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JUNE, 1896.

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THE OTTAWA NATURALIST.

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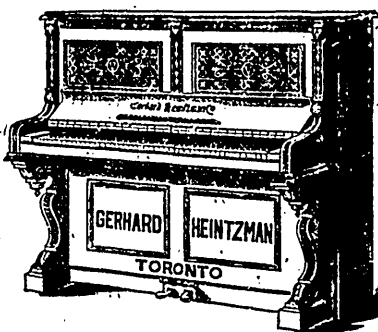
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THE OTTAWA NATURALIST.

VOL. X.

OTTAWA, JUNE, 1896.

No. 3.

ANNOTATED LIST OF SOME NOCTUIDS TAKEN AT OLDS, N.W.T.

By JOHN B. SMITH, Sc.D.

By the kindness of Mr. James Fletcher, Dominion Entomologist, I received recently a little lot of Noctuids in papers, "which," writes Mr. Fletcher, "I asked a friend (Mr. T. N. Willing) to collect for you at Olds, North-West Territory, about forty miles north of Calgary and about sixty miles east of the main chain of the Rocky Mountains." The specimens were not very well collected, and were in poor condition generally; but they are of great interest, nevertheless, and indicate something of the line of distribution of the species. I have received of Mr. F. H. Wolley Dod sendings of specimens from Calgary, which in part duplicate those received from Mr. Willing; but Mr. Dod's collections indicate a somewhat distinctive, more typically western fauna, while at Olds, the fauna is on the whole more northern and eastern. At Calgary the Atlantic and Rocky Mountain faunas join for some species, so that we get forms that are puzzling and intermediate in character; at Olds the northern and eastern types predominate so far as limited collection makes it possible to judge. None of the peculiar or new species taken by Mr. Dod at Calgary occur in this sending from Olds.

The specimens seem to have been collected at light, and the dates run from May 26 to September 2. More specifically, the dates are, May 26, June 3, 4, 20, 21, July 15, 18, 20, 21, 23,

24, 27, 28, 30, August 2, 4, 5, 6, 8, 10, 11, 14, 16, 17, 18, 20, 21, 22, 25, 27, and September 2. The best date, or that on which most specimens were collected, is August 20.

RHYNCHAGROTIS RUFPECTUS Morr., August 18; one male specimen of normal type in all particulars. The species extends across the continent and occurs on the Pacific coast as far south as Los Angeles.

PACHNOBIA LITTORALIS Packard, July 18; one male. The specimen is unusually dark, the contrasts of the fore-wing well marked, but the transverse lines incomplete and somewhat indefinite. The species extends from Labrador into the Northern Rocky Mountain region, and has not yet occurred south of Colorado.

PERIDROMA OCCULTA Linn., August 5 (1); August 8 (1); September 2 (1). Apparently normal forms in all respects, but two of the three are very badly marred. The species occurs throughout the Northern and Eastern United States to Nova Scotia and the Rocky Mountains of Colorado.

PERIDROMA ASTRICATA Morr., August 4 (1); August 5 (1); August 10 (1). All are females, in rather poor condition. In this species and in the preceding the badly marred specimens seem to have been papered while still alive, and the specimens oviposited in their envelopes. The larvæ hatched and apparently devoured most of the body of their parent, before themselves perishing. The distribution is much as in the preceding species.

NOCTUA COLLARIS G. & R., August 16 and 22; two male specimens. Both are large and rather dark forms, with the collar and shade between the ordinary spots well defined; but the other markings tending to become obscure. This is the most western record of this species. It is a typical northern and eastern form.

NOCTUA CLANDESTINA Harris, June 21 (2); July 20 (1); July 24 (2); July 30 (1); August 8 (1); August 20 (1). All are dark typical specimens, and vary only a little in size. A well

marked eastern form, without the least tendency to the *havitæ* type, which is marked in some Calgary examples.

CHORIZAGROTIS BALINITIS Grote, July 15 (1); July 24 (5); July 23 (1); July 27 (2); July 28 (1); August 2 (1); August 2 (1); August 5 (1); August 6 (1); August 14 (1); August 21 (1). Evidently a common species in this locality and probably close to its true home. It has been also recorded from Calgary, British Columbia, and the Mountains of Colorado. I have two specimens labelled "California," but without more exact data. I have never had the opportunity of examining so many specimens of this species before, and find that, as in the others of the genus, there is very little variation except in the distinctness of the markings; well defined in some, almost obsolete in others. The males run smaller as a whole than the females. While the species has a casual resemblance to *messoria* in appearance, it is easily distinguished by the wing form and and by the smooth, somewhat glistening vestiture.

FELTIA SUBGOTHICA Harv., August 20; one male only, of the normal type. This species occurs throughout North America.

CARNEADES RIDINGSIANA Grote, August 20; three male specimens of the normal type. They agree with each other and with specimens from other localities. This species has been heretofore recorded from Colorado, Arizona and New Mexico, and is therefore somewhat of the south-western type.

