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SCIENTIFIC NOTE

Unique structures in members of *Tachys sensu lat.* (Coleoptera: Carabidae).—The species of the tachyine groups *Tachylopha* Motschulsky, *Tachyphanes* Jeannel, and *Sphaerotachys* Müller are distributed from Africa to East Asia, while those of *Barytachys* Chaudoir are confined to the New World and distributed from Canada to Brazil. Bruneau de Miré has recently revised the African species of *Tachylopha* (1966, Rev. Zool. Bot. Afr., 73(1–2): 59–100), and I am presently studying *Barytachys* and other New World groups. Bruneau de Miré illustrated and noted an interesting structure in the species of *Tachylopha* in his study. I have found this same structure, though less well developed in members of *Tachyphanes* and *Sphaerotachys* and made a further discovery, hitherto unreported, of an interesting structure in some members of *Barytachys*. The purpose of this note is to describe these structures and speculate on their function.

If a specimen of any species of *Tachylopha*, *Tachyphanes*, or *Sphaerotachys* is examined from either side, one will immediately note a small to large hole (Fig. 1) in the body wall at the juncture of the mesepisternum and mesepimeron. This hole is an infolding of the entire body wall forming a tube which passes through the beetle, over the gut, and meets the infolding from the other side. In the specimens I examined, no septum was apparent (but see Bruneau de Miré, p. 63), thus the beetle has a transverse "tunnel" completely through the body. In some specimens one can actually see through the beetle. Inside the tube the thickly sclerotized wall is ridged, the ridges being continuous from one side of the beetle to the other. The tube does not have any macro-openings into the coelum of the beetle and no glands seem to be associated with the structure.

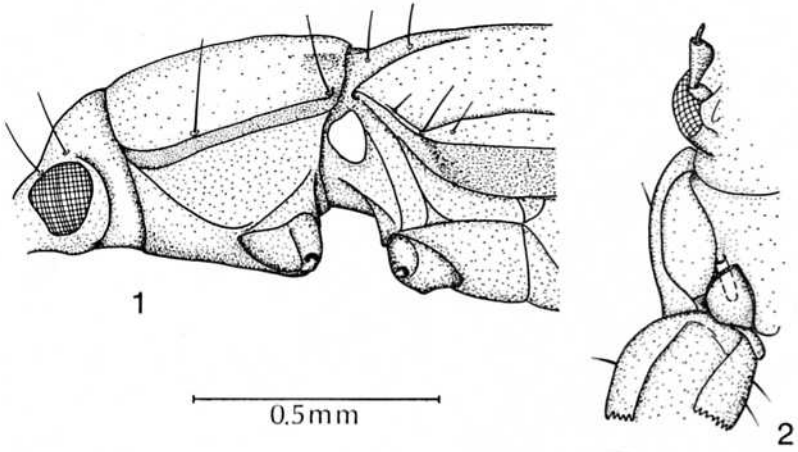

FIG. 1. *Tachylopha ovatus* Motschulsky, male, left lateral aspect. FIG. 2. *Tachyura tripunctatus* Say, male, ventral aspect, left side.

Since I have neither collected these beetles nor seem them alive, I can only speculate on the function of this unique tachyine structure. My first thought was that this may be an exudation source for ants. Many tachyines are myrmecophilous. The lack of glands and internal openings might exclude this explanation. The tube certainly strengthens the structure of the exoskeleton, but this seems an insufficient explanation because no other tachyine has any structure remotely like this one. My last hypothesis must be tested in the field. These holes may be handles whereby ants could carry the beetles about. The ant mandibles would be inserted into these holes and the beetle lifted in this fashion. This is supported by the fact that the elytra of *Tachylopha* members have another unique structure. Above the hole, the humerous of the elytron is deeply notched, forming a tooth. The ant mandibles, when inserted in the hole, could fit over this notch and reinforce the hold.

J. F. Lawrence informed me (per. comm.) that Lea (1917, Trans. Proc. Roy. Soc. South Australia, 41: 121–322, fig. 8a) reported a similar structure in the ptinid beetle *Polyplocotes perforatus* Lea. In these beetles the "tunnel" occurs through the head beneath the clypeus, and its entrances are covered by the antennae when in repose. It is interesting to note that these beetles *are* myrmecophiles, but again no function has been assigned to the structure.

Some members of *Barytachys* have perforations (Fig. 2) of the prosternum, anterior to the coxae, one on each side between the prosternum and proepisternum. This hole is smaller than those in *Tachylopha* and are directed longitudinally rather than transversely. The "pouch" ends abruptly at the dorsal wall of the coxal cavity and has no openings into the coelum. It is much harder to visualize ants using these longitudinal pouches for handles, but it is interesting that many of the *Barytachys* members with pouches *are* associated with ants. Field work is being planned to study this problem.—TERRY L. ERWIN, *Museum of Comparative Zoology, Cambridge, Massachusetts.*