

4. Distinguish instars. We regard the mature worker larva as the definitive representative of a genus or species, but we have described younger stages whenever they were available. We have rarely, however, been sure of the instars. For such determination we should have an egg ready to hatch and a larva of each instar ready to molt; in each case the next stage will be fully formed inside and, by our technique, we can see both at once. We also need the semipupa, which will show all characters of the mature larva except shape. Because such critical specimens are rarely found it behooves the collector to get as much brood as possible. But who is interested in instars? Since caste is determined in the larval stage, all biologists would like to know when and how, and someday the applied entomologist may need to know.

5. As an aid in taxonomy. We have always believed that ant taxonomy should be based on both larval and adult characters. Larval characters can be particularly useful when adult characters are indistinct.

LARVAL CLASSIFICATION VS. ADULT CLASSIFICATION (pp. 92-93)

Larval classification supports the following changes since the "Genera Insectorum" (1910-1925):

5. Brown (1975:4) uses our study of the larvae to support his synonymizing *Eubothroponera* into *Platythyrea*.

6. Urbani (1977:428) states that larval characters were the best justification for the separation of the Leptanillinae from the Dorylinae. ("L'elevazione a sotto-famiglia dell'antica tribù *Leptanillini* è dovuta a G. C. ed E. W. Wheeler (1930), ma la migliore giustificazione di questo punto di vista la si trova nel lavoro di G. C. e J. Wheeler (1965) dove vengono accuratamente studiate le morfologie larvali delle tre specie di cui si conoscono anche gli stadi preimaginali.")

Larval classification does not support the following changes:

4. Dorylinae. The splitting of this subfamily into Old World and New World subfamilies. We have discussed this at length in our 1984 and 1985.

5. Ponerinae. Brown's 1976 reduction of the tribe Odontomichini to a subtribe. See our 1985:260.

IMPORTANCE OF LARVAE

(p. 93, add after "Taxonomic Conclusions")

We cannot give this topic the space it deserves; furthermore it is outside the main field of our research. Nevertheless it must be discussed in any comprehensive treatment of ant larvae. Fortunately Abbott (1978:236, 242-243) has given a complete and documented survey. Shorter treatments: Febvay and Kermarrec, 1981; Hunt, 1982; Peacock et al., 1950; Schneirla, 1971:141-142; Wheeler and Wheeler, 1979a:334-336; Wüst, 1973:417. For a thumbnail sketch we have found nothing better than one sentence in a 1978 review by S. C. Stearns in the *American Scientist* 66:623: "Adult ants are dependent on soluble proteins and amino acids received from the larvae, which digest protein for the whole colony."

As a finale we quote the last paragraph in our 1979 chapter on *Larvae of Social Hymenoptera*: "This brings us back again to the idea of the colony as a superorganism. The crops of all adult members of a colony have been referred to as the collective stomach of a colony. Now we have to add the larvae of ants and wasps as a sort of collective digestive gland necessary for the health of the colony."