

animals, and I then became certain that Darwin's description was not correct in one very important point. The sack is not closed at the bottom, but gives entrance to the body-cavity of the animal.

For want of material I have been obliged to limit my researches to the pedunculated Cirripedia; in the sessile Cirripedia, however, there cannot be the slightest doubt that the apparatus will prove to have about the same structure; the orifices are here never produced nor tubular.<sup>1</sup> I got by far the best preparations from specimens of *Scalpellum vulgare*, Leach, which I received from the Zoological Station at Naples. The figures on Pl. V., as well as the description, are based upon preparations of these specimens.

Fig. 1 of Pl. V. shows a complete transverse section through the thorax of *Scalpellum vulgare* a little below the first cirrus. The large cavities (*A*) separated in the figure from one another by the band of connective tissue (*B*) represent parts of the body-cavity. An epithelial clothing (a true cœlomic epithelium) cannot everywhere be made out distinctly; yet I think its presence may be safely concluded from the cellular remains which here and there adhere to the connective tissue, in the shape of elongate and rather flat nuclei. The section passes longitudinally through the long and flattened tube which belongs to the right outer maxilla; the duct on the interior is clothed by a thin chitinous tunic, with a chitinogenous epithelium everywhere beneath it; both the chitinous tunic and its matrix are the continuation of the outer body-wall, and are no doubt true epiblastic products. Fig. 3 of Pl. V. represents a longitudinal section of one of the segmental organs. From the outer wall of the flattened tube thin transverse fibres of connective tissue run towards the wall of the duct. Having passed longitudinally through the tube, the duct may be traced for a short distance beneath the surface of the body; it then passes over into a very narrow channel which passes through a compact mass of cells. The whole mass of cells has the shape of a bell; the limits of the different cells are not very distinct, but the different nuclei are. They are oval and their longest diameter is about 0.005 mm. (fig. 2, Pl. V.) The surface of the cells bordering the narrow channel is markedly protuberant, so as almost to meet that of the opposed cells; in very favourable sections only can the presence of the channel be made out. To judge from the great number of nuclei, the cell-mass, at least on one side, is formed of more than a single layer. Whereas the cells of the duct have their nuclei with their longer axis parallel to the surface of the wall of the duct, those of the bell-shaped cell-mass are rather perpendicular to the surface of the very narrow channel. Moreover, the latter are very characteristic on account of their staining much more intensely than do those of the chitinogenous cells or of the surrounding connective tissue. Towards the interior of the body-cavity the thick cell-coating of the narrow channel slopes and soon terminates; from the body-cavity the entrance of the narrow channel is distinctly funnel-shaped. The chitinous membrane which clothes the interior of the duct is not present at the surface of

<sup>1</sup> Darwin, *Balanidæ*, 1854, p. 97.