CARNEADES DISSONA Moeschler, August 20; two males. I make this identification with some doubt, but the specimens seem different from *munis*, and are not *opipara*. The only point in which they fail to agree with typical *dissona* is, that the woolly clothing of the underside is not blackish. On the other hand, it is darker than in *munis*, and I am inclined to believe that we have to do with a local form of Moeschler's species. It will require further material to make this certain, however. Moeschler's species has been thus far recorded from Labrador only.

CARNEADES INSULSA Walker, August 6 and 11; two males. They are in bad condition, but show more red than usual in the ground color. The species occurs throughout the northern and mountainous regions of North America.

CARNEADES TESSELLATA Harris, August 2; one male, one female. They are somewhat different from the usual eastern type, but are unfortunately too poor to serve for purposes of critical comparison. The species occurs throughout North America north of Mexico.

CARNEADES REDIMICULA Morr., August 20; two males, offering nothing unusual. The species is here at the most north-western limit recorded.

MAMESTRA PURPURISSATA, G. & R., August 20; two males in such condition that determination was barely possible. This is the most north-western limit thus far recorded.

HADENA LATERITIA Hfn., July 21 (1); July 27 (1); August 25 (1). The late specimen is a female; but none offer anything worthy of special remark. The species has not yet been recorded from any point west of the Rocky Mountains.

HADENA IMPULSA Morr., July 21; one specimen of usual type. This is a typical northern and eastern species, but also occurs, rarely, in Texas.

HADENA DEVASTATRIX Brace, July 18 and 21: two male specimens. The examples are unusually well marked and the black ornamentation is so contrasting as to obscure the recognition of the species at first sight. Occurs throughout North America.

ORTHOSIA CONRADI Grote, August 4 (1); August 5 (1); August 14 (1); August 17 (1); August 20 (1); four males and one female. I am not quite certain of this determination, because the species of this genus have not yet been satisfactorily studied. They do not seem to be congeneric, and I suspect that one species figures both as a *Xylophasia* and as an *Orthosia*. Of the specimens before me no two are quite alike, and the female is of a much brighter red-brown than any other specimen

I have ever seen. Heretofore the species has not been recorded anywhere nearly so far north-west.

CIRROEDIA PAMPINA Gn., August 27; one specimen of the normal form. Mr. F. H. Wolley Dod has taken at Calgary a series of a remarkably pale form of this species which gives a strange impression and seemed, at first, to indicate a good species. More abundant material, however, proved it to be a local and by no means constant variety, intergrading with the typical form.

DRASTERIA DISTINCTA Neum., May 26 (2); June 3 (1); June 4 (1); June 20 (1). This interesting little form seems to have its home in this region. It has been referred as a variety of *crassiuscula*, and may eventually prove to be such. I have a specimen of *crassiuscula* from Long Island that would easily pass for *distincta*, except that it lacks that the peculiar livid or bluish tinge that allies *distincta* to *caerulea*. The latter species is recorded from California, but I have it also from Oregon, Washington, Vancouver and British Columbia. Calgary seems to be the point of meeting between *crassiuscula* and *caerulea*, and *distincta* appears to be intermediate between the two. Larger collections to the east and to the west of this locality will prove of great interest.

PHILOMETRA GAOSALIS Wlk., August 4; one male of normal type. The species is here close to the recorded western limit of its range.

A LITTLE WOOD AND SOME OF ITS FEATHERED
DENIZENS.

By Miss A. C. TYNDALL.

It covers five or six acres of ground perhaps, and is situated partly on the top of a hill, and partly in a deep hollow or ravine. A beautiful little stream takes its way through the hollow, it runs mostly over a bed of sand, and pebbles of many colours; the water is perfectly clear, the trees—big-leaved bass-woods and large alders—bend over it; giant ferns droop over the tiny tide. A dead and fallen tree, a relic of the old forest, forms a natural bridge for our miniature river, and where the trees meet over-head the wild clematis links them together in most beautifully draped arches. This is in the hollow; on the high ground grow cedars, ashes, and a few elms, thus affording every bird his favourite tree. Such a little wood is always a favourite place of resort and residence with the greater number of our song-birds, and although the larger birds for the most part prefer wilder, more lonely places, where their enemy, man, is not so likely to find them, there are very interesting birds of this latter description to be met with occasionally; from a lone whip-poor-will who has left his fellows in the high woods of the uplands to act as soloist here, or the owl who may be heard holding forth on a stormy evening in the gruesome manner approved of by his kind, to the sparrow-hawk who has turned a hollow "rampike" rising out of the tangled growth of fern and climatis, into a veritable ogre's castle to his small neighbours, by making his nest there.

