dr. C. Gordon Hewitt is chairman of the sub-committee on Diptera; Mr. Arthur Gibson, of the sub-committee on Lepidoptera, and Mr. J. M. Swaine, of the sub-committee on Coleoptera. Mr. Swaine is now engaged at the Central Experimental Farm as Assistant Entomologist for Forest Insects and is a welcome addition to the branch.

Progress has also been made in the list of the insects of the Ottawa District, and several additions have been added

during the year. In the October-November number of THE OTTAWA NATURALIST a first list of local Geometroidea was published, in which 168 species were included

#### THE GEOLOGICAL BRANCH.

The past year has been marked by a number of interesting and important paleontological finds by amateurs, and a considerable activity in this district by the Geological Survey.

The most notable find of the season was made by Mr. J. E. Narraway, who was so fortunate as to discover a very perfect little starfish at City View. Not only are good star fishes very rare in themselves, but this specimen has covering plates over the ambulacral grooves, a feature previously entirely unknown among the free echinoderms, and showing a connection of the star fishes with the more primitive stalked echinoderms, the cystids and crinoids.

Next in importance was the discovery by Miss A. E. Wilson of a number of specimens of a plicated *Triplecia*, in the lower beds of the Utica at Dow's lake. This proved to be a new species, and is of very considerable interest in its bearing upon the correlation of the beds in which it was found with beds containing a similar *Triplecia* in Minnesota.

Both Messrs. W. J. Wilson and E. D. Ingall were fortunate finders of entire specimens of *Asaphs canadensis* Chapman, near the locality in which Miss Wilson found the *Triplecias*. Entire specimens of *A. canadensis* had been found at Collingwood and Oshawa, but, with the exception of a single small specimen in the Stewart collection (from New Edinburgh), they have not previously been found at Ottawa. Mr. Wilson found several very good specimens, and Mr. Ingall's single specimen was of great importance, for, being in limestone, it retained the natural convexity, and showed the course of the facial suture, a feature of prime importance. It is now possible to show that the species really belongs to the genus *Ogygites*, and it is, so far as known, the only American representative of that French and Russian genus.

Another interesting addition to the fauna at Ottawa was made by Mr. W. A. Johnston, who, while attending the field outing of the Club last spring at Mechanicsville, found a number of specimens of *Nanno aulema* Clarke, in the Black River limestone. Dr. Percy E. Raymond added three new species of *Bathyrurus* to the local fauna, two of them from the Pamela near Westboro, and one from the lower part of the Trenton in Eastview.

For the Geological Survey, Mr E. D. Ingall and Dr. Raymond, did a considerable amount of work throughout the season, and



their results will be incorporated in reports to be issued by the Survey.

The Treasurer's report shows a balance on hand of \$13.85.

The thanks of the Club are due to Principal White for the use of the Normal School Hall, to the Library Board of the City Council and to the Librarian of the Carnegie Library, for the use of the lecture and committee rooms of that building, to the gentlemen who have so kindly assisted us in our winter lecture course, and to the Press of the city for its co-operation in furthering the work of the Club.

All of which is respectfully submitted.

E. H. BLACKADER, *Secretary.*

### OBITUARY.

#### WILLIAM WHITE.

Lieut.-Col. William White, C.M.G., first President of the Ottawa Field-Naturalists' Club, died at his residence, 185 Wurtemberg Street, Ottawa, on Tuesday, April 2nd, 1911, after an illness extending over a month.

The late Lieut.-Col. White was born in London, England, Jan. 6, 1830. He received his education in a private school and entered the Imperial civil service in 1846. In 1854, he came to Ottawa and entered the money order branch of the Post Office Department and in January, 1861, was made secretary of the department. In July, 1888, he succeeded W. H. Griffin, C.M.G., as deputy Postmaster-General of Canada. This position he held until June, 1897, when he retired.

