

situated the acetabuliferous appendages, and I wish to lay special stress on the fact that they originate on the proboscis and have no connection with the foot. The form of these appendages varies in different genera, as was shown in the systematic Report on the Gymnosomata. In the different known species of Pneumonodermatidæ these appendages have attained different degrees of development, varying from the condition in which the suckers are directly inserted on the proboscis (*Dexiobranchæa simplex*) to that in which they are carried on two long symmetrical stems (*Spongiobranchæa* and *Pneumonoderma*).

The structure of these suckers has been studied by Niemiec,¹ and by myself; it differs essentially from that of the suckers of Cephalopods, also studied by Colasanti,² by Niemiec, and by Paul Girod.³

At the posterior end of the proboscis is the buccal mass, in such a manner that it is carried quite forwards, along with the horny pieces which it encloses, when the proboscis is evaginated.

In this buccal mass (Pl. IV. fig. 6) are contained, as we have seen, two jaws united in the middle line (*b*), a powerful radula (*c*), and the organs known under the name of hook-sacs; these last are also seen of all degrees of development in the Pneumonodermatidæ, from *Dexiobranchæa* where they form only two small depressions enclosing short hooks (*a*), to *Pneumonoderma* where they form long evaginable sacs (*a'*) with a wall covered with hooks.⁴

From the fact that the proboscis is evaginable, it follows that when it is expanded it must contain the anterior part of the œsophagus doubled up within it; this latter then must increase in length with the proboscis, always being longer than it. The œsophagus is rather extensible and ciliated throughout its whole length as in other Pteropods. It is rather short and traverses a membranous diaphragm like that which we have seen in the Thecosomata (*Cuvierina*, &c.), and which we shall also find in all the Gymnosomata. This diaphragm divides the general body-cavity into a cephalic portion, enclosing the buccal mass, the central nervous system, the penis, &c., and a posterior visceral portion.

The œsophagus, in its passage through this diaphragm, is accompanied by the salivary glands, which open in the usual position, are much elongated, and do not present a marked separation between the secreting and conducting portions. They have been figured by van Beneden⁵ as united by their posterior parts. I have always found, however, both in the various species of *Pneumonoderma* which I have examined, and in other genera, that the two salivary glands are free and distinct throughout their whole extent.

The stomach forms a large pouch, with slightly muscular walls, entirely surrounded by the liver, which pours its secretion into it by numerous apertures; this arrangement is observed in all Gymnosomata.

¹ Recherches morphologiques sur les ventouses dans le règne animal, *Recueil Zool. Suisse*, t. ii. 1885.

² Ricerche anatomica e fisiologica sopra il braccio dei Cefalopodi, *Atti R. Accad. d. Lincei*, ser. 2, t. iii. pt. 2, 1876.

³ Recherches sur la peau des Céphalopodes, *Arch. de Zool. Expér.*, sér. 2, t. ii., 1884.

⁴ Compare the Systematic Report on the Gymnosomata, *Zool. Chall. Exp.*, part lviii. fig. 1, p. 6, 1.

⁵ Recherches anatomiques sur le Pneumodermon violaceum, d'Orb., *Mém. Acad. Sci. Bruxelles*, t. xi. pl. i. figs. 4, 9.