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July, 1887.

THE  
\* OTTAWA NATURALIST \*

VOLUME I. NO. IV.

The  
TRANSACTIONS  
Of the

\* Ottawa Field-Naturalists' Club \*

(Organized March, 1879. Incorporated March, 1884.)

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OTTAWA, CANADA:

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1887.

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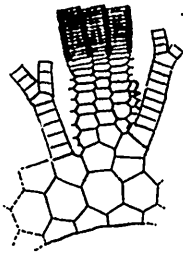
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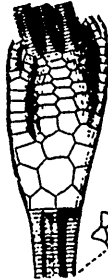
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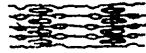
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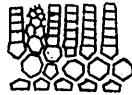


Posterior side



Lower plates of ventral tube enlarged

Ottawacrinus typus, n. gen. et sp.



Diagram



Dendrocrinus proboscidiatus, E. Billings, 1857

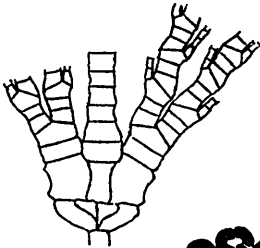


Diagram of anterior side

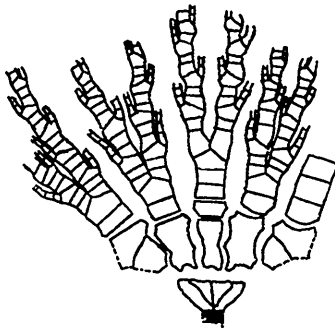


Section at level of secondary brachials



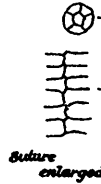
Diagram of posterior side

Calceocrinus rugosus, n. sp.

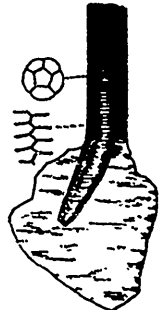


Diagram

Calceocrinus furcillatus, n. sp.



Suture enlarged



A NEW GENUS AND THREE NEW SPECIES OF CRINOIDS  
FROM THE TRENTON FORMATION WITH NOTES ON  
A LARGE SPECIMEN OF DENDROCRINUS PRO-  
BOSCIDIATUS.

WALTER R. BILLINGS.

(Read, 3rd March, 1887).

OTTAWACRINUS, *n. gen.*

Cup, obconical.

Underbasals five; pentagonal.

Basals five; one pentagonal, two hexagonal and two heptagonal.

Radials five; four simple and one—the right posterior—compound.

In the type species three are pentagonal, one tetragonal and the compound made up of a heptagonal followed by a pentagonal plate.

Arms five; composed of tetragonal pieces. No pinnules.

Anal plate heptagonal resting on the posterior basal and the lower plate of the right posterior radial—as in *Dendrocrinus*—and supporting a ventral tube which, so far as seen, is composed of horizontal rows of hexagonal pieces which alternate with those in the adjoining rows.

This genus is most nearly related to *Dendrocrinus*, from which it principally differs in the shape and size of the right posterior basal; the shape of the posterior basal, the right anterior basal and the posterior radial; and in the arrangement of the plates of the ventral sac, which are in vertical rows in the latter genus.

Although the type specimen of this genus was discovered at Hull, Ottawa County, P.Q., I felt justified in naming it as above owing to the fact that, when referring to the Trenton Formation of this district, naturalists use the general term Ottawa Canada.

OTTAWACRINUS TYPUS *n. sp.*

Cup, slender, obconical, 0.2 inch in height, tapering from 0.12 inch at base to 0.17 inch at base of arms. Surface of plates smooth.

Underbasals five; pentagonal, sub-equal.

Basals five; the posterior, left posterior, right anterior and left anterior are large—the largest plates in the cup—and the right

posterior is small. The left anterior and left posterior basals are hexagonal, the posterior and right anterior heptagonal and the right posterior pentagonal.