Lieut.-Col. White was probably more widely known as a military man. In 1859 he entered the Canadian Militia and since that year served in the 3rd Battalion of the Toronto Militia, the Civil Service Regiment, the Governor-General's Foot Guards, and the 43rd Duke of Cornwall's Own Rifles.

Above all things the late Colonel was a lover of nature and spent much time in his garden, experimenting with flowers, fruits and vegetables. He was deeply interested in the work of the Ottawa Field-Naturalists' Club, being one of its founders in 1879, and as mentioned above was our first President. His was a familiar figure for many years at the Club's summer excursions, at which his kindly and genial personality made him one of our most popular and esteemed members.

He was also the first president of the Ottawa Horticultural Society. In addition he has been president of the Ottawa Athenaeum and Mechanical Institute and of St. George's Society. He was made a C.M.G. on completion of the 60th year of Her Majesty's reign, 1897.

F.T.S.

TREASURER'S STATEMENT FOR YEAR ENDING  
19TH MARCH, 1912.

RECEIPTS.

|   |          |
|---|----------|
| Balance from year 1910-11.....                                    | \$ 21.88 |
| Subscriptions:—   |          |
| Arrears.....  | \$ 75.00 |
| 1911-12.....  | 194.35   |
| 1912-13.....  | 37.00    |
|   | \$306.35 |
| Advertisements in Ottawa Naturalist.....                          | 101.70   |
| Ottawa Naturalists sold.....                                      | 2.95     |
| Author's Extras sold.....   | 42.95    |
| Maps of Ottawa sold.....  | .20      |
| Grant from Ottawa Horticultural Society for lecture expenses..... | 25.00    |
| Government Grant.....   | 200.00   |
|   | \$701.03 |

EXPENDITURE.

|  |          |
|--|----------|
| Printing Ottawa Naturalist, Vol. XXV, 11 numbers, including cover..... | \$402.39 |
| Illustrations.....   | 29.25    |
| Author's Extras.....   | 59.26    |
| Miscellaneous printing, circulars, mailing, envelopes, etc.....        | 16.66    |
|  | 507.56   |
| Postage on Ottawa Naturalist.....                                      | 28.82    |
| Editor.....  | 50.00    |
|  | 586.38   |
| Lecture expenses.....  | 72.55    |
| Sundry expense, postages, circulars, etc.....                          | 28.25    |
| Balance.....   | 13.85    |
|  | \$701.03 |

W. T. MACOUN,  
*Treasurer.*

Examined and found correct,

J. BALLANTYNE,

E. C. WIGHT,

*Auditors.*

## THE MOON AND THE WEATHER.\*

OTTO KLOTZ, LL.D., F.R.A.S.

We have learned of the physical constitution of the moon, of her volume and mass, of her phases and rotation, of her borrowed light, of her gravitational or tidal effect on the earth—and now what about her connection with our weather, what about change of the moon, change of weather?

Let us calmly do a little bit of reasoning about this; let us use just a little bit of common sense, and see what conclusion we inevitably arrive at.

The change of the moon, what does it mean? Changing from more light to less, or less to more; that is all, and that goes on constantly, uniformly, from day to day. Practically, there is as much change on any one day as on any other day, so that change of moon as designating something apart from every day occurrence is in reality a misconception. Even if we were to admit certain changes as something quite apart from other lunar characteristics, we will ask, what is it that distinguishes them from other times? The only answer is, that the amount of light we receive is different from that at other times. We all know that the sun is the cause and source of the circulation of our atmosphere, upon which depends our weather. Now, the light received by the full moon is about the 1-600,000 part that of the sun, and, of course, for the other phases still less, vanishing completely at new moon, being on the average only the one millionth that of the sun, which is equivalent to saying that the sun gives us as much light and heat in 30 seconds as the moon does in a year.

