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SECOND SUPPLEMENT (HYMENOPTERA: FORMICIDAE)**

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**ANT LARVAE OF THE MYRMICINE TRIBE ATTINI:
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ABSTRACT—The authors' first supplement on the subfamily Myrmicinae was published in 1960. The present supplement deals only with the fungus-growers and contains descriptions of 3 additional species in *Atta*, *Mycetosoritis* and *Trachymyrmex*. The genus *Mycetosoritis* is characterized here for the first time. Recent references to attine larvae are cited.

Subsequent to the publication of our first supplement on the larvae of the subfamily Myrmicinae (1960a) we have received from other myrmecologists so much additional material that it has become necessary to publish additional supplements.

TRIBE ATTINI

Weber 1966: 592, 594—General remarks similar to 1972 below.

Weber 1972: 39–42—The larva emerges from the egg shell through a hole which it has rasped with its spiny mandibles as it opens and closes its mouth parts. Mouth parts were observed to be working and feeding on the discarded chorion or the mycelium.

“The fungus-growing ants differ from all other ants and all other insects, including the fungus-growing termites, in embedding their brood in the fungus garden, where they are normally covered by the thread-like mycelium.”

The larger larvae are usually embedded, on the back or side, in the garden, with the head capsule protruding. They are incapable of locomotion and must be fed by the workers. By “pouting,” or extruding its mouth parts, the larva notifies the worker that it is hungry; the latter responds by placing a mass of fungus on the mouth parts. The larvae are frequently licked by the workers. Presumably trophallaxis occurs: “the larvae are an integral bond in keeping a colony viable.”

The ventral hairs of attine larvae keep the fungal mass firmly in place while the larva is feeding. The spines on the mandibles puncture the fungal walls.

“The feeding of the larvae is remarkably similar in all attine species. Most of the species culture clusters of inflated hyphae (staphylae) and the use of this compact form of the fungus is particularly efficient.”

Genus APTEROSTIGMA Mayr

Apterostigma collare angulatum Weber

CORRECTION (for 1948: 667-668)—Maxillae, labium and hypopharynx are spinulose, not papillose.

Genus CYPHOMYRMEX Mayr

Cyphomyrmex costatus Mann

Kempf 1965: 177—"The larvae described under the name of *C. strigatus* Wheeler (1948: 669-670) certainly belongs to the present species."

Cyphomyrmex rimosus Spinola

Weber 1972: 41-42.—"Larvae of this species are unique in their needs to hold a bromatium, which is a compact mass of yeast cells, but the hairs are not especially adapted for this purpose and the fungus is held by the spinose mandibles." The sparse body hairs may be finely divided apically.

Genus MYCETOSORITIS Wheeler

Profile attiform. Head large. Body nearly naked; all hairs (about 14) ventral. Cranium subhexagonal and lumpy. Antennae large and below middle of cranium. Head hairs very few (about six). Mandibles attiform.

In our 1960b key *Mycetosoritis* runs to *Acromyrmex*, from which it may be distinguished by having very few (about 14) body hairs, which are moderately long and restricted to the ventral surface; in *Acromyrmex* the hairs are more numerous (about 40), minute and uniformly distributed.

Mycetosoritis hartmanni Wheeler

fig. 1

Length (through spiracles) about 2.6 mm; straight length about 1.8 mm. Profile attiform (i.e., short, very stout, plump, bean-shaped; ends large, subequal and broadly rounded; dorsal profile very long and C-shaped; ventral profile short and slightly concave). Head on the ventral surface near the anterior end. Anus ventral, near the posterior end and with a prominent posterior lip. Head large. Each leg vestige represented by a ridge and an infolded pocket of the integument; gonopod vestiges present. Spiracles diminishing in diameter posteriorly. Entire integument spinulose, the spinules minute, in short rows ventrally, elsewhere isolated. Body nearly naked, all hairs ventral, unbranched with frayed tip; T1 with 3 pairs, 0.024-0.1 mm long, shortest ventrally, shaft curved or flexuous; T2 and T3 with a pair each, about 0.14 mm long, flexuous; AIX 1 pair, about 0.07 mm long; AX 1 pair, about 0.012 mm long. Cranium lumpy, subhexagonal, with occipital border distinctly concave. Antennae large and below the middle of the cranium, each with 3 sensilla,

