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# THE OTTAWA NATURALIST.

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VOL. XVII. OTTAWA, SEPTEMBER, 1903.

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No. 6.

## MY PET CROWS.

L. H. SMITH, Strathroy, Ont.

The first bird pet I ever owned was a member of the Crow family, a Jackdaw. This bird is a smaller species of Crow, and makes a most interesting pet. Of course my pet's name was Jack, and, when poor Jack died, as all pets do (and generally tragically), it nearly broke my heart. It was in my boyhood's days, in the old land, and I can see now the mournful procession of children in Jack's funeral cortege, all crying out of sympathy for each other, and also for me, who was Jack's master. What a sad day poor Jack's funeral was to me!

Of the many pets I have had in this country, none are so funny, so cunning, and so interesting, as our common Crow.

On a fine day in early June, 1901, with a friend I started out to hunt a crow's nest. We had a long tramp, and were not successful until we came upon two boys, and, on putting the question to them "Did they know of a crow's nest?" Yes, they knew of one, with five young ones in it, but there were five boys interested in it, and each boy wanted a crow. "Well, show me where the nest is, that I may see how large the young ones are; and, if they are ready to take, I will make some arrangement with you to let me have them." They took us to the nest; one of the boys climbed the tree and held up one of the young birds, and I saw that it was nicely feathered and just the right age to take to rear. "Now, boys, what will you take for your crows?" Oh, they would each take ten cents. I expected a higher demand, so closed at once, and ordered the boy who was in the tree to bring down all the crows in his handkerchief, which he did. "Now, boys, who besides yourselves are in the partnership in this crow's nest?" They named three others, and I said "Here is your 10c. each for

your crows ; tell the other boys to come to my house and get ten cents each for theirs ; or let each take his crow, just as he please." This was, I thought, fair dealing, and, as I had bought out two shares, I felt sure of two pets, which was really all I needed.

When I arrived home with my birds, which I carried in my handkerchief, my wife asked me : "What in the world are you going to do with five crows ?" "Oh," I said, "they do not all belong to me, there are some boys who have an interest in them, and I guess will soon be after them." And I was not mistaken, for when it became known to the Crows' Nest Company that I had taken the crows, the stockholders were soon after me. For several days after I got the crows, when my wife saw boys coming to the house, she would say : "I guess it's some more of your crow boys."

One boy took his crow, the others I paid off as they came along, ten or fifteen cents, just as I could make the bargain. I did not keep a Crow debit and credit account, so do not remember how many shares I bought out ; but, when congratulating myself that I held all the stock, a boy came along ; he proved to be one of the original shareholders that I had bought out. He said his brother "owned one of the crows," and, as he was sick in bed and unable to come, he had sent him (the speaker) as his representative to demand ten cents, which I duly handed over ; though I never inquired whether that ten cents ever reached the sick boy.

Crows are omnivorous, are great feeders and easy to raise. I took a box about ten inches square and four inches deep ; in this I made a nest of soft hay, in which the birds, when young, and before they were able to perch, would sit ; and, their droppings being ejected outside, like from their natural nest, they were kept clean and healthy. I fed them largely on milk and bread, with (when the birds were quite young) some hard-boiled eggs mixed in it, raw beef and an occasional worm. Almost anything I would eat myself (no allusion to the worm diet intended), did not come amiss to them, and the quantity of food they consumed, when young and growing, would surprise anyone who never raised young crows. The secret is, Feed little and often.

After settling with all the boys who had an interest in my



crows, I had four birds, one of which I gave to a neighbor boy, and was sorry for it afterwards, for he neglected it and it died. One got hurt and came to nothing ; but the other two grew to be beautiful sleek birds, and became great pets. They would follow me anywhere and everywhere, and I had to give them the slip in order to be able to get off the premises at any time when I did not want them to go with me. When I went for a stroll or to take my dogs out for a run, they always went along ; the distance I went made no difference. They would fly after the dogs, who knew them and would not molest them ; return, alight on my hat or shoulder, take another flight, and so on ; they as thoroughly enjoyed a tramp through the woods and fields with me as my dogs did. I never tried to see how far they would follow, but my rambles would often be a round of several miles.

