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SUPPLEMENTARY STUDIES ON THE LARVAE OF THE MYRMICINAE

(HYMENOPTERA: FORMICIDAE)

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Subsequent to the publication of our several articles on the larvae of the tribes of the subfamily Myrmicinae we have collected or received from other myrmecologists so much additional material that it has become necessary to publish a supplement.

The purpose of this supplement is (1) to characterize the genera acquired since previous publication; (2) to describe species in such genera; (3) to describe additional species in previously studied genera; (4) to revise our published characterizations as required by new material; (5) to cite recent references in the literature; (6) to cite older references previously overlooked.

Tribe Myrmicini F. Smith

Our previous characterization of this tribe (1952b, p. 106) should be replaced by the following:

Stout; diameter greatest at the fourth or fifth abdominal somite; slightly attenuated anteriorly; thorax very stout (when mature) and arched or bent ventrally, but not differentiated into a neck; posterior end broadly rounded. Antennae with three (rarely two or four) sensilla, each of which bears a spinule. Head hairs short to long; mostly denticulate. Labrum small or moderate-sized, short, breadth 1.5-2 X length; bilobed; anterior surface of each lobe with 4-10 sensilla and/or minute hairs; posterior surface spinulose and bearing 8-20 sensilla. Mandibles rather small or moderate-sized (ratio of head width to mandible length 2.1-2.9, average 2.5); stout (ratio of length to width at base 1.8-2.4, average 2.1); heavily sclerotized. Apex of maxilla usually spinulose; palp paxilliform and bearing five or six sensilla; galea paxilliform or digitiform; palp slightly shorter than or equal to galea. Anterior surface of labium usually spinulose; palp a short projection bearing 4-8 sensilla. Opening of sericteries a short transverse slit. Hypopharynx usually sparsely spinulose, the spinules minute and generally in transverse rows.

Pogonomyrmex marcusi Kusnezov

Marcus, 1953: "Of the larvae in nest D, 41 were 5-6 mm long, 30 were 4 mm and 11 were 2-2.4 mm. (The measurement was taken from the cervical curvature to the posterior end.) Eggs with embryos in various stages measure 1.5-2 mm. The largest larvae (6 mm) had rudiments of testes. From these data we may presume that there are four larval stages, each molt with a larva one millimeter longer. The larva of 5-6 mm belong to the worker and sexual castes, the latter having one more molt than the former.

"Certain larvae attract attention because of their broad flat shape. This rare and surprising shape is not the result of poor preservation, because it was observed while collecting. It seems that immediately after the molt the larvae are flat and after feeding acquire the normal rounded body shape.

"Figure 33 shows one of these flat larvae, which measures 3.6 mm long and 3.25 mm broad. To be noted are 12 spiracles for primordial tracheal respiration. The second segment bears two. In sagittal section the midgut is empty and consists of a simple epithelium. All the interior of the larva is composed of uniform histiogenic cells. When a rounded larva is examined one finds differentiated organs, an intestine with muscles, Malpighian tubules and especially beautiful thick tubes of salivary (or labial) glands. . . .

"Each form has its physical cause. At the molt the hard chitinous exoskeleton is ruptured, the contents of the intestine are eliminated and certain larval organs degenerate. The larva remains without the support of the exterior chitin and with an interior of rounded undifferentiated cells, actually liquid. The lack of solid tissues for support causes the larva to lie on its back on the soil like a jellyfish stranded on the beach. Thus results, I believe, the flattened form of the larva shown in figure 33. When it regenerates the intestine, new larval organs and new supporting tissues develop and the larva recovers its rounded form around the regenerated intestine, which is filled with food." (Translated from the Spanish, pp. 46 and 48.) Fig. 33a. shows a flat larva in ventral view; Fig. 33b, a normal larva in profile. Internal anatomy, pp. 48-54 and figs. 33c, 34, 35, 36, 37 and 40. Summary in German, p. 67.

Genus *Hylomyrma* Forel

Body hairs sparse, rather long. Of two types: (1) denticulate and slightly curved; (2) sinuous, with the apical portion hooked, simple or with a few denticles on the apical third, a few around the middle of each somite. Anchor-tipped hairs lacking. Antennae small, each with three sensilla each of which bears a rather long spinule. Head hairs few, short to long, minutely denticulate. Labrum with the breadth $1\frac{1}{2}$ X length; bilobed; each lobe without spinules or hairs but with seven sensilla on and near the ventral border; posterior surface sparsely spinulose. Mandibles with the apical tooth curved medially and posteriorly; with a medial blade which has an erose border and bears one or two subapical teeth; anterior surface of the blade with a few spinules. Maxillae with the galea digitiform and bent.

Hylomyrma has been regarded as the least specialized genus in the tribe Myrmicini. It has also been considered as a subgenus of *Pogonomyrmex*. Larval characters do not support either viewpoint. It is certainly generically distinct from *Pogonomyrmex* because of its mandibular shape and spinules and because of its