

Mosquito Eggs XVIII

Genus Mansonia (Subgenera Rhynchoaenia Bréthes and Mansonia Blanchard) with a Further Note on Genus Ficalbia Theobald

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Some authors assign Rhynchoaenia and Mansonia to separate genera, Coquillettidia and Mansonia s. str. respectively. As noted in a previous paper²⁵⁰, I prefer to treat them as congeneric. Subgenus Coquillettidia was dealt with in the previous paper. Subgenus Mansoniodes will be dealt with in the next one. The eggs of the fifth subgenus, Austromansonia Belkin, are unknown.

Subgenus Rhynchoaenia

I have seen no eggs of this subgenus although eggs of four species have been described and those of three of them figured. Goeldi¹⁰ described and figured the eggs of two species. One of these (Fig. 1a) was attributed by him, incorrectly, to M. fasciolata (Lynch Arribáizaga). The British Museum has three females of his from Para which appear to be M. venezuelensis (Theobald). I have therefore provisionally attributed his description to this species. Davis²⁵¹ has a few notes on the eggs of "M. fasciolata" but this, again, appears to be a misidentification of M. venezuelensis^{13,252}. Theobald²⁵³, Howard et al.²⁵⁶ and Dyar & Knab²²⁸ give descriptions of eggs of "M. fasciolata". These are taken from Goeldi, as are Theobald's figures, but all three quote him differently with respect to the total number of eggs in the raft. Theobald says 60-63, Howard et al. about 60 and Dyar & Knab about 120 in all. The discrepancy probably arose from the fact that Goeldi's own figure of 60-63 refers to the number of eggs in a row rather than the number of eggs in the raft. The latter is very long and narrow, recalling those of some Coquillettidia²⁵⁰ and even more of subgenus Lutzia of Culex. There are only two rows of eggs in each raft. Goeldi's photographs show more than 100 eggs in each raft. Davis records rafts, also double rowed, with 26, 77, 114 and 127 eggs respectively. Goeldi's eggs were laid in the laboratory $4\frac{1}{2}$ - 7 days after a blood meal. Hatching took place 4-5 days later. The eggs are described as dark brown, becoming yellowish amber when empty. Individual eggs are said to be shaped like a carafe or sugar loaf. The outer chorion is described as ornamented with relatively large, transparent, warty structures, uniform in size, contiguous and mamilliform in shape. Hatching is not described but can be seen from his photographs to take place by incomplete dehiscence of an apical cap, much as in Culex. The dimensions of individual eggs are given as 0.68 x 0.14 mm. Davis' description agrees substantially. The eggs are described as very dark brown, almost black, thickly studded with minute, conical air cells. The rafts are said invariably to consist of two rows. Eggs were laid 5-9 days after capture and hatched 3-4 days after they were first observed.

Eggs of M. juxtamansonia (Chagas) (Fig 1b) were found by the same author to be indistinguishable. The chorionic papillae are described as even more numerous than in the figure. Goeldi also considered eggs of M. arribalzagai (Theobald) (Fig. 1c) to be indistinguishable from those of his "M. fasciolata". Eggs of M. nigricans (Coquillett) were described by Galindo et al.⁹⁶ as laid in masses. "A total of 110 eggs was obtained from one female fed and kept in the laboratory in an oviposition vial. Each egg is somewhat long, slender, blunt at one end and pointed at the opposite end". The eggs of all four species are evidently very similar to one another and to those of Coquillettidia though the latter, to my knowledge, never have less than three rows in the raft and usually have more²⁵⁰.

Subgenus Mansonia

The eggs described and figured as those of M. titillans (Walker) by Goeldi¹⁰ and, following him, by Theobald²⁵³ are clearly those of an Aedes. This was first pointed out by Dyar & Knab^{228,254}. Other descriptions and figures are correctly attributed as to subgenus but are subject to some uncertainty as to species. (See below). The first available description is by Moore in Dyar & Knab²²⁸. He notes that the eggs are laid in masses on the under sides of Pistia leaves, generally between the ribs. They hatch by apical dehiscence. Dyar & Knab describe them as 1.0-1.1 mm. long with greatest width, slightly less than 0.2 mm., at about 0.6 mm. from the base. Beyond this point they taper to a very slender tube occupying about 0.2 mm. (Fig. 2a). They are pitchy brown in colour with the apical one-fifth yellowish. The surface is smooth without perceptible sculpturing. The egg mass is described as rounded and convex with the appearance of a spiny cushion. Individual eggs radiate in all directions, those in the centre being upright and those at the periphery pressed flat against the leaf surface. Each cluster contains more than 150 eggs. Oviposition took place 4-5 days after the blood meal. One female was seen resting on the upper surface of a Pistia leaf while ovipositing on the under surface. The egg mass was formed by a side to side movement, accompanied by a progressive withdrawal, of the tip of the abdomen. The eggs were white when first laid. Ronderos & Bachmann²¹⁷ give an outline figure (Fig. 2b). They confirm Dyar & Knab's description, adding that the tip of the apical process is ornamented in much the same way as in M. pseudotitillans (Theobald) (Fig. 2c). Galindo et al.⁹⁶ obtained 1347 eggs from 25 females ascribed by them to M. titillans, with a minimum of 1, a maximum of 194 and a mean of 54 per female. They describe the eggs as having the outer chorion densely covered with punctations and a long, whip-like, curved apical process. Their description differs so strikingly from those of Dyar & Knab and Ronderos & Bachmann that it is hard to believe that they were dealing with the same species. Nor does their description fit the eggs of any other known Mansonia spp. The obvious choice would be M. leberii Boreham but here again there are marked differences, as noted below. Among the remaining species with known eggs those of M. pseudotitillans are described as yellowish in colour when fresh, darkening later but to a less extent than in M. titillans²¹⁷. I suspect that this darkening is due not to tanning of the chorion but to the development of the embryo and that hatched eggs would be uniformly pale in colour as noted by Goeldi for his "M. fasciolata" but this is not stated. A further difference from M. titillans is the much greater length of the apical process. The eggs of the present species would also seem from the accompanying photograph to be longer and narrower (Fig. 2c).

