

## CANADIAN HYMENOPTERA, NO. 7.

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The object of this paper is chiefly to record some observations, made last summer, on a few parasitic forms, but mention is first made of two phytophagous species.

STRONGYLOGASTER? MARGINATA, Prov.

*Selandria marginata*, Prov., Add. Faun. Hym., 1885, p. 8.

*Eriocampa marginata*, Prov., Cresson, Cat. N. Am. Hym., 1887, p. 162.

*Strongylogaster primitivus*, MacG., CAN. ENT., 1893, Vol. XXV., p. 241.

*Tenthredopsis primitivus*, MacG., CAN. ENT., 1894, Vol. XXVI., p. 327.

Mr. MacGillivray has recently kindly sent to me one of his types of *primitivus* for comparison with that of Provancher's *marginata*, and I find, as was already evident from the description, that it is the same species. The generic position of the species is, however, not so readily determined; Mr. MacGillivray being now of opinion that it belongs neither to *Tenthredopsis*, *Strongylogaster* or *Taxonus*, but probably to some yet undescribed genus. It certainly does not belong to *Tenthredopsis* as adopted by Cameron in his monograph of the British Phytophaga, nor to *Selandria*, so that I have left it for the present in *Strongylogaster*, to some of our accepted species of which it is very similar in appearance. Several of the groups of our Tenthredinidæ require revision, the classification of species solely from wing venation being unsatisfactory, for in the phytophagous hymenoptera the venation is much more unstable than in the other divisions of the order. I fear, for instance, that Mr. MacGillivray's genus *Bivena* (CAN. ENT., Vol. XXVI., p. 327) has been founded upon the accidental occurrence of a supplementary marginal cell.

CEPHUS PYGMÆUS, Linn.

The continued spread of this wheat-stem sawfly is evidenced by the occurrence of two males in a small collection made on 5th July, at Indian Head, Assa., by Mr. Fletcher, during his trip to British Columbia last summer.

PEZOMACHUS PETTITII, Cresson, CAN. ENT., 1892, Vol. IV., p. 61. ♀.

*Pezomachus sulcatus*, Prov., Add. Faun. Hym., 1885, p. 77. ♀.

*Stibeutes Pettitii*, Cr., Riley and How., Ins. Life, 1890, Vol. III., p. 154.



This is the commonest species of our wingless Cryptids, but I have noted only one mention of its having been bred, which is in the list published in *Insect Life* (*loc. cit.*) of bred parasitic hymenoptera in the United States National Museum, the record being as follows:— "*Bucculatrix* found on stone, Virginia, April 9th." The species is there referred to the genus *Stibeutes*, which in Cresson's synopsis is said to have the "Metathorax completely and regularly areolated," while in *Pezomachus* it is "not, or irregularly areolated." None of my specimens show any areolation, the indications of any metathoracic carinæ being of the feeblest nature. This insect has frequently been taken with the sweeping-net on foliage from June to September, and on one occasion in the latter month, as I was reclining under a pine tree, near Aylmer, I observed numerous examples running about on the carpet of dead pine leaves which covered the ground. They had a remarkable resemblance to some of the ants which are always roaming around in such places. Last April I obtained, under a large flake of loose bark on an elm stump, a number of egg-cocoons of an undetermined spider. They were hemispherical in shape, and made of a very white silk, and were covered by irregular tent-like masses of the same flocculent, viscid silk, spun between the bark and the surface of the wood. On opening one of the egg-masses I found two hymenopterous larvæ among the yellow eggs, and therefore secured a number of the cocoons, which, when removed, adhered to one another and formed a sticky mass in the small box in which I had to place them. Two of the parasites emerged on May 19th, and proved to be males of a *Hemiteles* not in my collection. Two days later a similar winged male appeared, and also three wingless males, which I saw belonged to *Pezomachus Pettitii*. Four wingless males, one winged male, and one female emerged the following day, and others followed until, in all, I obtained four females, seven wingless males, and six winged males. There can be no doubt that the winged forms, though differing in the shape of the thorax from those without wings, are specifically the same. This rearing confirms the opinion held by many authors [For example see Walsh, *CAN. ENT.*, Vol. II., p. 10.], of the identity of the genera *Hemiteles* and *Pezomachus*, and I have special pleasure in recording it at the present time, in view of the following recent reference to the subject by Dr. Sharp (*Cam. Nat. Hist.*, Vol. V., p. 556): "The little Ichneumons of the genus *Pezomachus* are quite destitute of wings, and somewhat resemble ants; they are quite common



