

a transverse shade and the abdominal joints a dusky transverse band, shorter and more conspicuous anally. Patches of long, stout bristles occur on the dusky parts of joints 4, 5, 6, 7 more particularly, and of shorter bristles on the sternum.\*

### SOME NEW PARASITES OF THE GRAIN PLANT-LOUSE.

By L. O. HOWARD.

Among the numerous parasites of the Grain Plant-louse reared the past summer and referred to in INSECT LIFE, Vol. II, page 31, are the three following new species. As they belong to groups which I have studied I present the following descriptions at Professor Riley's desire:

There has been considerable doubt concerning the true habits of the species of *Pachyneuron*. It has, beyond question, been bred from Syrphid larvæ in the Division of Entomology and by Mr. Hubbard, in Florida. Professor Cook considered a species reared by him as a Bark-louse parasite, but with the evidence before us at that time I surmised that it might have come from unnoticed Syrphid larvæ. In the same way I was first inclined to discredit Mr. Ashmead's reported rearing of this genus from Aphidids, but Mr. Ashmead tells me that he is quite positive that it does actually feed in plant-lice and the facts concerned in the rearing of the present species seem to indorse his opinion. Our first specimens were reared July 12, 1889, from grain-lice sent from Goshen, Ind., by Mr. Webster and we subsequently reared a rather large series (20 specimens mounted) from lice from different localities in the same State. While it was not observed to actually issue from the lice there seems little chance that Syrphids could have been present in the small mass in such numbers to have harbored such large quantities of the parasites.



FIG. 51.—*Pachyneuron micans*, female—enlarged (original).

*PACHYNEURON MICANS*, n. sp.

*Female*.—Length, 1.28mm; expanse, 2.1mm; greatest width of forewing, 0.46mm. Antennæ short; funicle as long as width of head; first funicle joint succeeding ring-joints as broad as long, not compressed; succeeding joints increasing gradually in

The genus *Megaspilus* has been rarely reared in this country. A species has been reared from the Hop Plant-louse in the Division of Entomology and a rather large series from the Grain-louse. I am not familiar with any references to its habits in Europe. The subfamily to which it belongs contains other genera of plant-louse parasites, viz., *Ceraphron* and *Lygocerus*.

\* Since this was written, I have ascertained that the spiracles are extremely minute and placed laterally on the posterior border of the joints. The two spots on penultimate joint bordered by short spines correspond to the bases of the cerci.

width, not in length, to club, which is oval, compressed, nearly as long as preceding three joints together; entire funicle with short, appressed hairs. Face and head very delicately shagreened; mesonotum finely punctate; mesoscutum very short and regularly convex, not pointed; metascutum rather strongly punctate near middle, smoother at sides, central carina rounded; abdomen flat, subcampanulate, or oval, nearly as broad as thorax. General color metallic bluish, greenish, or bronzy black; antennae and all coxae metallic; all femora metallic on the outside, tipped with dull yellow; tibiae honey yellow; tarsi somewhat darker, last joint brown.

*Male*.—Differs as follows: Antennae longer than in female; pile of funicle longer, more erect, and dirty white instead of silvery white. Abdomen much narrower than thorax, campanulate in shape. The femoral bands are brown instead of metallic, and the hind tibiae have each a light brown central band.

Described from many male and female specimens reared from *Siphonophora avenae* from Lafayette and Goshen, Ind.

**MEGASPILUS NIGER, n. sp.**

*Female*.—Length, 1.6mm; expanse, 3.33mm; greatest width of fore-wing, 0.62mm. Scape of antennae very long, somewhat swollen beyond middle; funicle long, curved, all joints increasing gradually in width from pedicel to club; joint 1 of funicle somewhat longer than pedicel, joint 3 shorter, joints 4 to 8 increasing in length very slightly. Head and mesonotum very faintly shagreened, but still glistening; lower portion of mesopleura and all of abdomen perfectly smooth. Abdomen subovoid



FIG. 52.—*Megaspilus niger*, female—enlarged (original).

in shape, acutely pointed at tip. Radial vein only slightly curved, extending a little more than half way from stigma to tip of wing. General color jet black; all trochanters, femora and wing veins dark brown; all tibiae and tarsi lighter brown.