Boreham²⁵⁵ describes the eggs of his M. leberi as differing from those of M. titillans in being slightly smaller with the apical process only about 1/5 to 1/6 of the total length of the egg as compared to nearly 1/3 (Fig. 2d). They are said to be dark brown to black in colour, except for the tip which is only lightly pigmented, and about 0.9 mm. long and 0.2 mm. wide. The tip of the apical process is furnished with small denticles surrounded by a sculptured, colourless collar. The outer chorion has a "uniform, rounded cellular appearance". The unlaidd egg is provided with "a small cement sack at base which ruptures when pressed against leaf surface during oviposition, gluing egg to leaf and to adjacent eggs of mass." The rounded egg masses contain as many as 200 eggs or more and are laid on either the upper or the under surface of older, outer leaves of Pistia stratiotes, near the water line or slightly under water, with the tips of the eggs projecting both upwards and outwards. They are found only on those Pistia plants which are closely associated with Lutziola subintegra or Cyperus spp., the plants to which the larvae and pupae are normally found attached. They can be distinguished from egg masses of M. titillans and M. indubitans Dyar & Shannon, using a 10x hand lens, by the length and shape of the apical processes. The implication that the eggs are sometimes found above the water line is surprising because, in Mansonioides at least, as will be shown in the following paper, oviposition involves a series of sequential movements of the abdomen leading to the eggs being laid, inevitably, below the water line even when they are deposited on the upper surface of the leaf. As already noted, Moore's account of oviposition in M. titillans would suggest that the behaviour involved is much as in Mansonioides. The eggs of the only other M. (Mansonia) sp. for which these are known, namely M. humeralis Dyar & Knab, were described and figured in the original account of the species²²⁸ (Fig. 2e). The egg masses resemble those described for M. titillans and appear to contain roughly the same number of eggs. The length of each egg is approximately 1.2 mm. The maximum width is reached about 0.9 mm. from the base. The apex is ornamented with four pairs of sharp horns, black in colour and apparently solid. Each pair arises from a short stalk. The distance from tip to tip of opposite horns is 0.3-0.35 mm. The apical process is dark in colour, in contrast to M. titillans, and the surface is said to be devoid of perceptible sculpturing. The number of eggs in the only egg mass counted was 182.

The eggs of this subgenus are evidently very similar to those of Mansonioides, differing mainly in that most of the latter have the apical process darker than the rest of the egg, as in M. humeralis but without the apical horns.

Genus Ficalbia

In my previous paper²⁵⁰ I mentioned only the description and figure of the egg of F. minima (Theobald) by Iyengar²³⁷. Bonne-Wepster & Brug²⁵⁶ give a brief description of the eggs of this species, accompanied by photographs, but do not add significantly to Iyengar's description.