One of the most beautiful of the small song-birds to be found in little woods like this, is the goldfinch, also known as the yellow-bird or wild canary. Most people are familiar with the appearance of this little finch from seeing it as a cage bird—the male with the golden-yellow of his summer plumage well set off by the black of his cap, wings and tail; his mate no less pretty, though less showy, in her modest garb of olive-green and

yellow. The goldfinch may readily be distinguished from most other birds while on the wing by its peculiar undulating flight, with an exclamatory note which sounds like the syllables *per-chick-o-pee*, to mark each rise and fall.

This bird nests late, building operations usually beginning about July. The nest is one of the neatest, best shaped and woven to be found among birds of his kind ; much resembling that of the kingbird, though much smaller. It may be looked for in a small tree or clump of bushes in the little woods and pasture fields he frequents. This little finch has a sweet voice which is no less pleasing in his call notes than in his very pretty song.

Through July, when song-birds are every day becoming fewer, an untiring vocalist whose clear, but somewhat shrill notes, may be heard from the tall tree-tops from morning till night, is the indigo-bird. This is a very handsome little bird when in full summer plumage, which for some reason or other he very often is not—that is to say that whereas his entire coat, with the exception of the wings and tail, which are black, should be a bright satiny blue, it is very often mingled with the brown feathers of his winter plumage—which is, by the way, the same as that which his mate wears the year round. The nest of the indigo-bird is not the beautifully woven thing which that of the goldfinch is ; it is a little larger, made of dead leaves and grass, and is placed most often in a bush not far above the ground. The eggs are four, are pale blue in colour, and may be found in July.

A bird of dazzling colour, of most gorgeous plumage, is the scarlet tanager, but it is a shy bird, and does not often allow the observer more than a passing glimpse of its rich scarlet and black plumage. Like the greater number of birds of brilliant hue, the female bird, and the young until their second year, are quite different in appearance from the gaily coloured head of the family, their plumage being a dull olive-green.

The scarlet tanager builds its nest about the middle of May, on the horizontal branch of a large tree, generally in the more

sequestered parts of the woods. The eggs number from three to four, and are of a dull blue colour, spotted with two or three shades of brown or purple. The brood is fledged early in July if no accident occurs, and they leave for the south the middle or end of August.

Not so brilliantly coloured as that of the tanager and gold-finch, but lovely in another way, is the plumage of the rose-breasted gross-beak, black, white and rose-pink being his colours. Black head, back and tail, black and white wings with a touch of pink in the linings, white belly and front up to where it reaches the clear bright pink of the breast, this is the striking combination in hues of the plumage of the rose-breasted gross-beak. He has a voice of rich round tone too, which may be heard in his loud rollicking song all through June and July.

This bird sometimes sings while on the wing, and the song thus given has a very pretty effect as he flits rapidly through the groves. Starting from a clump of trees close at hand, he is next heard a little further away, then at some distance, and finally the song dies away far in the depths of the woods.

Another summer visitant often to be met with in small woods and orchards, is the cedar or cherry-bird, as it is often called—perhaps from its love of cherries, which causes the owner of cherry trees to regard it as an unwelcome visitor to the orchard.

It is a handsome bird, with its crested head and soft reddish-brown plumage touched with scarlet and yellow about the wings and tail, but it has no song, and instead, only a peculiar whistling note, not very loud, and not easily mistaken for that of any other bird. The cedar-bird comes in May, and leaves again in September; it nests late, through July and August. The nest is compact and well built, and is placed in a small tree, most often a cedar; the eggs are purplish white with dark spots.

The red-winged blackbird or starling, is another bird who may be met with in the little wood, although his home and chief haunt is the low marshy meadow on its borders. He has a

nest, it seems to me, unnecessarily large, constructed out of rushes and coarse grass, in a thicket of alders there—last year it was in a tuft of rushes, and one of his fellows had one in a bush standing by itself close by—opinions among these birds as to the best location for domicile appearing to differ somewhat.

The red-winged blackbird is a strikingly handsome bird, with silky black coat and scarlet and yellow epaulets, but his ways are not winning, nor his manners the most polished. Without a moment's intermission, as long as I am half-a-mile or more from his domestic possessions, he keeps up a series of shrill complaints and lamentations, fluttering now high overhead, now near the ground, first at some distance away, and then very near—until I am glad to leave the place to him. It is manners like this which often lead to such a birds' being "collected" for other reasons than the good of science.

REPORT OF DOMINION EXPERIMENTAL FARMS
FOR 1895.

By Wm. Saunders, LL.D., F.R.S.C., etc., Director.

The annual report of the Experimental Farms for 1895, recently issued, is a volume of 426 pages, full of information to all those who are interested in agriculture or horticulture. It opens with the report of the Director, which covers 73 pages.

Following a few introductory paragraphs, we find details of experiments with 45 varieties of oats, 36 of barley, 43 of spring wheat, 25 of fall or winter wheat, and 68 of pease, making in all 192 different sorts of grain which have been experimented with during the yast year. The results are given of the sowing of these in groups or plots on similar soil and under similar conditions in every particular. The growth of each sort, showing that there are great variations, which are evidently due to individual characteristics possessed by these different samples.