When wild crows would see them when we were on our rambles, they would sometimes come to them, but my pets did not care for their company, and, when the wild birds saw the tame ones alighting on my hat and frolicking with the dogs, they would fly off. I suppose they were wondering at such uncrowlike behavior on the part of crows. My crows became very friendly with the dogs, would feed with them and steal tid-bits out of their supper-pan, and, when I would play with my dogs by throwing a ball for them to fetch, the crows would fly towards the thrown ball, as the dogs would run, and return to me, as all the dogs would do when one of them had picked up and retrieved the ball. They seemed to enjoy the fun as much as the dogs did. When I was not about the premises, they spent much of their time by the kennel yard in the dogs' company.

These two birds were sleek, handsome fellows, and were very much attached to me, although they always were quite reserved with strangers, whom they never allowed to take any liberties with them, or even touch them, while I could caress them and pet them any way I liked. They would go to sleep resting on my knee, when I would be sitting in the garden, and never appeared to be so happy as when with me. While they were both beautiful birds, so glossy black and healthy as wild birds, still I could notice a slight difference ; one was just a little more perfect bird, a little more beautiful specimen than the other, and, had not one died some

time before the other, I should have had opportunities of studying the character and individuality of each. They were very fond of a bath, and would dash and splash in the water pan which I always left in the sun for their convenience. When the day was fine and warm, they never missed their bath. They drank slowly, much as chickens do.

A pair of Kingbirds for several seasons have had their nest in my garden, and they used to persecute my crows most shamefully. They would fly after the crows, alight on their backs, and peck at them. It was some time before I could satisfy myself that the kingbird actually rested on the crow's back when attacking him : his (the kingbird's) wings would always be extended and elevated, and fluttering to enable him to keep his balance ; but I felt sure that his feet were always on the crow's shoulders when he attacked the latter. The kingbirds were the only creatures around my premises of whom my crows were afraid, and they certainly lived in bodily fear of them.

One morning I found one of my crows lying near the barn wall, quite dead. I have no doubt he flew against the barn in terror trying to escape from the kingbirds. I was very sorry, as I was now left with only one pet ; he missed his companion, and kept my company and that of the dogs, more than ever. I felt sorry for him in his loneliness.

In September I went to Manitoba. I was away a month. Almost the first thing I asked for on my return, was my crow. My people had only bad news to tell me of him : he had been going away a good deal, and on one or two occasions had stayed away for two days or more ; he seemed, in fact, to have lost regard for them and love for his home, etc. I went into the garden and called him ; he flew straight to me and alighted on my shoulder. He commenced pecking, in a bibbling way, at my ear, and chattering all the while ; the bird was overflowing with joy to see me, and stayed by me and with me the rest of the day.

A pet crow I had the year before was very fond of having his head scratched, which operation I used to perform with my finger. My wife used a small piece of chip or stick for the purpose, being afraid of bird-lice creeping on her. He would follow her until she picked up a chip, when he would hold his head in position to be

scratched. On one occasion he carried a chip to her, which of course she took and used for the purpose indicated.

As a bird student, I will not say what can be taken out of these two episodes. Evidently, my pet was delighted to see me back after a month's absence, though what he said to me, crows alone could tell. The bird which carried the chip, might have done so with the intention of getting his head scratched with it, and he might not. We cannot get at what the birds know and what they think.

There is one objection to keeping pets, it is that they nearly always meet with an accidental, and often a tragic death. One morning in winter I called my bird to his breakfast, and he failed to respond. I never saw him after. He used to roost in the trees by the house, and I blamed the big brown owl for robbing me of the most lovable pet I ever had, and thus adding another to his long list of murders.

John Burroughs, in the "Atlantic Monthly" for March, 1903, in a paper on "Real and Sham Natural History," handles Seton Thompson and Rev. William J. Long without gloves. He ridicules some of the stories in Thompson's "Wild Animals I have known," and calls the writer of "School of the Woods" "Our Natural History Munchausen." I am not prepared to take sides. I think there are stories in "Wild Animals I have Known" which had better have been omitted or written differently. Long says a partridge can count eleven; Burroughs scouts the assertion. Who is to decide?

I might have drawn on my imagination, and said much more about my pet crows than I have done.

