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# THE OTTAWA NATURALIST

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# THE OTTAWA NATURALIST

VOL. XXIV.

OTTAWA, JULY, 1910

No. 4

## FERN HUNTING IN ONTARIO.

By FRANCIS J. A. MORRIS,  
(Trinity College School, Port Hope, Ont.)

A life-long lover of flowers and ferns, I had been ten years in Canada, roaming the country side for flowering plants before I ventured to tackle the ferns. The fact is I greatly over-estimated the difficulties of identification in these most beautiful of foliage plants. It was only because I had almost exhausted the lists of "finds" in Ontario flowers that I made up my mind to add the pteridophytes to my amateur botanist's list.

The beginning was made in Great Britain five years ago during a botany trip in North Wales and the Lake District. I was agreeably surprised to find identification comparatively easy. The A B C of the art, as I remember, was close and frequent scrutiny of the back of every fern I found. This in July meant inspecting the sori or clusters of spore cases and noticing whether they were covered by an indusium or not; and if so whether this was circular or oblong. By that means I soon grew familiar with the two kinds most rich in species in northern latitudes, the *Aspidia* or Shield Ferns (with circular indusium), and the *Asplenium* or Spleenworts (with oblong indusium). Two of the commonest of British are the Male Fern (*Aspidium Filix-mas*) and the Lady Fern (*Asplenium Filix-femina*); the first of these is not common in Ontario, indeed only doubtfully native to the province, having been found at Roystone Park near Owen Sound; but some other species of *Aspidium* are common to both countries, e.g., *A. spinulosum*, *A. cristatum*, and *A. Thelypteris*. Among the Spleenworts are many species of interest in Europe, though perhaps not more in number or interest than those of North America. The result of a most enjoyable 6 weeks' fern-hunting was familiarity with 13 species belonging to 7 genera. This was in 1905, and on a second visit to England 3 years later, after 2 seasons' collecting in Ontario, I got twice as many in the same time and over the same ground. The fact is, experience to a collector counts for more than anything else. The three genera I found most useful to know, by way of nucleus about which to

gather knowledge of our Ontario ferns, were *Polypodium* (including *Phegopteris*), a genus in which the indusium is wanting, *Aspidium* and *Asplenium*.

It was with no small curiosity that I set out next season to search for ferns in Ontario. I began in May and by the end of June had got 17 species. I found, however, that a beginner can seldom be certain of identification until the frond is in fruit. For instance, I got a young fern early in June whose frond tapered in both directions, the pinnae longest in the middle and shortening gradually above and below. I made sure it must be the New York Fern and transplanted some to a pot in my window stand. I was away all the summer, but my plants were cared for and on my return I found my New York Fern (*Aspidium noveboracense*) with the known contrariety of things taken for granted had fruited out into a Silvery Spleenwort (*Asplenium thelypteroides*). Mistakes like this are bound to occur in the case of a beginner, and some species more than ordinarily variable defy identification even by an expert until in fruit. In the case of the Silvery Spleenwort, however, an experienced eye will have no difficulty in determining; for it is covered on stipe and rhachis with white somewhat bristly hairs, while the New York Fern is perfectly smooth and the stipe itself is much more slender.

Altogether my first season yielded me 50 species, and more hours, days and weeks of solid enjoyment than anyone can be aware of who has never collected ferns. For not only are they beautiful in themselves but their haunts and homes are among the most charming in all nature. Ferns in their native surroundings are far more than ferns in themselves, even though the charm of surroundings, if not due to the ferns, is always enhanced by them. Emerson's "Each and All" will remind you how subtle and how complex a thing is environment. But even a fern in itself is a thing of beauty and a joy forever; and to the collector who cares to press and mount specimens of our native ferns, there is no plant that yields anything like as good results. Flowering plants when pressed generally lose their natural colours and always their distinctive outline and shape; ferns on the other hand if carefully pressed retain their natural green unchanged and are with few exceptions flat and growing in a single plane—ready pressed, so to say, by Nature. A green fern well mounted on a sheet of white paper or cardboard is a delight to the eye and in the grey days of winter a pleasant reminder of summer's golden prime.

My first collecting ground was in the neighborhood of Port Hope, a limestone district but with almost no rock, the limestone

chiefly showing as blue clay or marl about the streams; the woods are mostly hardwood, beech and maple; hardly any spruce, a good deal of hemlock and some white pine; cedar and tamarack abundant in swampy parts; the upper soil sandy or peaty; the country rolling and rich in springs. The fern-flora is in the main characteristic of limestone districts; in some of the higher parts the land is abundantly strewn with granite boulders of glacial origin.

