PSYCHE.

SOME PSOCINA OF THE UNITED STATES.

BY HERMANN AUGUST HAGEN, CAMBRIDGE, MASS.

Genus CAECILIUS Curtis.

Subgenus PTERODELA Kolbe.

Tarsi two-jointed; claws with a tooth beneath before tip; no discoidal cell; the stem of the superior furcated vein as long as the inferior branch of the fork and incurved; posterior marginal cell free, elliptical; pterostigma free, with a hook on the interior inferior angle on the inner side; antennae shorter than wings.

C. pedicularius.

Linné, Fn. Suec., ed. 2, no: 1515.—*Psocus salicis* Hag., Neur. N. Am., 13, 15! *Ps. geologus* Walsh, Proc. Ac. N. Sc. Philad., 1862, p. 362!; Proc. Entom. Soc. Philad., 1863, p. 168, 184. (For the European synonymy: Hag., Psoc. synopsis synon., 1866; McLachlan, Monogr. Brit. Psocidae, p. 17; Kolbe, Monogr., 1880, p. 118.)

Very small, brown, shining; antennae a little shorter than wings, darker, pilose; head with an impression between anterior ocellus and clypeus; clypeus brown, shining, slightly pilose; palpi brown; eyes with globular facets; abdomen brown; legs darker on knees and tarsi; wings hyaline, veins dark brown; pterostigma oblong, broader on tip, with the inferior exterior angle rounded, and a black hook beneath on the interior angle; anal vein with a very small black dot on tip; posterior marginal cell broadly elliptical; male genitals above with two small

downwardly bent horny hooks, and beneath with two larger sharp upwardly bent hooks.

Length to tip of wings $1\frac{1}{2}$ to $1\frac{3}{4}$ mm.; expanse of anterior wings 3 to $3\frac{1}{2}$ mm. Hab. Massachusetts, Hagen; New York, A. Fitch; Illinois, Rock Island, Walsh; Missouri, St. Louis, bred by Mr. Riley; New Hampshire, Berlin Falls, August 12; Cuba, Hag. The species is common in houses in Cambridge, and common everywhere in the northern and middle parts of Europe.

I compared the types of A. Fitch (*Ps. salicis*), of Walsh (*Ps. geologus*), and of Riley; they are identical. Walsh's specimens are badly gummed on paper; probably the difference in the shape of the pterostigma is the consequence, as the two sides of the wings are very loosely connected in the *psocina*, and therefore the venation easily altered by pasting the wings on paper. One of Walsh's types has the pterostigma triangular, and rounded posteriorly as described by him, the other type has the pterostigma identical with *C. pedicularius*. I have observed variation of the veins in other specimens, but till now no variation of the pterostigma. The specimens from A. Fitch, Riley, and Walsh, and from Berlin Falls, are the smallest, those in the houses in Cambridge and from Cuba have just the average size of

the European ones, but I possess also from Europe nearly as small ones as the small American specimens. I am not able to find any difference between the American and European specimens.

Mr. Riley has bred three specimens from a little bounding leafgall of globular shape, 1 mm. in diameter, shorter than broad; a small round opening was eaten out, and inside of the gall was a crushed membrane. The fact of a *Psocus* being raised from galls is very long published, but always overlooked. Linné, Fn. Suec., ed. 1, 1746, described, no: 941, one species as *Tenthredo*, and in ed. 2, no: 1532, the same as *Cynips salicis strobili*. Professor Zaddach and I have raised apparently the same species from willow galls belonging to *Teras terminalis*. The *Psocus* is only an inquiline and proved to be *C. pedicularius*. The description of *Ps. pusillus*, Harris Corresp., p. 331, differs from *C. pedicularius*; the size is the same. As the description was made from the living insect, the identity is not impossible.

C. pedicularius is an aberrant species in the genus, being the only one known to me with a tooth before the tip of the claws; if the tarsi were three-jointed it could scarcely be separated from *Elipsocus*. All species of *Caecilius* known to me, or rather all till now examined, living or fossil, do not possess teeth on the claws.

The claws of many *psocina* and also of *C. pedicularius* possess a very curious structure. The basis of the claw is somewhat enlarged below in the manner of a blunt projection with what appear to be two strong bristles, that nearer

to the basis shorter and thinner than the other one, which is often as long as or longer than the claw, more or less bent and incurved, and thicker on tip. This last one is, as I was able to make out by the microscope, no bristle at all, but a kind of hose open on tip and seemingly finely striated. If the hose is not dilated it imitates a bristle, and the thicker tip is formed by the closed mouth of the hose. If dilated it forms a kind of long funnel, the mouth a little larger, circular and as it seems evaginated. In a few cases I was able to observe in the interior of the funnel a large number of very fine threads ending in a little knob. I was able to see this hose more or less well in amber species and among living ones in *C. pedicularius*, *C. lasiopterus*, and *Elipsocus westwoodii*. I did not observe it in *atropina* (*Empheria* excepted) nor in *Psocus sensu strictiori*, except in the amber species *Ps. affinis*, but my observations are not yet finished. To see the structure of the hose well a very strong immersion power is needed. I have no explanation of the use of it, and know of no similar structure in other insects. The tarsi of *Thrips* are the only ones to be compared with it, nevertheless they are very different. As *psocina* need no suckers to fix them to the spot, I am at a loss to understand its use. I may state that teeth on the claws of the *psocina* are very common; *Atropos* has two and *Amphientomum* five on each claw. Several genera show a comb on the last joints of the tarsus. A series of tubercles formed by a kind of shield with five short spines have on top a longer and stronger spine, which forms the comb.

(To be continued.)