

# SOME PRELIMINARY OBSERVATIONS ON MOSQUITO LARVAE AND PUPAE CONFINED TO A BOTTOM AIR-WATER INTERFACE†

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During October and November, 1960, two species of *Aedes* mosquitoes [*Aedes aegypti* (L.) and *Aedes triseriatus* (Say)] were reared from first instar larvae to adults in an inverted position. This was accomplished by restricting the larval and pupal stages to a downward, rather than upward facing, air-water interface. Such an interface was obtained by inverting 10 by 75 mm culture tubes which remained completely filled with water after inversion because of air pressure, so that the only source of air available to the mosquitoes was at the bottom interface. Each tube has a capacity of about 3 ml.

As shown in figures 1 and 2, both the larvae and pupae assume positions exactly reversed from those which they assume under normal conditions. Since it has been fairly well established that the immature stages exhibit a negative geotropism when attempting to obtain air, I was quite surprised that they were able to overcome this influence and to adjust eventually to this up-side-down orientation.

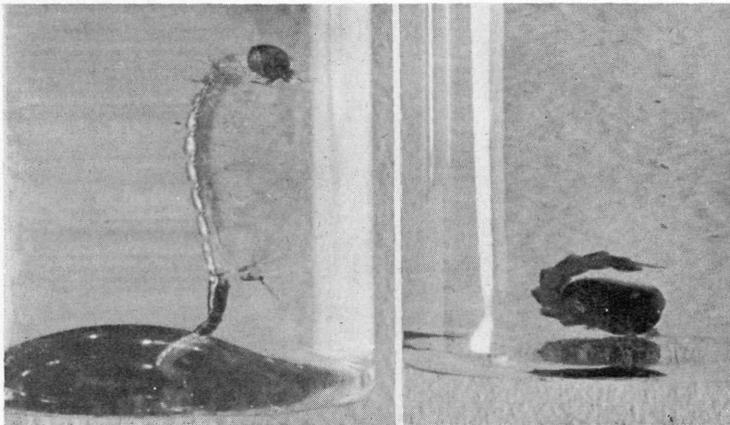


FIGURE 1. (Left) *Aedes* larva obtaining air from a bottom interface.

FIGURE 2. (Right) *Aedes* pupa obtaining air from a bottom interface.

It was also interesting to note that larvae are capable of adjusting to this bottom interface even after several days of normal rearing, but the pupae seldom survive if subjected to a bottom interface after being reared to this stage in an upright position.

Two other observations may be cited at this time. First, *Aedes* larvae normally obtain food from the bottom sediment. In the inverted position feeding is often carried on at the bottom interface during respiration. Second, several individuals were observed emerging successfully through the bottom interface although mortality was fairly high. Those which emerged as adults appeared to behave normally.

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