My favorite haunt was a stretch of country from west to east, some 5 miles north of Lake Ontario; rolling country with rich hardwoods and upland pastures, peaty swamps in the hollows and crested above with ridges of pine. The best approach from the town to the west end of this rolling country is by the Midland Railway going north from Port Hope towards Peterborough; just west of the railway quite close to the town lies Monkey Mountain, a tract of sandy turf and grassy slopes, pine trees on the upper levels, and intersected by valleys full of springs and swamps, with running streams of cold clear water that harbour speckled trout. At the foot of the grassy slopes near swamp level are some fine colonies of 2 of our *Osmundas*, the Cinnamon and the Interrupted Ferns. These fruit early in June and before July the fertile fronds have begun to wither away; the more famous Royal Fern, *Osmunda regalis*, I did not find nearer than a tamarack swamp 10 miles away, though last summer I found to my delight a few plants of it just north of my rolling country and quite close to the railway track. The Royal Fern in maturity is a magnificent plant, but when young it has a singular beauty of its own; the frond is coppery in hue, lush and soft in texture, something like the young frond of the Maidenhair with its half-furled drooping bannerets of yellowish pink.

The Maidenhair (*Adiantum pedatum*) is quite common in our maple and beech woods in somewhat shaded situations, wherever the soil is peaty and rich; it requires less shade than the Oak Fern which otherwise is found in similar (or the same) haunts. It is hard to analyse beauty, nor is it advisable; in the Maidenhair Fern symmetry has much to do with its charm; the contrast of colour between the shining ebony stem with its hair-like divisions above and the delicate green of the pinnae adds not a little thereto; and the tree-like effects of the spreading horse-shoe of branchlets set with wedge-shaped pinnae, translucent, membranous, like an oak of some fairy forest, of such transcendent delicacy, this unites with the other qualities to give the fern a dainty elegance and grace unrivalled among its kind.

It belongs to a group whose sporangia are all secured by being clamped in under the recurved edge of the frond. The type and commonest representative of the group is the Bracken, which when fully fruiting shows its pinnules strongly contracted. There are two other genera in the group, the Cliff Brake (*Pellaea*) and the Rock Brake (*Cryptogramma*).

Along with the Maidenhair, but in deeper shade where no grass or herbage disputes its right to the peat and leaf-mould, especially under cedars and hemlocks, the Oak Fern is abundant. It also is a fern of peculiar charm and part of its pleasing appearance is due to a quality it shares with the Maidenhair; its growth is in two planes, the frond itself spreading more or less horizontally out from the top of the erect stem, which is tall and slender in proportion to the whole plant, dull-green above, brownish near the base. The frond is triangular and in appearance tripartite, the lowest pair of pinnae being far larger and more compound than those further up the rachis; the foliage of the frond has sometimes the appearance of a bluish-grey bloom on the under surface. It is not unlike a miniature bracken to look at.

The Beech Fern (2 species) is of the same genus and has similar characteristics; its growth also is in more than one plane, the very long upright stipe having a (proportionately) short frond at the top, this frond not entirely in the same line of growth as the stipe, and the lowest pair of pinnae (which are usually far the largest) carried forward and deflected like a pair of spurs at an angle to the rest of the frond. The Broad Beech Fern I have never found, but it is abundant near Owen Sound; the Narrow Beech Fern does not occur near Port Hope, but I have found it near Perth, at Lanark and in North Burgess; in the Algonquin Park it is exceedingly common, growing in great patches in the damp shaded woods and found even, in stunted form, far up the precipitous rock faces of railway cuttings and natural cliffs. The chief generic mark is that the sori or clusters of sporangia which are small and dark-brown are destitute of covering (indusium).

There is one other genus belonging to the same group, the Polypody or Rock Fern; I had to wait till I visited the Rideau before I saw this common fern, for it insists on rock; I have no doubt it is abundant as near us as Rice Lake. It has very large naked sori of a rich light gold colour.

The next two genera in the list of ferns have a distinct indusium protecting the sporangia clusters, the Spleenwort and the Shield Fern. Easily the most common of the former and with the widest range of habitat is the Lady Fern. It is about



the same size as the average Shield Fern (e.g., the Spinulose or the Marginal), but the texture of its frond is far more delicate; the sori are oblong, but being placed along the twisting veinlets of the pinnules they usually curve bow-wise into a horse-shoe shape. The indusium opens along one side as the spores ripen. The stipe of the Lady Fern is often reddish in colour.

