

Since workers of the different attine genera follow each others' artificial trails in the laboratory, the question arises as to whether this occurs in the field. The tribe Attini is limited to the New World where most of the genera are sympatric. Weber (1958) has emphasized the fact that the attines are tolerant of one another as indicated by the fact that different genera forage beside one another, without any hostility. Furthermore, Weber notes that nests of genera such as *Cyphomyrmex* and *Trachymyrmex* are commonly found in the soil of the *Atta* mounds. These facts certainly emphasize the probability that under field conditions, the odor trails of different attine genera can frequently overlap. Indeed, strong trails of *Atta cephalotes* and *Acromyrmex octospinosus* crossed in at least two different places in a field that we observed at Alajuela, Costa Rica. In no instance were workers of either species observed to violate the other species' trail. When *Acromyrmex* workers were placed on the *Atta* trail, they invariably wandered off the trail almost at once and resumed trail following on their own trail when it was encountered. It does not seem unlikely that the persistent trails which attines follow over long periods contain secretions other than their odor trail substances which may render them more specific. Likely sources of trail additives are anal emissions which should present a considerable accumulation on a trail which is being utilized for extended periods. It is interesting to note that the odor trail of the formicine *Lasius fuliginosus* (Latreille) is derived from an anal emission (Carthy, 1951). Whether attine odor trails maintain their specific identities among the tribal members because of supplemental secretions remains to be proven. However, in view of the non-specificity of the demonstrated odor trail substances among the Attini, it seems necessary to propose that additional chemical stimuli are present on the trails.

Nothing is known about the chemical nature of the attine odor trail substances. Preliminary examinations of the contents of the poison vesicles of the four attine genera indicate that all the secretions have similar physical properties. The vesicle contents are viscous, water-clear liquids which produce a strongly alkaline reaction with various indicator papers. When the poison vesicle is ruptured, its liquid contents immediately are converted into a semisolid mass. This latter property of the poison gland contents is certainly consistent with what is known about the general nature of the attine odor trail substances especially among the more highly developed genera. The persistent trails of *Atta* certainly reflect the presence of an odor trail substance(s) with a low vapor pressure. Assuming that the sting secreted odor trail substance similarly solidifies under field conditions,