Radials five, four being simple and one—the right posterior—compound as in *Dendrocrinus*; the anterior, left anterior and left posterior are simple and pentagonal, the right anterior simple and tetragonal, and the right posterior compound and formed of a heptagonal plate followed by a pentagonal one. Following each radial is a series of tetragonal, primary brachials, with parallel sutures, of which but five are preserved in any arm of the only specimen collected. The brachials are wider than high tapering slightly upwards, the lowest piece of each arm being nearly or quite as wide as the radial below it.

No pinnules observed.

Anal plate heptagonal, resting on the posterior basal and the lower plate of the right (compound) posterior radial; followed by horizontal bands of hexagonal pieces, the plates of each band or zone alternating with one another, and not in vertical rows as in *Dendrocrinus*.

Column pentapartite throughout, with a pentagonal canal, the angles corresponding with the sutures, which are directed radially. In section the column is quinquefoliate at the root, passing up into circular at the base of the cup. The portions figured do not represent the whole, as some pieces aggregating several inches in length were lost subsequent to the collection of the specimen. The aggregate length of column preserved is nearly ten inches, tapering from 0.18 inch at base to 0.10 inch, at 0.50 inch below base of cup from whence it expands to 0.12 inch at its junction with the cup. At the base of the column the longitudinal sections are composed of flat segments of equal thickness which alternate with those of the adjoining sections instead of abutting; this portion with its root-like branches, having identically the appearance of the radix figured in *Décade 4, G.S.C.*, as that of *Lhodocrinus asperatus*. At a short distance from the radix these segments are divided by thinner and projecting ones which gradually become wider until they equal the others; while the vertical sutures change gradually until the segments abut instead of alternating.

Collected by the author at the City of Hull in the Trenton

Formation, associated with *Hybocrinus conicus*, *Heterocrinus cana.ensis*, *Pleurocystites elegans*, *Streptelasma, corniculum*, &c.

GENUS CALCEOCRINUS, HALL.

As there appears to be only conjecture for the assertion that the plates upon which this genus was proposed are congeneric with the species afterwards assigned to it by Meek and others\* the following new species may have to be assigned either to *Chirocrinus*, Salter, or *Euchirocrinus*, Meek.

Wachsmuth and Springer represent the genus as having three arms. I am satisfied, however, that there are four.

There is no previous record of a specimen having the column basals and radials in the same straight line as is found in *C. rugosus*, described below.

CALCEOCRINUS FURCILLATUS, *n. sp.*

Only one side—the anterior—of the basal series observed; the posterior resting against the posterior radials as is usual in the greater number of the specimens of this genus. The basal series is semilunar, the chord being under the three radials of the anterior side. The basal portion, as seen on the anterior side, is divided into four pieces: first, by a vertical suture into halves, which are again divided by a line sub-parallel with the curved margin making two outer plates which, together, are rudely crescentic, and two subtrigonal inner plates.

Between the basal and the radial plates, on the anterior side of an exceptionally perfect specimen of his species *C. punctatus*, Prof. Ulrich "found a large number of small and irregularly distributed plates." These minute plates are absent in my specimen; but there exists a vacant space in which such an assemblage could easily find place.

There are five series of radials, aggregating—so far as known—eight pieces, of which three series with four plates are on the anterior side and two series with four plates are on the posterior. On the anterior side there are three alternating with the basals; the middle radial being composed of a tetragonal piece,  $2\frac{1}{2}$  times as high as wide,

\*See revision of the palaeocrinoidae, by Charles Wachsmuth and Frank Springer, part 3, page 273; and also remark on the names Calceocrinus and Cheirocrinus, by Prof. Ulrich, in Report of Geological Survey, of Minnesota, 1886, page 104; both of which should be read by all interested in this genus.