A wood of maple, beech and hemlock some 5 miles out from Port Hope forms the west end of the rolling country I have before referred to; through the midst of it between springy and steep high banks flows a stream; the wood has many deep rich hollows of peat and leaf-mould; it is luxuriant with plant life, having an unusual range of violets and lilies and some uncommon orchids, such as Hooker's Rein-orchid and the Showy Orchid. For a small wood whose greatest diameter is perhaps half a mile, it is quite the richest in ferns that I know. And that not merely in number of species but in actual quantity; with hardly an exception, the ferns that occur there at all fairly run riot within its shelter. Observing the order in which the ferns are treated, besides the Oak Fern, the Maidenhair and the Bracken which in congenial surroundings abound in the wood, there are all three of the largest Spleenworts; the Lady Fern and the Silvery Spleenwort are abundant, some plants and patches of wonderful size; the oblong fruit-clusters of the latter with the indusium silvery-white until the spores ripen make it easily recognized; it fruits freely, the oblong clusters standing out obliquely from the midvein of the pinnule, suggestive of a small fish's backbone. The third species I have found there is the Narrow-leaved Spleenwort, which fruits even more freely and in the same peculiar way; the sori, however, are larger, cylindrical rather than flatly oblong; the frond is of a delicate texture, the pinnae are simple and entire, in the form of a long tapering acuminate pennant; in the fertile fronds the pinnae are much contracted and so closely do the sori stand together that the whole under surface forms an unbroken series of contiguous cylinders of spore cases. The fern is far from common and in all this wood there is only one small colony about a square yard in extent. In August, 1909, I was fortunate enough to find two other stations for the Narrow-leaved Spleenwort, one near Lanark and the other near Otty Lake between Perth and the Rideau. A peculiar feature of the Narrow-leaved Spleenwort is its frequent companionship with the Goldie's Shield Fern. In Niagara Glen below the Whirlpool Rapids, both plants are found together in the rich leaf-mould and peat where the ground is swampy, and here in this little wood near Port Hope within a few yards of the little patch of *Asplenium angustifolium* were plants of the Goldie's Fern. The

late Dr. Fletcher when he heard of my finding the Narrow-leaved Spleenwort asked whether the Goldie's occurred in its neighbourhood, his own experience and that of other botanists having been to find the two together. This is not, however, a universal rule, for the two colonies of this fern found by me south of Ottawa had no Goldie's Fern anywhere near them.

The Goldie's Shield Fern is certainly a magnificent plant, and when first unfolded at the end of May peculiar by its light yellow-green colour and noble proportions. The frond is remarkably wide and more solid in texture than any other Shield Fern that approaches it in size, unless perhaps the Marginal Shield Fern. The Goldie's Fern is often 5 feet or more in height and can hold its own for mere stature with the Osmundas and the Ostrich Fern. Its width is always noticeable; I have gathered in September fresh fronds put up evidently after the fruiting season; the frond itself (on a long stout stipe) would vary from 8 to 10 inches in length and the width across from tip to tip of the lowest pair of pinnae was often an inch or more in excess of the length. Large ferns, say 5 feet high, have an extreme length of pinna of 8 inches; this would make a rhachis nearly a foot and a half wide, if the pinnae stood at right angles to the main stem; occasionally they are so placed but as a rule they incline upwards at an angle; the shape of the pinna is peculiar, being slightly curved like a scythe—as in the Holly Fern; the curving is often more plainly seen in the pinnule which is a pinna in miniature; the pinnules have a crenate or sinuous margin and taper to a point. The sori which are not very large lie rather nearer the midrib than the outer edge of the pinnule.

Another fern common in this wood is the Christmas Fern (*Polystichum* or *Aspidium acrostichoides*), an evergreen like the Prickly and the Marginal Shield Ferns. It has a somewhat peculiar habit of fruiting; the sori form on the upper part of the frond only, usually down from the apex to less than half way; these fruiting pinnae are strongly contracted, so that the green frond seems to pass from leafy below to a bare-looking narrowed and rigid spike.

The only other species of *Polystichum* found in Ontario is the Holly Fern (*Polystichum Lonchitis*); it is fairly common in the limestone region about Owen Sound and the Bruce peninsula; smaller than the Christmas Fern it has no bare stipe, the pinnae starting from the very base; the pinnae and the frond as a whole are falcate (scythe-shaped) and there is no contraction in fruiting.

