

JUNE, 1903.  
VOL. XVII, No. 3

# THE OTTAWA NATURALIST.

---

Published by the Ottawa Field-Naturalists' Club.

## CONTENTS.

	PAGE
1. The Beetles of an Oregon Beach. H. F. Wickham, Iowa City .....	49
2. A Red-Shouldered Hawk in Captivity. Roger T. Hedley....	53
3. Curiosity of a Hummingbird .....	55
4. Entomology .....	56
5. Moose with Elk Antlers. Rev. Wm. A. Burman, Winnipeg..	57
6. Botany .....	58
7. A Further Note on the Blue-Tailed Lizard. ....	60
8. Nature Study—No. 2 .....	61

---

(ISSUED JUNE 8, 1903.)

---

OTTAWA, CANADA,  
OTTAWA PRINTING COMPANY (LIMITED),  
3 & 5 MOSGROVE ST.

**JAMES OGILVY,** Bookseller, Stationer and Publisher.  
191 Sparks Street

**WM. STRACHAN,**  
Importer and Dealer in  
**Shelf and Heavy Hardware, Stoves,  
Tinware, Paint, &c.**  
Corner Queen and Bridge Streets,  
OTTAWA. Phone 629

**A. G. PITTAWAY,**  
...PHOTOGRAPHER,  
58 Sparks St. OTTAWA.

**R. A. McCORMICK,**  
**Prescription Druggist,**  
75 Sparks Street.  
Phone 159. Ottawa.

# James W. Woods,

Headquarters  
for....

**Camping Outfits, Tents, Kit Bags,  
Blankets, Clothing, etc.**

**See us about your NEW AWNING.**

**Special attention paid to Letter Orders**

SEND FOR CATALOGUE.

**64-66 Queen St.**

**R. H. WRIGHT,**  
Rose Grower and Florist,  
AYLMER EAST.  
Store—63 Sparks Street, Ottawa.

**HENRY BIRKS & SONS,**  
Manufacturing Gold and Silversmiths  
DIAMOND MERCHANTS.  
Phillips' Square, Montreal  
and 57 & 59 Sparks Street, Ottawa.

For neat printing  
GO TO...  
**Ottawa Printing Co., Ltd.**  
3 & 5 Mosgrove St.,  
OTTAWA.

**C. STRATTON,**  
Wholesale and Retail Grocer, &c.  
Corner Sparks and Lyon Sts.  
TEL. 664.

**Ketchum & Co., SPORTING** 52, 54, 56  
**GOODS** BANK STREET.

KODAKS  
-  
TOPLEY  
-  
KODAKS

# THE OTTAWA NATURALIST.

---

VOL. XVII.

OTTAWA, JUNE, 1903.

No. 3.

---

## THE BEETLES OF AN OREGON BEACH.

By H. F. WICKHAM, Iowa City, Iowa, U.S.

If one looks through the annals of Entomology, he will find the sea coast of Oregon rarely mentioned. If now he will turn to a map, he will see the reason, for the railroads seem to have avoided the district to a remarkable extent, so that it is not to be reached with the same ease as corresponding regions in the other Pacific States. In fact, there are only two ports on the entire Oregon coast that are connected with the great north and south trunk line—namely Astoria, at the south of the Columbia, which has rail connections with Portland, and Yaquina, on a bay of the same name, about 100 miles farther south, reached from Corvallis or Albany by a line through the intervening mountains.

While Yaquina Bay is not of much importance to the world at large, it has nevertheless quite an extended reputation in Oregon, on account of the fine beach at Newport, a small village which owes its prosperity to attractions as a summer resort. The ride from Albany takes several hours, though the distance to be travelled is but about a hundred miles. However, the trip is a pleasant one, the hill scenery being pretty, if not exactly grand. Unfortunately, much of the original coniferous forest has been burnt off along the line, though there is enough left to show that the growth must have been a heavy one. Live oaks are a prominent feature of the flora, and in places form considerable groves.

At the head of the bay lies Toledo, too far from the beach to answer as headquarters for one intending to collect, for the shores in the immediate vicinity are extremely muddy and uninviting.

The bluffs approach them closely, and the intervening flats are largely salt marsh. A few miles farther down is Yaquina, once a thriving seaport but now a very poor community. This is the terminus of the railroad, and, as it is not far from the open coast and furnishes fair accommodations, I made it my stopping place. The village lies mostly on a narrow mud flat, nearly all of the houses being built on piles, so that during high tide the occupants can look out of their windows into the water, while at low tide they have a vista of mud spread before their eyes.

