

## ON THE ANATOMY OF ENSIS (SOLENI) MAGNUS, SCHUMACHER.

BY H. H. BLOOMER.

By the kindness of Dr. Jensen of the Copenhagen Museum I have been enabled to examine a specimen of *E. magnus*.

*Ensis magnus* is an elongated animal, measuring in length about six times the measurement from the dorsal to the ventral surface at its deepest part. It is larger and more massively built than *E. ensis*. It curves a little dorsally (not quite so much as *E. ensis*), is bilaterally symmetrical, and is enclosed ventrally by the concrescence of the edges of the mantle lobes, with the exception of the apertures at the anterior and posterior ends, and a fourth aperture situated nearly at the centre of the ventral surface (the aperture is nearer the posterior than the anterior end, while in *E. ensis* it lies nearer the posterior end).

The periostracum passes from the outside of the shell to the edges of the mantle lobes, to which it adheres.

The pallial muscles form a deep band along the margin of the mantle lobes, and, at the anterior end, encircle the pedal aperture through which the foot is protruded. At the posterior end the muscles assume a more elliptical condition, being more coalesced both dorsally and ventrally, and form the siphon containing the afferent and efferent chambers. The ventral portion of the proximal portion of the siphon extends more posteriorly than in *E. ensis*.

The foot projects from nearly the centre of the ventral surface of the animal, and proceeds in an anterior direction. A little anterior to the foot is the mouth, and in front of the mouth, is the very broad anterior adductor muscle. On each side of the visceropedal mass are the labial palps, commencing between, and passing posteriorly to them, are the two gills, which continue as far as the siphon. The inner sides of the bases of the gills are joined together from the foot for about half their distance, whereas in *E. ensis* they are not so connected.

The anus opens from the free portion of the rectum, into the cloacal chamber behind the posterior adductor muscle.

The siphon consists of two separate chambers, the upper one the exhalent, and the lower one the inhalent. The free portions of the siphonal chambers are very short and separate from each other. Both are encircled with a fringe of tentacles (the tentacles are not so long as in *E. ensis*).

The fourth aperture is an elliptical opening which narrows very much

on the inside edge of the mantle lobes. Around the inside of it, but near the outer edge, is a row of tentacles; those on one side alternating with those on the opposite side (the tentacles are not so long as in *E. ensis*.)

On the inside of each mantle lobe is a groove passing dorsally from this aperture towards the foot, and in it lie the distal portions of the labial palps.

The anterior adductor muscle is an extremely broad and shallow muscle, deepening as it proceeds posteriorly. It is connected anteriorly with the mantle lobes and dorsal integument, and posteriorly with the dorsal and ventral integuments.

The posterior adductor muscle is a comparatively small muscle, curved ventrally and flattened dorsally. It is joined anteriorly with the bifurcations of the retractor pedis posterior muscle, and posteriorly with the dorsal integument.

The retractor pedis anterior muscles, as in *E. ensis*, have long bifurcations, the posterior ones passing through the liver to the valves of the shell, and the anterior ones going some distance over the anterior adductor muscle before adhering to the shell.

The retractor pedis posterior muscle is a thick muscle of medium length, the bifurcations of it, which are attached to the shell, rest against and are connected with the posterior adductor muscle.

Owing to the imperfect preservation of the inside of the animal it is not possible to make out the internal structure in detail, but it appeared to be very similar to *E. ensis*.

The gills are of the type heterorhabdic and are also plicate, but the plication is shallower than in *E. ensis*, while the interlamellar junctions are longer. The number of filaments in a plica range between 13—17.