

## 9 | Embryology

No detailed study on the embryology of Cimicidae has been published.<sup>1</sup> Hase (1917) described the gross appearance of the embryo in the egg of *C. lectularius* and recognized 5 stages in development.

Cobben studied living material of the Berkeley strain of *Cimex lectularius*. Parts of his manuscript are quoted here, with permission, prior to publication in a forthcoming general work on embryology of Hemiptera.

*Chorion.* The chorion starts to be secreted about the time that the blastoderm of the embryo is formed (Davis, 1956). It is completely formed with a thickness of 15  $\mu$  in the neck region and about 10  $\mu$  elsewhere, when the germ-band invaginates. The inner air-filled layer is distinct in the anterior region. There it is 2.5  $\mu$  thick and the struts form large, irregular cells when seen in surface view. Posteriorly, the struts are finer, shorter and more closely spaced. The short collar of the rim is margined externally with a thick, solid bar. The aeropyles do not reach this upper margin. They measure scarcely one micron in diameter and their number averages 150. Micropyles are absent, fertilization occurring just before the initiation of the chorion secretion.

*Early embryogenesis.* About one-third of embryogenesis takes place within the ovary. The development of the embryo is roughly similar to that in other Cimicoidea having no lateral invagination: the germ-band is immersed with only the serosal contact at the cephalic site and blastokinesis is combined with a 180° rotation. In *Cimex*, the chorionic deposition starts much earlier than in *Anthocoris*, and only one egg at a time is formed in each ovariole. Moreover, at any one time there is not more than one fully formed egg in each ovary. In *Anthocoris*, the shell material starts to be laid down about the time that the germ-band invaginates and all ovarioles are producing more eggs at the same time. The shape-transformation of the band is different. In *Cimex*, the embryo invaginates in a straight line up to the subopercular part of the egg.

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<sup>1</sup> Heymons, R. (1899, Nova Acta, Abh. K. Leop.-Carol. Deutsch. Akad. Naturforsch. 74: 386) studied *Cimex dissimilis* (Fabricius) (not Horvath). This belongs in the family Pentatomidae.