

FIG. 11.—Dipterous parasite from *Technomyrmex albipes*, $\times 176$. FIG. 12.—Young larva of *D. doriae* containing larva of dipterous parasite, $\times 27$.

genus; it was also the character which most closely correlated larval taxonomy with adult taxonomy. Therefore, we chose mature body shape as the basic character for classifying the larvae of these 2 subfamilies. This character cannot be used, however, for the Dolichoderinae. The larvae of *Leptomyrmex* (like their adults) are highly aberrant, but the larvae of the tribes Dolichoderini and Tapinomini are similar in body shape (i.e., profile), except for *Engramma* which is distinct from other Tapinomini. See Fig. 13.

The mature mandible shapes, in contrast to the Myrmicinae and Ponerinae, fall into only 1 generalized pattern; see Fig. 14. In other words, the Dolichoderinae are a comparatively homogeneous group. To distinguish most of the genera, one must descend to trivial characters, such as hairs (size, shape, and abundance), tubercles, welts, and mouth parts.

HOMOGENEITY

Just how homogeneous are the larvae of the Dolichoderinae? To attempt an answer we have devised a simple index of heterogeneity: the ratio of the number of types of body profile (or mandible shape) to the number of genera studied; this index gives the

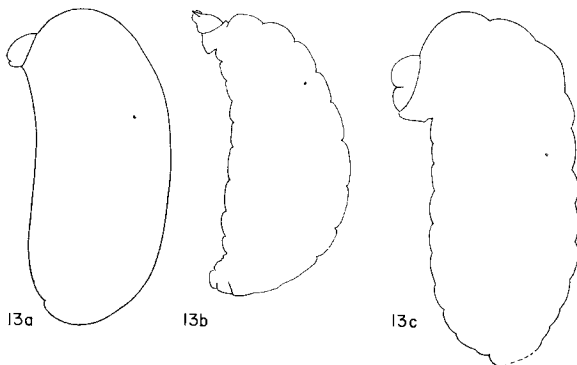


FIG. 13.—Generalized mature body profiles: a, dolichoderiform; b, leptomyrmeciform; c, engrammiform.

average number of genera per type. The lower the index the greater the heterogeneity.

Our computations follow:

PROFILES

- Myrmicinae: 57 genera/22 types = 2.6
- Ponerinae: 26 genera/8 types = 3.3
- Dolichoderinae: 10 genera/3 types = 3.3

MANDIBLE SHAPES

- Myrmicinae: 68 genera/30 types = 2.3
- Ponerinae: 33 genera/20 types = 1.7
- Dolichoderinae: 12 genera/1 type = 12.0

TUBERCLES

Many formicid larvae (in 30 out of the 168 genera studied) have 1 or more excrescences of some sort on the body. (See our 1964 article on Ponerinae for a general discussion.) To such structures the term "tubercle" has been applied. Since the shape varies greatly (e.g., low bosses, tall sharp spines) the term is not particularly appropriate, but nothing better has been suggested⁴ and furthermore it has the sanction of long usage in myrmecology—Müller (1886), W. M. Wheeler (from 1900 on), Emery (Genera Insectorum, 1911). Therefore we shall continue to use it.

Tubercles are most frequently encountered in the Ponerinae (21 out of the 36 genera studied). Among the Dolichoderinae we have found them in 6 of 14 genera studied. Among the other subfamilies tubercles are rare (in 5 genera of 119 studied).

Except that they are all protuberances, dolichoderine tubercles have little in common with ponerine, differing in several respects:—(1) *In number*. Among the Ponerinae the number of tubercles per larva ranges between 10 and 400, although the count for most genera lies between 100 and 200. Among the Dolichoderinae the number ranges from 1 to 8. (2) *In position*. In the Ponerinae the tubercles are generally distributed over the dorsal and lateral surfaces, while dolichoderine tubercles have been found only at or near the posterior end or on the dorsal surface or on the ventral surface of the prothorax. (3) *In shape*. Although ponerine tubercles vary greatly in form, the majority are either spinelike or bear stout hairs, and could conceivably serve as defensive function. Dolichoderine tubercles lack hairs, are never

⁴ Brown (1963, p. 5) has proposed that the term "chalaza" be substituted for "tubercle." The Greek word *chalaza* means "hail" or "pimple" and is therefore no more appropriate than "tubercle." Furthermore, it already has restricted meanings in botany and in avian embryology.

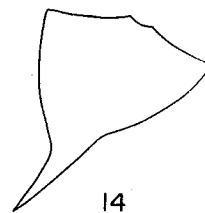


FIG. 14.—Generalized mature mandible shape for the subfamily Dolichoderinae.