

A NOTE ON THE OVIPOSITION BEHAVIOR OF  
*SABETHES (SABETHOIDES) CHLOROPTERUS HUMBOLDT*<sup>1</sup>

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The author has maintained a laboratory colony of the mosquito *Sabethes (Sabethoides) chloropterus* Humboldt for nearly 2 years and a paper discussing in detail the bionomics of this species under laboratory conditions is now in preparation. However, considering that published information on the egg-laying activities of members of the tribe Sabethini is very scant and in view of the unique oviposition behavior observed by the author in *S. chloropterus*, it was deemed of interest to publish these observations as the subject of a separate note.

Galindo, Carpenter, and Trapido (1951) found that *S. chloropterus* a forest mosquito, breeds primarily in a specialized type of tree-hole which possesses a large inner cavity and a relatively small opening and holds water continuously even during the dry season months. In attempting to simulate natural conditions in the laboratory colony, the author used as a receptacle for oviposition a well-ripened bamboo internode. The open top was fitted with a cover and a 1-inch hole drilled in the side near the top to give access to the central cavity, which was half-filled with water. Using this type of artificial tree-hole, large numbers of eggs have been obtained, making it possible to maintain a thriving colony. Statistical data on the number of eggs laid per female, time of oviposition, length of time spent in the egg stage, etc., will be presented in the bionomics paper in preparation. The present note will deal exclusively with a description of the manner in which the eggs are deposited.

The female, when ready to lay, approaches the bamboo in the characteristic slow flight peculiar to the genus and usually flies around it two or three times probing here and there until the entrance hole is found. Once this is accomplished, the female hovers outside and in front of the opening at a distance from it which varies from a few millimeters to as much as 5 centimeters, with the fore and hind tarsi almost locked together above the thorax and the mid-legs extended downward and outward. After hovering for a variable length of time, and while still in flight, the mosquito suddenly jerks the head and thorax back and thrusts the abdomen forward, forcibly ejecting at the same time 1 or 2 eggs which shoot through the entrance hole and into the water in the cavity. Almost in the same movement the female darts back rapidly a few centimeters and then resumes normal flight. The entire process takes place with incredible speed and is completed in but fractions of a second. A female which has just laid many come back immediately and go through the same motions for as many as

<sup>1</sup>This investigation was supported by the Research and Development Division, Office of the Surgeon General, Department of the Army, under Contract No. DA-49-007-MD-655.

18 consecutive times, or it may alight on the bamboo or some other surface nearby, only to resume egg-laying after a few minutes rest.

A number of experiments were performed in order to determine the force with which the eggs are ejected and the accuracy displayed by the female in shooting the eggs through the entrance and into the bamboo. In one set of experiments, a black leather disk smeared with castor oil was hung inside the bamboo directly in back of the entrance hole and at distances of 2, 4 and 6 centimeters from the outer surface of the container. At 2 centimeters, out of 25 eggs released by the female 24 were caught on the disk; at 4 centimeters, out of 40 eggs shot into the bamboo 18 were trapped in the castor oil, and at a distance of 6 centimeters 4 out of 28 eggs were trapped. From these experiments we may conclude that eggs are released with such force that they travel in a straight horizontal line from a minimum of  $2\frac{1}{2}$  cms. to a possible maximum of 10 cms. In a second series of experiments, bamboo internodes with smaller entrance holes having diameters of 10/16, 8/16, 6/16 and 4/16 inch, respectively, were tried as oviposition receptacles. It was found in these experiments that eggs are shot with unerring precision even through the smallest aperture tried, but here oviposition is somewhat inhibited perhaps due to failure of some females to detect the opening.

The process described above may possibly explain how oviposition takes place in the many sabethine species which possess eggs of the same type as *S. chloropterus* and whose immature stages are found in uncut bamboo internodes with small holes in the side drilled by boring insects. Examples of these species occurring in Panama are: *S. undosus*, *S. aurescens*, *S. intermedius*, *S. fabricii*, *Wycomyia codiocampa*, and *W. hosautos*.

#### REFERENCES

- Galindo, P., Carpenter, S. J., and Trapido, H. 1951. Ecological observations on forest mosquitoes of an endemic yellow fever area in Panama. *Amer. Jour. Trop. Med.* 31:98-137.