

SOME INTERESTING MOTHS TAKEN AT OTTAWA.

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The Order *Lepidoptera* is divided into two sub-orders, viz. : *Rhopalocera* and *Heterocera*, or in other words, Butterflies and Moths.

In America, north of Mexico, there are over 5,400 different distinct species of moths. all of which have their interest, some on account of their size, some on account of their beautiful markings, and others on account of their rarity. In other words, each has its own peculiar interest to the student or to the collector. To a person not interested in entomology, specimens mounted and arranged neatly in a cabinet, generally attract attention ; but to the student this interest is aroused not only on account of this charm, but chiefly centres around those species about which little is known, either with regard to the earlier stages in their life histories, or in connection with the mature forms of these insects. Of course, the systematist is especially interested in classifying as complete a collection of specimens as he can possibly gather together, studying them and making known the result of his observations as to their points of difference and the characteristics peculiar to each genus and species. In later years more work has been done by the student studying the earlier stages of our moths, telling us the appearance of the eggs laid by the females, what the larvæ in their different moults look like, what is the shape, colour, etc., of the pupæ and cocoons, in fact everything bearing upon a complete knowledge of the earlier stages of these insects.

Very few new moths are found nowadays, except in localities where collectors are few. There are, however, in Canada many places which have never been worked up, and, if these points were visited and collections made, undoubtedly new species would be discovered. But it must be remembered that this branch of natural science is sadly neglected by naturalists, only a very small number being really interested in entomology from a scientific standpoint, notwithstanding its enormous importance economically,

In view of this it is altogether likely that some time will elapse before information as to the local forms frequenting such districts will be made known. In the United States a vast amount of work has been done in studying the fauna of the different States, but little is known about the habits of the greater number of moths native to Canada.

Collectors of moths use various methods in order to secure specimens. Some entomologists record good success in securing the imagoes by certain means, which others find unprofitable. For instance, traps made of sheets of glass so arranged in a wooden box, that when a moth once enters it cannot return, have given excellent results in the hands of some. The attraction to such a trap is due to the rays of a bright light, which is placed behind the sheets of glass, and, when the moth gets as far into the box as the trap allows it, the fumes of some poisonous substance, such as chloroform, either kills the insect at once, or else keeps it quiet until the collector comes to examine the captures of the night.

In cities and large towns the attraction which the electric light has for night-flying insects, probably furnishes the best general results for a collection of moths. Where the electric light is placed on the outskirts of a settlement, particularly close to the woods, a visit on dark, close nights, in the month of June especially, will generally be very productive. Some moths, however, which mature in early spring or in August, and even as late as October and November, are, of course, to be looked for in these months, but those which hibernate in the mature form may be found both in the autumn and in the spring.

Another way in which these insects are collected is that of "sugaring" trees, that is, painting a daub of molasses mixed with sour beer over a small portion of one side of a tree. Moths are very fond of such mixtures, and if the application is made in localities where insects are at all plentiful good results will be certain. June and July I have found to be the best months for "sugaring," and if warm, close evenings are selected many moths undoubtedly will be secured.

Another plan is to visit flowers in the early part of the evening, as many species are exceedingly fond of nectar and will be

found frequenting certain flowers. Caraganas, or the so-called Siberian pea-trees, honey-suckles, lilacs, petunias, etc., have a great attraction for many moths, and, if these plants are visited in the early evening before dark, many specimens can easily be captured.

The Ottawa locality undoubtedly offers a good field for investigation, and much useful work can be accomplished in studying the moths occurring in this district. During the past summer in my official duties it was my privilege to do considerable work in the collection of these insects, and, when asked by Dr. Fletcher to contribute a paper to read before the Ottawa Field-Naturalists' Club, it occurred to me that a brief mention of some of the moths which I had taken this year at Ottawa might be of interest. As the moths have always been special favourites of mine, I may be privileged in time to contribute some further notes for THE NATURALIST in reference to Ottawa Heterocera, which may not be without interest to those who study these forms of insect life.

In the Heterocera, the *Sphingidæ*, or Hawk-moths, are classified first, according to Prof. J. B. Smith's standard list of the Lepidoptera of Boreal America. In the genus *Hemaris*, or Bee moths, of the family *Sphingidæ*, only two species were met with, viz.: *H. diffinis*, Bdv., and *H. thysbe*, Fabr. These are both day-flyers frequenting flowers, particularly lilacs, and, unless the eye is experienced, are easily taken for the ordinary bumble bees. Although many of the hawk-moths are found around the flowers in early twilight, the electric lights furnish a much better attraction. Some of these moths taken the past season are as follows: *Deilephila chamaenerii*, Harr., and *D. lineata*, Fabr., which when flying resemble very much humming birds; *Protoparce celeus*, Hbn., which, although rare here in the imago state, commonly occurs destructively to tomato plants as a larva; *Sphinx drupiferarum*, S. & A., also injurious in the caterpillar state, particularly to plum trees; *Sphinx gordius*, Cram., a rare moth, two specimens being taken; *Sphinx chersis* Hbn., one of the largest of the genus, and which occurs injuriously at times to ash and lilac; *Triptogon modesta*, Harr., a large moth, one of the handsomest among the sphingids; and *Smerinthus*

cerisyi, Kirby, which is an exceedingly rare insect in eastern parts of Canada, being only occasionally met with.

The *Sesidæ*, or Clearwings, follow the *Sphingidæ*, and are all small moths with slender bodies. They have much the appearance of wasps, and like these insects fly by day. Their larvæ are known as Borers, and often cause much damage to maple, peach, and other trees, besides injuring seriously certain plants, such as the squash, etc. The species are very interesting; they are also hard to get, especially so in the adult stage. *Sesia tipuliformis*, Linn., occurs here, and often causes injury to currant bushes. Besides this species, Dr. Fletcher tells me that he has taken in the past at Ottawa, *Podosesia syringæ*, Harr., and *Sesia acerni*, Clem., with the statement that they both occur rarely.