insects in Britain. Only the female sex is known, and it is believed that the winged Ichneumons assigned to the genus Hemiteles, of which no females are known, are the males of *Pezomachus*. Repeated efforts have been made to place this beyond doubt, but they have usually failed, for when a brood of these parasites is reared the individuals generally prove to be either all Hemiteles or all *Pezomachus*. It is to be hoped that this interesting case will be fully elucidated." Of the American species assigned to *Pezomachus*, several are known in both sexes. Mr. Howard, for example, describes both ♀ and ♂ of *P. micariæ* (Proc. Ent. Soc., Wash., Vol. II., p. 194), bred by Mr. Emerton from the egg-cocoons of a species of *Micaria*. Individuals of *P. Pettitii* vary somewhat in colour and in shape of thorax, the anterior node of which is often sulcate, as in Provancher's type of *sulcatus*. Nearly all those taken in the field have the abdomen entirely dark, except the apex of first segment, while all the bred specimens have the apex of second segment also pale. The winged males appear slightly larger than the wingless, and have the abdomen slightly more elongate, but its markings are exactly the same. The fully developed thorax is black, and the wings have a large triangular stigma of a dark brown colour. The antennæ are darker, and apparently more slender.

PEZOMACHUS OTTAWAENSIS, n. sp.

Female, length, 5-6 mm. Rufous, with abdomen in part black. Head transverse, slightly narrowed behind; occiput concave; antennæ long and rather slender, 23-jointed; face subtuberculate, as also clypeus slightly; mandibles sometimes paler, with the teeth black. Thorax binodose, the nodes subequal; the rounded metathorax not areolated, but with the posterior face flattened obliquely. Abdomen with a broad rufo-orange band covering nearly all the second segment, the petiole also rufous; the second segment narrowly black at base, and the following segments black, polished; ovipositor exerted about 1 mm., sheaths black at tip.

Described from 23 females bred, with two exceptions, from egg-cocoons of spiders. This is a large, handsome *Pezomachus*, very constant in coloration, especially of the abdomen. The base of petiole, posterior coxæ, and femora are darker in a few specimens, and the vertex of head is occasionally clouded; individuals may possibly occur with the head in part black. The egg-cocoons in which this species breeds are



flattened, scale-like objects, 10-12 mm. in diameter, adhering closely to stones, and often irregular in shape to conform to the uneven surface. When new, the silk of which they are spun is of a delicate drab shade, but weathered cocoons found in spring are of a dull, dirty gray. A single larva of the *Pezomachus* occupies each infested cocoon, and when it has devoured all the spider's eggs it spins its own elongate cocoon within that of its host. This insect must be a great check upon the increase of its spider-host, for of scores of cocoons examined in one locality last spring hardly ten per cent. had escaped infestation. Through the kindness of Mr. L. O. Howard, one of these cocoons has been examined by Mr. Nathan Banks, who pronounces it to be "almost certainly a Drassid cocoon, possibly *Micaria*, but more probably *Prosthema*." The cocoons are sometimes found on the under surfaces of stones and pieces of wood, but more frequently on the upper surface of large embedded rocks.

*HEMITELES OTTAWAENSIS*, n. sp.

Male, length, 5 mm. Black, with segments two and three of abdomen yellowish. Head black; palpi pale; antennæ blackish, slender, about 25-jointed, scape, pedicel and base of third joint pale. Thorax black, finely punctulate or shagreened; tegulæ pale; legs rufo-testaceous, including coxæ; the posterior tibiæ and tarsi brownish; wings as usual, stigma brown; metathorax feebly areolate, the lateral and posterior transverse carinæ more distinct. Abdomen narrow, segments two and three yellowish, remainder black.

Described from one male reared from egg-cocoon of spider. The cocoon was one of a lot, gathered at same time and locality, which yielded several individuals of the previously described species, and the *Hemiteles* is probably the male of that species. I have, therefore, given to it the same specific name. As it differs, however, in the evident, though imperfect, areolation of thorax, and in colour of abdomen, etc., it may be better to separate it for the present. The abdomen is narrower and less robust than that of the winged males of *P. Pettitii*.

*MASTOCHARIS WILDERI*, Howard.