All about the sloping meadows that surround the wood, as well as in it, you find thickets of the Marsh Shield Fern (*Aspidium Thelypteris*), and, somewhat sparsely growing in the middle of

the wood, especially about a woodman's path, its next of kin, the New York Fern (*Aspidium noveboracense*); the only two species of *Aspidium* destitute of chaff about the stipe, with peculiarly delicate and glabrous texture of frond. The Marsh Fern has a very short rhachis and remarkably long stipe; the lowest pair of pinnae are as long as those immediately above them, and the pinnules become strongly contracted in fruit, the margins being revolute over the sori. The New York Fern tapers both ways, the longest pinnae being about the centre of the frond; the pinnules are not contracted in fruit, the colour of the fern is pale yellowish-green, whereas that of the Marsh Fern is often bluish-green, certainly darker than the New York Fern.

Other *Aspidiums* found in this wood besides those already mentioned are the Marginal, the Crested (with its variant the Clinton's) and the Prickly. *Aspidium marginale* is easily recognized by its thick leathery frond, having the sori placed at the extreme outer margin of the pinnules. It is not common, as its preference is for rocky banks and woods, but under a group of pines in an elevated corner of the wood a few plants subsist near some glacial boulders. *Aspidium cristatum*'s choice of home is within the swamps and bogs; there is quite a striking difference between the fruiting and the barren fronds; the latter are shorter, lax and more or less prostrate, often growing outwards on all sides of the rootstock, rosette-fashion; right in the centre of these you will see 3 or 4 tall rigid fronds, the pinnae standing out almost at right angles to the rhachis and twisted round on their bases from a vertical to a horizontal position so that the under side of the pinna, with its fruiting clusters, is facing the ground and hidden from the light, while the upper sides appear to be "taking the sun"; the outline of the frond is more or less oblong, the pinnae from the base almost to the apex being practically of one uniform length. *Aspidium spinulosum* is one of the most variable of ferns, yet always easily recognized by its finely-cut frond, the lobes ending in a prickle or acuminate tip. It is quite common and one of our handsomest ferns; I saw a plant of it to-day (June 15) in a wood I have been speaking of; a tree, fallen or felled years ago, had left a stump some 3 feet high; the top of this was rotted out to a depth of more than a foot; in the centre of this natural flowerpot was growing a magnificent plant of the Prickly Shield Fern; I counted 25 fronds, most of them well over 2 feet in height and fruiting profusely. Being evergreen it is often kept by florists over the winter, in some cool damp place, and used at Christmas for foliage with carnations and other cut flowers of the hothouse.

Altogether, out of 24 species of fern that I have found in the immediate neighbourhood of Port Hope, this little wood

and its surroundings harbour all but 2. These include 2 species of *Cystopteris* (Bladder Fern), 2 species of *Onoclea* (the Sensitive and the Ostrich), 2 species of *Osmunda* (the Royal and the Cinnamon), the Adder's Tongue, and 2 species of *Botrychium* (the Virginia Rattle-snake and the Ternate Grape Fern).

The Bladder Bulblet Fern (*Cystopteris bulbifera*) forms a tangled mass of intertwined fronds about the banks of the stream and the swampy hollows of the wood. The stipe is reddish, translucent and brittle; the frond takes one of two forms, either short, triangular, rather longer than wide, or a very prolonged narrow oblong; this latter form is usually procumbent and straggling, especially where the fern grows over the talus of loose limestone blocks at the foot of a shaded bank or cliff, it seems to take a new lease of life. Antæus-like, at every point of contact with mother earth, I have found the frond running along like a creeper in a slightly upward plane from stone to stone with a straggling growth of 4 feet or more. The species is unique among our northern ferns in forming green bublets about the rhachis and pinnae, whence a new fern-plant springs as soon as the bublet drops to the ground.

The other species (*Cystopteris fragilis*) is usually found growing in tufts from seams and clefts of damp rock, but like many plants it has another home, in which it grows to greater size and sturdiness; this second home is in crumbly soil on mounds and about the upraised mossy turf at the base of trees. I gathered 5 or 6 fronds to-day from such a place, they were fairly rigid and erect for so delicate a fern, about 12 inches in height,  $4\frac{1}{2}$  inches of stipe, dark-brown, nearly black at the base, lighter above, green on the rhachis from base to tip of frond. These erect ferns were fruiting freely and growing up out of a tangled mat of smaller more or less prostrate fronds, hardly fruiting at all. The genus develops very early in the season, but early as *C. bulbifera* is, *C. fragilis* is more than a fortnight earlier; I saw this year a mound of earth in my wood covered with expanded fronds 2 or 3 inches long by the 7th of April, and last year at the beginning of May, when other ferns were in the young crosier stage, its fronds were full-grown and the fruit dots appearing.