Is it then reasonable to expect that the changes in quantity of this minute amount of light—of which furthermore only a fraction is available as heat, for to have any effect on weather we have to deal with heat rays—this diluted light, this homeopathic emanation, would have any effect on our weather? Certainly not. And, remember that when it is new moon or change in Halifax, it is new moon in Ottawa, in Winnipeg, in Calgary, in Vancouver; indeed it is new moon in Japan, in Siberia, in Russia, in England, in Australia, in New Zealand, in Africa, in fact, everywhere. With one accord, however, our weather-wise moon prophets shout, "change in the weather." Don't you think this is a pretty big contract to turn the crank at this particular moment of "change," to change the weather over the whole

\*(Note: On Feby. 29 last Dr. Klotz gave a popular illustrated address at the Observatory on "The Moon". We give the following extract, in which he refers to the Moon and the Weather, as it will undoubtedly be of particular interest to our readers. Editor).—

globe? Think of the very marked change we had a week ago to-day, that storm; it was on the 22nd, new moon or "change" was on the 18th. Furthermore "Old Probabilities" knew that change of weather and storm were coming, for the day before it was about 700 miles to the southwest of us, and our weather generally comes from the west. A beautiful example that of simultaneity of "change of moon, change of weather."

But this is not all. Popularly, there are four changes of the moon in a month, although the new moon change holds, I think the principal place as weather changer. We thus have a "change of moon" every week through the four quarters, so that we have four yanks of the weather crank per month, simultaneous over the whole world. It is so rational, is it not? The whole scientific world or at least the whole world of meteorologists is trying to learn to predict changes of weather by studying the dynamics of the atmosphere, the dynamics of the sun, the rotational effect of the earth, the modifications by land and sea, and yet has failed to discover so simple a rule as "change of the moon, change of weather." As I have already said, in reality there is a change of the moon every day, every instant, which shows the absurdity of selecting any one or four changes as being more potent than others, which are continually taking place.

This superstition of the moon and weather is deep-rooted, I admit. It exists over the whole earth, amongst civilized and uncivilized peoples. If any of these moon-weather wise would take the trouble to note the state of the weather day by day, and compare such with the phases of the moon—or change of the moon—they would soon discover the unreliability of any prediction they might make, in short, would find what scientists have found by close study and observation in every civilized country over the globe that there is absolutely no connection between the moon and weather.

Now, this belief in the influence of the moon on the weather, I venture to say, has not for many generations been evolved by any person from his own recorded observations, but it has been handed down from generation to generation, from father to son, from mother to daughter, and it is so much easier to believe a thing than to try and find it out for yourself. If by chance, change of moon is immediately followed by change of weather, the fact is riveted in the mind to perpetuate the tradition, and if it doesn't fit—well, it's forgotten. Hence, we have the spectacle, the sad, the deplorable spectacle, in this year of grace 1912, in this age of enlightenment, of men and women clinging to this false weather-god. And who are these people that entertain this belief, are they only our ignorant, our common plebians? No, you will find included, men who are intelligent, who are

learned, even professional men and men ornamenting the bench, infected with this *bacillus lunae*.

To this weather superstition is associated superstition of the influence of the moon on man and beast, animate and inanimate matter, for example: sleeping in moonlight causes deformation and distortion of the face as well as sickness (a common belief among sailors); fish are poisoned when exposed to moonlight; the full moon drives away clouds, the French cover this by the proverb—*la lune mange les nuages*—(why not the sun?); farmers kill their hogs at certain phases of the moon, so that the fat swells and not shrivels in converting it to lard; similarly shingles are laid that they will not turn up; fence-posts are set so that they may draw down and not up; sweet-peas, other peas and seeds are planted to conform with the phases of the moon—and a lot of other nonsense.

My friends, all this is humbug, humbug, humbug. The moon has no more to do with the weather and those other things than I have to do with the digging of the canals of Mars. Hence, I ask you, implore you, beseech you, entreat you, exhort you, beg of you, to spread the gospel of truth, combat this superstition, destroy this false weather-god, crush this belief, build a funeral pyre and burn this heirloom of ignorance and superstition, although such heirlooms die hard.