In the immediate vicinity of Yaquina are ranges of hills, covered with a growth of coniferous and other timber, badly damaged from fires. Of the fauna of this district it is not my intention to write, since it partakes of the ordinary nature of such locations on the north coast. The beach proper is near Newport, which lies at the south of the bay, and can be reached from Yaquina by a steamboat, making daily trips, or by a walk of a few miles along the shore when the tide permits. My general plan was to go over on the steamer and walk back, as this gave me a longer day than I could get in any other way. The beaches are several miles in length and are backed by great bluffs which come within a few rods of the water's edge, their faces precipitous for the most part, except where the drifting sand has modified the contour. The highlands back from the bluffs are extremely sandy and covered with a growth of dense scrub, with open patches here and there. In the distance are groves of conifers.

A number of small springs ooze from the face of the bluffs and trickle for some distance over the sands at the base. Many species of beetles favor just such spots, which offer, in consequence, a fine field for the collector. *Cicindela oregona* runs and flies about these damp sands, in company with one of the forms of *Bembidium littorale*. By overturning small pieces of wood and other rubbish, I took quite a series of *Omophron ovale*, *Bembidium transversale* and *Nebria diversa*, the last named being a rather uncommon species in collections and differing by its curious pale color from most of our other *Nebriæ*. Where the water had spread out a good deal, I found a rather large *Dyschirius* in some abundance, either running about in the sunshine or burrowing under the sand among the runways of *Bledius ornatus*. I saw on



one occasion a *Bembidium littorale* carrying off a *Dyschirius* and a *Bledius*, but did not succeed in finding out whether the Carabidæ had hold of the Staphylinid or whether the *Bledius* had been seized by the *Dyschirius* which in its turn had been attacked by the *Bembidium*. I think the former alternative the more likely, as the soft tissues of *Bledius* render it especially liable to the attacks of stronger beetles, and in some spots, where it occurred in thousands, the *Dyschirius* might be seen preying on it extensively.

Where the beach was simply moist rather than wet, one might get nice series of *Phycocates testaceus* under logs, in company with *Elassoptes marinus*. Both of these weevils are commonly found in colonies where they occur at all, the former, however, being perhaps more partial to the shelter of bunches of cast-up seaweed. These masses of algæ also served as refuge for numbers of *Cercyon fimbriatum*, *Cafius canescens* and *Saprinus bigemmus*. Back in the dry sand dunes, one might sit and scoop out the side of a hillock, and, as the grains sifted down, out would fall the Tenebrionidæ that frequent them—the common forms being *Cælus ciliatus*, *Phalergia globosa* and a species of *Eleodes*. *Sinodendron rugosum* and *Ceruchus striatus* were dug from beneath half-buried logs.

When the wind is in the right quarter, the collector may always find some good things cast up by the waves; but, as these are usually species of at least fairly strong flight, I was surprised to find drowned specimens of *Omus dejeanii* and *O. audouinii* at the water's edge. A number of *Buprestis langii* were thrown ashore, but one had to get them quickly if it were intended to make use of them for the cabinet, as the bodies were immediately attacked by small crustaceans and soon reduced to mere shells. *Leptura tibialis* and *L. matthesii* were occasionally noticed flying over the beaches, but I could not ascertain whence they came. *Cicindela bellissima* was quite abundant, chiefly on the very fine dry drifted sand close to the base of the bluffs, and, being only moderately shy, was readily captured by working up from leeward. I find a pair of *Copidita quadrimaculata* among my collections from this vicinity, but there seems to be no record in my notes as to the circumstance of capture. However, I have found the same insect in great numbers at San Francisco, under pieces

of wood, paper, cloth or other rubbish, just far enough from the beach to keep dry

The ocean face of the bluffs was quite steep in most places, but where it could be readily ascended I made a search for beetles, without finding a large number of species. The best insect I managed to get, was a small one—*Adranes taylori*, a blind Pselaphid, of which I took a few in the galleries of a small ant. Fortunately, I happened on the breeding season, for the beetles were paired, walking unconcernedly among their hosts, who did not molest them in any way. This genus has only recently been found on Vancouver Island by Rev. Geo. W. Taylor, after whom the species has been named.

Looking at the collections with reference to those made at other places, one can readily see that they are in general much the same as might be formed at any point on the coast from San Francisco northward, though a number of the beetles extend their range south to the extreme limit of the United States. Still there are some that would be noteworthy captures anywhere, and it is always worth while to record the habitats of such forms, when they can be ascertained. As far as present knowledge goes, *Cicindela bellissima* is not found at any other point, and the attention of collectors who have the opportunity of visiting the country on either side of Yaquina Bay, should be turned to the task of determining the real range of this species.

---

#### MAP OF THE OTTAWA DISTRICT.

---

We are pleased to announce that at a recent meeting of the Council it was decided to reduce the price of the Map of Ottawa to the members of the Club. This valuable map, which will be of the greatest service to working naturalists for plotting the occurrence and distribution of species in all branches of natural history, may now be obtained from the Treasurer at the low price of 5 cents a copy for members of the Club, which is almost at cost price, and by those who are not members of the Club at 10 cents a copy.

A RED-SHOULDERED HAWK IN CAPTIVITY.