Of the *Arctidæ*, often called the Tiger Moths, nearly twenty representatives have been found in this locality. *Callimorpha contigua* Walk, and *C. confusa*, Lyman, are both interesting, and being day-flyers, frequent open places in woods. *Euprepia caja*, L. *a americana*, Harr., the large tiger moth, expands about 2½ inches, and is a beautiful species. I was fortunate enough to secure two specimens of this moth on the 31st July last, and, from one, got some eggs, and had the pleasure of breeding the species through all its different stages during the past season. The full grown larva is about an inch and three-quarters in length, and in general appearance is a black caterpillar with rusty red sides, and covered with long sweeping silvery hairs.

Of the *Notodontidæ*, the most interesting species taken the past summer, are *Notodonta simplaria*, Graef., *Lophodonta ferruginea*, Pack., *L. georgica*, H.-S., *Pheosia rimosa*, Pack., and *Nerice bidentata*, Walk. These moths average about an inch and a half in expanse of wings, and are brownish or reddish in appearance.

The large moths belonging to the family *Saturniidæ* always attract attention. *Actias luna*, Linn., the large delicate green species with long tail-like appendages, is one of the most handsome moths in Canada. *Attacus promethea*, Dru., *A. cecropia*, Linn., and *Telea polyphemus*, Cram., also among our largest

moths, while common from the collector's standpoint, are likewise worthy of much admiration.

In the *Hepialidæ*, two specimens of *Hepialus argenteomaculatus*, Harr., were taken at the electric light by Mr. C. H. Young, who very kindly presented one to the Division of Entomology at the Central Experimental Farm. This is a beautiful moth of a brownish and ashy-gray colour, the wings bearing silvery white spots. When the wings are expanded, it measures about four inches across.

The *Noctuidæ* make up the largest family we have, and comprise in North America no less than 2,900 different species. They vary greatly as to size, markings and colour, and many are exceedingly difficult to classify. These moths are those which are mostly attracted to "sugar," and in this way many can be captured. A great many of the noctuids are extremely scarce. A rare species reared during the past summer is *Barathra occidenta*, Grt., the larvæ of which were collected by Mr. J. A. Guignard feeding on a perennial Delphinium. No detailed description of the larvæ was taken further than that they were "black caterpillars with a yellow irregular line on each side of the back. They fed on both the leaves and the flowers." Previous to this there was no knowledge of the preparatory stages of this species. About fifteen different species of the genus *Mamestra* were met with during the past season: *Mamestra atlantica*, Grt.; *M. subjuncta*, G. & R.; *M. rosea*, Harv.; *M. legitima*, Grt.; *M. adjuncta*, Bdv.; *M. meditata*, Grt., and *M. assimilis* Morr. are the most interesting secured. In addition to these, Mr. C. H. Young took a specimen of *Mamestra olivacea*, Morr. One example of *Arzama diffusa*, Grt., was taken on the Experimental Farm by Dr. Fletcher, and although not a very handsome species is interesting owing to its rarity. *Orthosia euroa*, G. & R., also an unassuming species with regard to beauty, was likewise met with but once, at the electric light. While collecting at the Mer Bleue on the 30th Aug., in company with Mr. Young, Dr. Fletcher captured a specimen of *Epiglaea apiata*, Grt. This is a beautiful species and is the first record of its occurrence in this locality; when taken it was in excellent condition. A single specimen of *Scopelosoma sidus*, Gn., was taken at the electric light, as was also one of

Scopelosoma morrisoni, Grt. The moths of this genus are always welcome captures and are amongst those which mature in autumn, hibernating in the perfect state. The genus *Plusia* contains some very attractive insects. Eight different species were met with last season, those which occurred rarely being *P. balluca*, Geyer; *P. contexta*, Grt.; and *P. striatella*, Grt., all of great beauty. The moths of this genus are beautiful glossy insects, usually spotted or striped on the front wings with silvery markings.

In the *Noctuidæ* probably the genus which attracts the most general attention, especially to a beginner, is the genus *Catocala*, which comprises over 80 species in North America. These moths are handsome creatures and of large size, often expanding three inches, or more. The forewings are usually of a brownish or greyish colour, marked with wavy or zigzag lines. The ground colour of the hind wings varies with the species, but in many instances these wings are conspicuously banded with red, yellow or white; owing to this peculiarity they are often termed Underwings. In the daytime the moths have the habit of resting on the trunks of trees, but it needs experienced eyes to detect them, as the colours of the forewings of these insects are usually protective. During the past season very few species were observed, and, as I was constantly on the look out for them during the months they fly, I judge that they were scarce. On the 31st May Dr. Fletcher and I found eleven full grown larvæ of *C. cerogama*, Gn., feeding on basswood, the general colour of four being greenish, while the remainder were greyish. These caterpillars spun a light cocoon between the leaves in about a week's time, and gave us the perfect moths on the 13th July. Other *Catocalæ* taken the past season were *C. briseis*, Edw.; *C. concumbens*, Walk.; *C. relictæ*, Walk.; *C. ultronia*, Hbn., and *C. grynea*, Cram.

In the early days of spring, towards the end of April and beginning of May, a beautiful little moth of red and blackish colour is sometimes seen flying around birch trees. This is *Brephos infans*, Moeschl., a day-flyer, and being uncommon in Canada is always an interesting capture.

Some of the moths mentioned in this paper have been brought to the meeting to-night and no doubt will prove of interest to those who may care to look at them.



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