

unrelated stocks. *Proceratium* and *Discothyrea* should apparently be included in the tribe Ectatommini, and *Probolomyrmex* appears to be related to *Platythyrea* and *Eubothronera*, constituting with them the tribe Platythyreini. The close similarity between *Probolomyrmex* and some *Discothyrea* species, in frontoclypeal structure and other characters, is explained in these arguments as being due to convergent resemblance.

Brown's platythyreine assignment was based on a comparison of *Probolomyrmex* with *Platythyrea*, in which characters of habitus and the details of pilosity and sculpturation were considered. He concluded that "the point-by-point agreement is so close that I must consider *Probolomyrmex* to represent a direct derivative of *Platythyrea* modified for a highly cryptobiotic existence".

The present paper contains much new information, including details of palpal formulae, wing venation, and male and larval characters. Unfortunately these facts shed little further light on the possible affinities of *Probolomyrmex*; they neither strengthen the argument for a platythyreine placement, nor do they imply a better alternative assignment.

Although the additional female characters of palpal formula and wing venation and structure assist in the taxonomic diagnosis of the genus, they have little value as phylogenetic indicators. The 4 : 3 palpal formula probably also occurs in *Platythyrea* (counts of 6 : 4, 3 : 2 and possibly 2 : 2 were given by Brown (1952)), but this formula is also produced in other lines of ant evolution. The wing venation is exceptional in its extreme reduction, to a point where all trace of affinities is lost.

The *Probolomyrmex* male has a decidedly "proceratiine habitus", with the frontoclypeal process at least as well developed as that of any known *Discothyrea* male. Other apparently correlated features include the mandibular structure, the relatively large ocelli and the elongated antennal scapes. Considerable variation is shown in the structural complexity of the frontoclypeal region among females of *Proceratium*, and this variation is closely paralleled in the available males, each being similar to conspecific females. Moreover, the more extreme "proceratiine" head structure of *Discothyrea* females is also reflected in their males. Thus, it is not too surprising to find that the frontoclypeal structure of the *Probolomyrmex* male is similar to that of the females, and the similarities between the *Probolomyrmex* and *Discothyrea* males need in no way weaken Brown's argument. The palpal formula and wing venation are no more valuable as phylogenetic markers than in the female castes, and the genitalia are quite unspecialised, conforming to a basic ponerine plan. Similar simple genitalia occur in at least some males of *Proceratium*, *Discothyrea* and *Platythyrea*, as well as in those of other genera.

The *Probolomyrmex* male differs from those of *Platythyrea* in the characters discussed above and in the following additional features: it has single pectinate spurs on the middle and hind tibiae, and it lacks cerci, a terminal pygidial spine and an anal lobe on the hind wing. These same characters occur in males of *Proceratium* and *Discothyrea* as well as in those of many other ponerine genera; all are probably correlated with the small size of these animals and do not provide good phylogenetic markers. The lack of a median tooth on the pretarsal claws of all castes of *Probolomyrmex* need not preclude a platythyreine ancestor, since these structures occur in many ants as secondary adaptations to epigaeic foraging behaviour.

Ant larvae are very plastic organisms and may exhibit extreme modifications in response to specialised needs. Because of this, it is often difficult to evaluate the phylogenetic significance of their characters. *Probolomyrmex* larvae are extremely specialised, and very perplexing in this regard. The body form is unique among ponerines, and is no doubt correlated with the peculiar method by which the larvae are suspended from the ceiling of the nest by their terminal abdominal tubercles. The mandibles are rather ordinary but at least do not resemble those of *Proceratium* (G. C. and J. Wheeler, 1963, fig. 18, IIIa). The absence of papillae on the maxillary