ROGER T. HEDLEY, Duncrief, Ont.

(Read before the Ornithological Branch of the Entomological Society of Canada.)

One day in October, 1901, I went out for some sport with my gun. I had not gone far when I noticed a hawk sitting on a dead branch of an elm tree. It was a good distance, but I thought I would try a shot. The first barrel only startled it; but, before it had gone far, the second shot dropped it. My dog ran to the hawk, which threw itself on its back and showed fight. I threw my coat over it, slipped a strong cord around its neck and carried it to the barn, where I placed it in a large box with a slat front. The only wound was on the left wing, and the bone had not been broken.

I placed a perch in the box for the hawk to sit on and soon it jumped up. The first thing I got for it to eat, was an English sparrow. When I threw the bird into the box, the hawk seemed frightened and did not offer to touch it till I stepped away from the box. Then it jumped down from the perch, and, having seized the sparrow with its talons and spread its wings, it marched around carrying the bird in its claws. Before commencing to eat the sparrow, it picked out the wing feathers and most of the small feathers of the body. After each mouthful of feathers, it would glance sharply around to see if anything was going to interfere. It first ate the head and then proceeded to devour the remainder. I fed it mostly on sparrows during the winter, but occasionally found a mouse, which it seemed to relish better than sparrows. My hawk soon became so tame that it would start to eat its food without waiting for one to retire. After seizing a mouse in its claws, it would pick it up with its bill, then catch it again with its claws before eating it. It always ate the head of a mouse first, and usually swallowed or tried to swallow the hind quarters along with the tail. Sometimes I have seen it stick at this last operation, when it had to pull its mouthful out again with its claws. Then it took a few bites before the tail disappeared.

After the snow went away last spring, it was an easy matter to turn over old logs or stumps near the woods and get mice for

the hawk. I have sometimes given it more mice at one time than it could eat in a day. One day it ate ten, but the next day it did not seem very anxious for food. When I hold a mouse near the box, it makes quite a fuss, and, if I throw the mouse at the hawk, it springs from its perch and never fails to catch the mouse in the air with its talons before it touches the floor.

When I captured the hawk, it was evidently in the first year's plumage. Its general colour above was dark brown; below, its feathers were whitish, with longitudinal brown-pencilled markings. The tail was barred with whitish. It moulted this summer, and its new feathers came in of a different colour. Above, it is a reddish-brown, with the centre of the feathers darker than the outside. The bend of the wing has assumed an orange-brown tinge, and the barring of the tail is brighter coloured. The breast and lower parts are light reddish-brown with whitish barring.

At night, when it is sleeping, it takes a queer position. It curls its neck around and hides its head in the long feathers of its neck. One has to look closely at it to see the least sign of a head. Its appetite varies much with the seasons. In winter a fast of three or four days is not always sufficient even to provoke even a fairly good appetite, and a week's fast does not make it so hungry as a fast of two days in summer time.

I have often watched it in the act of ejecting a pellet of fur, feathers and bones, which is the habit of the Raptores in general. After undergoing several of those contortions of the back which afflict a human being in the act of vomiting, it shakes its head violently, and the pellet, on leaving its mouth, is often thrown many feet to one side. The pellets vary in size from 1 to  $1\frac{1}{2}$  inches in length and are usually about twice as long as they are thick. The ends of the pellets are generally somewhat rounded, but sometimes they have quite a sharp point. Those I have examined particularly, consist of a number of wads of about  $\frac{1}{4}$  inch in thickness, and, when the hawk has been fed solely on mice, they have usually contained nothing but fur and a few small bones, sometimes so small that they are hard to find.



## CURIOSITY OF A HUMMINGBIRD.

Last summer, as I was sitting in the woods behind a summer-house, making the hissing sound which Mr. Chapman recommends to attract birds, a hummingbird came to me and hovered over and flew about my head, now and then alighting a few moments, not upon me, but on some twig near by, surveying me curiously the while. Then off it darted till lost to view. But pretty soon, as I kept on making the sounds, always sitting quite still, back it came again, acting as before. The bird came and went away in this manner four times. It constantly uttered a sound very similar to the noise I was making with my lips. All this took place in a few minutes.