Described from five female specimens reared from *Siphonophora avenae* from Selkirk, Mich., and Lafayette, Ind., July, 1889.

**ENCYRTUS WEBSTERI, n. sp.**

*Female*.—Length, 0.93mm; expanse of wings, 2.1mm; greatest width of forewing, 0.35mm. Antennae short, inserted considerably below the middle of the face; scape



FIG. 53.—*Encyrtus Websteri*, male—enlarged (original).

cylindrical, not widened below, reaching to vertex; pedicel conical, longer than first funicle joint; all funicle joints as wide as long, the sixth somewhat compressed laterally; club a little longer than last two funicle joints, oval, compressed laterally. Front as broad as one of the eyes, finely shagreened, with sparse, large punctures; ocelli at the angles of a right angle triangle; occipital angle sharp, mesonotum shining, with extremely fine striation; mesoscutellum finely shagreened. Marginal vein wanting; stigmal somewhat longer than post-

marginal; wings hyaline; cilia short. Color: Scape of antennae, all of head, mesoscutum, abdomen and hind thighs, metallic blue-green; funicle of antennae brown; mes-

oscutellum bronzy; front and middle femora nearly black with very slight metallic lustre; trochanters and femero-tibial joints yellow; tips of all tibiae yellow; all tarsi yellow; mesopleura brilliant metallic blue; metapleura shining metallic green.

*Male*.—Length, 0.8<sup>mm</sup>, expanse of wings, 1.9<sup>mm</sup>, greatest width of forewings, 0.35<sup>mm</sup>; differs from female in its more somber color, the general effect being brown rather than metallic although the mesonotum and head are somewhat lustrous; the antennae are cylindrical, the segments well separated subcylindrical and furnished with short, finely distributed hair. The general color of the legs is darker; the bands at the joints being narrow and darker; hind tarsi dusky, middle and front tarsi yellow except last joint.

Described from one male and one female reared from *Siphonophora avenæ* by F. M. Webster, at Lafayette, Ind.

This species comes rather close to *Encyrtus clavellatus* Dalman reared in Europe from Cecidomyid galls on willow, but is specifically distinct.

#### AN AUSTRALIAN HYMENOPTEROUS PARASITE OF THE FLUTED SCALE.

By C. V. RILEY.

We have just received from Mr. F. S. Crawford, of Adelaide, the first Hymenopterous parasite of *Icerya* yet found in Australia. It is

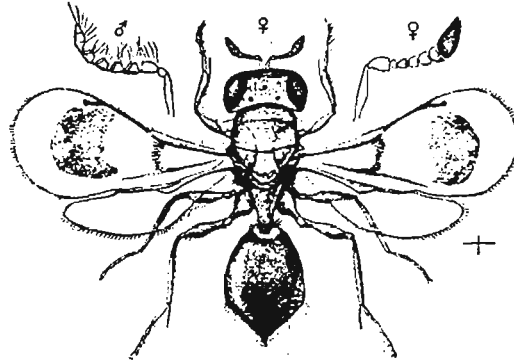


FIG. 51.—*Opheloria crawfordi*, enlarged (original).

a very interesting form belonging to a new genus, and as it will doubtless become an important factor in the life-chances of *Icerya*, and it will be convenient to refer to it definitely by name, we take this occasion to characterize it. Its nearest relative is *Dilophogaster californica* Howard, which breeds rapidly in California and is a noted enemy of the Black Scale (*Lecanium oleæ*). So valuable a species is this last that Professor Comstock found that on some trees 75 per cent of the scales were destroyed by it, while in no case was the scale found without its attendant destroyer. Moreover, Mr. Coquillett writes us that in 1889.