

puzzled by this fact. A part of the body of this male corresponds to the peduncle of the pedunculated Cirripedia, and as this is also filled up with connective tissue,—with the exception of a rather narrow tubular cavity towards the rostral side,—I at first endeavoured to homologize the connective tissue of the male with that of the peduncle. Extending my researches also over the body of the hermaphrodite or female *Scalpellum*, over *Lepas* and other genera of Cirripedia, I found that the occurrence of a well-developed mass of connective tissue between the different organs within the body is the rule in all the Cirripedia. In the interesting essay on the coelom-theory by the brothers Hertwig¹ we read that all the Arthropoda possess a very capacious body-cavity, and that in the full-grown animal the intestinal tract passes freely through this cavity, a dorsal mesentery uniting the intestine to the wall of the body being observed only in a younger stage of the development. Whether the plurality of typical forms of Arthropoda have been sufficiently investigated so as to allow of this conclusion to be drawn, I will not decide. Doubtless, however, the Cirripedia have a very rudimentary body-cavity, and a well-developed mass of connective tissue nearly fills up all the space left open between the wall of the body and the internal organs. So the complementary males in this respect also correspond in structure to the female and hermaphrodite animals.

The internal organs consist of the well-developed genital apparatus, the nervous system, the cement-glands, and the totally rudimentary and evidently functionless œsophagus and stomach.

Fig. 1 of Pl. I. shows these parts in their normal position; fig. 2 represents part of these organs more strongly magnified. Testis (*t*), vesicula seminalis (*vs*), and vas deferens (*vd*), can easily be made out in all the specimens. Neither do the other organs (the nervous system, and the œsophagus with the stomach), present any further difficulties after comparison with the structure of the Cypris-larva (Pl. II. fig. 3).

Digestive tract.—The œsophagus and the stomach have nearly preserved their original condition; the mouth has grown totally functionless; its place is indicated by the presence of a group of cells (Pl. I. fig. 2 *m*), which are placed in the connective tissue bordering the cavity in which the thorax is situated. The œsophagus is a narrow tube which imperceptibly widens and passes over into the stomach. The latter is a pyriform pouch closed on all sides, having a rudimentary intestine at the extremity opposite to the cardia. It has a double wall, as can be best studied in the transverse sections (Pl. III. figs. 6 and 7). Probably the internal wall represents a chitinous cuticle which has been shed, but which could not be removed, the mouth being closed. Perhaps the internal wall represents the chitinous tube, or model of the stomach filled with excrement, Darwin describes in the alimentary canal of Cirripedia.² In the full-grown male the stomach is almost empty; in a younger condition (Pl. IV. fig. 1), the stomach is filled

¹ O. and R. Hertwig, *Die Coelomtheorie*, *Jenaische Zeitschr.*, Bd. xv. p. 76, 1882.

² Darwin, *Balanidæ*, p. 86, 1854.