There is a mystery surrounding animal life which we cannot read, cannot interpret and cannot understand. I think, though, that one can get a little nearer the soul of a wild animal by making a pet of it.

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## WINTER GROWTH OF A WATER LILY.

WALTER S. ODELL.

When I uncovered my aquarium in my yard to-day (30th March, 1903), the water at one end was not frozen, the other end was covered with ice varying from thin to three inches thick at the farthest end. I was surprised to find that a Water Lily, *Nymphaea chromatella*, had two partly grown leaves, one smaller leaf and four curled up leaves ready to unfold, and two flower buds, on the surface of the water, while just underneath was a leaf curled up, not so far advanced in growth. One bud was badly decayed; the other was small and rose above the surface of the water about one and one-half inches.

With this plant are several other water lilies, also Nelumbiums, *Calla palustris*, *Cabomba*, &c. Last autumn the leaves of all these showed natural decay, except the *Nymphaea odorata rosea*, which had six or eight very large vigorous cordate leaves mottled with dull red, and a nearly mature flower bud, at the surface of the water. This spring all these large leaves and their stems had decayed and disappeared, while in their stead were the young leaves and bud before mentioned. The *C. palustris* started a shoot three inches above the water before being frozen in the surface ice, but had no growth when covered last fall. No other plant life was visible there.

The aquarium, measuring inside 14 in. x 7 in. x 2 ft., was filled with water to the brim late last fall before frost; a layer of boards was placed over it, then tar paper with overlapping edges; about a foot of wet manure was placed on this, while for a roof over all, slanting boards covered with tar paper to keep off all rain completed the shelter. When uncovered this spring, the manure was frozen to the boards and possibly had frozen solid. Where the ice was thickest the top boards were about four feet above the water.

It seems strange that the *N. odorata rosea* should grow and have natural-colored leaves in the dark, during winter, instead of the pale light yellow leaves one would naturally expect to find on plants growing away from sunlight; or that a plant should grow at all with ice on the surface of the water. No water lilies start in the Rideau River where the water is shallow and consequently warmer, till vegetation is well advanced on land everywhere.



## REPORT OF THE ENTOMOLOGICAL BRANCH, 1902.

(Read at meeting of Club held Feb. 10th, 1903.)

The entomologists of the Club although few in number have been actively engaged during the past season, and a fair number of captures rewarded their efforts. Valuable work has been done in breeding and working out life-histories of Lepidoptera. The most successful collector has been Mr. C. H. Young, who has added several species of nocturnal Lepidoptera to the local list. His collections have been made at Hurdman's Bridge, near his residence, and at Meech Lake, P.Q., in the Laurentian Hills. Mr. Arthur Gibson has continued his studies on the Tiger Moths of the genus *Apantesis*, and has made some interesting discoveries, the results of which will soon appear in print. Dr. Fletcher and Mr. Gibson have reared from eggs several species of insects, the eggs of which have been received from correspondents, or collected in the Rocky Mountains. Among these, perhaps the most interesting are *Erebia Disa* (eggs from Mr. N. B. Sanson) and *Nemeophila petrosa*, from Banff in the Rocky Mountains; *Nemeophila Selwyni* and *Argynnis tricularis* from Nepigon; *Antarctia rufula*, from eggs received from Mr. J. W. Cockle, of Kaslo, B.C. Mr. Young also has been successful in rearing local species from the egg and has added many fine series of specimens to his collection of inflated larvæ.

Mr. A. E. Richard has made an important addition to the local butterflies in the interesting little satyrid *Cœnonympha inornata*.

Mr. Harrington has devoted much time to Diptera and has added many to previous records of the flies found at Ottawa.

In addition to the work done by the entomologists at the Club general excursions, many sub-excursions were held during the summer, and regular meetings of the Branch are being held during this winter, where short papers are read and free discussion takes place on all matters connected with this branch of research. Much good has resulted from these reunions in stirring up enthusiasm and in helping the members to settle points of identification which are troublesome when students are working alone. At one of these meetings, we were favored with a visit from Mr. J. D. Evans, of

Trenton. The orders which have received most attention in the past are the Lepidoptera, the Coleoptera, the Hymenoptera, the Diptera, the Hemiptera, and the Odonata. The leaders would be glad to see more work done in the Odonata and the Orthoptera, insects of much economic importance, the former from their predaceous habits of feeding on other insects, particularly mosquitoes, and the latter from the injuries they do to crops.