Among the wheats, barleys and pease tested there are included 87 new sorts which have been produced at the Experimental Farm, by cross fertilizing. Among these there are a considerable number of varieties which are of high quality and very productive.

To gain information as to the best time for sowing, a large number of plots have been devoted to successive sowings of oats, barley, spring wheat and pease; the first sowing having been made in each case as soon as the land was in fit condition to receive the seed, and the subsequent sowing a week apart. The crop in each of these plots has been harvested and threshed separately and the yield of each determined and compared.

Many experiments have also been conducted with a number of varieties of Indian corn, turnips, mangels, carrots and potatoes and information gained as to the quality and usefulness of the several sorts. Tests have been carried on with many fertilizers and combinations or fertilizers, for the purpose of ascertaining their effect on particular crops, and further tests also to learn the

value of clover as a green manure for fertilizing purposes. Experiments have been conducted with barnyard manure, to find out the loss in weight which occurs in this material during the process of rotting.

Particulars of the distribution of samples of seed grain among Canadian farmers are also given, which show that the total number of samples distributed during 1895 was 27,991, and the number of applicants supplied, 26,941.

The testing of seeds for vitality has been continued, and during the past year 1776 samples of grain and other seeds have been tested for farmers, to ascertain whether they possessed that vitality and germinating power necessary to insure good results.

An interesting and useful chapter to all lovers of flowers is that on roses, which contains information on the different classes of roses, their hardiness, and general treatment, which is followed by a list of those sorts which have been grown with the greatest success in Ottawa.

The visits of the Director to the branch farms are also referred to, and a summary is given of the immense correspondence now carried on by the officers of the Experimental Farm with the farming community. The letters received during 1895 number 35,481, and the number of letters and circulars of instructions sent out, 58,592; while the number of reports and bulletins sent out through the mail was 227,631.

This document also includes the report of the Director's assistant and foreman of forestry, Mr. W. T. Macoun. This officer gives a very interesting account of the growth of the various species of trees in the forest belts, with the particulars of the annual growth made by the different sorts, under the different methods of treatment which have been adopted. The hedges, avenues, lawns, borders and flower beds are also reported on, all showing good progress. Some details are given of the advancement made with the work in the Arboretum and Botanic

Garden, in which there were included, at the end of 1895, 935 species and varieties of trees and shrubs and 863 of herbaceous perennials. This fine collection of trees, shrubs and plants is fast becoming one of the most attractive features of the Farm and will, in the future, be a most valuable aid to botanists as a collection for reference, and at the same time will attract the attention of all others interested in this useful line of work.

THE NINTH ANNUAL REPORT OF THE CHEMIST TO THE
DOMINION EXPERIMENTAL FARMS, MR. FRANK T.
SHUTT, M.A., F.I.C., F.C.S.

The first chapter of this report is devoted to a consideration of certain virgin soils from the Province of British Columbia. The analytical data, presented in tabular form, are very complete, showing not only the *total* amounts of plant food constituents in the soils, but also the proportions of these which may be regarded as more or less *immediately available* for crop use. These latter determinations were made according to the method of Dr. Dyer, an eminent English agricultural chemist, and in soil investigations they mark a distinct step in advance of previous work. We infer that it is not only possible by chemical means to ascertain approximately the relative richness as regards the total amounts of the essential elements of fertility in a soil, but that the relative amounts of these that can be at once acted upon by exudations of plant rootlets, may be determined. Such information must prove valuable in suggesting economic and effective methods of soil fertilization.

The details regarding the soils here reported upon cannot now be discussed, but will be found of interest to readers who are wishful to learn somewhat of the character of the untouched soils of our far-west province. This chapter besides diagnosing

and suggesting lines of treatment for the soils under consideration gives a general account of the factors, chemical and physical, that conduce to a soil's fertility.

Under the caption "Naturally-occurring Fertilizers," the composition of a large number of swamp mucks, marsh, river and mussel muds is given. The samples are from very widely distant points in Canada, and the results show that farmers may easily and cheaply in many parts of the Dominion supplement their supply of home-produced barnyard manure, enhancing the fertility of their fields. The composition of the Bracken Fern (*Pteris aquilina*) has also been ascertained. It appears to possess in a marked degree the ability to exhaust the soil of certain mineral ingredients, and hence should not be allowed to spread through pastures, as often noticed.

An interesting chapter appears on the "Nitrogen in the clover crop." The analytical figures show that in the experiment recorded there were 172.3 lbs. of nitrogen stored in the leaves, stems and roots of this plant, per acre. In this way the value of clover as a green manure is brought before our agriculturists. The data of this investigation are particularly interesting.

