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THE CLARIFICATION OF A DISCREPANCY IN DESCRIPTIONS
OF MAXILLARY MUSCULATURE IN LARVAL SIMULIIDAE

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The first definitive account of the morphology of larval Simuliidae was provided by Puri (1925). In his description of maxillary musculature he states that the maxillary palp is provided with a pair of small adductor and abductor muscles. Cook's (1949) description of the maxillary musculature of larval simuliids agrees with that given by Puri, with the exception that Cook makes no mention of palpal muscles.

To resolve this discrepancy the maxillary musculature of simuliid larvae was re-examined.

Large, recently moulted larvae were examined to provide a clear view of maxillary structures. These were fixed in Bouin's fixative and the head capsule stained in Mayer's carmalum. The maxillae and associated muscles, as well as the adjacent regions of the head capsule, were dissected from the head and differentiated in acid alcohol. The maxillae were then mounted in Canada Balsam and examined and photographed with a Leitz Orthomat.

Examination showed no palpal muscles. However, there is a prominent nerve running to the palp with a ganglion at the palp base (fig. 1). It is unlikely that Puri would mistake the palpal nerve for muscle. What then did he observe?

During the investigation a number of mature larvae were fixed, stained, and examined. In these specimens the pharate maxillae of the next instar stained with the same intensity as muscle (fig. 2). Examination under phase-contrast was necessary here to distinguish muscles from other tissue but again no palpal muscles were detected.

Exactly what Puri observed is not known but this investigation indicates that he interpreted a pharate maxillary palp as muscle.

These observations as well as those of Cook (1949) agree with Das (1937), Hinton (1958), and Matsuda (1965), who state that dipterous larvae never have palpal muscles.

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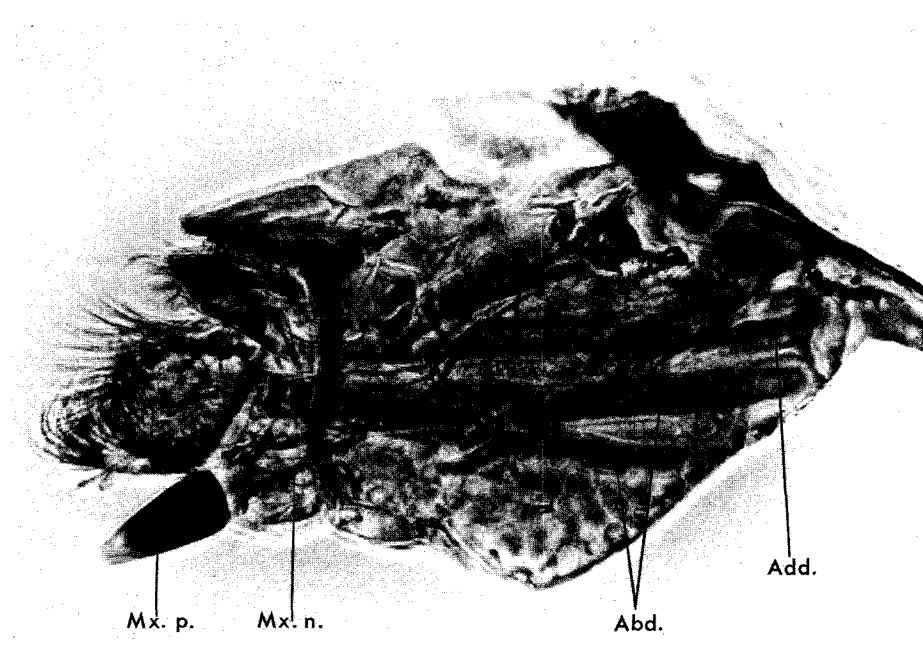


Fig. 1. Aboral view of maxilla from recently moulted larva; Abd. = abductor muscle, Add. = adductor muscle, Mx.n. = maxillary nerve, Mx.p. = maxillary palp, Ph.mx.p. = pharate maxillary palp.

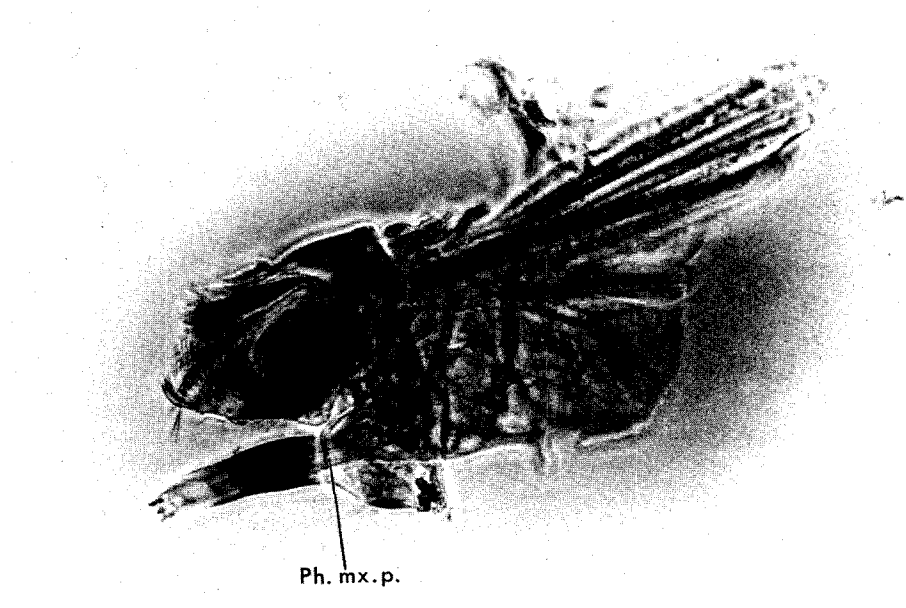


Fig. 2. Aboral view of maxilla from mature larva.