supporting a wider hexagonal piece which is twice as wide as high and rests on the flat upper side of the tetragonal piece and on one of the sloping sides of each adjoining radial. The two outer radials of the anterior side are hexagonal, are larger than the middle one, extend mid-height of the second middle radial piece and are proportionately wider than the first middle piece. At the upper end of each of these outer radials is a wide middle face which supports the first arm piece of that ray, and two sloping sides, one partly supporting the second middle radial piece of the anterior side and the other a plate of the posterior side. The radial series of the posterior side are somewhat obscure; but four plates forming two radial (or a radial and an anal) series can readily be made out. The lower plates do not extend quite as low as the anterior radial series, and are subtrigonal with the angle adjoining the base of the anterior series truncated, which truncation with the free portion of the adjoining anterior radial forms a notch in which the corner of the united basals plays in doubling itself back on the posterior surface of the cup. The upper plates of the posterior radial (and anal) series are hexagonal; one side resting upon its fellow, one on the sloping side of the adjoining radial of the anterior side, one abutting on the first arm piece of the adjoining anterior arm, one carrying a plate of the next series (arm or ventral tube), one abutting its twin posterior radial (or anal), and one whose relations are not made out. I do not find any line of junction between these plates and the basals nor any collection of small plates there although such may exist. Prof. Ulrich calls the posterior radial and anal plates the ventral arch in which he finds three plates in his *Cremacrinus punctatus* and eight in his proposed genus *Halysicrinus*, but in both the species of *Calceocrinus*, herein described, there are four plates arranged as above stated.

Each of the arms consists of a primary and a secondary series of plates. The primary series consists in the middle arm of the anterior side of three plates, and in the others of two; the uppermost in all cases being an axillary piece. The secondary series of each arm is composed of rounded pieces, longer than wide, bearing pinnules or armlets on alternate sides, beginning on the outside. The pinnules are slender, but their joints are equal in length to the corresponding arm-joints.



The pinnule-bearing arm pieces are swollen or claviform at the joints, which are oblique so that the articular facet of the two arm pieces and the articular facet of the arm piece and pinnule are at right angles to one another.

The left posterior radial (or anal) piece carries the basal plate of a ventral tube of which but three pieces can be made out in the type specimen, owing to the folding of the arms over the upper portion.

Collected by the author at Division Street, Ottawa, in beds of the Trenton Formation.

*CALCEOCRINUS RUGOSUS, n. sp.*

This species has the same arrangement of the plates of cup and arms as *C. furcillatus*, excepting that the central arm of the anterior side of this species does not appear to be bifurcated; there being in the only specimen which I have examined five plates of the primary series but no axillary piece.

In the specimen described, the basals, radials and arms, are all in the same straight line, so that both sides of the basal plates can be observed. A piece of the column which was in the same line as the other portions was lost while cleaning the specimen.

The basals at the lowest point have a broad facet for the articulation of the column, and from thence a marginal lip is carried each edge of the posterior side, across which a ridge is carried, immediately opposite the vertical suture of the anterior side, to the middle of the line of articulation with the series above, thus dividing the posterior side of the basals into two concave surfaces. The posterior side of the basal series shows no sutures.

All the plates have punctate surfaces.

The primary radials have each a deep transverse furrow which with ridges at the sutures produce wrinkles. The arm-plates and pinnules are stouter than in *C. furcillatus*.

Collected by Mr. W. R. Smith at Belleville, Ont., in a stratum of the Trenton Formation, containing *Porocrinus Smithi*, *Pleurocystites quamosus*, *Dendrocrinus Jewettii*, &c.

*DENDROCRINUS PROBOSCIDIATUS, BILLINGS, 1857.*

The specimen figured was discovered last autumn, at Division street, this city, by Mr. Wm. H. Jenkins of Madoc, Ont., who kindly

loaned it to me for description. Its large size and the preservation in it of portions not well shown in the type specimen make it of special value. Comparison with the type specimen and with a small specimen collected by the author at Division Street, leads me to believe that the specimen figured belongs to this species.

The specimen lies on a slab with the posterior side upward, showing a portion of the column, the posterior side of the cup, two arms and the ventral tube. Three pentagonal under basals are visible, also the heptagonal posterior basal, hexagonal left posterior basal, a part of the right posterior basal, the radials and arm-plates of two arms, and the ventral tube. The posterior basal is heptagonal and the right and left posterior basals hexagonal. The right posterior radial is compound, consisting of a pentagonal and a hexagonal plate, and followed by seven tetragonal and one axillary brachials. The left posterior radial is pentagonal and followed by five tetragonal and one axillary brachials. Of the secondary series three consecutive tetragonal pieces is the largest number preserved in either ray.