If you do such, your visit here to-night has not been in vain.

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### A SWAMP.

BY FAITH FYLES C.E.F., OTTAWA.

The swamp to which I should like to introduce the reader, if he does not already know it, is one belonging to Mr. S. Chilcott, on the shore of Lake Johnson about  $4\frac{1}{2}$  miles from North Wakefield station. This swamp is quite accessible. Mr. Chilcott owns both a telephone and a 'bus as well as the swamp, and he is very willing to meet you at the station, to drive you to the swamp, to provide a dinner and a guide, and in short, to arrange everything very nicely for you. In front of the swamp there is a little stream looked upon by some as the Rubicon, on the other side of which lies the land of the enemy in the form of black flies and mosquitoes; but those who love wild flowers see beyond, only one more delightful hunting ground. There is a rough road through the swamp which was made by cutting down the trees and allowing them to remain where they happened to fall. This is a little difficult at first, but you soon reach a smoother

path which, in June when the marsh-marigolds are out, winds like a brook of gold among the dark fir-trees and larches festooned fantastically with grey-green Spanish moss. Through their interlaced branches and fine network of needles the sunlight threads itself iridescently and incrusts the dew-wet grasses with jewels. Here are found the delicate white flowers of the Gold-thread, *Coptis trifolia* (L.) Salisb., the Star Flower, *Trientalis americana* (Pers.) Pursh., the Smilacinas, *S. trifolia* and *S. stellata* (L.) Desf., the wild Lily-of-the-Valley, *Maianthemum canadense* Desf., the sweet white Violet, *Viola blanda* Willd., the Wood Anemone, *A. quinquefolia* L. and the finely formed little blossoms of *Mitella nuda*. The flowers of the true Mitrewort, *Mitella diphylla* were nearly over when we were there, only an occasional one was left at the top of the stalk, but the lower mitres were bursting with seeds, looking like bits of jet in chalices of jade. The False Mitrewort, *Tiarella cordifolia* L. was still in bloom, in groups under the trees being much more representative of its other name "Foam Flower." Beside these, lay the greenish flowers of the Clintonias and the *Cornus canadensis*, relieved by the shell-pink bells of the *Linnaea borealis*. Just at this point in the path, on a former visit ten days earlier (24th May), I was fortunate enough to find one of the chef d'oeuvres of nature—that incomparable little orchid *Calypso bulbosa* (L.) Oakes. Like the goddess of silence whose name it bears, it makes its home in quiet secluded spots—most unexpected places. I found it quite by accident. As we were then approaching the swamp proper and sinking to the tops of our rubber boots, to gain a firmer footing I pulled aside a cedar bough and so brought to view the little Calypso in a bed of moss, among a tangled mass of boughs and broken branches. Its tapering amethystine sepals and petals outspread, its waxen pouch and transparent overleaf marked with madder and hung from a slender scape, its solitary green leaf springing from a second small corm, its very delicacy in its rough surroundings make it easily recognisable and quite unforgettable.

We proceeded for some distance between this narrow avenue of towering firs silhouetted against the blue sky like cathedral spires, till we came to open spaces in the swamp itself. Nothing could be more beautiful than these natural parterres of brilliant coloured flowers encircled by the sombre conebearers. Thousands of crimsoned Sarracenias in the centre and all around massed against the sheltering trees were the soft white clusters of Labrador Tea, *Ledum groenlandicum* Oeder. and Buckbean, *Menyanthes trifoliata* L. whose white velvety flowers against the bright satin of their leaves deserve a worthier name; this plant is no less interesting in the autumn when we find its many round

