Reid (1941) found the myrmicine thorax to be of basically one type, the major exception being the tribe Melissotarsini. With the exception of the Cephalotini, the myrmicine proventriculus is degenerate and similar to that of the Dorylinae (Eisner, 1957). Reid (1941) indicated that the Myrmicinae and Pseudomyrmecinae may be related, but Brown (1954) placed these subfamilies in different complexes. Brown (1954) also indicated that the myrmicines have retained some primitive characters of the ectatommines.

The Myrmeciinae were first given subfamily status by Clark (1954). These ants have been considered anatomically and ethologically conservative (Brown, 1954) and include perhaps the single most primitive known living ant, *Nothomyrmecia macrops*. *N. macrops* was described by Clark (1934) from 2 specimens and has never again been collected (Brown and Wilson, 1959a). Reid (1941) has described the thorax of *Myrmecia* as relatively unspecialized but not appearing any more primitive than that of *Dolichoderus*. The proventriculus of *Myrmecia* is similar to that in most other Hymenoptera; in these the damming of the crop is an active energy-consuming process (Eisner, 1957). Robertson (1968) has described the structure of the venom apparatus as being clearly ancestral to that of the Myrmicinae.

The mouthparts of *Myrmecia auriventris* (plates 86, 87), with the exception of the mandibles, are somewhat similar to those of the myrmicines, as well as the dolichoderines and formicines. The palpi are primitively segmented, and in that way resemble the dolichoderines and formicines. Other than these comparisons, little can be said about the affinities of these mouthparts. The labium has the most massive subglossal brushes among the ants.

The behavior of those pseudomyrmecines that are mutualistically associated with acacia trees has been exhaustively studied by Janzen (1966, 1967a, 1967b), but their taxonomic placement and phylogenetic affinities are still poorly understood. Brown (1954) placed the pseudomyrmecines in the Myrmecioid complex, feeling that their "ancestors were bimodally pedicellate Myrmeciinae of the same stock which gave rise to *Myrmecia* and *Prionomyrmex*." The thorax of the Pseudomyrmecinae is relatively unspecialized (Reid, 1941), and the proventriculus is similar to that of *Myrmecia* (Eisner, 1957).

The mouthparts of *Pseudomyrmex* (plate 88) give little indication of their affinities. Palpal segmentation is primitive, and thus similar in that respect to other myrmecioid subfamilies.

The Dolichoderinae and Formicinae are old, outwardly similar, but not necessarily related, subfamilies and are currently distinguished from one another by the presence of a circular acidopore in the formicines and the absence of such a structure in the dolichoderines (Hung and Brown, 1966). These external differences are correlated with much greater differences in