

The Ovary is situated in the dorsal mantle area immediately above the line of attachment of the thorax to the mantle. The oviduct could not be followed throughout its length, but the atrium appears to be on the ventral surface of the thorax, posterior to the mouth field.

A large, structureless glandular area is found dorsally, anterior to the ovary. This could be the source of the cement which would seem to be needed in quantity in this area of the mantle, which is lightly cemented to the wall of the pit.

The single *dorsal filamentary appendage*, on the dorsal side of the thorax, arises near the attachment line of the thorax to the mantle. It is muscular, and would appear to function to keep the mantle cavity clean, and perhaps to tend the eggs which lie free in the mantle cavity.

THE DWARF MALE

In the cavity in a shell in which the female lodges there occur several dwarf males. These lie at the anterior end of the female (Fig. 7), usually lightly attached to her or to the wall of the pit. Sometimes they excavate slight accessory hollows of their own.

The male is pear-shaped, the broad end being anterior (Fig. 18). This usually shows the remains of the cyprid antennules, surrounded by the exuviae of the cyprid which often includes one or both of the cyprid compound eyes. The posterior end of the male is slightly forked, one fork carrying several multi-spiked, chitinous knobs (Fig. 22).

Internally, the body wall shows bands of longitudinal muscles. Early-stage males still show some yolk globules. A conspicuous "yellow organ" occurs in the male, as well as in the cyprid and metamorphosing female (Figs. 18, 13, 17, y.o.). This spherical object appears light brownish-yellow in live animals, and presumably corresponds with the "yellow organ" described by Utinomi in *Berndtia* (1961). Utinomi comments, "It seems to me that the yellow organ is somehow a kind of nutritive organ originated from the larval alimentary canal." It is rather similar in appearance, and in its relation to the oesophagus rudiment in a metamorphosing female, to what was regarded as a stomach rudiment with a yolk-absorbing function by Batham (1946) in *Pollicipes* (cf. Fig. 17 in this paper with Fig. 22 in Batham, 1946). Just anterior to the "yellow organ" lie the testis and seminal vesicle, in which elongate sperms can be seen. Coiled irregularly inside the male and occupying much of its interior is a long, muscular penis. When live males are removed from a shell, this huge penis is commonly extruded from the anterior end, in the vicinity of the antennules (Fig. 20). However, a narrow duct opens at the posterior end of the body, between the two forks. The question arises as to whether, in the undisturbed male, the penis is normally extruded anteriorly, as in Fig. 20, or through the posterior duct, whose function is otherwise obscure. Muscle fibres run transversely from this posterior duct to the body wall, perhaps enabling the spiny fork to bore. The penis itself is relatively enormous, several times the length of the male. It is annulated throughout its length, and broader distally. It terminates in a point carrying about 5 small setae. Subterminally on it, one or two larger setae are directed away from its tip (Fig. 21). The penis when extruded shows frequent rather slow vermiform movements. The body of the male, on the other hand, shows only an occasional slow, slight movement. As well as yolky and mature males, spent ones, largely empty of contents, are not infrequent. Fig. 19 shows an elongate, spent male. Except for sometimes appearing more elongated, the male is similar in size to the cypris. For instance, a young one measured was 0.38 x 0.22mm, and a long one was 0.62 x 0.22mm. This is to be expected in the absence of a food canal, as the male's organs are derived from the embryonic yolk.