There were two things new to me in the behaviour of this beautiful creature: its chirping and its intelligent curiosity. I find the chirping mentioned in Mr. Saunders's interesting article on Canadian Hummingbirds in *THE NATURALIST* of last July. The curiosity, or rather the essentially bird-like curiosity, shown by this hummingbird, was very surprising to me, as I had been led to believe, by reading Mr. Hudson's account of the nature and habits of hummingbirds, that none but the crudest insect-like curiosity need be looked for in any hummingbird. That most charming of natural history writers, in "*The Naturalist in La Plata*," after noticing that hummingbirds have frequently been stated to be more like insects than birds in disposition, affirms that they are not to be compared even with the more intelligent insects, but have a much closer resemblance to the solitary wood-boring bees and to dragonflies. To support his opinion, he makes, among others, the following statements some of which are of interest in connection with Mr. Saunders's observations: "Their aimless attacks on other species approaching or passing near them, even on large birds like hawks and pigeons, is a habit they have in common with many solitary wood-boring bees. They also, like dragonflies and other insects, attack each other when they come together while feeding; and in this case their action strangely resembles that of a couple of butterflies, as they revolve about each other and rise vertically to a great height in the air. Again, like insects, they are undisturbed at the presence of man

while feeding, or even when engaged in building and incubation; and, like various solitary bees, wasps, etc., they frequently come close to a person walking or standing, to hover suspended in the air within a few inches of his face; and, if then struck at, they often, insect-like, return to circle round his head. All other birds, even those which display the least versatility, and in districts where man is seldom seen, show as much caution as curiosity in his presence: they recognize in the upright unfamiliar form a living being and a possible enemy."

So far as concerns the curiosity of the Ruby-throated Hummingbird, I am compelled, in the light of the incident mentioned above, to differ from Mr. Hudson. It seems to me that my hummingbird acted in the very way described in the last sentence quoted from him. Its actions are certainly much more comparable to those of the squirrel and the chickadee in like circumstances than to those of any insect. Who ever heard of a dragonfly or bee showing an interest in sounds, recognizing them as similar to its own and returning again and again from afar to investigate their curious source in the manner above detailed?

CEPHAS GUILLET.

March, 1903.

---

#### ENTOMOLOGY.

---

##### HAGENIUS BREVISTYLUS, Selys.

Referring to a note in THE OTTAWA NATURALIST for May last at page 37, in which it is stated that the nymph case of a large dragonfly was exhibited by me at one of the Entomological Branch meetings, and that the species was not recognizable by any of the members present, I may say that Dr. Fletcher has communicated with Professor J. G. Needham about this pupa case and also sent to him a drawing of the specimen, which has been identified as belonging to *Hagenius brevistylus*, Selys, the nymph of which is well figured in Professor Needham's valuable work on the "Aquatic Insects in the Adirondacks." (N. Y. State Museum, Bull. 47, 1901.)

A. HALKETT.

## MOOSE WITH ELK ANTLERS.

(With one plate.)

By the REV. WM. A. BURMAN, Winnipeg.

The photograph accompanying these notes shows two moose heads. The normal moose antlers are to illustrate the very curious variation in the other pair, which are almost typical elk antlers.

The moose thus curiously distinguished was killed some weeks ago in the country north of Beausejour, Man., and about 60 miles north-east from Winnipeg. The head is now in the possession of Mr. Alexander Calder, taxidermist, Main street, Winnipeg, to whose courtesy I am indebted for the photograph and notes. The measurements are as follows:—

Length of head from mouth to crown	30 in.
Round the head at base of antlers	39 in.
Round the nose	24 in.
Spread of antler prongs	50 in.
Length of longest prongs from base	40 in.
Circumference of antler at base	6½ in.

It would be interesting to know if such freaks as this are common. If not, then what is their significance? I have heard of a case in the far north where a moose had one antler as in this case, the other of normal shape. Does the health of an animal influence these growths? Or would environment affect them? Is it not possible that some significance, not yet discovered, lies hidden in the so-called "freaks" of nature such as this? Personally, I should be glad to know what others can tell about similar cases to the one here figured.

A RAT AS AN ENTOMOLOGIST.—On going to a street electric light on the evening of May 25th to collect insects, I was surprised to see a common rat busily engaged in the grass below catching and eating June Beetles (*Lachnosterna*).

J. FLETCHER.

## BOTANY.

## MEETINGS OF THE BOTANICAL BRANCH.

The sixth meeting was held at the residence of Mr. D. A. Campbell, on the evening of May 15th. He exhibited a large number of mounted specimens of plants with the object of illustrating how leaves seem to vary according to their environment. He held that where light is intercepted by water or by the crowding of plants, there is a tendency for leaves to subdivide. Prof. Macoun was inclined to hold that leaf-division indicated relationship rather than the effect of environment. In support of this, he mentioned the fact that the first leaves of the Horse Radish are much dissected, even in the driest soil. In the course of the discussion, this principle was enunciated: Generalize *from* not *to* facts.

As an aid to those who wish to become acquainted with the different species of violets, the information was given by Dr. Fletcher that at the Experimental Farm he had now growing all the recognized species of this locality, as well as some which had not been described. In addition, fine clumps could be seen of several other species from different parts of Canada and the United States. In all he had about 30 named species, many of these at the present time in full flower.

As far as known, all our wild plums are *Prunus nigra* and not *P. Americana* as was once supposed. The points of difference between the two species may be indicated in tabular form.

