

# THE USE OF SODIUM HYPOCHLORITE TO STUDY *Aedes nigromaculis* (LUDLOW) EMBRYOS (DIPTERA: CULICIDAE)<sup>1</sup>

EARL W. MORTENSON<sup>2</sup>

To the present time, the control of mosquitoes in the egg stage has received less attention by workers in the mosquito control field than has control in the larval or adult stages.

Recent experiments at the Central Valley Mosquito Ecology Field Station in Turlock, California, may point the way for further research into the development of some type of ovicide which could be effective in mosquito control.

In October 1949, a series of experiments were conducted using stimulants to produce a hatch of *Aedes nigromaculis* (Ludlow) eggs. In the course of these studies, it was observed that a solution of 5% sodium hypochlorite would completely dissolve and destroy a mosquito egg in

about six minutes. By reducing and controlling the time that the egg was in contact with the hypochlorite solution, certain structures were dissolved while other structures of the egg remained intact. For example: A two-weeks-old *Aedes* egg was placed in a solution of 5% sodium hypochlorite and observed under a microscope. Immediately upon submersion in the solution bubbles began to form around the egg shell. A minute later portions of the chorion began to slough off; this continued until all the chorion had dissolved, leaving the vitelline membrane intact. At this point the egg was removed from the hypochlorite solution and washed in water to prevent further action by the bleaching solution. Upon further microscopic study a well developed embryo was observed (Figure 1).

This technique, modified, enlarged, and refined, may prove valuable in embryological studies of *Aedes*. These studies are needed to reveal additional information

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<sup>1</sup> A contribution from the California Mosquito Control Association, Turlock Mosquito Abatement District, and Bureau of Vector Control, California State Department of Public Health.

<sup>2</sup> Parasitologist, Bureau of Vector Control, California State Department of Health.

about a little studied phase of the life cycle of these mosquitoes.

This gives rise to speculation as to whether this technique might be developed to provide a control measure. See (Hatchett, 1946). A point of attack may be established against the egg by chemically breaking down the chorion structure and with further work on this material or other materials, a feasible and practical mosquito control method may be found.

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#### Literature Cited

- HATCHETT, STEPHEN P. 1946. Chlorine as a possible ovicide for *Aedes aegypti* eggs, Public Health Reports, 61:683-685.

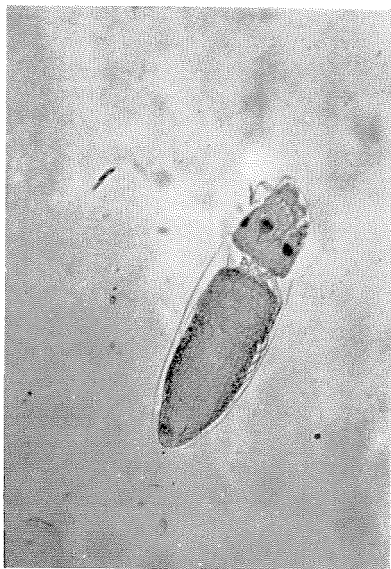


FIG. 1.—Embryo of a two-weeks-old egg of an *Aedes nigromaculis* (Ludlow) mosquito after the chorion has been dissolved using sodium hypochlorite. The egg was obtained from a field caught female. X80.