

Mosquito Eggs XXV

Eggs of some subgenera of *Aedes* with a further note on *Haemagogus*

by

P. F. Mattingly
Department of Entomology
British Museum (Natural History)
Cromwell Rd., London S. W. 7, England

Genus *Aedes* Meigen

Subgenus *Cancraedes* Edwards

This is an interesting group of crabhole breeding *Aedes* having, among other unusual features, a wing venation recalling that of *Uranotaenia*³³³. So far as I am aware no eggs of this subgenus have previously been described. The following description is based on a single imperfect egg, laid in the laboratory by a female captured from a crabhole in mangrove swamp on Carey Island, Selangor on 31.x.1969. The eggs were laid two days after capture and the present specimen was kindly sent me by Dr. Shivaji Ramalingam.

Aedes (Cancraedes) indonesiae Mattingly

The only available egg has a portion of the presumed dorsal surface missing having apparently been damaged while detaching it from the substratum on which it was laid. It is of the familiar aedine type, subcylindrical, pointed at both ends though somewhat less so anteriorly than posteriorly and with a small micropylar cup at the anterior end (Fig. 1a). The inner chorion appears mid brown by transmitted light. The outer chorion is colourless and transparent. It is ornamented with very numerous papillae, varying in size but in many cases relatively large. As seen in small pieces of detached chorion they do not appear to have any regular arrangement. They may, however, be smaller in one part of the egg than another.

Subgenus *Rhinoskusea* Edwards

This is another crabhole breeding subgenus. It is known only from two species³³³. The following description is based on four unhatched eggs kindly sent me by Dr. Ramalingam. They were obtained from a female captured from a crabhole in mangrove swamp on Carey Island, Selangor. Dates were as for *Ae. indonesiae*.

Aedes (Rhinoskusea) longirostris (Leicester)

The eggs resemble those of *Ae. indonesiae* in shape and colour but are perhaps slightly broader and a little more flattened on the presumed dorsal surface. The chorionic papillae are more strongly developed than in any other

Aedes eggs that I have seen. The most conspicuous feature of the ornamentation is the presence of many very large papillae, most conspicuous towards the poles, enclosed in a rather ill defined reticulum (Fig. 1b). Examination of fragments of detached chorion shows that part of the surface is devoid of enlarged papillae. On general grounds I would presume this to apply to the lower (dorsal) surface but shrinkage of the eggs made it impossible to confirm this and in any case, in the absence of more fully developed embryos, the orientation of the eggs could only be inferred provisionally from their general shape as indicated above. Flattening of the dorsal surface, and suppression of chorionic ornamentation, seems usually to be associated with the attachment of the dorsal surface to the substrate. However, in the present eggs there is a small patch of glue at the posterior end suggesting vertical deposition.

Subgenus *Neomelaniconion* Newstead

Banks⁷ gives the following description of the egg of *Ae.* (*Neomelaniconion*) *lineatopennis* (as *Banksinella luteolateralis* Theobald).

"The egg measures 0.63 millimeter in length, is very dark brown and irregularly oval in outline, one end being slightly more acute than the other. The surface is covered with circular, flat air-cells which are very minute at the extremities and slightly larger in the middle. The form of the egg is more like that of *Stegomyia* than of *Culex*."

He notes, further, that "...females placed in captivity laid a few eggs separately upon the surface of the water always near the edge of the vessel in which they were confined." None of the eggs hatched. Dr. Shivaji Ramalingam kindly sent me 4 eggs attributed to the same species, a description of which follows. They were laid in the laboratory by a female caught biting man at Bahau, Negri Sembilan on 24.ix.1969, 4 days after capture. Thirty eggs were laid in all.