A short report on moss litter from New Brunswick follows, giving the amounts of fertilizing constituents it contains and its absorptive capacity. Evidently in this dried sphagnum, Canada possesses a most valuable bedding material and one which must come more and more into use in cities, replacing the more bulky straw now employed.

Industrial Fertilizers: These include "Waste from a Shoddy Factory," "Bone and Meat Meal Tankage," "Slaughterhouse Offal, etc., etc., the analytical data being accompanied by directions for their use.

The investigation commenced some years ago into the value of finely ground mineral phosphate has been continued, and some interesting results are here brought forward on this important question.

The chemistry of Arsenate of Lead, a new insecticide

recommended as a substitute for Paris Green, is explained and directions for the preparation of the spraying fluid furnished.

Sixty-five samples of well waters from farmers' homesteads have been examined during 1895 and are here reported upon. The results show a most unsatisfactory condition of affairs, a very large proportion of the wells evidently receiving drainage of a pernicious character.

This report concludes with a detailed account of the composition of Canadian cereals examined at the World's Columbian Exposition, at which Mr. Shutt acted as a professional juror in chemical investigations. This investigation marks the first systematic and scientific enquiry into the composition of Canadian grown grains. The excellent qualities of the wheat grown in Manitoba and the North-West Territories are depicted, the percentage of albuminoids being very high, coupled with good milling properties. Data regarding Canadian oats, barley and buckwheat are also given.

We learn that copies of this report may be obtained by applying to Mr. Shutt at the Experimental Farm, Ottawa.

THE ANNUAL REPORT OF THE ENTOMOLOGIST AND BOTANIST
TO THE DOMINION EXPERIMENTAL FARMS, DR. JAMES
FLETCHER.

This report presents an interesting review of the insects and plants which have particularly required attention during the past year. It naturally treats principally of agricultural pests, but farmers are not the only ones that can benefit by a perusal of its contents. Students of insects will find many new facts recorded here concerning insects belonging to various orders. The Amputating Brocade Moth occurred in enormous numbers in Western Ontario, and we learn that this year the caterpillars from eggs laid by these moths are working serious havoc in the grain fields. Cabbages and Turnips were injured

in certain districts by plant lice. Among the new attacks treated of we note the following: A rather severe outbreak was that of the Carrot Fly, *Psila rosea*, at Rothesay, N.B. In pastures on Cape Breton Island, the Cottony Grass-Scale, *Eriopeltis festucae*, was very numerous, but was much reduced in numbers by parasites. In Essex County, Ontario, the Black Peach aphid required treatment; the Carpet Beetle, miscalled the "Buffalo Moth," appears to be spreading in Canada, and it will be well for all housekeepers to procure Dr. Fletcher's report and study it carefully. The different subjects are well arranged, and a good index makes them easy to refer to. The divisions of the report are: Insects Injurious to Cereals, Fodder, Plants and Fruits; Household Pests; and a report on the Apiary, including reports from Mr. John Fixter, who has the practical management of the bees on the Central Experimental Farm, and from Mr. Shutt, upon certain brands of "Foundation." The report closes with a well illustrated article on Some Specially Noxious Weeds.

THE ANNUAL REPORT OF THE HORTICULTURIST TO THE
DOMINION EXPERIMENTAL FARMS, MR. JOHN CRAIG.

This is contained in an illustrated pamphlet of sixty pages. The following are some of the more important topics discussed in the letter of transmittal: The development of the fruit industry in different parts of Canada; the shipment of perishable fruits to Britain; cranberry culture.

In the body of the report, considerable space is devoted to an article, didactic in character, bearing upon apple culture.

This will be found to be of much service to orchardists. The care of orchard trees and the handling of the product are matters of increasing importance to Canadian fruit growers. Some of the new and valuable varieties are described and figured. These include seedling, as well as named varieties.

Under "Notes on the Blossoming of Fruit Trees in Canada" will be found data of scientific and economic value, covering the blossoming period of the leading fruits in widely separated portions of the Dominion. By referring to these records the orchardist may so arrange his fruit trees as to bring together those varieties blossoming at or about the same time, in order to encourage thorough fertilization of the blossoms.

The results of cultural experiments with raspberries, strawberries and blackberries are detailed, and valuable deductions drawn therefrom.

Under "Spraying Experiments" the value of this practice is emphasized by the results obtained in treating plant diseases particularly injurious to orchard and garden crops. Extensive varietal tests are described in connection with vegetable and tobacco experiments. The report is sent without charge to farmers, fruit growers and others who express a desire to receive it.

FIELD DAY AND EXCURSION TO CHELSEA, QUE.

The first general excursion or field of the Club was held on Saturday, 23rd May, 1896, when Chelsea and the beautiful district thereabout were visited.

Close upon two hundred excursionists left the city *via* the Ottawa & Gatineau Valley Railway. The party was composed chiefly of members of the Ottawa Field-Naturalists' Club, but there were present also in goodly numbers, students of the Provincial Normal School, Ottawa; besides members of the Ottawa Camera Club and various friends of these institutions.

