

at length in this paper. Several of the New Guinea species are most unusual in appearance, perhaps the most bizarre of them being the worker of *loriai* with its unusually long occipital neck, legs, and antennae and the presence of a pair of spines on the prothorax and epinotum. It is no wonder that this ant has been figured in more than one periodical.

My attention was first attracted to the New Guinea *Aphaenogaster* Mayr by some evident synonymies that had not been published. Upon investigating the group further I found that the small number of forms recorded from New Guinea were described in several diverse periodicals, some of which are not readily available. It seemed that a comprehensive article was needed on these ants including all known facts pertaining to their taxonomy, biology, and distribution. However, the lack of sufficient individuals, series, or castes makes it impossible to determine correct taxonomic relationships of some of them. For instance, *projectens* Donisthorpe is known only from the male and it will be impossible to recognize the worker until it is collected from a colony in association with the male. It is also impossible to know whether *quadrispina* Emery is a valid species, a subspecies of *loriai* (Emery), or even perhaps its synonym.

Although some of the ants are of most unusual appearance, almost to the point of being bizarre, they are basically only *Aphaenogaster* after all. Their true *Aphaenogaster* habitus is indicated in the worker by the number of segments in the antenna and the shape of certain of these, the slender body, pronounced mesoepinotal impression, epinotum usually bearing a pair of spines or tubercles, and pedunculate petiole. Such characters as the pronounced occipital neck, the pair of spines on the prothorax, and unusually long antennae and legs indicate specialization. This specialization is evident by the anterior wing of the female and male of such primitive subgenera as *Aphaenogaster* and *Attomyrma* having two cubital cells whereas the anterior wing of the more specialized subgenera *Deromyrma* and *Planimyрма* has only one. Donisthorpe 1938, p. 30 has gone so far as to state that when all castes of the ants of the two latter subgenera are known, it may be necessary to erect a new genus for them. However, I fully agree with Viehmeyer 1914a that *Deromyrma* and *Planimyрма* are really only subgenera of *Aphaenogaster* and that when they are retained as such their true taxonomic relationships are best shown. I also agree with Viehmeyer 1914b in his belief that *Planimyрма* contains the most specialized forms and that *Deromyrma* is intermediate between *Planimyрма* and the more primitive subgenera of *Aphaenogaster*.

This study has resulted in the elimination of the names of three forms as synonyms; the vars. *fusca* Emery and *nigra* Donisthorpe under *dromedarius* (Emery) and the var. *atra* Stitz under *loriai* (Emery). The form *quadrispina wheeleri* Donisthorpe is now known as *perplexus*, n. name and n. status. One new species, *lustrans*, has been described.

The following table lists all forms that are recognized as valid in this study and also shows what caste or castes are known for each. Two of the forms are known from a single caste each, *projectens* Donisthorpe from the male and *lustrans*, n. sp. from the worker. Unfortunately neither of these species can be assigned to its proper subgenus until its lacking castes are found in a colony associated with the known caste.