Twenty-two examples of this little Chalcid were bred from a hemispherical egg-cocoon of a spider, attached to the under surface of a hickory leaf. They issued, however, from the cocoon of an Ichneumonid, prob-



ably a species of *Pimpla*, which had devoured the spider's eggs. The greenish-blue reflections of the head and thorax of the females, and the bright coppery gleam of the smaller males, make these little creatures, when alive and hurrying to and fro with trembling antennæ, objects of considerable beauty. Mr. Howard records the species (*Proc. Ent. Soc.*, Wash., Vol. II., p. 299) from James Island, S. C.; Brooklyn, N. Y.; Sea Cliff, L. I.; Washington, D. C.; and Los Angeles, Cal., showing a very wide distribution.

TELENOMUS, n. sp. ?

From two eggs found attached, and side by side, on the upper surface of a hickory leaf, I obtained thirty-one individuals (25 ♀, 6 ♂) of a *Telenomus*, which appears to be undescribed, but as the genus is such an extensive and difficult one I do not care to name it. The eggs, which are those of our beautiful pale green, swallow-tailed Luna moth, are round and flattened; white above and below, and surrounded by a dark brown band. They are about 2 mm. in diameter, and not much more than 1 mm. in thickness, so that when one was tenanted by at least sixteen larvæ, their quarters could not have been over spacious. It requires somewhat careful examination of the egg to find the minute hole from which the parasites issued.

ACOLOIDES SAITIDIS, Howard.

From the same batch of spider-cocoons which produced the seventeen examples of *Pezomachus Pettitii*, there came forth, a few days later, a host of minute Prototrypids, which seem to belong to the species named as above by Mr. Howard (*Ins. Life*, Vol. II., p. 270), and constituted the type of his new genus; the type specimens having been bred from eggs of the spider *Saitis pulex*. My specimens differ from the description only in having the apex of the first abdominal segment yellowish. They commenced to appear on June 4th, and by the evening of June 6th there had issued 160, nearly all of which were females. The total number that came forth was 206, consisting of 162 ♀ and 44 ♂. Such figures might indicate this to be a very common insect, yet I had never met with it in my collecting. Previous records for the species are Lincoln, Neb., and Oxford, Ind.

CHRYSID NITIDULA, Fabr.

One example of this beautiful green Chrysid was bred from an almost black cocoon, which was found in a cell of *Odynerus catskillensis*,



Sauss. The Odynerus cells were built of clay, upon the under surface of a stone, and formed a compact mass which could not be removed without rupturing the cells, as their silken lining adhered directly to the uneven surface of the stone.

CHRYSID PARVULA, Fabr.

This pretty species very closely resembles the preceding, but is easily separated by the shape of the terminal segment of abdomen, which is truncate and tridentate (the central tooth strongest), instead of quadridentate, with curved emarginations separating the teeth. Two examples were bred from cocoons taken from the cells of *Pelopæus cementarius*, Drury, the slender-bodied wasp whose large clay-built groups of cells are so frequently seen under window-sills and other ledges in the city, and are placed under stones in the fields. The cocoon of the parasite occupies one end of the cell made by the industrious wasp as a home for its own young, and is almost identical in shape and colour with that of the other Chrysid. The insects emerged on June 2nd and 4th, the cells having been obtained some weeks previously. Mr. Ashmead has recorded (*Psyche*, Vol. VII., p. 79) the rearing of *C. perpulchra*, Cr., and *C. cærulans*, Fabr., from the same host.

CEROPALES FRATERNA, Smith.

While searching, one day in early spring, for the potato-like galls which are produced by *Tribalia* upon the roots of wild roses, I found under a flat stone, slightly imbedded in the turf, about a dozen fusiform hymenopterous cocoons, about 15 mm. long. They were scattered on the surface of the soil, and some had already become mouldy from the dampness of the ground. From those which were not so affected I obtained in due time a female and four males of *Pompilus luctuosus*, Cr., which liberated themselves by neatly cutting off the large end of the cocoon. From one of the larger cocoons there emerged in the same manner, instead of the velvety-black *Pompilus*, a long-legged, yellow-banded *Ceropales*.

AGENIA ARCHITECTA, Say.

The mud cells of this pretty little blue wasp are not uncommon under stones in dry fields near woods. They are cylindrical in shape, and several may be found on the same stone, but they are not massed together and cemented into one lump, as are those of the mud-wasps previously mentioned. The wasps have been bred several times, but I have as yet reared no parasites.



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