Among those present were noticed: Dr. James Fletcher, Dr. R. W. Eells, F. T. Shutt, Esq., H. B. Small, Esq., R. B. Whyte, Esq., W. J. Wilson, Esq., D. B. Dowling, Esq., M. O'Brien, Esq., W. C. Bowles, Esq., R. A. A. Johnston, Esq., S. B. Sinclair, Esq., Miss Marion Whyte, Miss G. Harmer, Mrs. R. W. Cowan, and many others.

The weather was all that could be desired and everything went off very well. On alighting at the station in Chelsea—on the very edge of the Laurentide Hills—the President, Mr. F. T. Shutt, addressed the party and pointed out the various places of interest in the neighbourhood, intimating at the same time the names of those gentlemen who were present to pilot the various sections of the Club. The attractive and bewitching appearance of the woods afforded to the botanists a fine field for research, soon the scene of great activity. The geologists followed the railway track and examined the cuttings along the way in a westerly direction, devoting particular attention to the Pleistocene clays, gravels and sands occurring there.

The valley of the Gatineau is particularly wild and enchanting in the month of May. The swollen waters were busily carrying upon their bosom the wealth of the forests of the north, and one after another in rapid succession the logs could be seen gliding along smoothly, now in a placid basin, where the delicate green tracery of the foliage was beautifully mirrored—then,

diving headlong into the foaming current till they reached some embayment or eddy.

The botanists, as usual, were in the majority and their efforts were amply rewarded with a splendid harvest of beautiful plants.

On reassembling at the rendez-vous the President, Mr. F. T. Shutt, addressed the members present and in well-chosen and happy remarks referred to the success of each department of the Club represented. He then called upon the different leaders present to describe some of the specimens collected and note objects of interest observed.

Dr. H. M. Ami, being called upon as geologist, gave a brief sketch of the history of the district from a geological standpoint. Chelsea was situated just where the two extremes in geology meet, viz., where the Archæan or oldest formation rests up on the Pleistocene or youngest series of rocks.

The Archæan rocks of the district were very extensively and beautifully developed from Chelsea northward to Hudson Bay, and the Gatineau River which flowed at our feet so tortuously and rapidly was one of the oldest streams in Canada—the bed being cut out of the hard gneissoid and granitic rocks of the Archæan system of which the Laurentian is the basal or fundamental formation.

In the newest, or Pleistocene deposits, were to be found :
I. Boulder-clays and "till" of glacial origin. These were remnants of the "Great Ice Age" which has left markings all over the Laurentide Hills and on the softer and newer Ordovician limestone strata of Parliament Hill and Ottawa generally.
II. Marine clays of the "Leda clay" formation capped by marine sands and gravels, both of which carried sand. From specimens collected by Messrs. W. J. Wilson, D. B. Dowling and the writer in the cutting half-a-mile north of Chelsea station the following species of marine shells were obtained :—

1. *Leda (Portlandia) arctica*, Gray.
2. *Macoma fragilis*, Fabricius.

3. *Macoma calcarea* (?) Chemnitz.
4. *Saxicava rugosa*, Linnæus.

These shells here occur at an altitude of about 410 feet above present sea level.

Mr. W. H. Harrington then followed and described many of the insects collected and observed by the entomologists. He devoted special attention to the study of the coleoptera and diptera. In the latter order the number of species was amazingly large, so also regarding the hymenoptera. He had discovered several new forms, and many more interesting and undescribed species awaited the keen eye of the naturalist who would find it and place it on record.

Mr. H. B. Small was then called upon and said:—

The leader in Zoology has so little left him apart from bird and insect life, in a settled part of the country, that I must diverge from speaking on animal life proper and instead, allude to natural history generally. To place stuffed specimens in cabinets and plants in drawers, Sir John Lubbock styles only the drudgery of the study, but to watch the habits and study the instincts of animals, that constitutes the true interest of natural history. Some may delight us specially by the beauty or their voice, others by their habits, especially those living in communities such as ants or bees. The lover of Nature can never be dull, for in every blade of grass, in every stone he finds something to open a train of thought. Kingsley remarked that such a one is never alone in his walks, for he has the bird and the insect always around him. As the seasons come round he gathers fresh stores to look back upon as happy memories, and for him all Nature seems to have been specially created. Loveliness is around us everywhere, but because of its being always before us, it is overlooked. Were we compelled to dwell inside the earth and only got a chance to see the rising and setting sun, we should be lost in admiration of its beauties, which from familiarity we lightly pass by. To the ardent disciple of Nature every ordinary walk may be made a morning or an evening sacrifice, and the study of nature may become a veritable fairy tale.

Mr. R. B. Whyte, leader in Botany, and an ardent botanist, then addressed the large gathering. He took up the leading forms of flowering plants collected during the day and described their structure, uses and gave such interesting notes that many

were taken down for reference in note-books, with which the excursionists were provided.