Aedes (*Neomelaniconion*) *lineatopennis* (Ludlow)

The eggs (Fig. 1c) are fusiform, tapering very sharply especially on the posterior half and thus appearing almost rhomboidal. The outer chorion is colourless, transparent and covered with small or moderate sized papillae which (*pace* Banks) are larger on the anterior quarter to one-third and at the extreme posterior end. The inner chorion is dark brown, almost black rendering it difficult to discern the overall outer chorionic ornamentation. The outer chorion is very strongly attached. So far as can be seen from small detached fragments the papillae do not form a regular pattern.

It will be seen that, if Banks' description is correct, this and the Philippines form differ markedly in the distribution of larger vs. smaller papillae and this may well have taxonomic significance.

Subgenus *Howardina* Theobald

No eggs of this subgenus have previously been described though some biological data are available. All members of the subgenus are neotropical in distribution and breed in containers³³⁴. Females of *Ae. (H.) bahamensis* are autogenous and eggs obtained from these hatch readily in tap water after storage at 76% R. H. and 76°F. for 1-2 weeks (Spielman & Weyer³³⁵, as *Ae. albontatus*). Galindo et al.²¹³ observed delayed hatching in a proportion of eggs of *Ae. (H.) septemstriatus* Dyar & Knab after intervals of up to about 4 months and up to 5 successive floodings. The average number of eggs laid by 4 females was 53.5. I have eggs of three species which are described below.

Aedes (Howardina) busckii (Coquillett)

Prof. Belkin kindly sent me some hatched eggs of this species obtained by him in Martinique. They were attached to the paper on which they were laid so that it has been possible to distinguish the lower (dorsal) from the upper (ventral) surface. The eggs (Fig. 1d) are more or less cylindrical, tapering for only a short distance at either end. The upper surface is covered by a conspicuous reticulum with rounded meshes, each containing a single large papilla with or without one or two smaller ones. On the lower surface the meshes are elongated and more or less foliiform. Large papillae are present on only a part of the surface. It will be seen that this egg resembles that of *Rhinoskusea* much more closely than the eggs of *Neomelaniconion* and *Cancraedes*.

Aedes (Howardina) bahamensis Berlin

Dr. Spielman kindly gave me numerous viable eggs of this species from his colony in Harvard. Thus both hatched and unhatched eggs are available for description. The unhatched eggs resemble the hatched eggs of *Ae. busckii* but are larger and different in shape, being broader anteriorly in one aspect and more or less sausage-shaped in another (Fig. 1e). These differences, though less conspicuous, are also visible in hatched eggs. The outer chorionic ornamentation is very similar but the papillae are somewhat more conspicuous, particularly on the lower surface where also the large papillae are present over most, if not all, of the surface.

Aedes (Howardina) sexlineatus (Theobald)

I have two eggs preserved by Dr. J. R. Dickson in Trinidad. They are dated 30.v.14 and are stated to have been laid in the laboratory. They resemble the eggs of *Ae. bahamensis* in shape but are slightly smaller, though still considerably larger than those of *Ae. busckii*. The inner chorion in all three species is mid brown in colour when viewed by transmitted light. The chorionic ornamentation (Fig. 1f) is basically the same as in the other two species but the smaller papillae in the reticular meshes on the upper surface are concentrated round the periphery. On the lower surface some meshes are without large papillae. Others have them only feebly developed.

Genus *Haemagogus* Williston

In a previous paper in this series³³⁶ I described some eggs sent me by Dr. Hal Arnell and provisionally ascribed by him to *Haemagogus spegazzinii* Brèthes. He tells me that, on the completion of his revision of this genus they have been finally identified as eggs of *H. janthinomys* Dyar.

