which increased their over-all size. Wheeler was not aware that the head shape of the worker of *lugubris* varies with its size. In the case of small workers (which seem to have made up the entire type series of *lugubris*) the head (mandibles excluded) is distinctly longer than broad, with the sides parallel and the occipital border feebly convex or, in some specimens, flat in the middle. The head length of such specimens is 0.73 mm. This is, of course, the head shape given by Wheeler as characteristic of *lugubris*. In the larger workers the cheeks are slightly convex, when the head is viewed in full face, and diverge from the insertion of the mandibles to the occipital angles. In such specimens the occipital border is much more strongly convex, and the width of the head is approximately equal to its length, which is 0.9 mm. This is the type of head that Wheeler regarded as characteristic of *yuma*. Unfortunately for such a view most nests contain both large workers with broad heads and small ones with narrow heads.

A second feature that Wheeler used to separate the two species is the character of the gula. This was said to be convex in *yuma* but flat or concave in *lugubris*. It is significant that this feature was not mentioned in the original description of *lugubris,* but added in 1912 when *yuma* was described. There is no doubt whatever that this situation is the result of drying. The integument of *lugubris* is extremely thin, and the head capsule, particularly in the smaller workers, is apt to be distorted on drying. In all fresh specimens the gula is slightly convex, but a certain percentage of each nest series shows the concave gula, supposedly characteristic of *lugubris,* as the specimens dry. It seems probable that in the three years between the description of *lugubris* and that of *yuma,* the drying out of the type series of *lugubris* had produced, in some of the specimens, the concave distortion of the gula which drying often causes.

Although Wheeler did not utilize the structure of the petiole as a means for separating *lugubris* and *yuma,* it is clear that he considered that the two had petioles of quite different structure. In the original description of *lugubris,* Wheeler twice pointed out that the petiole is compressed anteroposteriorly and has a sharp summit. This summit was said to be lightly impressed in the middle. This gave a very striking distinction between the compressed petiole of *lugubris* and the blunt, subcuneate petiole of *melliger* or *mexicanum*. But in the description of *yuma,* Wheeler noted that the petiole, while anteroposteriorly compressed, was subcuneate in profile and had a blunt, rounded summit which was flat in the middle. Thus from Wheeler's description it would be logical to infer that the petiole of *yuma* is always thicker and blunter at the summit than that of *lugubris*. Actually there seems to be little justification for