

EXPLANATION OF PLATE III.

Figures 2, 4, 5, 6, 8, 9, and 10 are based on figures by Escherich. Figures 1 and 7 are based upon figures by Patch, 1909.

Fig. 1... Right hind wing of Aphid *Macrosiphum solanifolii*.

Fig. 2... Right fore wing of Psocid *Embidotroctes paradoxus*.

Fig. 3... Right hind wing of Zorapteron *Zorotypus snyderi*.

Fig. 4... Right fore wing of Psocid *Embidopsocus luteus*.

Fig. 5... Right hind wing of Psocid *Archipsocus recens*.

Fig. 6... Right hind wing of Psocid *Psyllipsocus ramburi*.

Fig. 7... Right fore wing of Aphid *Pamphigus tenafuscus*.

Fig. 8... Right fore wing of brachypterous form of Psocid *Archipsocus brasilianus*.

Fig. 9... Right fore wing of Psocid *Archipsocus recens*.

Fig. 10. Right fore wing of Psocid *Archipsocus brasilianus*.

Fig. 11... Right fore wing of Zorapteron *Zorotypus hubbardi*.

Fig. 12... Right fore wing of Zorapteron *Zorotypus snyderi*, after Crampton, 1921. This wing should be of same size as that of the Zorapteron shown in Fig. 11.

TWO NEW CANADIAN MAY-FLIES (EPHEMERIDAE).

BY J. MCDUNNOUGH, PH. D.

Entomological Branch, Ottawa.*

In the second week of June, 1920, I collected from the underside of the leaves of an ash tree, situated near the banks of the Rideau river a number of specimens of both sexes of those tiny May flies belonging to the genus *Bactis*. At the time I supposed I was collecting *Bactis pygmaea* Hagen, but a careful study of the entire material at a later date convinced me that three species were represented and could be fairly readily distinguished, even in a dried condition, by the relative size of the superior, reddish portion of the eyes.

It became necessary therefore to determine whether the true *pygmaea* was represented in my catch and specimens of all three species were submitted to Dr. Nathan Banks of the Cambridge Museum, Mass. Dr. Banks was kind enough to compare these specimens carefully with the remains of the type ♀ of *B. pygmaea* (one wing and a portion of thorax) as well as with the type ♀ of *B. unicolor* Hagen and co-types of *B. propinquus* Walsh. One of the species he definitely identified as *propinquus*, the other two he reported as probably new, both being considerably larger than *pygmaea* and showing constant differences in venation, notably in the hinder portion of the wing.

Unicolor was described from ♀'s only, collected in Washington, D. C., and until the correct ♂'s can be definitely associated with the opposite sex, identification of this species must remain doubtful. The same is more or less true of *pygmaea*; the type locality is given as "St. Lawrence River" and until we have more definite knowledge of the *Bactis* forms inhabiting this river, it would be mere guess work, in view of the very close superficial resemblance between the

* Contribution from the Entomological Branch, Dept. of Agriculture, Ottawa.

species of this group, to associate the name definitely with any of our Ottawa species. The only other name in this genus which might possibly have been applied to our forms was *rubescens* Prov., a species unknown to Dr. Banks. Through the kindness of Canon Huard I have received for study the only two species in the Provancher Collection labelled with this name in Provancher's handwriting; one specimen, a ♀, is very evidently not the type nor even correctly associated; it is a species of *Chirotenectes*. The other, a ♂, agrees well with Provancher's short description, having the costa and base of primaries and a good portion of the secondaries tinged with ruddy colour. It does not however belong in the genus *Baetis* but in *Baetisca* and is apparently distinct specifically from *obesa* Say, the sole species at present included in the genus. I propose making this specimen the Lectotype and transferring the specific name to the correct genus.

In view of the above facts it seems advisable to give names to the two unknown species; the ♂'s may be separated from one another as follows:—

- a. Superior eyes large, kidney-shaped; intercalaries on primaries well developed, especially between subcosta and radius. *intercalaris*, n. sp.
- a^t Eyes smaller, oval; intercalaries between subcosta and radius either faint or entirely lacking.
 - b. Superior eyes moderate, roundly oval; thorax of ♂ shiny black *propinquus* Wlsh.
 - b^t Superior eyes small, lengthily oval; thorax brown with distinct lateral yellow spot on prothorax extended backward by a line to base of wing *flavistriga*, n. sp.