Something must now be said about the 2 species of *Onoclea*—the Sensitive Fern (*O. sensibilis*) and the Ostrich Fern (*O. Struthiopteris*). To the uninitiate eye there is little or no resemblance between these ferns, but "by their fruit ye shall know them," dissimilar as are the barren fronds of the two *inter se*, they are yet more alike than the fertile fronds in either species are like the sterile of their own plant; on the other hand the fertile fronds in both species differ from the sterile in the same way and for

the same cause and are consequently very much alike. In both species the fruiting spike is an ordinary frond modified to protect the sporangia. In the Sensitive Fern the pinna of the fertile spike appears as a midrib supporting on each side a row of sessile or berry bead-like capsules, each lobe of the original pinna having apparently rolled in on itself independently; in the Ostrich Fern the pinna shows as a long narrow pod, or more exactly a mid-rib flanked on each side from base to apex by a narrow more or less cylindrical roll or coil; in this case the pinnules have not rolled in on themselves separately, but their presence as distinct pinnules or lobes of the pinna is shown by the coil being cut into segments at short intervals corresponding to the pinnatifid notches of the unmodified pinna. The fruiting fronds of both species develop in July and August; the genus, as we have it, is decidedly moisture-loving, the plants being everywhere familiar objects about wet meadows, swamps and thickets. I say everywhere, but in the Algonquin Park within say 12 miles of headquarters, the Ostrich Fern does not grow; the last time I returned from the Park to Ottawa I spied none of it from the train west of Golden Lake. The Sensitive Fern is reputed a frequent victim of late spring frosts, but I have not found it so "sensitive" in this respect as the Oak Fern, the Marsh Shield Fern or the Cinnamon Fern.

The Ostrich Fern is surely a fern pre-eminently handsome and of tropical splendour; no doubt the *Osmunda regalis* attains a greater height and is more massive, indeed it is often mistaken for a shrub of some kind; but the Ostrich Fern can never be taken for anything other than a fern, its pale green fronds are unmistakable; so, indeed, are the fronds of the Cinnamon and the Interrupted Ferns, which nearly surpass it in size, but what all the *Osmundas* lack in the entire plant, the Ostrich Fern has in matchless sort—symmetry. The plant grows in a hollow crown, a circlet of symmetrical fronds, equidistant, uniform; the fronds grow upwards and outwards for 3 or 4 feet and then curl gracefully away from the centre, their tips curving back in a beautiful arch, they look like giant shuttlecocks or green vases of graceful outline and exquisite workmanship. From the centre of this vase springs later a cluster of short stiff fruiting fronds. I kept a plant of the Ostrich Fern in a large pot one spring; for a week or more, at the time of their greatest activity, the fronds grew nearly 2 inches every 24 hours; by the end of June the fronds were between 5 and 6 feet long. Not only is the whole plant symmetrical, but each frond is a study in proportion. It tapers very gradually to the base from near the top, where it suddenly contracts into a narrow apex of little pinnae or pinnules.

Where the frond is widest, some way above the middle, in fact where it arches over to form the wide lip of the "vase" it so closely resembles, the pinnae are extremely long and narrow, tapering gradually to a pointed extremity; they look like long streamers or pennants; these pinnae are pinnatifid into narrow oblong pinnules, something like the ultimate divisions of the Cinnamon Fern but narrower. The plant spreads freely by slender underground stolons; as you walk along some shady path through the woods, you will often see a great patch of wet ground filled as with a shrubbery by these immense tufts of ostrich plumes—a wealth of green in riotous profusion. Looked at through the undergrowth and brushwood of maples and other light-foliaged trees, the scene is one of tropical luxuriance, you think of a New Zealand forest of tree-ferns, or a jungle of dwarf palms in Brazil.

About the *Osmundas* I have already spoken; and I shall defer mention of the Adder's Tongue family with its two genera of *Ophioglossum* and *Botrychium* to a sequel, in it I hope to extend the list of species already mentioned from about 20 to 36. The paper will deal with two seasons of fern-hunting, chiefly from headquarters on the Rideau, though once or twice involving a day's journey by rail to points as far distant as Niagara, Muskoka and the Algonquin Park.

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#### TWO KINDS OF WAR—ONE IS CONSIDERED NECESSARY AND THE OTHER IS NOT.

BY HENRY SKINNER, M.D., PHILADELPHIA, PA.

