

ENTOMOLOGY.—*Ficalbia minima* (Theobald) in South Indochina, with descriptions of the larva and pupa (Diptera: Culicidae).¹ HARRY D. PRATT. (Communicated by C. W. Sabrosky.)

About 25 years ago Dr. Émile Borel began a mosquito survey of South Indochina, which culminated in the publication of his monograph "Les Moustiques de la Cochinchine et du Sud-Annam." Although Borel reported some 89 species and 16 genera of mosquitoes from South Indochina, neither he nor later French entomologists appear to have collected mosquitoes in the genus *Ficalbia* in South Indochina. Similarly neither Barraud (1934) nor any of the World War II mosquito control workers appear to have figured all stages of *Ficalbia minima* (Theobald), the type species of the genus *Ficalbia*, although Iyengar (1935) and his coworkers did collect and rear all stages of this mosquito in India. *F. minima* is reported from India, Assam, Borneo, and Hong Kong by Barraud (1934) and from Tonkin (or North Indochina) by Galliard and Ngu (1949). The finding of *minima* at Saigon now extends its southeastern distribution considerably. The present paper gives a description of the pupa, which hitherto was undescribed, together with a description of the larva and notes on the breeding habitat.

Pupa.—The pupa of *F. minima* is quite distinct from the other species in the genus. The pupal trumpet (Fig. 1, F) is normal, with a cleft on one side slightly more than halfway to the base. It is not modified at all for piercing the roots of aquatic plants to obtain air as in *Ficalbia chamberlaini*. Unlike most species in the genus, the first segment of the abdomen (Fig. 1, G) has a well-developed pair of dendritic tufts or "float hairs." The paddles at the tip of the abdomen have the usual spines along the latero-posterior margin. The paddles are of rather normal shape, not long and narrow as the *Ficalbia fusca* or *Ficalbia luzonensis* (cf. figures 24b, c, e, and g in Barraud, 1934).

Larva.—The larva of *F. minima* is very distinct on a number of characters. The preclypeal spines of the head (fig. 1, A, B) have a number of fine denticles at the base, a character found in

only a few other mosquito larvae, such as *Aedes* (*Howardina*) *walkeri* Theobald, and certain other species of mosquitoes breeding in bromeliads. The antenna (Fig. 1, A) is rather unusual in having the two long subapical hairs placed a considerable distance from the tip of the antennal shaft. In this respect the antenna is rather intermediate between the antenna of a typical *Culex* and a typical *Mansonia*. The air tube (Fig. 1, D) has the hair tuft inserted near the base rather than near the middle as in the other species of *Ficalbia*. This causes the species to run to *Theobaldia* or *Hodgesia* in the key of Barraud (1934, p. 33) even though the larva agrees in all other significant details with Barraud's figure of *minima*. There are only two pecten spines on the air tube itself (Fig. 1, D, E) and six comb scales. The comb scales (Fig. 1, C) of the Saigon specimens do not show the fine lateral denticulation of Barraud's figure (1934, fig. 27C). The Saigon specimens therefore agree better with the specimens from Tonkin reported by Galliard and Ngu (1949) in having smooth comb scales than they do with those from Hong Kong described by Barraud (1934) which have the comb scales with fine lateral denticles.

Biology.—On November 23 and 24, 1950, larvae and pupae of *F. minima* were found in the Botanical Garden in Saigon, Indochina, by the author and Dr. Le Du. The larvae were found in a densely shaded pool of cool, clear water containing large amounts of submerged aquatic vegetation, which appeared to be *Ceratophyllum* and floating duckweeds similar to *Lemma*. No water-lettuce (*Pistia*) was in the pool, although Iyengar (1935) and Galliard and Ngu (1949) have reported that in India and in Tonkin this species is found only in pools with that plant. They attributed this restricted habitat to the fact that *F. minima* lays its eggs on parts of the leaves of *Pistia* that overhang the water surface. The larvae were not abundant, averaging about one in every ten dips. Associated mosquito larvae were *Anopheles barbirostris*, *Culex* (*Mochthogenes*) *malayi*, and a species of *Culex* near *vishnui*. None of the larvae could be reared to the adult stage, but two of the pupae produced females that agree with the description of *F. minima* in Barraud (1934).

¹ From the Communicable Disease Center, Public Health Service, Federal Security Agency, Atlanta, Ga.