The anal plate, which rests on the truncated posterior basal is heptagonal, abutting by two sides on the right posterior radial and by one on the left posterior radial. Of the three remaining upper sides two carry two adjoining series of the large bottom plates of the ventral tube and the third, which is short, supports one side of the bottom plate of an adjoining series. The plates of the two rows of the ventral tube which are supported by the anal plate are hexagonal, resting on each other by their longest side and alternating with those of the adjoining rows. The pieces are about as wide as high at the base of the tube, but as they rise they become shallower, while retaining their width, until at the sixth plate the height is one-third the width, whence they reduce regularly until one inch from the anal plate, where the upper part is unfortunately broken off. The upper plates of this specimen show the commencement of the sculpture and its transition towards the pattern shown in that part of the tube which in the type specimen is intact. The row of ventral tube plates to the right of those described is similar to them, but rests on the second plate of the compound radial and abuts on the first brachial. Another row further to the right and which rests on the first brachial is composed of smaller plates. The lower portion of the ventral tubes is thus seen to be articulated with the right posterior ray as high as the top of the first brachial.

The column is quinquepartite with sutures radially situated: the periphery of the section is stellate with the sutures in the re-entering angles; and the canal is pentagonal with the angles on the lines of the sutures.

## REPORT TO THE ROYAL SOCIETY OF CANADA.

*(Read at the 6th General Meeting, May, 1887.)*

It is again my privilege to report to you that the Ottawa Field-Naturalists' Club, which I have the honor of representing, still continues to fulfil satisfactorily the objects of its organization, by the fostering of a love for nature and the working up and taking permanent records of all facts connected with the Natural History of the Ottawa District; and this in such a way as to induce all, and particularly those now securing their education in our local institutions, to direct some of their attention to these most interesting and important pursuits. With the latter object in view special efforts were made by the Council of the Club to arrange for the delivery during the past winter of Free Elementary Lectures in all branches of Natural History, not only before the members of the Club, but also, whenever opportunity offered, in the Public Schools. It was a great encouragement to find how popular these lectures proved, and how the attendance steadily increased day by day, as they became better known.

Some important changes were made in the working of the Club at the beginning of the current year; the most notable of these was the publication of a monthly magazine, instead, as heretofore, of the yearly volume of Transactions. This magazine, *THE OTTAWA NATURALIST* (copies of which have been regularly sent to your honorable Society as issued), contains the papers and the reports of the leaders in the different sections, which were read at the Soirees held during the past winter, and also accounts of all the excursions and sub-excursions held during the month previous to its issue, as well as notices of all matters of interest to the members for the coming month.

The sub-excursions referred to above differ from the general monthly excursions of the whole Club, in being under the direction of one or more of the leaders in the section, and are in reality working parties or classes, those present devoting their whole attention to their own specialties under the guidance of teachers whose duty it is to show the best mode of collecting and studying, and who, during the present year, will deliver short lectures in the field upon the objects collected each afternoon. This plan, as far as we are able to judge from the present season, has been eminently successful.

The winter course of meetings consisted of six soirees and nine elementary lectures, as follows:— \* \* \* \*

(The remainder of the report consisted of lists of the papers and reports read at these meetings, and of the officers and leaders for the current year: As this matter has already appeared in THE OTTAWA NATURALIST it is not necessary to republish it.)

R. B. WHYTE,

*Delegate.*

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### LIBRARIAN'S RECORD.

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The following publications have been received as donations, or in exchange for the transactions of the Club:—

Royal Society of Canada: Transactions, Vol. IV.

Geological Survey of Canada: Maps for Annual Report, 1885.

Ess. & Field Club: The Essex Naturalist, No. 4.

Entomological Society of Ontario: Canadian Entomologist, Vol. XIX, Nos. 4 and 5.

North Staffordshire Naturalists' Field Club: Annual Report, 1886.

Winnipeg Board of Trade: Annual Report, 1886.

Torrey Botanical Club: Bulletin, Vol. XIV, No. 5.

Botanical Gazette, Crawfordsville: Vol. XII, Nos. 3 and 4.