Among the interesting finds were :—*Cypripedium acaule*, belonging to the orchid family ; *Clintonia borealis*, a member of the lily family, besides several forms belonging to the Rose and Pea family. The application of the knowledge of botany to scientific agriculture was well exemplified in the remarks made by Mr. Whyte. Interesting notes were also given on such species as :—*Coptis trifolia*, golden thread ; *Aralia nudicaulis*, *A. quinquefolia* and *A. trifoliata* or Sarsaparilla and Giniseng ; *Cornus Canadensis*, &c.

Dr. James Fletcher then spoke and concluded the series of addresses given by the leaders. He was introduced by the President as the "father of the Club." In his usual happy and bright manner Dr. Fletcher (upon whom the Senate of Queen's University, Kingston, has recently conferred the honour of the doctorate degree) spoke of the humbler kinds of plants, dealing principally with the fungi and filices or ferns. There were many kinds of the former which were edible, and the latter were most beautiful as ornamental plants. The mode of growth and reproduction of these plants were then graphically described and useful hints how to collect, prepare and preserve specimens were also given.

This excursion can be well described as one of the most enjoyable and successful that has been held under the auspices of the Club.—H. M. AMI.

SUB-EXCURSION NO. 1.—On Saturday afternoon, May 9th, the first sub-excursion of the season was held to Rockliffe. There was a large party, consisting chiefly of the Normal School students, and many of them members of Mr. Sinclair's Botany Class. The usual rendezvous, the City Post Office, was left at 2.15 p.m. Mr. James Fletcher, Miss Marion Whyte and Dr. Ami, of the Council, went with the excursionists. The afternoon proved a most satisfactory one, notwithstanding the

excessive heat. The early season made it necessary for all who wished to make complete collections of the spring flowers, to show great activity in gathering the many species which were found to be in perfection. Leaving the street cars at Rockcliffe, the route taken was towards Hemlock Lake and then back again towards Beechwood to the street car line. The wild plum, *Prunus Americana*, was in perfection and some beautiful bushes were seen in the small coppice above Hemlock Lake, where formerly *Daphne Mezereum* used to grow, but of which unfortunately from the land having been cleared for building purposes, not a single bush is now to be found. *Viola Selkirkii* was found in good condition, as well as many others of the less local spring flowers. After leaving the woods, and before returning, a practical lesson on Botany was given by Mr. Fletcher, plants collected during the afternoon being used as illustrations. The outing was a very enjoyable one and was participated in by about sixty ladies and gentlemen.

SUB-EXCURSION NO. 2 ; BEAVER MEADOW, HULL, QUE.— About fifty members of the Club and students of the Normal School attended this sub-excursion. The weather was delightfully warm and pleasant, but the mesquitoses were very vicious in the "meadow" itself. Prof. Macoun, Dr. Fletcher and Mr. S. B. Sinclair led the botanists and entomologists whilst Dr. Ami took charge of the geologists and led them to the "pile" of Trenton limestone and shale taken out of the cutting on the Aylmer Branch of the Pontiac Railway. The genial president, Mr. F. T. Shutt, was also present and took an active part in the programme of the day. On re-assembling and comparing notes the Botanists were addressed by Prof. Macoun and Dr. Fletcher. Prof. Macoun dwelt more particularly upon the trees of the district visited and replied to a number of interesting and puzzling questions put to him during the afternoon. A very interesting discussion took place upon the relations of the different members of the Urticaceæ or Elm family. Prof. Macoun promised to

give us additional information on this important topic. In a few pleasing words Dr. Fletcher pointed out several interesting relations between plant and insect life, illustrating his points with specimens obtained. On the way home along the Aylmer Road opposite the Protestant cemetery, the geologists were treated to a graphic illustration of the effects of the glacial period. The collections of fossils made during the afternoon proved very interesting, in the neighbourhood of thirty species having been obtained by Messrs. W. J. Wilson, A. M. Campbell, Hugh Anderson and Dr. Ami.

ROYAL GEOGRAPHICAL SOCIETY OF LONDON.

At the meeting of the Royal Geographical Society held in London on the 27th day of April, 1896, the President announced that the Back Grant had been awarded to Mr. J. B. Tyrrell, of this city, and one of the old members of this club, in recognition of the geographical work done by him in the Barren Lands west of Hudson's Bay. The grant, usually given in the form of an instrument or piece of plate, was founded in 1878 by Sir George Back, who in his will bequeathed a sum of money to the Society "the annual interest of which is to be applied to the rewarding of meritorious explorers."