*Prunus nigra.*

1. Sepals serrate or serrulate.
2. Petals white, becoming pink.
3. Leaves crenulate-serrate.
4. Fruit with no bloom.

*Prunus Americana.*

- Sepals entire.
- Petals white, not becoming pink.
- Leaves sharply toothed.
- Fruit with a white bloom.

Prof. Macoun mentioned that he had found the Shell-bark Hickory at Pointe du Chene, the locality recorded in the "Flora Ottawaensis" many years ago. Dr. Fletcher stated that it grew not only there but also in greater abundance at Casselman, Ont., 30 miles from Ottawa.

Dr. Fletcher, who had just returned from a trip to Hamilton, showed some remarkable sports of *Trillium grandiflorum* which,



in company with Mr. J. M. Dickson, he had collected in that district. The inner circle of the perianth was beautifully striped with green, and in some of the specimens almost as deeply green as was the outer circle. The foliage leaves were distinctly petioled, in some cases the stem being fully 3 inches in length. It was suggested that the variations might be due to some fungous disease. Dr. Fletcher mentioned several plants of which the whole habit changed when they were attacked by fungous diseases, for instance, some Euphorbias, Portulacca, Amaranthus, Capsella, etc.; but did not think this sport was of the same nature. He had several plants of the Trilliums which had been under cultivation for 5 or 6 years, one of which had been figured in THE OTTAWA NATURALIST. The greening of the petals varied in extent year by year but had so far persisted, although showing a tendency to disappear. The lengthening of the petioles seemed to correspond to some extent with the amount of green on the perianth. This form occurs in several localities in western Ontario, but is abundant only in certain woods.

The remainder of the evening was spent in discussing the question: "What is Nature Study?" The general conclusion seemed to be about the same as that of C. B. Scott, who, in his "Nature Study and the Child," devotes an entire chapter in answer to the question. It is, he says, "*Nature, studied, in its relations, by the child, from the child's standpoint, by the teacher, with the children.*"

A. E. A.

—  
VIOLA LANCEOLATA, L.

An interesting addition to the Ottawa flora has been reported by Miss Katherine Lee in the shape of the pretty little white-flowered Lance leaved Violet (*V. lanceolata*), which was collected in flower May 25th by Miss Fanny Wright, close to the water on the sandy shore of the island in Fitzroy Harbour, Ont., near the Chats Falls on the Ottawa. This is the first time this plant has been found in the Ottawa district. It should be recorded on the floral distribution maps of the Ottawa district as in the Ontario Area West.

### A FURTHER NOTE ON THE BLUE-TAILED LIZARD.

---

The interesting record, in the March number of THE NATURALIST, of the occurrence of the Blue-tailed Lizard, or Skink, at Stony Lake, reminded me that there were some other records of this little reptile's occurrence in Ontario.

For the seven or eight years from about 1885 to 1892, the Natural History Society of Toronto made an annual collection of reptiles to exhibit at the Toronto Fair, and on several occasions, during that time, we obtained Canadian specimens of the Blue-tail. They were usually rather difficult to feed and keep alive for any length of time; but one adult, that I had, took flies and earthworms readily, and became tolerably tame. It buried itself for the winter under earth and leaves that were put into its case, and came out again all right in the spring.

I have inquired of Mr. Brodie, who was president of the Society, and of Mr. Hollingworth, who was secretary for a number of the years mentioned, if they remembered where our specimens came from. Mr. Brodie says that the species is found on the Georgian Bay, a little north-east of Midland, also along the north shore of Lake Erie from Long Point to Rondeau; and Mr. Hollingworth remembers receiving one specimen from Muskoka.

It seems to be the only true lizard found in Ontario, and occurs, apparently, in a few isolated spots, though a careful search would, perhaps, reveal its presence in some other localities

J. B. WILLIAMS.

Toronto, May 5, 1903.

---

### EXCURSION TO CALUMET, QUE.

Montreal Natural History Society.—The annual excursion of this thriving society is to be held on June 13th to Calumet. Our Club has been asked to join them. The Council hopes that as many as possible of our members will avail themselves of this opportunity to meet our Montreal friends.

## NATURE STUDY—No. II.

## THE NEED OF NATURE STUDY.

By D. A. CAMPBELL, B.A., OTTAWA.

The infancy of every nation has been passed in open communion with nature, and has been developed under the expanding power of objective influences, the open landscapes, the tranquillity and solitude of forests, the massive grandeur and sublimity of mountains, the peace and beauty of valleys, the light-heartedness of laughing brooks, and the lofty and grave ministrations of sky and heavenly bodies.

The foundation of all education is a training of the senses, but in this artificial and introspective age we are losing sight of this objective influence of nature, ignoring the plan by which the human mind has been nourished and developed for untold generations.

Children in cities are being cut off more and more from the material most necessary for the free and healthful development of their powers. The mind is weaker, the intelligence is less active, when the child is in this way deprived of the food so necessary for mental growth. There is much more in those fresh air excursions sometimes provided for young people than a better atmosphere for a short time. The mind is being thronged at the same time with sensory stimuli, which cause brain function, and consequently mental power.