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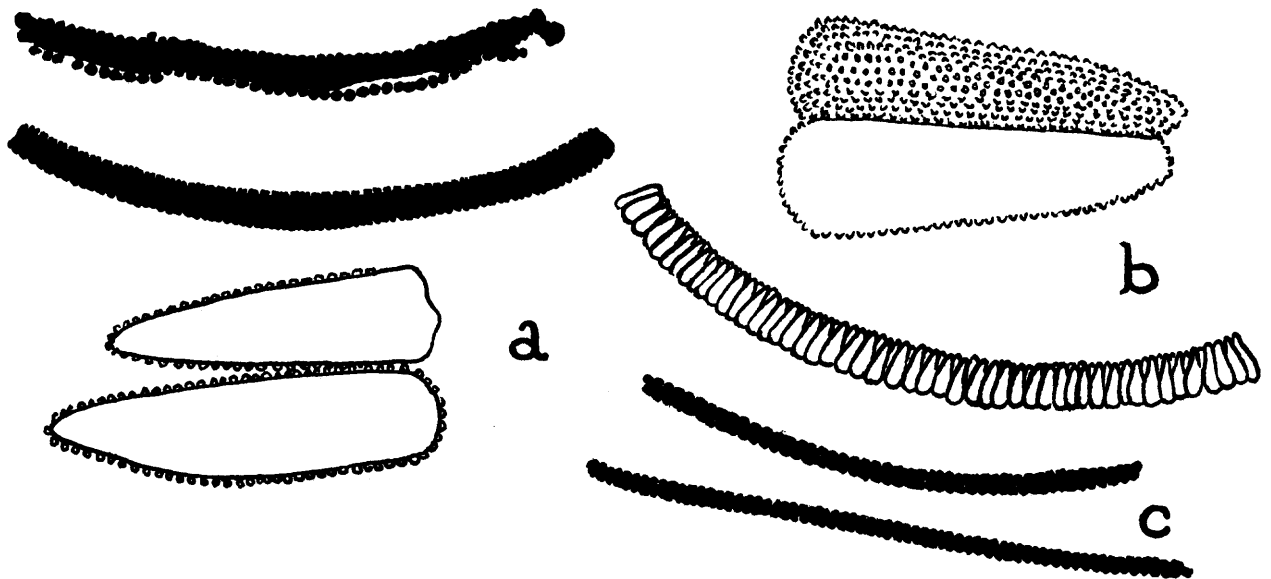


Fig. 1 Eggs and rafts of subgenus Rhynchotaenia. a. M. ? venezuelensis (after Goeldi), b. M. juxtamansonia (after Davis), c. Rafts of M. arribalzagae from side and above (after Goeldi).

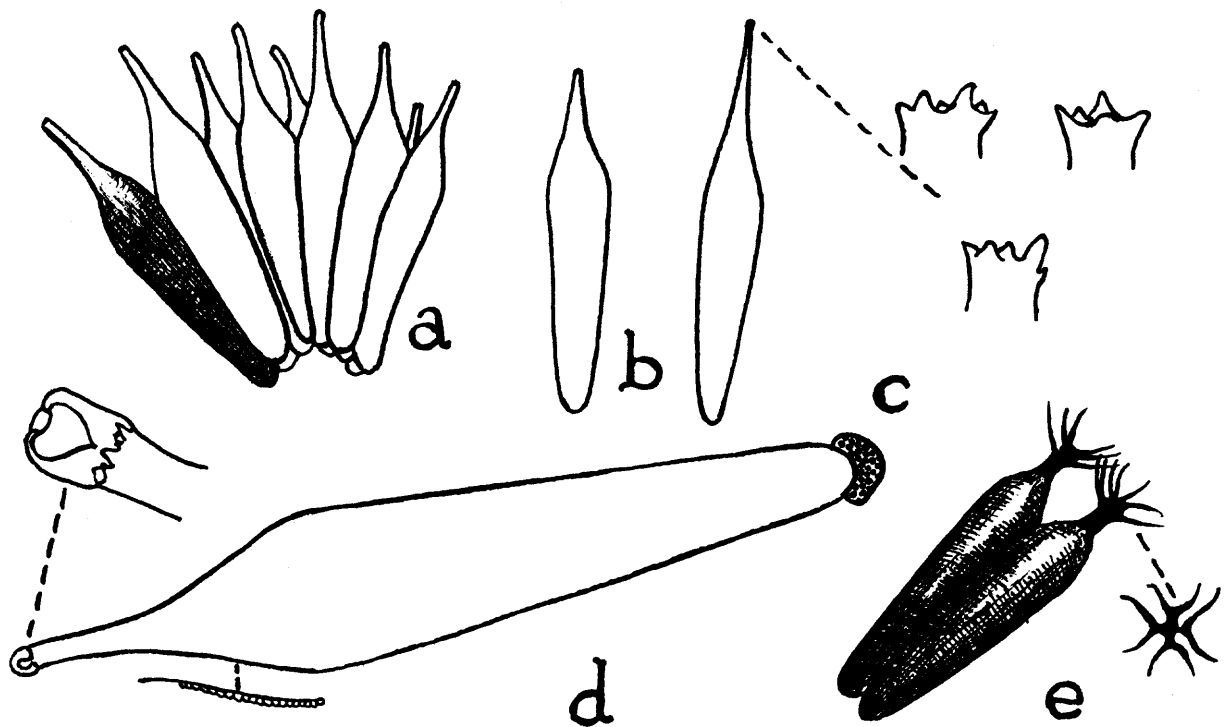


Fig. 2. Eggs and egg masses of subgenus Mansonia. a. M. ? titillans (after Dyar & Knab), b. M. titillans, c. M. pseudotitillans (both after Ronderos & Bachmann), d. M. leberi (after Boreham), e. M. humeralis (after Dyar & Knab).