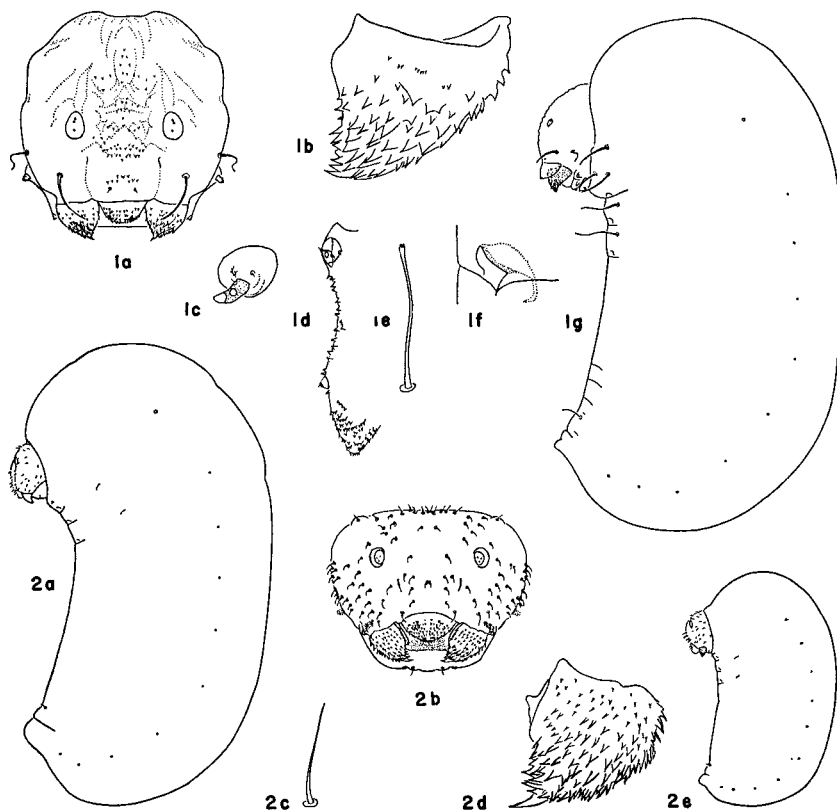


Fig. 1. *Mycetosoritis hartmanni*. a. head in anterior view, $\times 74$. b, left mandible in anterior view, $\times 278$. c, left maxillary palp in lateral view, $\times 333$. d, right maxilla in anterior view, $\times 198$. e, body hair, $\times 267$. f, left mesothoracic leg vestige in optical section, $\times 267$. g, larva in side view, $\times 37$. Fig. 2. *Atta texana*. a, mature larva of large worker, $\times 18$. b, head in anterior view, $\times 48$. c, body hair, $\times 339$. d, left mandible in anterior view, $\times 169$. e, mature larva of small worker, $\times 18$.

each of which bears a small spinule. Six head hairs: 2 on each gena, about 0.14 mm long; 2 above labrum about 0.07 mm long. Labrum with the ventral border subparabolic, with spinules on all surfaces; anterior surface with 6 sensilla; 1 sensilla on each lateral border; posterodorsal surface with 4 sensilla. Mandibles heavily sclerotized; attiform (i.e., broad, short and stout, apical portion abruptly attenuated, curved medially and posteriorly and terminating in a small slender tooth); all surfaces covered with short spinules, which are minute to coarse. Each maxilla long and narrow; apex paraboloidal and spinulose, the spinules minute, numerous and in short rows apically, longer and isolated basally; palp a small peg with 1 apical, 3 lateral and 1 basal sensilla; galea a frustum with 2 apical sensilla. Labium wide and thick; densely spinulose, the spinules minute and in

long subtransverse subparallel rows; each palp a small peg with 1 apical, 3 lateral and 1 basal sensilla; an isolated sensillum between each palp and the opening of the sericteries; the latter a transverse slit. Hypopharynx densely spinulose, the spinules minute and in transverse rows, the rows shorter and farther apart and the spinules shorter basally. (Material studied: 2 semipupae and 1 young larva from Louisiana, courtesy of Dr. J. C. Moser.)

