

antennæ have a stem composed of five separate joints; the terminal filament is usually shorter than that of the anterior antennæ.

Tactile Organs.—The peculiarly modified antennary hairs first described by Leydig,¹ and believed by him to be sense organs, exist upon the first pair of antennæ only in all the species of *Serolis* that I have examined. These organs are of two kinds, the most conspicuous being cylindrical jointed hairs, several of which are displayed in Pl. I. fig. 4, *b*; each consists of a basal portion somewhat hour-glass shaped, which is attached to the inner side of the upper extremity of each of the joints which compose the filament of the antennules; this is continued into a delicate cylinder with thin walls, which is always divided into two portions by a transverse septum, and occasionally seems to consist of three distinctly separated portions; the distal end of each of these cylinders is formed by a knob-like thickening of the chitinous wall. Leydig describes and figures nerve fibres and cells in these olfactory hairs, but the Challenger specimens were not sufficiently well preserved to show these structures.

As a general rule, only one of these olfactory hairs is found upon each joint of the antennular filament, but in *Serolis antarctica*, *Serolis australiensis*, and one or two other species, two such hairs are found upon each joint.

The "tactile" organs described by Leydig in the Memoirs already quoted I have only seen in *Serolis schythei* and *Serolis neæra*; on the antennules of these two species one tactile hair only is found upon the distal extremity of the terminal point (Pl. V. fig. 5, *a*); it is a short slender hair, the upper half being plumose. Similar hairs are also found over the general body-surface and upon the first joint of the ambulatory appendages (Pl. III. fig. 11) of many species.

The *mandibles* are very strong and powerful, and furnished with a long three-jointed palp which is longer than the mandible itself; the second joint of the palp is longer than the first joint, and the third, which is very small, is semicircular in shape, and its flat inner margin is furnished with a row of stiff hairs, of which the two distal ones are the longest. These hairs are continued for a short way on to the middle joint of the palp, this part of the joint being of a somewhat greater diameter than the posterior portion, which is devoid of hairs. The basal portion of the mandible is broadest proximally, where it articulates with the head, it narrows abruptly into the distal half, which is not more than one half of its diameter; the latter is bent at an angle to the basal part, terminates in the masticatory edge which is of a dark brown colour, and is either straight or slightly sinuous, or provided with one or two blunt tooth-like projections; in adult specimens only are the mandibles thus furnished with a comparatively smooth edge, which appears simply to be due to wear and tear; in young specimens of all the species

¹ Fr. Leydig, Ueber Geruchs- und Gehörorgane der Krebse und Insecten, *Archiv f. Anat. u. Physiol.*, 1860, pp. 265-314, Tafn. vii.-ix. See also the same Ueber Amphipoden und Isopoden, *Zeitschr. f. wiss. Zool.*, Bd. xxx., Supplement, pp. 225-274, Taf. ix.-xii., 1878.