War is said to be hell and it may be interesting to find at least a partial reason why this is so. One of the factors in making this lurid fire and brimstone condition, where death lurks, is what may be called armament, consisting of various kinds of death-dealing devices. This, however, is not the most important factor as man's devices do not succeed nearly so well as those created by nature. The great death-dealing combination in war times is made up of three animals and a plant. The plant is exceedingly small and it takes the highest powers of the microscope to elucidate it properly. It goes by the name of *Bacillus typhosus* and causes typhoid fever. The smallest of the three animals is a protozoan, and it is also very small, as it destroys the red corpuscles of the blood, and they are less than one three-thousandth of an inch in diameter. This animal is known as the *Plasmodium malariae*. The other two factors are insects and they are very common ones, the mosquito and the

ubiquitous house-fly. The mosquito would have a good case in court if it were tried by an impartial jury as it could put in a plea of accidental or unintentional homicide. In its search for food it uses its beak hypodermatically and introduces into its biped victim the *Plasmodium malariae* and that disease that has such a misnomer is set up. The house-fly is hardly responsible for its hairy feet and nature did not restrict it as to the places where it should walk, as it does equally well on the glass of the baby's bottle or on the soldier's biscuit. It could also set up a plea of innocence and show that all its crimes are due to ignorance. Man must, however, look at the matter from the standpoint of self-preservation and put up a "no trespass" sign and if the warning is not heeded the careless dung-bred dipteron must suffer the consequences. When a young man goes to war he is full of the martial spirit and he is willing to be a victim of the bullets of the enemy for the glory and righteousness of his country; but he is much more likely to be put under the sod by the *Plasmodium malariae* or the *Bacillus typhosus*, and there is no doubt but that a knowledge of bacteriology and entomology are of more importance in war times than the question of armament. During the British-Boer war there were said to be at least a hundred thousand men invalided and a Canadian surgeon testified that in many camps the meat hung up could not be seen for house-flies. Think of this many men, all a loss as fighting units, and the great expense to the government for medical attendants, nurses, food and medicines. The United States thought it had a war with Spain and that the States won the victory, but it would be more accurate to state that the United States had a war with the house-fly and suffered awful defeat at the hands (feet) of its little enemy, as the Spaniards only killed about two hundred Americans and the house-fly by its utter carelessness in walking in the latrines and then flying into the mess tents and stealing its meals from the soldiers, made it possible for the *Bacillus typhosus* to make many very ill and kill over four thousand of them. Thus the fly was victorious over a great nation. Fifty thousand men are buried in the neighborhood of the Panama Canal and the little mosquito beat the French to a finish in their efforts to build a great transcontinental water-way. There are about fifty thousand men there now in an effort to accomplish the same object and they will probably be successful as they know the enemy and her power and also know how to prevent her careless ways of getting a meal of blood. Some needless people may not know the importance of this subject and they are slow to learn, and it may be necessary to remind them that war is hell and that in the Crimean War

17,580 died from disease; during the Civil War 186,236 died from disease and in the French expedition to Madagascar in 1894 only 29 were killed and 7,000 died from disease. Most of these deaths were probably due to the irresponsibility and carelessness of insects, and man has therefore suffered. How long will he continue to be the victim?

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### EXCURSIONS.

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**BLUEBERRY POINT.**—The excursion to Blueberry Point on May 7th was attended by about forty members of the Club, students of the Normal School and others. The weather being of the very best, and the locality one with many distinctive features, much good work was accomplished by the various groups. The interest in the locality, especially for those who have been visiting it through a long series of years, was somewhat heightened by the realization that its day as a wild natural retreat, is doomed by the encroachments of the real estate agent and the summer cottager. Already the picturesque name of the past, derived from the profusion of Blueberries growing there, has been supplanted by the more fantastic, though less significant name of Wychwood, while "streets" already blazed and labelled, extend with offending boldness into the very heart of the grove.

The passing of Blueberry Point will be regretted by all who have known it. It is one of the few accessible localities around Ottawa for the pretty Trailing Arbutus; as also for some trees, to be referred to below. The Arbutus was found to be still abundant, although at that date almost past blooming. The Aromatic Wintergreen with its shining leaves, and bright scarlet fruit, both persisting from last year, was also much in evidence.

The principal observations of the afternoon were presented by the Leaders, when all had gathered together again at five o'clock. The President, Mr. Halkett, called for these reports, and himself dealt with the zoological "finds" of the day. Specimens of two species of Salamanders were taken: *Spelerpes ruber* (a beautiful form), and *Plethodon glutinosus*. Much interest was manifested in examining the forms of life in the pools, several specimens of crustaceans, including *Daphnia*, being found, and one of the isopods, *Asellus aquaticus*. Judging from the character of the tubes of the larvæ of a certain Caddis-fly, probably this was a third species observed during the excursions of this season. These tubes were mostly made of bits of small coniferous leaves which pointed outwards like the spines on the shell of a sea-urchin.