ACKNOWLEDGMENTS

The collections in Saigon were made while the writer was assigned as a malaria consultant with the Special Technical and Economic Mission to Vietnam of the Economic

Cooperation Administration. He wishes to acknowledge the kind assistance of Dr. H. Marneffe and M. P. Martin, of the Pasteur Institute of Saigon, for the privilege of working in their excellent library and laboratory. Dr. Alan Stone, of the U. S. Bureau of

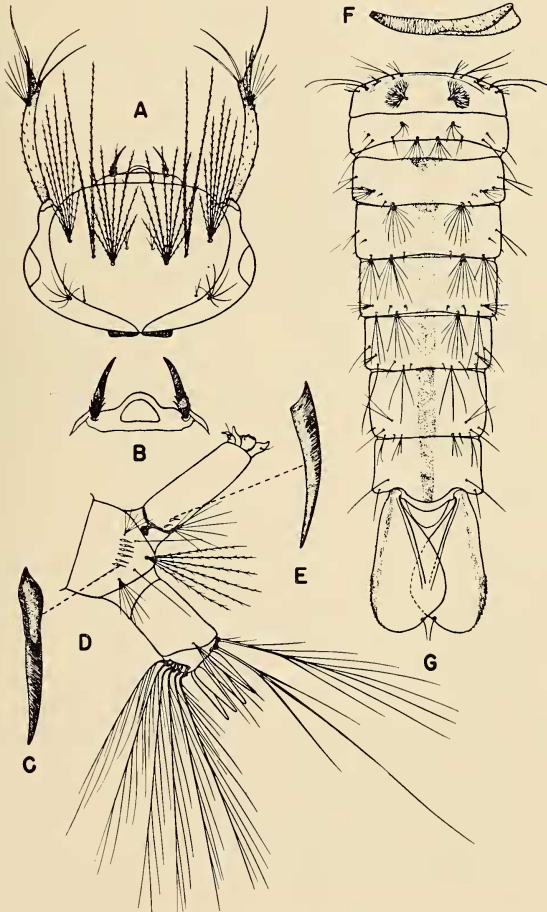


FIG. 1.—Structures of *Ficalbia minima* (Theobald): A, Head of larva, dorsal view; B, preclypeal spines of larva, dorsal view; C, comb scale of eighth abdominal segment, larva; D, terminal abdominal segments of larva; E, pecten tooth of arva; F, pupal trumpet; G, abdomen of pupa.

Entomology and Plant Quarantine, has checked the determination of the adult female and larva of *F. minima*. One adult, one pupa, and one larva have been deposited in the collections of the U. S. National Museum and the Communicable Disease Center, Atlanta, Ga. The drawings were made by C. J. Stojanovich.

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ZOOLOGY.—*Bostrichobranchus digonas*, a new molgulid ascidian from Florida.

DONALD P. ABBOTT, Hopkins Marine Station, Stanford University. (Communicated by Fenner A. Chace, Jr.)

The common American east-coast ascidian *Bostrichobranchus pilularis* (Verrill), 1871, has a single gonad, situated on the left side of the body. Van Name (1921) reported examining a single specimen of this species, taken in St. George Sound, Fla., which was "unique in having a gonad on each side of the body." This unique specimen has been commented on (but not re-examined) by Hartmeyer (1923), Årnäck (1928), and Van Name (1945), all of whom have regarded it either as a reversion to an ancestral 2-gonad condition or as an individual aberration. Were it not for new evidence, presented below, the present writer would concur with the above treatment of this specimen.

Recently an opportunity arose to examine a series of specimens found stranded on the sandy beach along the Peace River estuary, Charlotte Harbor, Fla., about 20 miles from the Gulf of Mexico. According to the collector, J. C. Galloway, of Punta Gorda, Fla., the stranded ascidians formed a belt on the shore 4 to 6 inches wide and about 100 yards long, and included many thousands of individuals. Twenty-one specimens of the collection, as well as supplementary and comparative materials, were placed at my disposal for study through the kindness of Dr. Fenner A. Chace, Jr., of the Division of Marine Invertebrates, United States National Museum. Investigation of the 21 individuals from Charlotte Harbor, all of which bore two gonads, and re-examination of Van Name's unique specimen from St. George Sound show that these ascidians

represent a previously undescribed species of *Bostrichobranchus*, closely related to *B. pilularis* but unequivocally distinct from it.

Class ASCIDIACEA

Order STOLIDOBRANCHIA

Family MOLGULIDAE Forbes and Hanley, 1848

Bostrichobranchus digonas, n. sp.

Bostrichobranchus pilularis Van Name, 1921, p. 478 (only the specimen from St. George Sound, Fla., with a gonad on each side of body); 1945 p. 441 (only the specimen from St. George Sound, Fla., with a gonad on each side of body).

Dimensions.—For 12 well-expanded, turgid specimens the external dimensions of the tunic (here, as elsewhere, the mean is followed by the range in parentheses) were: Height 17 (12-20) mm; length 18 (15-20) mm; width 7 (4-10) mm.

External appearance.—Body oval and somewhat laterally compressed, the siphons rather short and contracted in most specimens; tunic almost completely free of sand, mud, and other debris, its surface relatively smooth and bearing scattered small tendrils, or minute papillae probably representing broken tendrils (specimens were washed ashore and probably somewhat worn externally); tunic membranous and free of wrinkles in most areas, somewhat thicker and bearing circular wrinkles on and about the bases of the siphons.

Apertures.—Oral aperture with six lobes, atrial aperture with four.

Mantle.—Thin, delicate, and transparent in most areas; muscle fibers arranged into conspicuous bundles only on the siphons, where they constitute the radial and circular muscles (Fig. 1);