Mention may be made of the following captures during the past year—nearly all of which are additions to the Ottawa lists.

## LEPIDOPTERA—

*Cænonympha inornata*, Edw. Near the Rifle Range, June 14. (Mr. A. E. Richard.) The same insect is reported by our Montreal member, Mr. H. H. Lyman, as having been taken near Montreal by some of the members of the Montreal Natural History Society.

*Pieris rapæ*, L., var. *nov-angliæ*, Scudder. This is the rare yellow variety of the Common White Cabbage Butterfly. (A. Gibson.)

*Feralia major*, Smith April 20. (Fletcher.)

*Hepialus mustelinus*, Pack. (Gibson, Young.)

*Chytonix sensilis*, Grt. Meech Lake, Q. (Young.)

*Semiophora youngii*, Smith. Mer Bleue. Sept. 18. (Young, Gibson.)

*Agrotis genicula*, G. and R. June 9. Meech Lake. (Young.)

*Noctua jucunda*, Walk. July 26 " "

" *rubifera*, Grt. July 25. " "

*Porosagrotis mimallonis*, Grt. Sept. 3. " "

*Carneades fumalis*, Grt. Sept. 3. " "

" *velleripennis*, Grt. Aug. 25. " "

*Hadena nigrior*, Sm. June 14. " "

" *cariosa*, Grt. July 16. " "

" *aigens*, Sm. Sept. 12. " "

*Hydræcia inquesita*, G. and R. Sept. 8. Ottawa. (Young.)

" *cerussata*, Grt. Sept. 8. Ottawa. (Young, Fletcher.)

*Macronoctua onusta*, Grt. Sept. 29. (Fletcher.) This has also been taken at Montreal by Mr. Winn, and at Belleville by Mr. Evans.

*Tæniocampa oviduca*, Grt. May 26. Meech Lake. (Young.)

" *culea*, Gn. May 31. " "

- Scopelosoma devia*, Grt. April 22. (Young.)  
*Xylina fagira*, Morr. April 16. (Young.)  
 " *ferrealis*, Grt. Sept. (Gibson.)  
*Pseudolimacodes littera*, Gn. June. (Gibson, Young.)

In addition to the above, it may be mentioned that the Birch trees in this vicinity were again this year much defoliated by the Birch-leaf Skeletonizer (*Bucculatrix canadensisella*, Cham.) and that columbines in gardens were considerably disfigured by the unusual numbers of the caterpillars of the skipper butterfly *Nisoniades lucilius*, Lint.

#### HYMENOPTERA—

The Hymenoptera of Ottawa, as compared with these insects in other parts of Canada, are comparatively well worked up; but there is much work in this very important order, waiting to be done by some specialists. Mr. Harrington has large and valuable collections in most of the sub-orders and is constantly naming material from all parts of Canada. The same may be said concerning the Diptera and the Hemiptera.

The following Hymenoptera are worthy of mention here:—

- Spilomena pusilla*, Say. A small wasp, new to the Ottawa list. (Harrington.)  
*Metopius pollinctorius*, Say. (Harrington.)  
*Anoplonyx canadensis*, Hrgtn. A new species described from Ottawa. (Harrington.)  
*Taxonus nigrisoma*, Nort. The larva rather injurious from its habit of boring into apples to pupate. (Fletcher.)

#### COLEOPTERA—

- Xyloryctes satyrus*, Fab. (Fletcher, Harrington.)  
*Bellamira scalaris*, Say. " "  
*Anthophylax attenuatus*, Hald. Chelsea. (Fletcher.)  
 " *malachiticus*, Hald. " "  
*Pselaphus Erichsonii*, Lec. (Harrington.)

JAMES FLETCHER,  
 W. H. HARRINGTON.  
 ARTHUR GIBSON.  
 C. H. YOUNG.

