

second gastral segments are the third and fourth abdominals) have the sclerites of both segments fused or tightly connected, a condition probably of considerable mechanical protective advantage among primarily predaceous ants.

The findings of this investigation do not substantially support either Wheeler's (1928) or Brown's (1954) views on the phylogeny of the ants (although subfamily grouping, based on mouthpart similarities, does tend to follow that of Brown, 1954). While mouthpart morphology does not strongly indicate the deep cleft proposed by Brown (1954) in the evolution of ants, it also does not show any particular links between the poneines and formicines as proposed by Wheeler (1928).

It seems reasonable to propose that even further study of ant and tiphiid mouthpart morphology and function might yield information of greater importance in understanding ant phylogeny. Ant mouthparts may also provide excellent diagnostic characters in revisions at the generic level or higher. The mouthparts have been little used in this respect, no doubt because it takes a great deal of time and effort to deal with these structures satisfactorily. It is hoped that this investigation will encourage the more extensive use of these characters by ant taxonomists.

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