References

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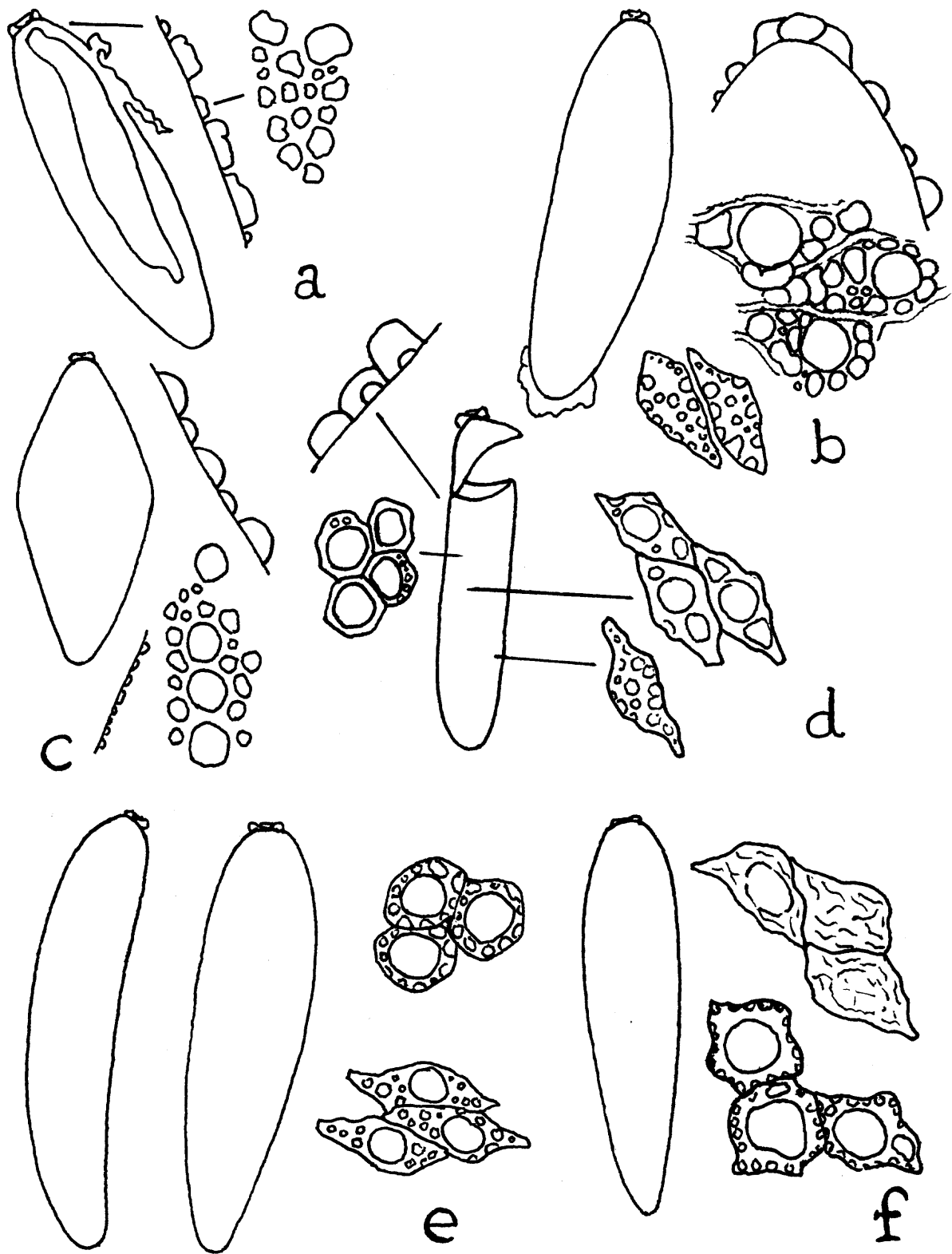


Fig. 1. Eggs of *Aedes* spp. a. *Ae.* (*Cancaeredes*) *indonesiae*, b. *Ae.* (*Rhinoskusea*) *longirostris*, c. *Ae.* (*Neomelaniconion*) *lineatopennis*, d. *Ae.* (*Howardina*) *busckii*, e. *Ae.* (*Howardina*) *bahamensis*, f. *Ae.* (*Howardina*) *sexlineatus*.