The best material for sensory training is that afforded by nature, and the time for it is especially the formative or growing period of the individual.

In our Public Schools no daily systematic training is given to the sensory side of the pupil's life. It may be claimed that some sensory training is given, recognition of words, places on maps, &c., but this, it must be admitted, is artificial and not natural material for the pupil to work upon. It lacks the multitudinous variety so apparent in Nature Study. There should be a portion of every school day set apart in our Public School course for a systematic training of the senses.

In the High Schools and Collegiates some provision is made for such work, but the time devoted to the subjects is limited, and

optional, whereas it should be compulsory for every pupil. The pupil at no stage of his school career should be left to chance for his sensory training, and this is especially true for those who live in cities. It is easy to persuade the pupil to do much for himself, to throw himself into contact with nature, to ramble through the woods, over hills, and along river banks, to leave the printed page and the burden of memory studies, and view the living face of nature in her wealth of objects, of phenomena and of landscape. The proper way to study nature is at first hand, and the proper way to train the senses is to use them on the abundance of material supplied by nature.

Besides the sensory training afforded by nature study there is a constant challenge given to the best powers of the mind, and there are supplied problems sufficiently difficult and abstruse to satisfy the most exacting.

It is a mistake to suppose that, for instance, the whole study of Botany is made up of technical terms and the collection of plants, giving them an unpronounceable name. Would Peter Bell, of whom Wordsworth tells us :

" A primrose by the river's brim  
A yellow primrose was to him,  
And it was nothing more,"

be roused from his apathy, by the information that "the primrose is a dicotyledonous exogen, with a monopetalous corolla and a central placentation," and by the statements of many other facts in similar technical language? Would his indifference not rather be tenfold increased?

Although technical terms are as necessary in Botany as they are in any science or trade to the workers therein, yet botany must certainly not be looked upon as a "modernized repository of classical roots and derivations."

The real object of the study should not be lost sight of. A profitable study of Botany would lead one to investigate the structure of the plant, the infinite variety in leaf and flower, the intelligent and useful arrangement of the parts of the root, stem, leaf and flower, the assistance of a neighbor and the dependence of a flower upon the insect, its allurements such as nectar and pollen heralded by color and perfume for the purpose of attraction, the



debt of gratitude it owes its insect friend, its struggle to maintain itself and thereby its kind, the adaptability of its leaf to its probable share of sunshine and air, and the marvellous ingenuity in its method of dispersing its seed, its care and provision for its young, its habits as regards soil, moisture, light, climate, and time to bloom.

These are some of the questions which afford material for the use of the senses and for the exercise at the same time of the best powers of the mind, and promote as much mental development as those subjects which are now considered the most valuable in our programme of studies.

Let me illustrate by our common flower—the Dandelion, which, though trodden under foot daily, is teeming with interesting problems for the student.

While in its bloom, it lies low in the grass and is careful never to push its head above the average level of its garrison of grass. If the grass is long, however, its flower is raised up also. It would be interesting to know how it succeeds in accommodating itself so well to its surroundings. It is easier to see the advantage it is to the little flower, not to be so low down in the grass as to be completely smothered, nor so high above it as to be exposed to the whim of every passer by who, like Domsie, might cut off its head with his cane on some occasion when his joy overcame him. When its seeds are ripened, it pushes its head away above its surroundings and invites the violence which will disperse its seeds.

The Dandelion flower expands in sunlight; closes up in gloom. The advantage of such an arrangement must be manifest to all; but it requires the most careful study to ascertain the way in which it opens and closes apparently at will.

The attractive coloring must suggest some points of interest. Is the yellow color associated with a flower of a low or high organization? What scale of colors is adopted by nature in the decoration of her handiwork? A study of the flower will convince any one that color has an important relation to the plant. It is visited by insects and some observation will disclose the fact that color is for the express purpose of attracting insects.

The question suggests itself—What advantage comes to the flower in being visited by an insect? What compensation is made

to the insect for its valuable service to the flower? What happens to any particular flower which entertains no insect guest?