## SUB-EXCURSION.

A sub-excursion of the Ottawa Field-Naturalists' Club was held on Saturday, June 20th. It was the first fine day for over a week. The few who took part in this outing, enjoyed it very much. The meeting-place was at Victoria Park; but it was some minutes after three before a sufficient number of members were assembled. As there were so few present, it was decided to have no after-speeches; and we were soon divided into groups, botanical, entomological, etc. One of the first specimens to attract the attention of the botanical group was the Wood Nettle. And not far off from it was seen growing the natural antidote to its sting, the Bitter Dock. In the same rich damp soil were found several other interesting specimens: the Fringed Bindweed with its racemes of white flowers and the minute cilia at its joints, the Honewort with its irregular umbellets of tiny white flowers, the creeping Hog Pea-nut, hardly yet in flower; but we wander on, seeking for rarer species. Many a treasure of earlier excursions is now passed by as common, or is scarcely recognized, now that it is seed-bearing, such as the Mitrewort and False Mitrewort, the Jack-in-the-pulpit, the Star-flower, the Painted Trillium, and several species of Violet, and of the more common Crowfoots.

We cross some open fields and see some of the agricultural weeds: the Common Milkweed with its drooping umbels of sweet-scented purple flowers, the Common Gromwell, which is recognizable all through the winter by its ivory-white sessile nutlets, the Common Hound's-tongue, with its barbed nutlets, by which it is so often carried away unconsciously by man and by beast. Then there are some prettier weeds, such as the Ox-eye Daisy and the Tall Buttercup. But the weeds are too numerous to be all recorded, and we pass on. "We may find some interesting specimens by that stream," says our leader. And, true enough, each of us adds to his collection something interesting. There are two Bedstraws, the Rough and the Sweet-scented; in the marsh is the Bur-weed, a close relative of the common Cat-tail; the Common Elder, which flowers rather later than the red-berried one, was there with its flat cymes of a heavy sweet scent. The



Sweet Viburnum was there in berry. Farther on, we found its cousin, the Arrow-wood, with its maple like leaves.

But the greatest reward of our search was yet to find. It was not the occasional specimens of the Wild Strawberry, which were not preserved for later examination, nor the small prickly fruit of *Ribes Cynosbati*, which we willingly left to some children to gather, only warning them that the fruit was still green, nor the Hazelnut with its long cylindrical beak. No. The most valued prize gathered that afternoon was a plant of no known use at all, a leafless parasite. But this plant was rare. It was unknown to all of us. It had a single flower on its naked scape; but it was a pretty flower, of pale purple colour with some yellow marking in the throat. Several specimens were found in the immediate neighbourhood, and each of us were able to take away one or more. Afterwards we learned that it is the One-flowered Cancer-root [*Aphyllon (Thalesia) uniflorum*], of the Broom-rape family.

Another very interesting botanical find was the Partridge-berry in flower. This pretty little trailing vine, with its evergreen leaves variegated with whitish lines and its scarlet berries, may be found both in autumn and spring time, but it is only for a comparatively short season in June that it remains in flower.

A much commoner flower, but beautiful with its rosy markings, is the Spreading Dogbane. It grows abundantly along the borders of thickets. Its numerous, tiny, rose-coloured flowers make it an attractive object as it grows. But its milky juice is not pleasant on one's hands, nor does it revive so readily in a vase as those plants do whose juice is more watery.

However, time flies by, and so we bring our excursion to a close. There is left many another interesting specimen to be gathered, or to be studied, from trees, shrubs and herbs. And next time may there be many other enthusiastic naturalists to join with us in these pleasant Saturday afternoon excursions!

E. BLACKADER.

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## ORNITHOLOGY.

## HERRING GULL'S EGGS.

On the 7th June of this season I collected on a small rocky island in Trout Lake, in the Parry Sound District, two eggs of the American Heron Gull (*Larus argentatus Smithsonianus*, Coues. The nest was composed of moss, pine needles, small sticks, wild hay, and lichen: its contents being these two eggs, which when blown were found to be fresh. Their ground colour is brown gray with greenish cast, one being somewhat lighter than the other; and they are spotted and blotched with light purplish gray and sepia. They measure respectfully  $2\frac{1}{8}$  ins. x  $1\frac{7}{8}$  ins. and  $2\frac{3}{4}$  x  $1\frac{7}{8}$  ins.

ANDREW HALKETT.