Peoria Scientific Society: Bulletin, 1887.

Brooklyn Entomological Society: Entomologica Americana, Vol. III, Nos. 1 and 2.

W. D. Dimock, B. A. Truro: The Year Book of New South Wales, 1886; New South Wales, Its Progress, Present Condition and Resources; First Progress Report of Royal Commission on Vegetable Products, Victoria; Catalogue of Exhibits of Western Australian Court; Notes on the Aborigines of Western Australia; Select Extra, Tropical Plants; Notes on Western Australia; Catalogue of Oil Paintings and Water Colour Drawings of the Victoria Court; Malta and its Industries; Catalogue of Malta Court at the Colonial Exhibition; Forest Protection and Tree Culture on Water Frontages; Metamorphic and Overlying Rocks in Ross and Inverness Shires; Rocks, Minerals and Fossils, exhibited by Victoria Court at Colonial Exhibition.

## SUB-EXCURSIONS.

THIRD.—On the 27th May about thirty members and their friends met at the Post Office at the usual hour—2 p.m. Those connected with the geological branch proceeded, under the leadership of Messrs. Ami and Stewart, to examine certain exposures near the Queen's Wharf and Rideau Hall, having with them Professors Bailey and Mathews, of New Brunswick, who had been in attendance at the meetings of the Royal Society. The rest of the party—nineteen in number—preferring the botanical and entomological branches, made a visit to Cave Creek. This is but a small stream and is interesting only from the fact that it disappears under ledges of limestone at a short distance in the rear of Judge Ross's house and re-appears at about an equal distance on the opposite side of the Richmond Road, having an underground course of several hundred feet. The fields and woods in the neighbourhood were explored, and plants and insects collected. About four o'clock the party gathered under a spreading maple to listen to the "talks" of the Leaders. Mr. Fletcher urged the value of botanical studies from an economical as well as scientific standpoint, and explained the object of making collections and the methods which should be pursued in their subsequent study and investigation. He then discussed several of the plants collected during the "outing," pointing out the distinctive features and showing that in many instances the scientific names were descriptive of these characteristics, and that a knowledge of the derivation and meaning of the names was consequently often of considerable assistance in determining species. Mr. Harrington followed with a few remarks on the insects observed. Of these the most conspicuous and handsome were two fine examples of the Luna moth, *Attacus luna*, which had been found by a young lady. *Selandria rosea*, the rose-sawfly or slug, had been seen on bushes in the garden of Judge Ross. Twigs of larch were shown which had been last year attacked by another sawfly, *Nematus erichsonii*, but the insects were apparently not yet ovipositing this season. *Calosoma calidum* was mentioned as the largest Ottawa representative of the Carabidæ, a family of beetles whose habits were briefly explained as predatory and beneficial. Examples of one or two other families were also exhibited,

and their habits noted. The audience seem much interested in the remarks of the Leaders, and many points brought forward were more fully discussed on the way homeward.

FOURTH.—The botanical and entomological branches visited the Beaver Meadow, near Hull, on 4th June, their being present eighteen persons. This locality is one of the richest collecting grounds in the district, and the collectors secured many interesting specimens. On gathering at 4.30 p.m., Mr. Fletcher, for the benefit of several who were entering upon the study of botany, described the apparatus necessary for the preservation of specimens, and the methods of treatment which he had found most suitable for different classes of plants. His large experience enabled him to give some very valuable hints as to the care of specimens in special cases, as when traveling, etc. The President, Mr. R. B. Whyte, then spoke on several of the plants gathered, showing how the species fell into certain families, although sometimes the members of a family differed greatly in appearance. He took the Ranunculaceæ, as being the first family in botanical classification, and discussed four species belonging to it. Of the genus *Smilacina* (Liliaceæ) three species had been collected out of the four which occur at Ottawa. The yellow lady's slipper, the wild-rose, the climbing honey-suckle, and other interesting or rare plants were also exhibited. Mr. Harrington, in his remarks on insects, drew attention to specimens of *Thalessa*, explaining that they were the largest of the ichneumons, or parasitic hymenoptera, and describing the method of oviposition of the female, and the difference in the appearance of the two sexes. *Xiphydria albicornis* was stated to be injurious to maples in the city, frequently attacking small transplanted shade-trees. A very pretty dragon-fly (*Calopteryx maculata*), several specimens of which had been seen flitting about the brook, had the very curious habit of going down some distance beneath the surface of the water for the purpose of depositing its eggs at the base of the weeds. The beneficial habits of an allied insect were also mentioned. On the way back to the city the members had a good opportunity of seeing several specimens of *Thalessa atrata* and *lurator* ovipositing in an old sugar-maple.

