

THE STORAGE OF OVA BEFORE RELEASE INTO THE MANTLE CAVITY

In her paper of 1958, Atkins suggests that prior to release into the mantle cavity, the ova may be stored for a considerable time in the dorsal median coelomic cavity, i.e., the visceral cavity. Her argument for the conjecture is based upon one animal which was collected in May or June in Lyttelton Harbour, was preserved, and then mailed to England.

In a section (Atkins, 1958, p. 571, Fig. 8) she shows some ova in the left dorsal and ventral sinuses and shows and states that only sperm is present in the right dorsal and ventral sinuses, but that it appears as if some eggs have been shed. In the section, the digestive diverticula look compressed compared with those of other sections. Atkins suggests that ova have filled the coelomic cavity and have pushed the diverticula out of their normal place.

This is an attractive idea because, as Atkins states, the situation would possibly allow self-fertilisation. However, I find several points which bear adversely upon the hypothesis.

(1) Fertilisation, whether self or cross, appears to take place in the mantle cavity.

(2) The specimen was not collected during the breeding season. If there had been release of ova it was not the normal procedure although it may have taken place in the usual manner.

(3) If the eggs were shed just prior to fixation it is curious that none were present in the mantle cavity, that the sperm still remained in the right gonads and that not all the mature ova had been shed. In the many brooding animals that I have inspected, all the gonads have been empty and all the larvae in the mantle cavity have been at the same stage of development.

(4) Compared with other specimens and even with the left gonads of this animal, there is an extremely large amount of sperm tissue in the right gonads of Atkins' Specimen 8. It seems most probable that the right gonads functioned abnormally in this animal, with the suppression of the female part of the gland.

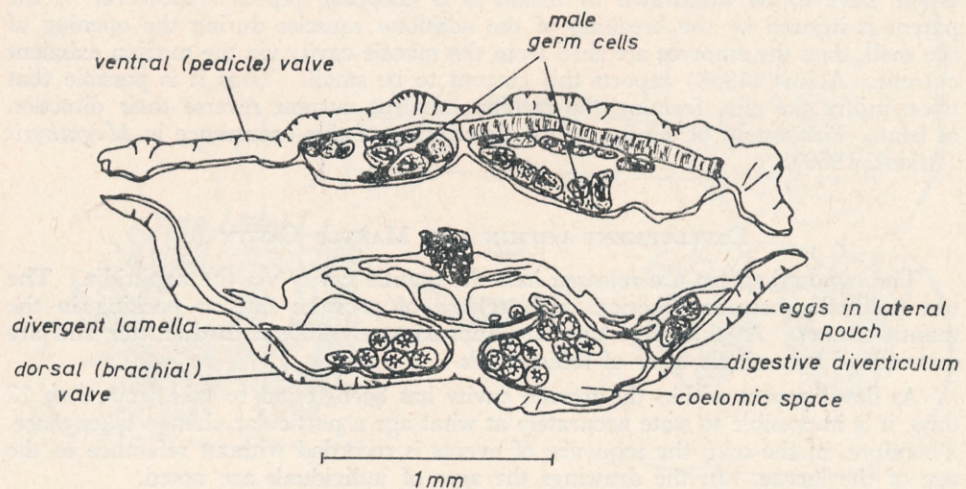


FIG. 6.—*Pumilus antiquatus* specimen collected September 8, 1965. Section through the lophophore and divergent lammella showing unfilled dorsal lateral pocket and eggs in right dorsal lateral pocket.