

*bilis* (Fig. 57). The strongly bulging eyes, the massive mandibles, and the small, well-separated mandibular teeth are possible synapomorphies. That *tethepa* is not a species of *Acanthomyrmex* is evidenced by a number of conspicuous characters, such as the elongate trunk, which has a very conspicuously impressed promesonotal suture, and the lack of a medial clypeal hair. Unfortunately, the major worker caste of this species is not known.

#### CHARACTER POLARITY

Although relationships among the outgroups are unclear, character states could be assigned for the ancestral conditions of *Acanthomyrmex* on the assumption that *Pristomyrmex* and *Myrmecina* are the two genera most closely related to *Acanthomyrmex*. If the state of a character was consistent within and between both these groups, the ancestral condition for *Acanthomyrmex* could unambiguously be assigned that state. If there was some variation in states, however, more distantly related genera had to be considered. For this purpose all of the additional genera which Emery (1922) placed in the tribe Myrmecini were treated as possibilities. When the state for that character did not vary within or between any of these genera (based on material available at the Museum of Comparative Zoology at Harvard), that state was assigned as the ancestral condition for *Acanthomyrmex* (unless either *Pristomyrmex* or *Myrmecina* showed the opposite state to that occurring in more distantly related groups, and it was impossible to assign a character state to the other of these two genera). For all other characters the ancestral state was given as uncertain.

This procedure is conservative in that before any ancestral state can be assigned as the ancestral condition of *Acanthomyrmex*, that ancestral condition must be supported by all possible outgroup trees. My assumptions are that *Myrmecina* and *Pristomyrmex* are the two groups most closely related to *Acanthomyrmex* and do

not in themselves form a clade, and that one or more of the other myrmecinine genera represent the next closest outgroups.

In a separate, very preliminary analysis, I discarded the hypothetical myrmecinine ancestral species and used the single species *Pheidole tethepa* as the outgroup for the genus *Acanthomyrmex*. Further studies on the phylogeny of *Pheidole* and allied genera will be required to evaluate whether *Acanthomyrmex* is in fact more closely related to *Pheidole* than *Pristomyrmex*, and, if so, to make possible a better resolved hypothetical outgroup for studies of *Acanthomyrmex* phylogeny.

#### CLADISTIC ANALYSIS

The entire data set was analyzed using the branch-and-bound method option of Swofford's PAUP program, which is based largely on the ideas of Hendy and Penny (1982). This method is guaranteed to find the shortest trees.

#### RESULTS

One of the five most parsimonious trees produced when a myrmecinine outgroup is used is given in Figure 2. The other, equally parsimonious trees differ from the first in having either *Acanthomyrmex dusun* or *A. careoscrobis* as the sister taxon to the remaining *Acanthomyrmex* species, or having *A. dusun* at the base of the *notabilis* species group clade, or *A. careoscrobis* at the base of the *luciolae* species group clade. Uncertainties in the placement of *A. dusun* and *A. careoscrobis* probably will be resolved upon collection of the minor worker caste of the former species, and the major worker caste of the latter.

These results suggest the possibility that both the *notabilis* and *luciolae* species groups are monophyletic (as in Fig. 2). The most significant character distinguishing these groups is the conspicuously emarginate posterior margin of the heads of major workers in species of the *luciolae* group (including *A. dusun*), versus the