

decided attractant. In *P. badius* on the contrary, the reaction to triethanolamine was reported to be virtually neutral.

In this connection it is interesting to note that, in the populations studied, *M. vindex* commonly piles discarded cocoons and pupal exuviae on the crater of the nest, near the entrance, where they characteristically accumulate in some numbers, rather than transporting them far afield. Similar behavior has been described for *P. badius* (Wilson, Furlach, and Roth, 1958), though in the latter case, removal of the discards is quickly accomplished by other foraging ants. The situation with *M. vindex*, however, appears more specific. Indeed established colonies in the artificial nest may collect discarded cocoons and pupal exuviae scattered about the foraging area to form a crater about the entrance. It may be that subtle behavioral balances are involved, depending on the nature and "mix" of the included decomposition products, as suggested by the reversal of behavior, apparently in response to vapor concentration, released by triethanolamine.

REFERENCES

- BLUM, MURRAY S. The chemical basis of insect sociality. From *Chemicals Controlling Insect Behavior*. Academic Press, New York, 1970, pp 61-94.
- BROWN, WILLIAM L., JR. Remarks on the internal phylogeny and subfamily classification of the family Formicidae. *Insectes Sociaux*, 1, 1, 1954, pp 21-31.
- DOUGLAS, ATHOL M. AND L. M. MCKENNA. Observations on the bull-dog ant, *Myrmecia vindex*. *The Western Australian Naturalist*, 11, no. 6, pp 125-129, 1970.
- HASKINS, CARYL P., RICHARD E. HEWITT, AND EDNA F. HASKINS. Release of aggressive and capture behavior in the ant *Myrmecia gulosa* by exocrine products of the ant *Camponotus*. *Jour. Ent. (Royal Ent. Soc., Great Britain)* (A), 47 (2), pp 125-139, 1973.
- HASKINS, CARYL P. AND EDNA F. HASKINS. Notes on the biology and social behavior of the archaic Ponerine ants of the genera *Myrmecia* and *Promyrmecia*. *Ann. Ent. Soc. of Am.* 43, 4, December, 1950, pp 461-491.
- ROBERTSON, PHYLLIS L. Pheromones involved in aggressive behavior in the ant *Myrmecia gulosa*. *Jour. Insect Physiol.* 17, 1971, pp 691-715.
- WILSON, EDWARD O. A chemical releaser of alarm and digging behavior in the ant *Pogonomyrmex badius* (Latreille). *Psyche* 65, 2-3, June-September, 1959, pp 41-51.
- WILSON, EDWARD O. *The Insect Societies*. Harvard University Press, Cambridge, Mass. 1971, pp 31-32. (Origin of Ants, Sphecomyrma and Myrmecoid complex).
- WILSON, EDWARD O., FRANK M. CARPENTER, AND WILLIAM L. BROWN, JR. The first Mesozoic ants. *Science*, 157, September, 1967, pp 1038-1039.
- WILSON, EDWARD O., N. I. DURLACH, AND L. M. ROTH. Chemical releasers of necrophoric behavior in ants. *Psyche*, 65, 4, December, 1958 pp 108-114.