## A SELF-HEALING WOUND.

I once shot a wild pigeon that previously had had its breast pierced through and through by a shot, and on each side the wound was covered as if by a neatly applied gum and down plaster as symmetrically round as the hole itself and not quite as large as a 25 cents piece. Those plasters could be scraped off only by the use of a knife, and when removed they left to the view, on both sides, a healthy looking and rapidly healing, though still open, wound.

EMERY PERRIN.

## ENTOMOLOGICAL SOCIETY OF ONTARIO.

The annual meeting of this important society is to be held in Ottawa on Sept. 3rd and 4th next, and is to be followed by a field day on Saturday 5th. The meetings are all open to the public, and the members of the Ottawa Field Naturalists' Club are specially invited to be present, to contribute papers and to take part in the discussions. The day meetings will be held in the Board of Trade room, 46 Elgin st., and the evening meeting on Thursday, in the large assembly hall of the Normal School. At this latter meeting Prof. W. Lochhead, of Guelph, will deliver his inaugural address "The Progress of Entomology in Ontario," and Dr. L. O. Howard, U. S. Entomologist, of Washington, will give an address on "The Transmission of Yellow Fever by Mosquitoes."

## NATURE STUDY—No. V.

## SUMMER COURSE AT NORWAY BEACH.

A. E. ATWOOD, M.A.

Norway Beach Park is situated on Norway Bay, an arm of the Ottawa, about forty miles up the river from the capital. During the past two summers, short courses of recreative nature study have been given at the Beach. This sketch is intended as an informal record of a few features of the free-and-easy two weeks' course during last July.

The work was characterized by earnestness without seriousness; it was scientific without being technical; it was practical, yet not exacting. The true, the beautiful, and the good constituted a guiding trinity. Any truth that illustrated the unity of nature, any beauty of form and especially beauty of adaptation that revealed itself, and Nature's lavish bounty in the endless variety of her gifts to man, were emphasized whenever an instance occurred.

With the object of leading the students to appreciate scientific nomenclature, they were asked to submit from time to time specimens of plants whose popular names are misleading. The response to this request is indicated by the following list, in which the unscientific part of each name is italicized: sweet *fern*, reindeer *moss*, prince's *pine*, club *moss*, *Canada* thistle, mountain *ash*, and evening *primrose*. In this connection it is surely pardonable to remark that knot *grass* is not grass.

The boys and girls who attended, were requested to remember the scientific name when easy and etymologically suitable. In a review a boy was asked to name the genus to which the clovers belong. There was no reply. "Try," prompted a clergyman encouragingly. "*Trifolium*," was the immediate response.

"Do you know the classical name for the maple?" "Ay, sir." "Give it please." "*Acer*."

In his opening address the leader expressed the opinion that it would be possible to find five species of maple in the locality and he offered to compete with the rest of the school in finding them. One young woman submitted a spray of the Maple-leaved Viburnum. Her attention was directed to its fruit, and thus she was

convinced of her error, but even the youngest member of the class felt the appropriateness of its name,—*Viburnum acerifolium*.

A few days later the Purple-flowering Raspberry was the subject under examination. After two or three other brambles had been named, the students were told that all belonged to the genus *Rubus*. They were then asked to propose a suitable specific name for the plant under immediate consideration, and *Rubus acerifolius* was at once suggested—a more satisfactory name perhaps than *Rubus odoratus*, by which it is known to botanists.

Attention was then called to the fact that the fruit of the Raspberry consists of an aggregation of drupelets, each of which is itself a perfect fruit,—*more than one fruit from one flower*. The fruit of the Partridge-berry (*Mitchella*) has on its surface two depressions the significance of which was discovered by a bright boy who suggested that each pit was the place where a flower had been,—*one fruit from more than one flower*.

Another problem was to interpret the significance of the fleshy teeth of the fruit of the Creeping Wintergreen (*Gaultheria*). After the capsule had been dissected out, it was made clear that these teeth were the lobes of the enlarged calyx. The leader then asked the students to name a fruit cultivated for the sake of its fleshy calyx and was surprised to have a little girl give the apple as an example. On being questioned as to the source of her information, she said that Mr. Macfarlane had the year before called the attention of the students to the fact. She had not forgotten it though twelve months had elapsed.

