

workers, or even less, an elongated scapus with a very mobile funiculus; a less voluminous thorax, with an extreme simplification of its structures; an incomplete pigmentation; they are even less pigmented than the workers.

Of the three *Cardiocondyla* species from which winged males are known, only those of *C. emeryi* and *C. wroughtoni* are typical winged males. The winged male of *C. batesi* var. *nigra* is intermediate between a winged and wingless male. It has ocelli and the thoracic sclerites are well differentiated as in typical males. The eyes are larger than in the wingless male but nearly flat. The antennae have a reduced number of segments with only the first, second and the last five segments well differentiated, the intermediate segments are fused without clear margins between them. The pronotum has large shoulders as typical for wingless males of *Cardiocondyla*. The color is yellow while the workers and females are blackish brown.

The known wingless males of *Cardiocondyla* are all mainly yellow, even if the color of the workers and females, is black or brown as in *C. elegans*, *C. stambuloffi*, *C. nuda*, *C. ectopia*, *C. batesi* var. *nigra*. The head is large, smooth and shining, the eyes are smaller than in the worker; ocelli are usually absent (the male of *C. emeryi* and some specimens of *C. elegans* have 1 developed ocellus). The antennae have usually a reduced number of segments. The antennae of workers and females of *Cardiocondyla* are usually 12 segmented with a 3 segmented club. The exceptions are *C. papuana* and *C. sima* with 11 antennal segments. Only in the wingless male of *C. papuana* the antenna has more segments than in females and workers (12 instead of 11). The wingless males of *C. emeryi* and *C. nuda* have 12 antennal segments as do the females and workers (in 1 specimen of *C. nuda* var. *mauritanica* the left antenna is 12 segmented but the 7th segment is rudimentary). The male of *C. wroughtoni* has 11 antennal segments, that of *C. stambuloffi* has 10, *C. batesi* var. *nigra* and *C. elegans* have 9 well differentiated segments or less. In the latter species the small intermediate segments are more or less fused into one long segment.

The mandibles are toothless, long and narrow in *C. wroughtoni* and *C. papuana*. The mandibles of the other species are short, wide, with 4-5 teeth. The thorax is flat, much wider anteriorly than posteriorly; the pronotum usually with very pronounced angular shoulders.

**Genitalia:** Forel (1892) described and figured the genitalia of the wingless male of *C. stambuloffi* (Fig. 13). The author examined the genitalia of the wingless males of *C. wroughtoni* and *C. elegans* and the winged male of *C. emeryi* (Figs. 6, 11, 21). The genitalia of these 4 species are nearly identical. Reiskind described and figured the genitalia of the wingless male of *C. papuana* (Reiskind, 1965: 83, 84, Figs. 6-8). These genitalia are more differentiated, the gonostylus has a lobe and a tooth which are absent in the other species. This is an additional character which justifies its separation into a different subgenus (*Prosopidris*).

**Behavior:** Little is known about the behavior of the wingless males. They occur in nests with many females, and their number usually varies between 1 and 4, but sometimes as many as 10 occur in a single nest (Santschi, 1907). They probably never leave the nest. Their lack of pigmentation and the reduction of eyes, ocelli and antennae, may be an adaptation to a permanently concealed way of life.

Menozzi (1918) observed in Janet nests, workers and even females of *C. elegans*, feeding the wingless males with drops of secretion.