

A NOTE ON SOME VARIATIONS IN THE STRUCTURE OF THE SALIVARY GLANDS OF *ANOPHELES ALBIMANUS* WIEDEMANN (DIPTERA: CULICIDAE)¹

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Christophers (1901), Shishliaeva-Matova (1942), Metcalf (1945), Boyd (1949), and others have described various anomalies in the salivary glands of different mosquitoes.

In connection with a detailed study on the development of the salivary glands in *Anopheles albimanus*, the author observed during routine dissections a remarkable

diversity in the gross appearance of the adult salivary glands. While the salivary glands of mosquitoes are usually described typically as a pair of tri-lobed acini, numerous variations were found, particularly between the sexes. This note is a report on some of these observations.

In most instances, the glands in the

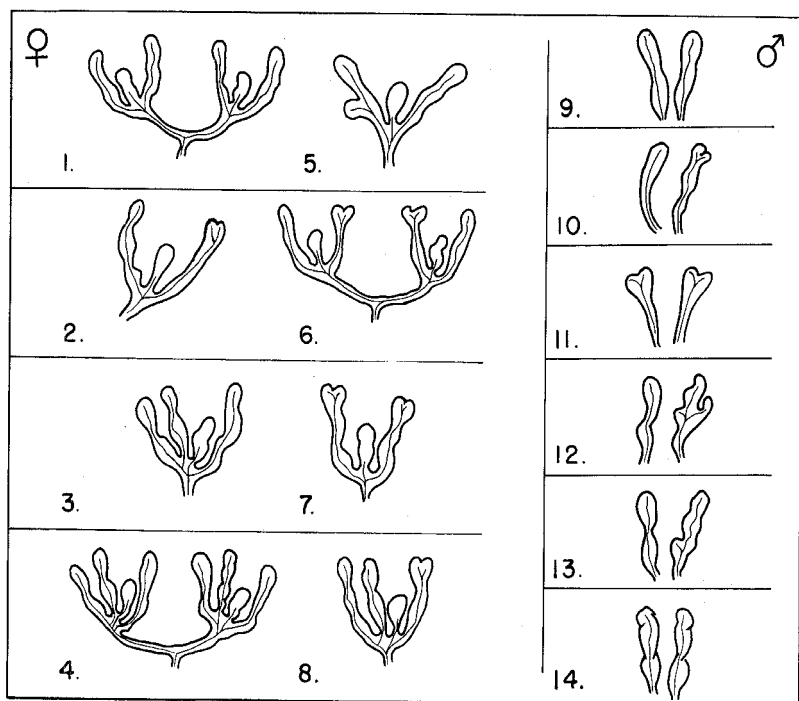


PLATE I
(Diagrammatic)

Salivary glands present in the adult mosquito, *Anopheles albimanus*. Fig. 1 illustrates the paired tri-lobed glands which are typically present in the female and figs. 2-8 show various anomalies observed. Fig. 9 illustrates the mono-lobed glands most frequently found in the male and figs. 10-14 demonstrate the observed variations.

¹ From the U. S. Department of Health, Education, and Welfare, Public Health Service, National Institutes of Health, National Microbiological Institute, Bethesda 14, Maryland.

female *A. albimanus* were found to be tri-lobed. The two lateral acini were similar in shape and size, each having a well-defined intra-acinar duct which lacked

taenidial rings and which enlarged somewhat as it approached its termination. When a gland was quadri-lobed, one of the lateral acini branched to form two lobes. The middle acinus was characterized by being shorter and broader, having a pale yellow to greenish tinge, and a duct which was clearly visible in the proximal one-third of the gland and was not visible in the distal portion. It, too, lacked taenidial rings. In no instance was this middle lobe found to vary. The appearance of the secretory cells in all three acini differed greatly from time to time, probably depending upon differences in their activity. Their small, round nuclei were found at the base of the cells. Granules and clear droplets of various sizes were found in the cytoplasm. The three acini united at the salivary duct which contained a chitinous intima.

Of 100 adult females dissected, 69 specimens had glands that were normally tri-lobed (Plate 1, fig. 1), and 31 had glands that varied from this typical form. Among the latter, the following variations were observed: One of the lateral acini of one gland forked at distal end, 14 specimens (fig. 2); one gland composed of four lobes, 10 specimens (fig. 3); both glands composed of four lobes, two specimens (fig. 4); lateral acinus of one gland forked in middle, two specimens (fig. 5); each gland having one acinus forked distally, one specimen (fig. 6); both lateral acini of one gland forked distally, one specimen (fig. 7); and four acini present on one gland, one forked at distal end, one specimen (fig. 8).

In the male mosquito, the salivary glands were uniformly different from the female

and were found to be mono-lobed, small, and not so well developed. These features suggest that the salivary glands in males are not so active as in females. Each gland was usually club-shaped and had an intra-acinar duct which extended nearly to the end of the acinus. Morphologically the intra-acinar duct resembled the salivary duct in that it appeared to be chitinized. Of 100 males dissected, 43 had glands that were mono-lobed, clavate, and symmetrical (fig. 9) and 57 had glands that were also essentially mono-lobed but differed in that one or both glands were sometimes forked, had one or two diverticula, or were spirally twisted. These variations in structure are listed as follows: Glands asymmetrical, (one gland forked distally, 31 specimens (fig. 10); glands symmetrical, both forked distally, 6 specimens (fig. 11); glands asymmetrical, one having two lateral diverticula, 9 specimens (fig. 12); glands asymmetrical, one having one lateral diverticulum, 9 specimens (fig. 13); and both glands symmetrical and spirally twisted, 2 specimens (fig. 14).

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CORRECTION

In the paper by Craig in Volume 15, No. 4 (December, 1955), an error in reproduction for printing makes the stated magnification of the illustrations of chorionic sculpturing of eggs of *Psorophora* incorrect. The correct magnification is 886 \times instead of 520 \times .—G. B. CRAIG, JR.