



Figure 2. Shortest cladogram for six genera of Ectatommini, based on the sting apparatus.

supports Brown's (1958, pp. 216-219) view that *Holcoponera* is not a distinct genus.

B. Ectatommini

Figure 2 shows the single most parsimonious tree produced using the characters and assumptions given in Appendix 2 (Tree Length 10, Consistency Index 0.89, Homoplasy Index 0.11)

The apparatus of *Paraponera* is quite different from those of other ectatommine genera. The characteristics it shares with them are probably symplesiomorphies: 1) spiracular plate with wide medial connection and posterodorsal notch, 2) quadrate plate with distinct medial and lateral lobes and wide medial connection, 3) quadrate plate with large body extending ventral to articulation with triangular plate, 4) lateral plates present, or if not visible (*Proceratium*, *Discothyrea*), a notch in quadrate plate indicates possible presence, 5) oblong plate postincision extends to dorsal ridge at least in some species (not in most *Gnamptogenys*), 6) sting shaft with relatively long valve chamber and short sting bulb; both little wider than base of sting shaft, 7) no barbs on sting shaft. One potential synapomorphy I find with other ectatommine genera is a similar excavation of posterior edge of the spiracular plate, which is shared with *Proceratium* and *Discothyrea*. Another possible synapomorphy may be the basically triangular shape of

the fulcral arm of the oblong plate, which is unlike that of *Amblyopone*. However, *Nothomyrmecia* has a fulcral arm like that of *Paraponera*, which could mean that the triangular shape is a primitive condition and this similarity among ectatommines may also be symplesiomorphic. The only potential autapomorphy of *Paraponera* is the undulating and dorsoventrally compressed shape of sting shaft, but this trait is also seen in *Nothomyrmecia* (Kugler, 1980). Until I better understand the distribution of these characters in ants and potential ant ancestors, I can not say how *Paraponera* may be related to other ant genera, except that it is not clearly linked to other ectatommines.

The other five ectatommine genera are linked in this dendrogram by the reduction in sting length and the loss of the large lateral lobes of the furcula's dorsal arm. However, these are states that often result from sting apparatus reduction and thus are prone to convergence. If the simple dorsal arm of the furcula (character 6) and the shorter sting length (character 7) were independently derived, then *Proceratium* and *Discothyrea* may not be monophyletic with *Acanthoponera*, *Gnamptogenys*, and *Ectatomma*.

The position of *Acanthoponera* in Figure 2 should be taken lightly. Several of the characters used in the analysis had unknown states in this genus because I had only a single specimen to work with and because parts of the apparatus were lost in the preparation process. Its synapomorphies with *Ectatomma* and *Gnamptogenys* are: 1) triangular plate thick-bodied, almost equilaterally triangular plates, and 2) sparse pilosity on distal segment of the gonostylus. The pair of isolated sensilla on the end of the gonostylus may also be seen as a similarity, though they are both setiform in *Acanthoponera*, whereas one is chaetiform in *Gnamptogenys* and *Ectatomma*.

Ectatomma and *Gnamptogenys* are linked in the phylogenetic analysis by a single synapomorphy, the spine-like lancet apex. This synapomorphy assumes that the spine-like lancet apex was acquired by the ancestor of *Gnamptogenys* and *Ectatomma*, but has subsequently been lost in some *Gnamptogenys* species. In addition, the spiracular plates of *Ectatomma* are very much like the plates of some *Gnamptogenys* species, but this might be symplesiomorphic. Unlike the other genera, the gonostyli of some species of *Ectatomma* and all *Gnamptogenys* bear dorsoterminal chaetae and companion setae. The sting shaft, though