

II. SEGMENTAL ORGANS IN THE CIRRIPIEDIA.

Cirripedia are rich in organs of an unknown or at least problematic function. One instance of these is found in the "olfactory organs" or sacs of Darwin. "In the outer maxillæ," Darwin says,¹ "at their bases where united together, but above the basal fold separating the mouth from the body, there are, in all the genera, a pair of orifices; these are sometimes seated on a slight prominence, as in *Lithotrya*, or on the summit of flattened tubes projecting upwards and towards each other as in *Ibla*, *Scalpellum*, and *Pollicipes*. In *Ibla* these tubular projections rise from almost between the outer and inner maxillæ. It is impossible to behold these organs, and doubt that they are of high functional importance to the animal. The orifice leads into a deep sack lined by pulpy corium, and closed at the bottom. The outer integument is inflected inwards (hence periodically moulted) and becoming of excessive tenuity, runs to near the bottom of the sack, where it ends in an open tube; so excessively thin is this inflected membrane, that until examining *Anelasma*, I was not quite certain that I was right in believing that the outer integument did not extend over the whole bottom. I several times saw a nerve of considerable size entering and blending into a pulpy layer at the bottom of the sack of corium; but I failed in tracing to which of the three pair of nerves, springing from the front end of the infra-oesophageal ganglion, it joined. I can hardly avoid concluding that this *closed* sack, with its naked bottom, is an organ of sense; and, considering that the outer maxillæ serve to carry the prey entangled by the cirri towards the maxillæ and mandibles, the position seems so admirably adapted for an olfactory organ, whereby the animal could at once perceive the nature of any floating object thus caught, that I have ventured provisionally to designate the two orifices and sacks as olfactory."

This supposition of Darwin's has, however, been accepted with great reserve. As far as my knowledge of the literature of the group goes, the same organs have not been studied, nor has another opinion been published about their function since Darwin's.² I first tried to get a good insight into the structure of this apparatus by isolating the outer maxillæ. I arrived at the same conclusion as Darwin, viz., that it was composed of a duct with an outward orifice and an internal portion, a kind of sack lined by a layer of cells different in structure from those of the duct. In some of the figures representing parts of the mouth of species of the genus *Scalpellum* (e.g. *Scalpellum parallelogramma*, *Scalpellum strömii*, &c.), in the systematic part of my report, the long and very characteristic tubes at the extremity of which the orifices are found have been represented. I then studied the apparatus by the aid of transverse sections of the thorax of the

¹ Darwin, Lepadidæ, 1851, p. 52.

² Claus (Lehrb. d. Zool. 3 Aufl. 1876, p. 456, says:—"Gehör- und Geruchsorgane sind nicht mit Sicherheit nachgewiesen, da die von Darwin als solche in Anspruch genommenen Bildungen eine andere Deutung (Oviducte, Drüsenöffnungen) erfahren haben." I do not know where this opinion has been published, so far as Darwin's olfactory organ is concerned.