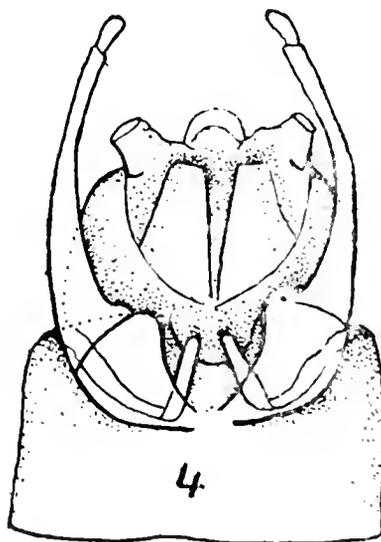
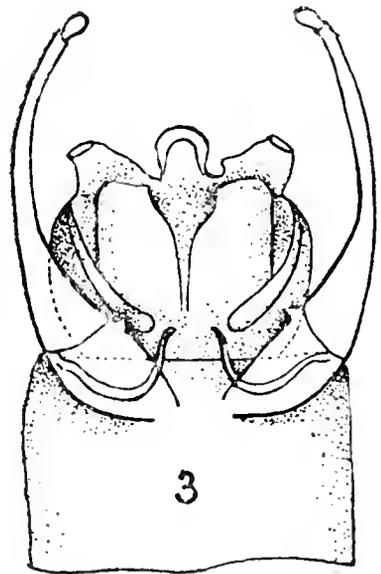
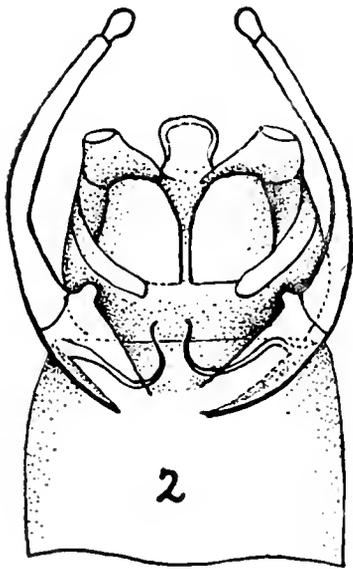
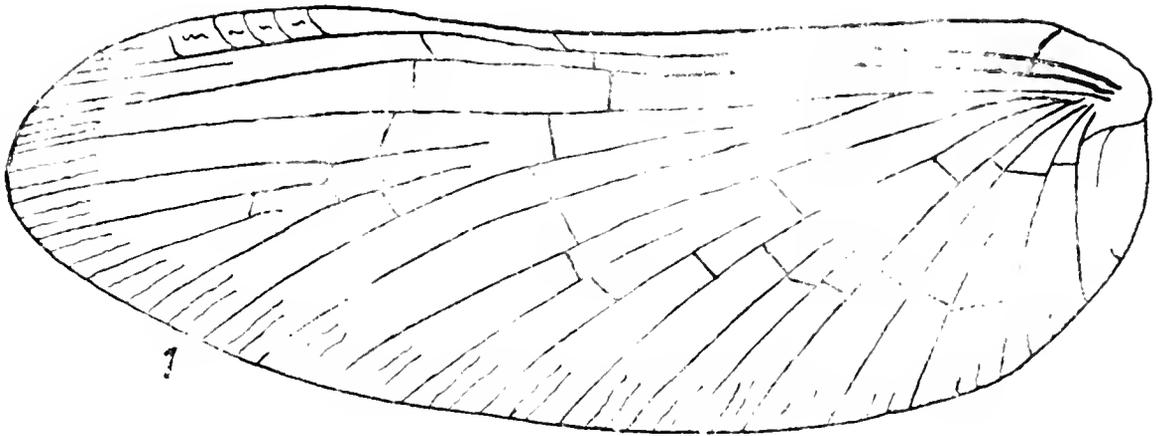
All the species agree in the ♂ sex in the type of abdominal marking, the first and the last three segments (apart from genitalia) being brown, the remainder hyaline white with black stigmatal dots. A detailed description of the new species follows:—

***Baetis intercalaris* N. Sp.**

♂. Length of wing (from center of thorax to wing tip) 5 mm; length of body 4½ mm; length of abdominal setae 9-10 mm. Legs pale yellowish, antennae blackish at base shading to whitish at tips; lower eyes black; superior eyes large, brownish red, kidney-shaped, pale around the rims, which in dried material are usually curled up. Thorax black-brown, slightly marked with yellowish on the dorsal protuberances and with a yellowish lateral prothoracic line extending to base of wing; abdomen with basal segment dull brown, last three segments ruddy-brown dorsally; remaining segments pale yellowish white; beneath all segments but the first uniformly whitish; genital organs pale; setae white. Wings with the intercalaries on primaries well marked, the two in the interspace between subcosta and radius particularly long; cross-veins between branches of cubitus distinct.

In the genitalia the penes are curved, rod-like, tapering to a very fine point, slightly bent at tip.

♀. Eyes small, wide apart, blackish; face variegated brown and yellow; dorsum of thorax slaty-black, laterally and abdominally brownish; abdomen brownish above, dull yellowish gray below; setae dirty white, duller than in ♂; legs



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deeper in colour than in ♂; venation similar to that of ♂.

Holotype. 1 ♂, Ottawa (June 11th.) in Canadian National Collection.

Allotype. 1 ♀, Ottawa (June 11th.) in Canadian National Collection.

Paratypes 6♂'s, 6♀'s, Ottawa (June 11-14) in Canadian National Collection and Cambridge Museum Collection.

Baetis flavistriga N. Sp.

♂. Size and general appearance of the preceding species; the superior eyes however much smaller, forming, even in dried specimens, flat, oval disks of a deep reddish brown colour, which often slightly overlap. Thorax with the yellow prothoracic spot and streak well-defined; legs dirty ochreous. Primaries with the intercalaries less developed than in the preceding species, those between subcosta and radius being much shorter; the cross-veins between the branches of the cubitus are also quite faint in distinction to *intercalaris* where they are well-developed. In the genitalia the penes are of more or less even width throughout and do not taper to the fine points found in *intercalaris*.

Holotype. 1 ♂, Ottawa (June 14th) in Canadian National Collection.

Paratypes. 5 ♂'s, same locality and date, in Canadian National Collection and Cambridge Museum Collection.

I have not yet definitely associated the ♀'s of the above species; a series of this sex is before me which differs from the ♀'s of *intercalaris* in possessing a broad pale yellow dorsal stripe on the abdomen and further shows the differences in venation mentioned above. These specimens however may belong to *propinquus* Wlsh. as Dr. Banks mentions to me that the female cotype of this species appears to possess such a stripe. In view of this I have thought it better to leave the matter in abeyance until such time as further collecting or breeding can settle the doubt.

EXPLANATION OF PLATE.

Fig. 1 Venation of forewing of *Baetis intercalaris* McD.

Fig. 2 Male appendages of *Baetis intercalaris* McD.

Fig. 3 Male appendages of *Baetis flavistriga* McD.

Fig. 4 Male appendages of *Baetis propinquus* Walsh