capsules filled with smooth shining amber seeds. Lying deep in the cool sphagnum we discovered the pale yellow flowers of the little Coral-root, *Corallorrhiza trifida* Chatelain and the nodding rose-coloured blossoms of *Vaccinium Oxycoccus* L., with its delicate foliage wandering about everywhere between the pitcher-plants, most capriciously and fancifully. The silky tassels of the Cotton Grass, *Eriophorum viridi-carinatum* (Engelm.) Fernald., waved above the blue flags and tall spikes of the green orchid, *Habenaria hyperborea* (L.) R. Br. and stirred the lightly poised petals of the Lady's Slippers. I found five different species of these last named exquisite orchids in this one swamp: the large yellow Lady's Slipper, *C. parviflorum* Salisb. var. *pubescens* (Willd.) Knight; the smaller one, sweet scented with rich madder-brown sepals behind the yellow lip; the pink stemless, *C. acaule* Ait., looking pale in its unaccustomed damp surroundings; the Ram's Head Lady's Slipper, *C. arietinum* R. Br., and the Showy Lady's Slipper, *C. hirsutum* Mill. These last lovely orchids were growing in great quantity, even more abundantly than the pitcher plants, but we were too early for them, there were not more than half-a-dozen in bloom. The 22nd of June, or a little later, is the best time to see them.

At the side of the path leading into one of the most enticing of these open spaces, there is a stump of a tree, covered with charming mosses and lichens, which our guide proudly designated as the "Lady Grey Stump." Lady Grey paid a visit to the swamp when the Showy Lady's Slippers were in full bloom, and she sat here to rest in the midst of thousands of these beautiful pink and white orchids.

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#### BOOK NOTICE.

WATER-POWERS OF CANADA.—The first inventory ever taken of the water-powers of Canada has been completed by the Commission of Conservation and the results embodied in a large and profusely illustrated report just issued. The investigation made by the Commission, which has extended over a period of two years, shows that there are 1,016,521 horse-power developed from water-power in Canada. Every phase of the subject from the laws governing the disposition of water-powers in the various provinces, to the actual physical data regarding each individual water-power concerning which information was obtainable, is treated in the report. In addition, there is a very full bibliography of 30 pages, and appendices giving, among other things, the text of the laws concerning the export of power and also of the treaty recently concluded with the

United States regarding the establishment of an International Joint Commission.

The volume opens with two chapters of an introductory nature that are concerned mainly with the general economic bearing of water-powers on national development. The relation of water to agriculture, mining, navigation, domestic supply and so forth, is dealt with, and the principles to be used in the interpretation of water-powers data are stated and discussed critically. The broad and optimistic statements very often made on the platform and in the press regarding our vast water-power resources are deprecated. To quote from the Report, "General statements implying that the aggregate amount of water-power must be great because the total water area, or watershed area is so great, or because there are so many lakes and rivers, are generalities to be considered of very little definite value. . . . One of the chief dangers of such generalities is to create in the popular mind a feeling of unwarranted assurance that, even though desirable water-rights are being granted by a government, yet there is so much left, that no apprehension may be entertained regarding the amount of power rights being parted with."

A chapter is devoted to the water-powers of each province in which the general features of the province as regards water-power development are discussed and an outline given of the law whereby powers are granted or leased to private individuals or corporations. The larger developments are also described. The statistical data given in tabular form includes the height of the fall, the horse-power that may be developed, the present development and the main uses to which the power is applied such as lighting, pulp and paper making, etc. Reference is also made to the possibility of increasing the amount of power developed by storage reservoirs and dams where such are feasible.

The power situation in Ontario is treated very fully, special attention being given to the power possibilities at Niagara and the conditions affecting development there. Each of the power companies operating there, whether on the Canadian or American side, is described in detail. A significant reference is made to the granting of franchises to develop power at Niagara Falls. The Report states that the low-water flow of the Niagara river would yield at the Falls, about 2,250,000 H.P., of which Canada's share (one-half), would be 1,125,000 H.P. "Franchises have already been granted," it goes on to say, "and plants partially completed, for the development on the Canadian side of the river, of about 450,000 H.P. In other words, instead of 'millions' of horse-power being available, as has been sometimes stated, it appears that about half, and by all odds the better half, of Canada's usable share of Niagara Falls power has already been placed under private control."



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