FIFTH.—On the following Saturday—11th June—a party of

twenty-five visited New Edinburgh. The geologists examined a number of waterworks' excavations, and the botanists and entomologists rambled about Hemlock Lake in search of treasures. The usual "talks" were given on re-assembling near Rideau Hall; Mr. Ani speaking first as geological Leader. Several excavations on Creighton street had been visited, which exposed Utica shales, highly bituminous and rich in fossil remains. Some good specimens had been secured by various members, including species probably new to the local lists. Mr. Harrington drew attention to the manner in which the upper portions of the palings of the Rideau Hall fence were scraped, and explained that this was the work of our large wasps, which utilized the fibres of the wood for making the paper of which they composed their nests. After making some further remarks on the habits of these interesting insects, he exhibited specimens of the two species of tent-caterpillars, *Bombyx distria* and *Americana*, pointing out the distinctive markings and their beauty. Mr. Fletcher, in a very lucid and interesting way, explained the characteristic features of the following plants, and pointed out how certain of them might be distinguished from closely allied species: *Liancea borealis*, *Sonicula canadensis*, *Medeola virginica*, *Orchis spectabilis*, *Senecio aureus*, *Arabis perfoliata*, *Rhus toxicodendron*, *Viburnum acerifolium*, *V. pubescens*, *Acer saccharinum*, do. var. *nigrum*, *A. pennsylvanicum*, *A. spicatum*, *Arenaria serpyllifolia*, *Pelea gracilis*, *Carex longirostris* and *Fracinus americana*.

SIXTH.—On the 18th June a very pleasant visit was paid to the Experimental Farm. It had been the intention of the leaders to first visit Dow's Swamp, but, through some misunderstanding, the vans engaged did not appear at two o'clock, and when they were obtained it was so late that it was deemed best to drive straight to the Farm. The geologists were left temporarily at a quarry near the St. Louis Dam, while the remainder of the party kept on to the residence of the Director, Prof. Saunders, who received them very cordially. After a few minutes rest and conversation, those who desired to collect were conducted by the Professor to a wooded tract near by, where, for an hour or so, they hunted assiduously and with good success. After this a time, only too brief, was devoted to inspecting the work accomplished

on the Farm, and then the entire party assembled at the Director's house for the addresses which had been announced. Besides those who had arrived in the vans, several had subsequently come, making in all sixty members and friends. There were besides Professor and Mrs. Saunders and the members of their family; Col. Blair, who will conduct the Experimental Farm in Nova Scotia, and Mr. Gibb, of Abbotsford, well-known throughout Canada as a most successful fruit-grower. The President, Mr. R. B. Whyte, stated the pleasure it afforded him to see such a good attendance at the sub-excursion, and, for the benefit of those who were not regular attendants, he explained the object of these "outings," and the useful work accomplished by them. Before calling on the leaders for the usual lectures on the collections, he took much pleasure in announcing that word had been received only that day that one of their members then present had been the recipient of a well deserved honour, and should be known to them hereafter as Sir James A. Grant. This gentleman, in addition to his eminent standing in his profession—that of medicine—had a wide reputation as a scientific man, and especially as a geologist. He had ever been a promoter of scientific knowledge in Ottawa, and his connection with the Ottawa Field-Naturalists' Club showed that he still desired to be identified with the work. The announcement of this distinction was hailed with much pleasure by all present. Mr. Ami then gave a brief outline of the geological formations of the immediate neighbourhood, explaining that they might be divided into two series of three each. He described the geological ages to which these belonged, and pointed out where they occurred. Specimens of several interesting fossils were exhibited, which had been obtained at the quarry mentioned. Mr. Harrington regretted that it fell to his lot to discuss the insects when the Director of the Farm was so much better qualified to do justice to the subject, he having been for many years President of the Entomological Society. It was an unfortunate fact that the Club numbered so few members giving any attention to entomology, and this made it very difficult to speak on insects so as to interest those present. Specimens of galls made by insects belonging to various orders were exhibited, and attention was called to the very interesting results which followed the deposition of the egg in the growing plant, whereby its forces were so



