

4. *Turbo transenna*, Watson. Station 235; 565 fathoms.

This *Turbo* has no labial palps either: in this, therefore, as in all the other points examined, it agrees with the already known forms of *Turbo*. The eyes are pigmented.

It seems, then, that the presence of labial palps is not general among Trochoids from great depths, and that *Trochus infundibulum* is, as far as we know, the only one provided with them.

As I have already said, among the Streptoneural Gastropods (= Prosobranchs), *Ampullaria* and *Jeffreysia*¹ have two buccal appendages of the same kind as the two labial palps of *Trochus infundibulum*.

It may be asked what these structures are, and to what they correspond.

At first sight we might suppose, as certain authors have done, that they correspond to the two anterior tentacles of the four-tentacled Gastropods, that is to say, of the great majority of Euthyneura (Pulmonates and Opisthobranchs). This is, however, not the case.

The fact is, that labial palps analogous to those of *Trochus infundibulum* and of *Ampullaria* exist also at different degrees of development in certain forms of four-tentacled Gastropods; as among the Pulmonates, in *Helix*, *Bulimus*,² *Achatina*, and especially *Glandina*;³ among the Opisthobranchs, in *Dolabella neapolitana* (Pl. I. fig. 6), *Phyllaplysia*.⁴

The labial palps are therefore not anterior tentacles. Their origin is to be found simply in the development and lengthening of the two lateral extremities of the snout, which are thus developed for the purpose of adding a sensory organ, and especially an organ of exploration, to that part of the body. Proof of this is found in animals allied to *Jeffreysia* and *Rissoia*, where the snout exhibits, on each side of the mouth, a little projection representing the first appearance of the appendages so much developed in *Ampullaria* for instance.

In the four-tentacled Gastropods, the nerve of the labial palp springs from a common root with the nerve of the anterior tentacle,⁵ while in the Gastropods with two tentacles (Prosobranchs and aquatic Pulmonates (*Limnæa*), in which the labial palps are represented by the "velar area" of Ray Lankester⁶) this nerve springs from a distinct root.⁷

It is in this last way that the labial palps of *Trochus infundibulum* are innervated. In *Trochus*, as in all the Rhipidoglossa, a ventral portion of each cerebral ganglion

¹ Jeffreys, British Conchology, vol. iv. pl. i. fig. 3.

² Férussac, Histoire Naturelle des Mollusques Terrestres, pl. cxlvii. fig. 1.

³ Leidy, Special Anatomy of the Gastropoda of the United States, pl. xiv. fig. 1, 7 (as "external tentacles").

⁴ Fischer, Manuel de Conchyliologie, figs. 330, 331, p. 569.

⁵ Leidy, *loc. cit.*, pl. xiv. fig. 1, 10 (*Glandina*). Sarasin, Ueber drei Sinnesorgane und die Fussdrüse einiger Gastropoden, Arb. Zool. Inst. Würzburg, 1883, pl. ix. fig. 10.

⁶ Mollusca, Encyclop. Brit., 9th edition, vol. xvi. fig. 70, p. 660.

⁷ Bouvier, *loc. cit.*, pl. v. fig. 19.