

Based on an examination of the glands associated with the sting in the attine genera *Cyphomyrmex*, *Trachymyrmex*, *Acromyrmex*, and *Atta*, it appears that at least some internal morphological characters may be quite similar throughout the tribe. In *Cyphomyrmex rimosus*, the most primitive of the attines, (Weber, 1958), the paired free arms of the poison gland are rather blunt structures which are enclosed in a large bulbous vesicle. The vesicle rapidly narrows down to an extremely fine duct which is attached to a very reduced sting. Dufour's gland is inserted near the base of the sting and is considerably smaller than the poison glands. Notwithstanding differences in size, the form and relative proportions of the poison and Dufour's glands in *Trachymyrmex*, *Acromyrmex*, and *Atta* are virtually identical to those of *Cyphomyrmex*. Indeed the sting-associated glands of a minor worker of *Atta cephalotes* are a veritable carbon copy of those found in a *Cyphomyrmex* worker. It thus appears that the gross morphology of the poison apparatus of workers in the most primitive attine *Cyphomyrmex*, has undergone little change during the evolution of this tribe. The gross form of the glands associated with the reduced sting form a distinctive attine structure which may be an excellent diagnostic character for this tribe.

The lack of generic specificity of the odor trail substances of the four attines must be regarded as further evidence for the close relationship of the attine genera. In spite of the fact that *Cyphomyrmex* and *Atta* stand at the phylogenetic extremes of the tribe Attini, the odor trail substance of *Cyphomyrmex* is capable of releasing trail following behavior in *Atta* and vice versa. It is interesting to contrast the lack of generic specificity in the attine odor trail substances with the great specificity of the odor trail substances in the myrmicine genus *Solenopsis*. In transposition experiments with species of *Solenopsis*, Wilson (1962) demonstrated the odor trail substances of three members of this genus were highly species-specific. In addition, the *Solenopsis* trail substances produced no trail following in four other myrmicine genera. Similarly, the odor trail substances of the Attini do not produce any response in any of the myrmicine genera that we tested. One possible explanation that is consistent with the lack of specificity of the trail substances among the attines is that the odor trail chemicals are identical or closely related in the different genera. If this is correct, then the biogenetic pathway for the synthesis of the odor trail compound(s) in *Cyphomyrmex* has been utilized by the more highly developed attine genera with little modification. It is thus possible that the Attini are closely linked by the natural products chemistry of their poison glands.