Speaking of the geological features of the district, Mr. Wilson said that only a few outcrops of rock were to be seen. These exposures were Chazy shale, and this formation is known to underlie the banks of the Ottawa on both sides of the river for a considerable distance. No fossils were found. He pointed out the relation of the Chazy beds to the Trenton and Utica formations as seen on the former excursions to Rockcliffe and Billing's Bridge.

Mr. J. W. Gibson, with specimens in hand, called attention to the fact that three species of pine were growing together naturally in the vicinity, as nowhere else around Ottawa. These were the White, Red, and Jack or Banksian pines, the differences between which he pointed out. The latter occurs only here, and the second in but one or two other places near Ottawa.

The writer showed specimens of three *Amelanchiers* or Juneberries, all in blossom. The species *canadensis*, and its variety *Botryapium*, which differs in being pubescent, were advanced in bloom, while the other species, *spicata*, was more recently open. He also spoke of a fine example of "witches' broom" which had been found on a balsam nearby, and explained that it was due to a fungus of the *Exoascus* group, which lives from year to year within the wood.

Some specimens of *Antennaria canadensis*, which had been deformed into rosettes of leaves lying close upon the ground, by the attacks of a Cecidomyid insect, were discovered by Miss Matthews; and the larvæ causing the injury, have since been identified by Dr. Felt, of Albany, N.Y., as probably those of *Rhopalomyia antennariæ*.

Others called upon were Mr. Brown, who briefly referred to some of the plants collected, and Mr. Kingston, who gave a list of the birds met with, and made some interesting observations on the habits of some of the species. Owing to a rather strong wind, not so many birds were seen as otherwise might have been, but the following were observed: Phæbe, Bronze Grackle, Red-winged Blackbird, Meadow Lark, White-throated Sparrow, Song Sparrow, Chipping Sparrow, Purple Finch, Ruby-crowned Kinglet (in full song), and Catbird.

H. G.

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MCKAY'S LAKE.—The excursion to McKay's Lake was held on Saturday, May 28th. The weather was delightful, and in spite of the fact that very few were able to be present, the afternoon proved to be an exceptionally profitable one. In the absence of the President, Mr. Kingston was in charge of the party, which assembled at the Bridge at 3 p.m. Two delightful

hours were spent in the woods and on the shores of the lake, and at 5 o'clock all assembled at the appointed place, to compare notes, and to hear the short addresses which were given by the Leaders of the various branches.

Mr. Croh, as one of the botanical Leaders, showed several species of sedges, and pointed out particularly that species known as *Carex plantaginea*, drawing attention to its very broad leaves. He also referred to the great number of species to be found near Ottawa, and to the very large number known in the world. Several kinds of violets were also shown, particular reference being made to the great abundance and luxuriant size of *Viola canadensis*, which in some cases had grown to a height of over 12 inches. *Viola pubescens* was also shown as an example of a tall leafy-stemmed violet, differing from the last in having the flowers yellow, instead of white. Several interesting points were mentioned in reference to the Indian Cucumber Root, a plant which gets its popular name very appropriately from its crisp, juicy, cucumber-flavoured rhizome. The curious long-branched stigma of this plant was pointed out, also the fact that the liliaceous rule of three is followed in the grouping of its whorls. The Indian Turnip was also shown, and its rootstock or corm contrasted with the Indian Cucumber as to flavour.

In the stagnant water of McKay's Lake the botanists found specimens of *Myriophyllum* (Water Milfoil) and several points of interest in connection with this plant were touched upon. Other plants were shown and handed around for inspection.

Mr. Wilson was then called upon to give an account of his afternoon's studies in geology. Those particularly interested examined the marl deposits on the shores of the lake, finding there many things of engrossing interest. These deposits are of considerable thickness, varying from one to ten feet, as seen in recent exposures. They are fifteen feet or more, above the present water-level in the lake, and show that it formerly stood at a higher level, and occupied a larger area than it now covers. The marl is composed of fresh water shells, many of which are in a perfect state of preservation. Eight species, belonging to six genera were collected and identified, viz.:—*Planorbis campanulatus*, *P. bicarinatus*, *P. parvus*, *Physa heterostropha*, *Limnæa galbana*, *Valveta tricarinata*, *Amnicola porata*, and *Pisidium abditum*. These shells are all abundant except the last named. Besides the species here enumerated there are a few rare ones which have been collected at this place, but were not found on Saturday. Below the marl beds there is in most places, a bed of coarse gravel, and under this several feet of pure sand bedded

