

The situation of these organs at the base of the inhalent siphon, and near the gill, makes it probable that their function is to test the quality of the water which comes through the siphon to bathe the gills. They may therefore be compared to the osphradium (the olfactory organ of Spengel) of Gastropods. The ganglion at the base of the tuft in *Tellina balthica*, and of the tentacle in *Yoldia* and *Malletia*, really corresponds exactly to the "siphonal" ganglion observed in many other siphonate Pelecypoda (*Cytherea*,¹ *Solen*,² *Mya*,³ *Lutraria*⁴), and more or less separated from the visceral ganglion.

This "siphonal" ganglion is the osphradial ganglion of Gastropoda and of *Nautilus*. In the Pelecypoda without siphons (*Arca*, &c.), the sensory epithelium is situated directly above the visceral ganglia.⁵ This has led Ray Lankester wrongly to conclude that the latter are the osphradial ganglia ("olfactory"), and that the supra-oesophageals are cerebro-pleuro-visceral ganglia.⁶ But in the siphonate Pelecypoda the sensory epithelium is situated above the siphonal ganglion, and in certain forms (*Malletia*, *Tellina*) this special organ is complicated by the presence of a large tentacle or a tuft of small ones.

The foot is similar to that of the allied forms already known,—*Yoldia*, *Leda*, *Nucula*,—and presents a ventral plantar surface greatly resembling the creeping foot of Gastropods. The posterior retractor muscle of the foot extends from the posterior adductor muscle to the visceral mass.

The mouth has two lips, which are continued in well-developed labial palps (*b*) stretching behind the foot. The situation and aspect of these palps, in the whole group of Nuculidæ, have led to their being taken for gills, as, for instance, by Sars in his *Yoldia obtusa*,⁷ and Thiele in *Nucula*,⁸ where he has mistaken anterior for posterior. The two palps on each side possess a common posterior appendage (*c*), very long, but contracted and rolled up in the figure.

The gills of *Malletia*, and of the whole group of Nuculidæ, have a structure different from that of typical Pelecypoda, as Mitsukuri first pointed out in *Nucula* and *Yoldia*.⁹

In *Malletia* the structure of the gill is even simpler than in *Yoldia*, the lamellæ being much less numerous and less compressed.

¹ Duvernoy, Mémoires sur le système nerveux des mollusques acéphales, *Mém. Acad. Sci. Paris*, t. xxiv. (1853), pl. xi. xii. fig. 3, *g'*.

² Blanchard, Observations sur le système nerveux des mollusques acéphales testacés ou Lamellibranches, *Ann. Sci. Nat. (Zool.)*, sér. 3, t. iii., pl. xii. fig. 1.

³ Duvernoy, *loc. cit.*, pl. xi. xii. fig. 5; *g'*.

⁴ *Ibid.* pl. xi. xii. fig. 6, *g'*.

⁵ Spengel, Die Geruchsorgane und das Nervensystem der Mollusken, *Zeitschr. f. wiss. Zool.*, Bd. xxxv. p. 374, pl. xvii. fig. 13.

⁶ Mollusca, *Encycl. Brit.*, 9th ed. vol. xvi. p. 693.

⁷ On some Remarkable Forms of Animal Life, i., pl. iii. fig. 20, *e*.

⁸ Die Mundlappen der Lamellibranchiaten, *Zeitschr. f. wiss. Zool.*, Bd. xli., pl. xvii. fig. 17, *k*.

⁹ On the Structure and Significance of some aberrant forms of Lamellibranchiate gills, *Quart. Journ. Micr. Sci.*, vol. xxi., 1881, p. 595.