OPERATIONAL AND SCIENTIFIC NOTES

GYNANDROMORPHISM IN *Aedes taeniorhynchus* (WIEDEMANN) [1]

PATRICK T. M. LUM

Heretofore approximately 39 cases of gynandromorphism in mosquitoes have been reported. Since the summary by Kitzmiller (1953) in which 34 cases scattered in the literature were brought together, other gynandromorphs have been reported for *Culex pipiens* issp. *molestus* Forskål by Gratz (1954), Keh (1955), and Ghelelovitch (1957), *Culex salinarius* Coquillett by Davis (1957), and more recently *Mansonia uniformis* (Theobald) by Laurence (1959). Of the 34 cases reviewed by Kitzmiller (1953) 14 were in the genus *Aedes* representing five species: *Aedes aegypti* (Linnaeus), *Aedes punctor* (Kirby), *Aedes detritus* (Haliday), *Aedes pullatus* (Coquillett), and *Aedes canadensis* (Theobald).

The following note is on three gynandromorphs of *Aedes taeniorhynchus* (Wiedemann) all of which were from laboratory cultures. Two were reared from larvae collected in the field and the third reared from eggs deposited by a wild caught female. In the case of the latter the number of offspring from this female was 75. All were normal except for the sole gynandromorph.

The differentiation of all three gynandromorphs was bi-polar with the anterior end (head and thorax) characteristically female and the posterior end (abdomen) characteristically male. Specimens 1 and 2 were identical and 3 differed slightly in that the legs showed both male and female characters. The following description and figure (Fig. 1) are of specimen number 3.

Head, palpi, antennae, eyes, and proboscis as in normal female. Thorax with scaling and markings also as in normal female; tarsi intermediate: right front- and mid-tarsi with claws as in normal male, left front- and mid-tarsi as in normal female, both hind-tarsi as in normal male. Wings: right wing slightly larger than left wing with scalings on both as in normal female. The abdomen and terminalia entirely male, with the hypopygium fully rotated.

The external appearances of gynandromorphs 1 and 2 were similar to that described for 3 except that the tarsi were completely female.

The specimens were not noticed among the other males and females in the colony cage until five days after emergence. All had access to sugar solution and water which they took readily, but attempts to induce blood feeding failed for all three. Gynandromorph 3 did, however, make a feeble attempt at probing on the author's arm. Compared to the other mosquitoes housed in the same cage, the specimens exhibited little flying activity and were in general rather inactive.

FIG. 1.—Gynandromorph of *Aedes taeniorhynchus* (Wiedemann) exhibiting bi-polar differentiation. Left middle leg missing.

The finding of only three gynandromorphs among thousands of mosquitoes reared and studied in the laboratory further exemplifies the rarity of these abnormal forms, despite the difficulty of detecting one individual in a large colony. The absence of gynandromorphs in light trap collections at the laboratory raises the question that they may not be attracted to light and may well have unconventional behavior patterns.

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A FAN TRAP FOR COLLECTING BITING INSECTS ATTACKING AVIAN HOSTS

W. E. SNOW, EUGENE PICKARD, and R. E. SPARKMAN, Malaria Control Branch, Division of Health and Safety, Tennessee Valley Authority, Wilson Dam, Alabama.

Lumsden (1958) developed a fan-type trap to capture mosquitoes in the vicinity of small vertebrate baits. In preliminary trials, fans pulled a stream of air horizontally across the bait at regular intervals in such a way that the attacking insects would be carried into a screen sleeve provided with a killing jar. The fan was operated intermittently so that insects could approach the bait undisturbed during the periods when the fan was not running. Subsequent tests showed that a suction-type trap with the fan placed above the bait was more efficient.

In 1957–1958, TVA constructed a recirculating type of trap different from Lumsden's but using some of his principles. The TVA trap was designed for use in field studies to determine host-parasite relationships of biting Diptera frequenting bottomland forest canopy.

The drawing (Fig. 1) shows the assembled trap with the upper sliding panel removed. The frame of this trap is constructed of ¾″ × 2″ wood uprights and 16-gauge sheetmetal channels (2″ × ¼″ and ¾″ × ¼″) with welded corners. The blower (A) is a twin centrifugal type 2CO69 "Dayton" with two 4½″ diameter-balanced blower wheels in direct drive on each end of the motor shaft. Each of the blowers has a 3″ × 3″ discharge opening. These airstreams are brought together to form a common discharge having a diameter of approximately 10 inches. This opening allows the airstream to completely surround the bait (B). A sheetmetal cone 8″ in diameter with the cup side uppermost was centered in this air discharge duct to augment the velocity. This cone also serves as a collector for droppings from the small chicken used as bait. Sheetmetal collars (C) are used to convey the airstream to the height required. The bait was restrained in a metal basket (B) constructed of large mesh wire with a reversible hinged cover. The chicken's head protrudes through a small opening in the cover. The position of the bait in respect to the airstream and distance below the trap hood can be controlled by adjusting the four metal rods (D) running from the lower rim of the bait basket through holes in the wooden frame.

The air blast from below the bait is directed into the center of the sheetmetal hood (E) above the bait. When the airstream reaches the hood, it has lost most of its velocity due to friction with the bait and surrounding atmosphere, but the hood and the cross section of the throat area (F) leading to the suction intake duct were designed to produce a gradual increase in velocity which prevents the escape of insects caught in the airstream. The insects are separated from the airstream by means of a fine mesh (32) wire cone (G) and collected in a pint killing jar (alcohol) (H). The cone has a large surface area which minimizes the loss in velocity. Both the cone and killing jar are located in a reversed, tapered section of the intake duct. The screened cone and killing jar can be removed by sliding the cone out through this panel opening. While the trap is in operation the sliding panel and the spring-loaded door (I) are both kept closed. The killing jar alone can be attended by opening the lower door.

For ease of handling and transporting, the complete unit is constructed in two matching parts of about the same size. By removing four small bolts the upper section, consisting of lifting eye,

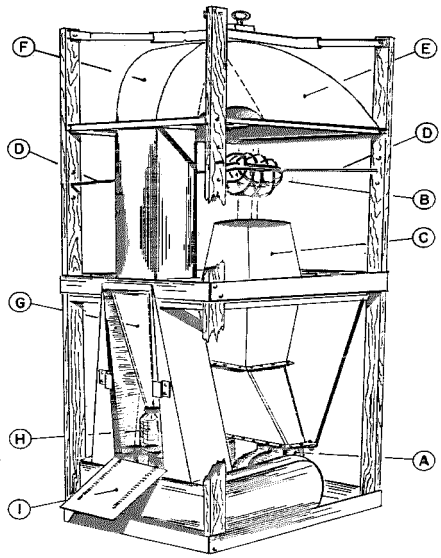

FIG. 1.—Assembled fan trap for collecting biting insects attacking avian hosts. See text p. 315 for explanation.