diverted as to produce a characteristic gall. Mr. Fletcher, as botanical leader, used as illustrations for his lecture, amongst others, *Cypripedium spectabile*, the Showy Lady's Slipper, a beautiful orchid which grows in the swamp near the Farm, *Blitum capitatum*, the Strawberry Blite, and *Polygonum cilinode*. The chief points of interest of these plants were explained, and the lessons which might be derived from them were referred to. The Erigerons were spoken of, and the easiest means of distinguishing the species was pointed out. Plants which unfolded their flowers at special hours in the day were alluded to, and *Silene noctiflora* and *Oenothera biennis* were exhibited and their most important characters noted. A fine specimen of the Raspberry Rust gave a pretext for describing some of the fungi parasitic upon higher vegetation, and some of the methods which might be used to keep them in check. Prof. Saunders was then called upon to enlighten those present as to the work which had been accomplished upon the Experimental Farm. This he did in a most pleasant and graphic manner, showing that since the beginning of operations, on 2nd May, remarkable progress had been made in clearing the ground and in planting. The Farm consisted of about 465 acres, of which, the Club was glad to learn, 65 would be set apart for a park, where the trees, shrubs and smaller plants of Canada would be found grouped by provinces; as well as many from foreign countries, arranged according to their place of origin. On the remaining area all kinds of grains, roots, fruits, etc. would be raised and tested. Already an immense number of trees had been set out, and an almost innumerable variety of plants could be seen in various stages of growth, many of which came from Russia, Japan, and other distant lands. After outlining the future work and aims of the Farm, Prof. Saunders expressed the hope that the Club would make further visits to it and examine its progress. By special request of the Council, Sir James Grant made, in his usual eloquent and happy manner, a short address, stating that when he had commenced the study of geology in Ottawa science had but a scanty following. He was pleased to find it now attracting so much attention, and to belong to a society which was doing so much for the development of a knowledge of natural history as was the Field Naturalists' Club. The Experimental Farm would be, he was con-

vinced, a source of the greatest benefit, not only to the agricultural interests, but to those of science and general progress. At this stage of the meeting refreshments of a very tempting character were distributed by Mrs. Saunders, who had been most unremitting in her kindly attentions to those present during the afternoon. As the usual hour of returning home had some time gone by, Prof. Woods was deputed by the Council to offer the thanks of the Club to Professor and Mrs. Saunders for their kindness and hospitality. This task performed in appropriate terms, the party embarked for the city, thoroughly pleased and satisfied with their "outing."

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### EXCURSION TO AYLMER.

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The second excursion of the season was held on Saturday, the 25th June, when a party of forty-eight went out to Aylmer by the 1.15 P.M. train. Upon arrival at that village the President, Mr. R. B. Whyte, announced that the geologists, under the guidance of Mr. Sowter, would examine certain exposures of rock in the vicinity, while the remainder of the party would proceed a short distance along the shore to Blueberry Point (below the village). This was found a most charming place, offering a rich and diversified flora to the botanists, and the attractions of the lake-shore to those who preferred to loiter there. Happily the majority of those present desired to make investigations into the natural history of the locality, and they were soon scattered around assiduously collecting and examining the many objects of interest. Even those who were not of a scientific turn found two plants of much interest growing in grateful abundance—the strawberry and blueberry. As the afternoon wore on the collectors, with well-filled vascula, formed groups under the shade of the pines near the beach, and examined and discussed their finds. By five o'clock all were once more assembled and the President, calling the meeting to order, requested the Leaders to enlighten them in regard to the collections. Mr. Fletcher, as botanical leader, stated that although it was the object of the Club to give to all the "outings" the nature of "classes" as well as mere collecting parties, no systematic course of study had been deemed advisable. The more interesting specimens collected had been