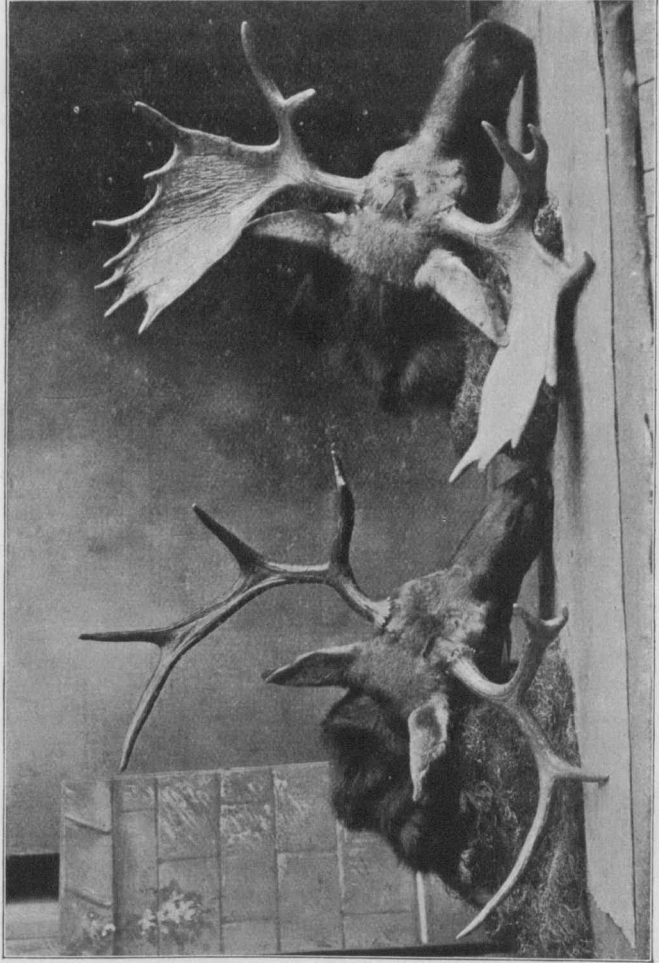
The dependence of flower upon insect and the co-relation of the individual and its environment will surely teach a lesson as applicable to human welfare as to vegetable.

This little plant has settled the question of aerial navigation for itself long before such questions agitated the Santos Dumonts of the modern world. Its tiny seed is fitted out with sails which bear it upon the winds of summer, upon a voyage of exploration and colonization. It settles down, making use of an anchor whose simplicity is only equalled by its adaptability to its purpose.

The question of economy of material has likewise been carried to perfection, quite up to modern ideas upon the subject. It has been found that in ocean vessels carrying large masts, less iron may be used if the masts are hollow. Greater strength is given for the same amount of material. This common every-day flower long ago raised its head of florets upon a stem built upon the most recently improved pattern.

What place does the Dandelion occupy among flowering plants? A comparative study will show that its flower cluster is a highly organized one. It stands almost at the head of flower clusters and would seem to be one of Nature's latest productions. This may be learned by observation and comparison of flower clusters. The simplest clusters are such as those of the *Pyrola* and the *Shepherd's-purse*. In these the flowers have stalks all of nearly the same length, and the earliest flowers to bloom are the lowest. If these stalks were lengthened so as to bring all the flowers to the same level, we would have the flat-topped cluster, such as that of the *Hawthorn*. In such a cluster the earliest flowers to bloom are the outermost. If in such a cluster we were further to shorten the common stem upon which the individual flowers are arranged, broadening the top so as to make room for them, and, at the same time, if we were to eliminate the little stalks of each flower so as to have it rest immediately on the top of the broadened stem, we would have a cluster like that of the dandelion. This is the most perfect kind of cluster. Considering this, therefore, and remembering also the very great departure of each floret from the structure of such a simple flower as the *Buttercup*, for instance, we are compelled to believe that the Dandelion occupies, not the most exalted, perhaps, but a very high place in the commonwealth of flowers.

These are some of the problems which challenge the attention of the student. Here he finds abundance of material for sensory training, and at the same time is confronted by questions the solution of which will require his best thought and reflection.



Head of Moose with Elk Antlers, and another with normal Antlers.

**R. H. CONLEY,**  
 Fashionable Tailor,  
 213 Wellington near Bank.

**James Hope & Sons,** Booksellers, Stationers,  
**SPARKS St., Ottawa.** Bookbinders, Printers.

**J. G. BUTTERWORTH & Co.**  
 All-Rail Scranton Coal.  
 Has no Equal.  
 86 SPARKS ST.

Publisher of Views of Ottawa.  
**C. H. THORBURN**  
 Books and Stationery.  
**BOOKS ON NATURE STUDY.**  
 80 Sparks St., Ottawa. Phone 9c2.

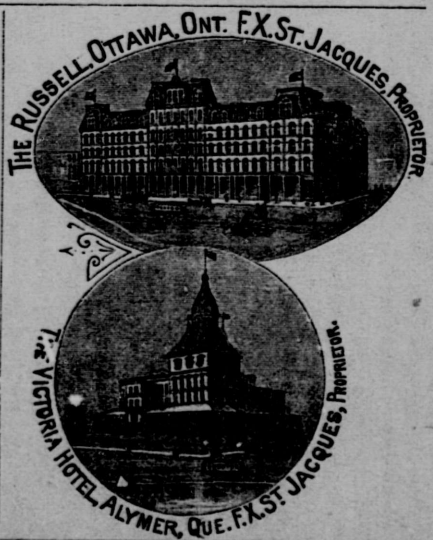
**C. C. RAY & Co.**  
**COAL**  
 best quality, lowest price.  
 53 SPARKS ST. Phone 461.