in layers of varying thickness. Some of these layers illustrate "false bedding;" the layers being composed of a number of laminae lying at a steep angle, while the main beds are horizontal. It was pointed out that the tilted layers were probably laid down on a sloping bank by a swift current, and that this was followed by a period of still water, when the horizontal bed was deposited on top. It is interesting to note that this sand contains marine shells, indicating that an arm of the sea invaded this area when it was deposited. Attention was directed to the cut terraces surrounding the lake, and also to the gully cut by the present outlet, which has reduced the water to its present level.

After Mr. Wilson's interesting and instructive talk, Mr. Kingston gave a short account of his afternoon's observations in ornithology. The following is a list of the birds that had been noted:—

Nighthawk, Chimney Swift, Kingbird, Wood Pewee, Crested Flycatcher, Least Flycatcher, Red-winged Blackbird, Cowbird (female), Meadow Lark, Baltimore Oriole, Goldfinch, Song Sparrow, Swamp Sparrow, White-throated Sparrow, Vesper Sparrow, Rose-breasted Grosbeak, Bank Swallow (nesting), Yellow Warbler, Black-throated Blue Warbler, American Redstart, Maryland Yellow-throat, Oven Bird, Wilson Thrush.

Several interesting points were brought out concerning the different birds, particular mention being made of the Cowbird, and her lazy habit of depositing her eggs in the nests of smaller birds. A last year's nest of a Red-winged Blackbird was found by one of the party and handed around for inspection. Notices having been given out about the excursion to Macdonald College, etc., the party started for home, everyone feeling, I am sure, that the afternoon had been spent to some purpose, and that a great deal of knowledge had been acquired in a very delightful way.

F. M. F.

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#### NOTE.

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##### HOW TO DEAL WITH THE FLY NUISANCE.

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A circular giving concise directions as to the method of ridding houses, public places, etc., of the dangerous house-fly has recently been issued by the Division of Entomology, Central Experimental Farm, Ottawa. This is most timely, and all who read this note should apply to the Division for a copy.

## BOOK NOTICE.

TEXT BOOK OF ELEMENTARY ZOOLOGY for Secondary Educational Institutions, by Thomas Walton Galloway, Ph.D., Professor of Biology in the James Millikin University, Decatur, Illinois, with 160 illustrations: Philadelphia, P. Blakiston's Son & Co., price \$1.25 net.

This new text book of xi + 418 pages should have a wide sale not only among teachers, for whom it will be of special value, but other persons interested in elementary zoology. It is of a very convenient size, 5½ x 8 inches, the matter has been well prepared, the illustrations and printing are excellent, and the price brings it within the reach of all. The writer states that the "book is an effort to combine the older and the newer phases of thought among us, and is offered as a partial, and yet a distinct, step toward what the author believes to be a sound pedagogical and humanistic movement. He believes that the secondary school biology of the future will be primarily concerned about our life interests; but he believes that the great evolutionary conception, which can only be had by some study of the ecology, morphology and physiology of the animal phyla, is quite as really and profoundly a 'human interest' as is stock-breeding, agriculture or malaria. This conception has changed the whole aspect of human thinking in the last half-century. No course in zoology, which is more than commercial, can afford to neglect it."

Two sizes of type are used. The matter in larger type can be completed by a good class in a year. That in fine print is intended as a background for reference and for extra work. The book is divided into thirty chapters, each one of which is full of information and suggestions for the teacher. "Zoology and its Purpose" is the title of Chapter 1. This is followed by chapters on "Field Work," "Classification of Animals—General Survey," "Laboratory Work—Forms of Matter," "Living and Non-living Objects," "Plants and Animals," etc., etc. In the thirty chapters are 407 separate headings and topics. The last chapter "Economic Zoology" gives briefly interesting facts regarding "Animals as a Food Supply," "Animals in Science and Medicine," "Animals Directly Injurious to Man," "Animals Hurtful to Plants and Plant Products," etc.

The brief keys throughout the book will be found of much value to the pupil. The work on the whole is concise and the subjects are well chosen, and as the writer is a well known biologist, and one who knows the requirements of the teacher and pupil, this, his latest contribution, will undoubtedly be well received. Dr. Galloway's other book "Text Book of Zoology," xii + 481 pages, is now in its second edition.

A. G.

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