Another instance of the lasting impressions made by the nature study method of teaching was furnished by a girl of twelve who was asked to tell how a tree should be planted. She described minutely the method illustrated a year ago by Mr. W. T. Macoun, who gave a practical demonstration by planting a little pine tree in the auditorium during the course of his lecture.

There was also a sequel to Mr. R. B. Whyte's talk of last year on the shrubs of Norway Beach, when the characteristics of Poison-ivy were specially emphasized. Some time after, two young men of that locality were picking stones in a field when they came to a heap over which trailed Virginia Creeper. One of them said, "Rather than run the risk of being poisoned, we will



leave those stones there." "This is not Poison-ivy," said the other, as he seized the shrub and drew it to one side, "I attended Norway Beach summer school, where I learned that this is Virginia Creeper, for each leaf has five leaflets, not three as Poison-ivy."

As mosquitoes were a feature in the environment, they also received a little scientific attention. The malaria-inoculating genus (*Anopheles*) was described, and the students were asked to bring specimens on the day following. The shaded wings and pointed pose of the body when the insect is at rest, betray the *Anopheles*, whose long palpi, if closely examined, furnish a corroborative means of identification. It is rather difficult to kill a mosquito without injuring it as a specimen; indeed, the writer spent half an hour that evening in the attempt to do so. At last one was secured, and he proceeded to examine it with a magnifying glass. So life-like was the corpse that a little boy who saw it, exclaimed: "There's a mosquito!" and immediately crushed the dearly-bought insect between his finger and thumb.

Someone has said, "Punctuality is the thief of time." In order that those who arrived at the auditorium punctually, should not have their time wasted, an opportunity was given them of examining objects under a microscope while the tardy ones were on the way. On one occasion a drop of blood was required, to obtain which, all the mosquitoes present were invited to "bite." As none took advantage of the invitation (and certainly mosquitoes have reason to be suspicious of scientific inquirers), a little girl volunteered to shed her blood in the cause of science. She did so by opening a recent wound on one of her bare feet. The blood corpuscles were soon revealed, and the students present realized how small the microbe of malaria must be when they had been informed that a colony may develop within one corpuscle.

While due emphasis was given to the fact that botanical classification is based on the structure of the flower, the leader encouraged the student to give attention to relationship as revealed in other organs. For instance, after the Prince's-pine (*Chimaphila*) had been made a subject of analysis, the class was asked to bring other plant species which they might reasonably expect to belong to the same family. Trailing Arbutus, Bearberry, Creeping Win-

tergreen and *Pyrola* were submitted, their low-growing habit and leathery leaves being the characters of similarity.

In like manner, members of the Grass Family were to be identified by the two-ranked leaves whose sheaths are split on the side of the stem opposite the blade. From this character, wheat and oats were recognized as grasses. The former was named as that member of the Grass Family that contributes most food for man. A question as to the staple food of the people of China and of India led the class to see that the pre-eminence belongs to rice. The leader had to tell them that rice is a grass, as none had ever seen it growing. In Nature Study our great aim is to walk by sight, not by faith; but it is often necessary and quite allowable to get information second-hand, especially when it is based on intelligent first-hand knowledge. We thus learn from the researches of others that the Grass Family stands first and Pulse Family second in the amount of food contributed to man. It was left as an undecided question as to the order of plants that has the third place, but the member of the class who was regarded as the oracle, declared that either the *Rosaceæ* or *Solanaceæ* occupy this grade.

The centre of interest of the Pulse Family was the nodules that are found on the roots of the different species. In one particular most plants resemble Coleridge's Ancient Mariner who was perishing with thirst though there was "Water, water, everywhere." Plants grow in an ocean of nitrogen, which element they require for their proper development. Though there is, in the atmosphere, nitrogen, nitrogen everywhere, the plants are unable to assimilate it in the free state. Now the tubercles on the roots of leguminous plants are the homes of minute organisms called *Rhizobia*, which are free-nitrogen-assimilating bacteria, and by whose instrumentality these plants are able to incorporate the necessary nitrogen. A pedagogical moral to be drawn from the foregoing, is that teachers of plant study should encourage their pupils to dig for their information,—to examine the root as well as the stem and the leaves.

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