**R. McGIFFIN,**  
 ... MEN'S FURNISHINGS ...  
 106 SPARKS ST. OTTAWA.

**The Ottawa Trust & Deposit Co.**  
 (Limited)  
 as Executor, Trustee, Agent &c.  
 — OFFERS —  
 Continuous Service,  
 Experienced Management,  
 Prompt Investment,  
 Absolute Security.  
**Safety Vaults to Rent.**  
 H. W. CHAMBERLAIN,  
 Manager.

**The Bank of Ottawa.**  
 Capital (authorised) - - - \$3,000,000  
 Capital (paid up) - - - 2,366,130  
 Rest - - - 2,194,517  
**BOARD OF DIRECTORS:**  
 GEORGE HAY, President.  
 DAVID MACLAREN, Vice-Pres.  
 Henry N. Bate, Hon. Geo. Bryson,  
 H. K. Egan, John B. Fraser, John  
 Mather, Denis Murphy, M.L.A.,  
 Geo. H. Perley.  
 Head Office, - - - Ottawa, Ont.  
 GEO. BURN, Gen. Manager.  
 D. M. FINNIE, Ottawa Manager.  
 L. C. OWEN, Inspector  
 General Banking Business. Savings  
 Department.

When on a tramp take a  
 supply of...  
**EDDY'S  
 FLAMERS**  
 and  
**WAX VESTAS  
 MATCHES.**  
 They ensure a good  
 "LIGHT" in any kind  
 of weather.



One of the most useful things in the household is — **"MOZART PIANO and FURNITURE POLISH"** Use it on your piano and that smoky appearance will vanish. Furniture, woodwork etc., will regain its old-time lustre.



## THE OTTAWA FIELD-NATURALISTS' CLUB, 1903-1904.

### Patron :

THE RIGHT HONOURABLE EARL OF MINTO  
GOVERNOR-GENERAL OF CANADA.

### President :

W. T. Macoun.

### Vice-Presidents :

A. E. Attwood, M.A., Andrew Halkett.

### Librarian :

S. B. Sinclair, B.A., Ph.D.

### Secretary :

W. J. Wilson, Ph. B.  
(Geological Survey Dept.)

### Treasurer :

A. Gibson.  
(Central Experimental Farm.)

### Committee :

Dr. Jas. Fletcher.  
Mr. W. H. Harrington.  
Mr. F. T. Shutt.

Miss M. McK. Scott.  
Miss A. Matthews.  
Miss R. B. McQueenen.

### Auditors :

J. Ballantyne, R. B. Whyte.

### Standing Committees of Council :

*Publishing* : J. Fletcher, Miss M. McKay Scott, F. T. Shutt, W. J. Wilson,  
A. E. Attwood.

*Excursions* : S. B. Sinclair, Andrew Halkett, W. J. Wilson, A. Gibson, Miss  
Ruby B. McQueenen, Miss Annie L. Matthews.

*Soirées* : W. H. Harrington, J. Fletcher, A. E. Attwood, Andrew Halkett,  
Miss M. McKay Scott, Miss Ruby B. McQueenen.

### Leaders :

*Geology* : H. M. Ami, W. J. Wilson, O. E. LeRoy.

*Botany* : J. M. Macoun, C. Guillet, D. A. Campbell, A. E. Attwood, S. B.  
Sinclair.

*Entomology* : J. Fletcher, W. H. Harrington, C. H. Young, A. Gibson.

*Conchology* : J. F. Whiteaves, R. Bell, F. R. Latchford, J. Fletcher.

*Ornithology* : John Macoun, A. G. Kingston, C. Guillet, Miss G. Harmer.

*Zoology* : E. E. Prince, Andrew Halkett, W. S. Odell.

*Archæology* : T. W. E. Sowter, J. Ballantyne.

## THE OTTAWA NATURALIST.

### Acting Editor :

J. A. Guignard, Central Experimental Farm.

### Associate Editors :

DR. R. W. ELLS, Geological Survey of Canada.—Department of *Geology*.

DR. J. F. WHITEAVES, Geological Survey of Canada.—Dept. of *Palaontology*.

MR. O. E. LEROY, Geological Survey of Canada.—Dept. of *Petrography*.

DR. JAS. FLETCHER, Central Experimental Farm.—Department of *Botany*.

HON. F. R. LATCHFORD.—Department of *Conchology*.

MR. W. H. HARRINGTON, Post Office Department.—Dept. of *Entomology*.

MR. W. T. MACOUN, Central Experimental Farm.—Dept. of *Ornithology*.

PROF. E. E. PRINCE, Commissioner of Fisheries for Canada.—Dept. of *Zoology*.

Membership Fee to O.F.N.C. with "Ottawa Naturalist," \$1.00 per annum.