Genus *TRACHYMYRMEX* Forel

Trachymyrmex diversus Mann

Length (through spiracles) about 3.7 mm. Similar to *T. septentrionalis* (1948: 673) except as follows. Ventral profile nearly straight. Entire integument sparsely spinulose, the spinules minute and in short transverse rows on the venter, isolated elsewhere. Antennae very large. Head with only 1 pair of hairs above the antennae. Anterior surface of labrum with 6 sensilla. Each maxillary palp represented by an encapsulated sensillum on a short peg with 2 adjacent sensilla; each galea a low minute cone with 2 apical sensilla. Hypopharynx with a few rather large spinules in short transverse rows ventrally, isolated basally. (Material studied: 7 larvae from Brazil, courtesy of Dr. K. Lenko.)

Weber 1972: Head and prothoracic venter in side view (p. 40, fig. 57). Immediately after hatching the ventral surface of the larva is applied, apparently by its own rotation, to the mass of eggs and mycelium (p. 41).

Trachymyrmex jamaicensis Ern. André

Weber 1967: 109—"The brood was heavily coated with mycelium as is typical of attines."

Genus *ACROMYRMEX* Mayr

Acromyrmex lundii Guérin

Weber 1972: 41. Body hairs are borne on tubercles.

Acromyrmex octospinosus (Reich)

Weber 1972: 41. Body hairs are particularly stout and multifid; shown in fig. 58 (p. 40).

Genus *ATTA* Fabricius

Atta cephalotes (Linnaeus)

Weber 1966: 597—Photograph of semipupa of a large worker.

Atta sexdens (Linnaeus)

Weber 1962: 46-47—Photographs of larvae of various sizes.

Atta texana (Buckley)

fig. 2 and 3

MATURE WORKER LARVAE. Length (through spiracles) 2.7-6.9 mm. Attiform (i.e., short, very stout, plump, bean-shaped; diameter greatest at the



Fig. 3. *Atta texana*. Photograph of various sizes of mature worker larvae, from a nest in Alexandria, Louisiana, courtesy of Dr. John C. Moser.

middle and decreasing slightly and equally toward each end; dorsal profile extremely long, C-shaped; ventral profile short and concave; head on the ventral surface, at a considerable distance from the anterior end; anus ventral, at a considerable distance from the posterior end, with a prominent posterior lip). Leg and wing vestiges distinct. No differentiated somites. All spiracles small, mesothoracic largest. Entire integument spinulose, all spinules minute; in short rows on the venter of the anterior somites and on all surfaces of posterior somites, isolated elsewhere. Only 4 body hairs; simple; 2 on the venter of T1, about 0.025 mm long, 2 on venter of AX, about 0.075 mm long. Head very small; cranium subtrapezoidal, broadest dorsally; short bars extend from the cranium into the prothorax. Antennae with 3 small sensilla each, each with a small spinule. Head hairs numerous, simple, short (0.025–0.75 mm long). Labrum parabolic, small; all surfaces covered with minute spinules, the spinules isolated except for a few in rows on the posterior surface; anterior surface with 4 minute hairs (about 0.013 mm long) near the dorsal border. Mandibles large, attiform (i.e., broad, short, stout; apical portion abruptly attenuated and curved

medially to form a sharp-pointed tooth, the tooth bent medially); all surfaces covered with numerous large spinules (smaller basally). Maxillae very narrow, adnate and densely covered with rather coarse spinules; each palp a skewed cone with 1 apical (encapsulated) and 3 lateral sensilla; each galea a slightly taller cone with 2 apical sensilla. Labium broad and short, usually hidden in anterior view, covered with minute spinules, each palp represented by 3 contiguous sensilla; an isolated sensillum (with a spinule about 0.025 mm long) between each palp and the opening of the sericteries; the latter a transverse slit. Hypopharynx densely spinulose, the spinules minute and in short transverse rows.

SEXUAL LARVA. Length (through spiracles) about 21 mm; straight length about 16 mm. Similar to the worker larva except in the following details. Extremely plump; dorsal profile much longer and ventral shorter (head and anus, therefore, much closer together). Head very small. Spinules on venter of T1 very large (about 0.025 mm long) and very dense. Body hairs shorter (T1 hairs about 0.01 mm long, AX hairs about 0.05 mm long. Head hairs 0.05–0.063 mm long. Labrum with the hairs about 0.05 mm long. Mandibles each with 2 slender blunt apical teeth. Each maxillary palp with 2 apical (with a minute spinule each) and 2 lateral (encapsulated) sensilla; each galea a low dome with 2 apical sensilla.

Material studied: numerous larvae from Louisiana, courtesy of Dr. J. C. Moser. Moser 1962: 12—Photograph of brood in a small nest.

Moser 1967: 307—A photograph showing larvae.

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