SCIENTIFIC NOTES

RESEARCH NOTES ON *Aedes aegypti* FEEDING ON THE EASTERN GARTER SNAKE *Thamnophis sirtalis sirtalis*

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The Entomology Branch, Third United States Army Medical Laboratory, Fort McPherson, Georgia, began research on *Aedes aegypti* feeding on animals other than man in October 1966. The initial animal used was a 27-inch Eastern Garter snake, *Thamnophis sirtalis sirtalis*. This reptile was captured on October 13, 1966, in Ashburn, a small South Georgia town. Previous attempts of feeding *Aedes triseriatus* on this snake had proven highly successful.

The present research was prompted by the finding of a remote population of *Aedes aegypti* at Alabama Army Ammunition Plant, Childersburg, Alabama. This population of *aegypti* was found approximately 3,500 feet from the proximity of the nearest human. Precipitin tests conducted by *Aedes aegypti* personnel of the U. S. Public Health Service revealed all engorged wild females tested had fed on cattle in the vicinity.

On October 13 the test colony of *Aedes aegypti* adults was started by using pupae from a colony sustained on guinea pigs. These adults were then placed in a 12" x 12" x 12" model G-1, Cornell-Gerberg cage of aluminum, wire screen and surgical stockinet. The snake was introduced into the cage on October 18 when approximately 200 adult mosquitoes were present. The snake was secured in the cage by placing it on a 1" x 3" x 11½" board and taping it down with masking tape and paper towels, leaving the middle region of the body exposed for feeding. The snake was left in the cage approximately 45 minutes for each feeding.

The initial feeding occurred on October 18 with only 12 females engorging. Subsequent feedings on October 20, 22, 24, and 26 had 10 to 20 females engorging each time. Attraction to the snake by hungry females was initially large at each feeding; however, after approximately one minute most females left the immediate vicinity of the snake and either flew around or settled on the screen. Few females remained to feed and most of these probed several times before engorging. The ratio of complete engorgement to partial engorgement was about 50:50.

It was observed that the guinea pigs were much more attractive to the *Aedes aegypti*. The colony maintained on these rodents was very active when the guinea pig was introduced for feeding. Many females arrived immediately and fed, with many others feeding during the 45 minutes. Complete engorgement on guinea pigs took about 3 to 4 minutes. while complete engorgement on the snake in the other colony always took at least 5 minutes.

An oviposition jar was present in the cage from the time of the initial feeding of adults. This consisted of a 600 ml. beaker, one-third filled with distilled water with a brown paper towel lining the inside. The towel extended below the surface of the water, thus keeping the upper portion damp.

On October 26 the oviposition jar was removed from the cage. The water in the beaker contained 97 first and second instar larvae which hatched while the beaker was in the cage. The towel was removed and 298 unhatched eggs were counted. These eggs were submerged in a white porcelain pan 11½" x 7" x 2" containing distilled water and a small amount of Liver Powder NF.

Twenty-two pupae were taken on October 30 from the pan containing the 97 larvae from the oviposition beaker. These larvae had hatched, matured and pupated in 4 to 6 days; however, the exact date of larval hatching is not known. On October 31, 277 larvae had hatched in the pan containing the 298 eggs. At this time the egg paper was removed from the water. Using these figures this gives a 92.98 percent hatching factor. On this same day 71 pupae were collected from this pan. This means that the larvae hatched, matured and pupated in 4 to 5 days or in approximately 116 hours. This differs from the colony feeding on guinea pigs which usually requires not less than 7 days to pupate. No size difference was detected between larvae and pupae from the two colonies.

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A UNIT FOR FORMULATING GRANULAR INSECTICIDES

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In the course of studies on the efficacy of granular mosquito larvicides, it became necessary to develop a small unit for preparing experimental samples of granular mosquito larvicides. Such a unit was developed with low cost materials. The unit (Mulla and Axelrod 1960, 1962) proved very useful in formulating gram-quantities of experimental samples of granules used in laboratory studies. The maximum amount of impregnated granules that could be prepared in the unit was 40 grams. Therefore larger samples often needed in field evaluation work could not be formulated with this unit.

In order to formulate large quantities of granular larvicides it became necessary to develop another unit which will have a capacity of formu-