The award, which will be accompanied by a diploma, comes with peculiar appropriateness to Mr. Tyrrell, as Sir George Back himself was one of those who did most to explore the Barren Lands of Canada, for in 1819 and again in 1825 he accompanied Sir John Franklin through Canada to the shores of the Arctic Ocean, and in 1834 he descended the Thlewi-cho or Back river to its mouth opposite King William's Land, passing within seventy miles of the river discovered by Mr. Tyrrell in 1893. Among those who have been similarly honoured by the Geographical Society are, L'Abbé Petitot, for work in the Mackenzie Basin; D. L. Brainard, of the Greely Expedition; and F. C. Selous, the African explorer.

The President announced at the same meeting that the Gill Memorial was granted to Mr. A. P. Low, of the Geological Survey of Canada, for his researches in the Labrador Peninsula.

NATURAL HISTORY NOTES—MAY, 1896.

May 7th—During the evening large numbers of plover and sandpipers were on the wing, and till midnight their shrill notes were audible as they were apparently circling round in the vicinity of the Rideau river. Evidently a very large flight of the late arrivals was passing over. Night, sultry and thunder to the south.

May 10th—The whip-poor-will was heard in the vicinity of Ottawa, and had been heard above Aylmer a few nights previous.

May 14th—Night-hawks appeared in numbers. I could get no reliable data of their appearance prior to this. Last year they were seen on 5th May, and in 1894 on 15th and in 1893 on 21st. This shows how variable is the time of their arrival, dependant, doubtless, on the temperature.

May 21st—A pair of yellow-billed cuckoos were flying round among some large elm trees on Wilbrod Street. A few years ago they built in that vicinity but the nest was unfortunately destroyed. They had not been seen there since till this date.

H. B. SMALL.

ORNITHOLOGY.—I think I have never seen pine gross-beaks as plentiful as during the past winter. From the beginning of December until nearly the end of March, they were to be seen any day almost, in the groves and small woods, and even in the trees about the houses ; sometimes in large flocks, sometimes three or four together—the latter being the case more in the earlier part of the winter.

Chick-a-dees have been more than usually numerous this winter in this locality ; there have been the usual number of blue-jays to be seen, crows in abundance, and wood-peckers a few. I saw a flock of red-polls once or twice through the winter, but that was all.

I usually learn of the presence of a few owls in the neighbourhood during the winter, either by their being driven by un-

commonly severe weather to seek their prey in barns and barnyards, or by hearing their weird voices from the woods in unsettled weather. This season I have seen or heard of none.

The birds are very late in arriving this spring, I saw a robin for the first time on the second of this month. There were one or two song-sparrows to be seen and heard a little earlier than this, but as there had been at least one in the neighbourhood all winter, I could not feel certain that they were new arrivals.

This is the first season I can remember of that there have been no shore-larks to be seen—or at least when I have been able to see or hear of any.

A. C. TUNDALL.

CEDAR BIRDS EATING APPLE BLOSSOMS. *Ampelis cedrorum* (Vieill.). Two specimens of this pretty little bird were received yesterday from Mr. J. P. Jones. Mr. Jones says that he noticed about a dozen of them busily picking off apple blossoms, which they succeeded in doing very rapidly. An examination of the crop of one of them showed it to be tightly packed with petals and stamens of apple blossoms, though the smaller and less conspicuous pistils were not discovered. I find that Cook says the flowers of fruit trees, notably apples and cherries, are a common food of this bird. Any injury wrought in this way is probably more than counterbalanced by the large number of noxious insects it destroys.

J. CRAIG.

PORZANA NOVABORACENSE.—On the 22nd October, 1895, I shot a small Yellow-rail in a marsh some twenty-four miles from the city. This is the first record of a specimen of this species obtained in this vicinity.

GEORGE R. WHITE,

Leader in Ornithology.

NEW MEMBERS.—During the past month the following persons have been enrolled upon the membership book of our Club:—Charles Stevenson, Esq., Montreal; William H. Smith, R.N.R., Halifax, N.S.; Miss E. Williams, Ottawa; Miss G. Han-nington, New Edinburgh; W. J. Barrett, Esq., Ottawa; Dr. Beeman, Perth, Ont.; Miss L. Mathews, Ottawa; Miss Helen N. Bell, Ottawa.

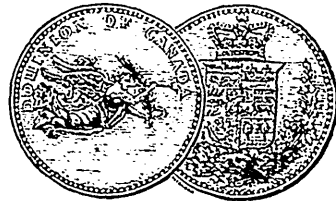
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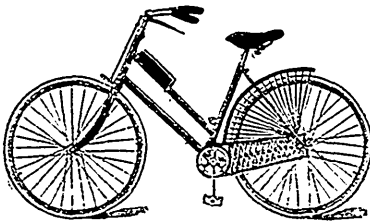
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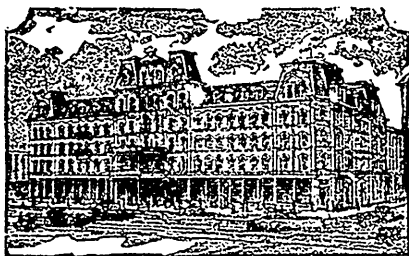
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