explained, and following this course he would take at random a few species and point out in what way they were noteworthy. *Habenaria Hookeri* was taken as a type of the orchids, a group of plants noted for the strange forms of their flowers. The structure of the various organs was lucidly explained, and the manner in which they were adapted for the purpose of enabling the fertilization of the flowers to be effected through the agency of insects. The manner of propagation from the root was also described. The differences apparent between the two species (*Pinus strobus* and *P. resinosa*) of pines growing near at hand were explained. The red-pine had its leaves in clusters of two, while those of the white-pine were in fives: the cones were also easily distinguished, and the trees were unlike in general appearance. *Ilex verticillata* was described as being a holly, having red berries which persisted upon the bushes after the leaves had fallen, and which might be preserved for Christmas decorations. *Carex lupulina* obtained its specific name from the resemblance of its flower to that of the hop. The carices were distinguished from the grasses in having triangular stems and leaves in whorls of threes. *Rosa blanda* was our commonest wild rose and was distinguished by the paucity of prickles upon its stems. Another rose which had been found, but of which the flowers were nearly over, was *R. carolina*, or the swamp rose which grew along the banks of streams, and in other moist localities. The fruit of the teaberry (*Gaultheria procumbens*) was an enlarged calyx, and retained the cup-like shape of the flower, it persisted during the winter and sometimes to the following autumn; the berries of one year being found with the flowers of the succeeding one. *Oenothera pumila* was the only species of our evening primroses which so far departed from the habits of the group as to open in the morning. *Lilium philadelphicum*, which had been found in large numbers, was the only lily yet found growing near Ottawa. It was a very handsome plant, the tall slender stem being surmounted by a large showy blossom, the structure of which was fully explained. A few other plants were noted, and the members were greatly interested by, and derived much valuable information from, Mr. Fletcher's discourse. Mr. Harrington, one of the entomological leaders, set forth the advantages accruing from the study of the science of entomology; showed how intimately it was

connected with that of botany, and how desirable it was that botanists should have some knowledge of it. The red-pines of the vicinity had been attacked by a small beetle, *Dryocetes affaber*, which had worked considerable injury, by boring in the terminal shoots and in the young cones; another beetle, a small weevil, was probably the cause of gall-like swellings upon the small branches. Several species of galls found upon willows and poplars were exhibited, and attention was also drawn to a peculiar flower-spider, the caterpillar of the large black swallow-tail butterfly, and other insects. Mr. Ami explained that the geological formation of the vicinity was that known as the Chazy, and described the sandstones, shales and limestones composing it, and the fossils which had been obtained from them. Several ladies had assisted in the examination of these rocks, and one of them had found a fossil of peculiar interest and rarity. Owing to the lateness of the hour Mr. Ami made his interesting remarks very brief, in order that there might be time for the members to take their tea before the departure of the train, by which the party returned home, at 8 p.m.

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#### ANNOUNCEMENTS.

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EXCURSION.—The third excursion will be held on Thursday, the 21st July. The place to be visited is Buckingham, the picturesque scenery of which locality has, on previous occasions, elicited the admiration of the members, while rich collecting grounds, of large extent, are to be found. The steamer *Empress* will leave her landing, known as the Queen's Wharf, at 7.20 a.m. The Council hopes that all the members who can possibly do so will attend.

SUB-EXCURSIONS.—The Botanical and Entomological Leaders have decided upon the following Saturday outings for July: 2nd, to Hull; 9th, to Dow's Swamp; 16th, to Rockcliffe; 30th, to Beaver Meadows, Hull; starting from Post Office at 2 p.m.

NEW MEMBERS.—24, Miss Alice Bowen (Quebec); 25, R. Gervase Elwes, *M. Inst. C.B.*; 26, Mrs. Elwes; 27, Miss Annie M. Fowler; 28, Judge W. A. Ross; 29, Miss Maggie Thomson; 30, Samuel S. Reveler.

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