

a little above in the Limacinidæ. Even if the flexure appear neural in the straight Thecosomes (the figure of *Creseis* given by Gegenbaur¹ is inaccurate in this particular), it is always in reality lateral, since the anus opens to the left; and we have seen that this difference from the Limacinidæ has been caused by the process of rotation already explained, and that among the Thecosomata the primitive form is the *lateral* flexure found in the Limacinidæ, as also in the Gymnosomata, and differing in both from the true neural median flexure of the Cephalopoda.

In the same way, as regards the pallial cavity of the Thecosomata, it has been shown that the primitive form is the dorsal cavity of the coiled Thecosomata, and that the ventral position of the pallial cavity in the straight forms is due to a process quite different from that which has brought about the analogous situation in the Cephalopoda, and hence that the two arrangements are not at all comparable.

Consequently there is no proof to be found here of any connection between the Cephalopods and the Pteropods.

3. The majority of authors have traced a homology between the buccal appendages of the Gymnosomata and the arms of the Cephalopoda. I may specially mention R. Leuckart,² Lovén,³ von Jhering,⁴ Gegenbaur,⁵ Grenacher,⁶ Brooks,⁷ Ray Lankester,⁸ and Grobben.⁹ Huxley alone,¹⁰ even when declaring himself in favour of this interpretation, has maintained a certain reservation regarding the innervation of the appendages of the Gymnosomata.

If, however, these authors agree as to the homology of these two sets of organs, they differ entirely regarding their morphological value.

Huxley¹¹ and Ray Lankester¹² consider them to belong to the foot, whilst, on the other hand, von Jhering¹³ and Grobben,¹⁴ &c., regard them as cephalic organs.

Now, I have shown from their innervation that the appendages of the Gymnosomata are cephalic in their nature.

What, then, is the morphological value of the arms of the Cephalopoda? This question, which has been so often discussed, is of great importance. Indeed, it is upon the pretended homology between the appendages of the Gymnosomata and the arms of

¹ Untersuchungen über Pteropoden und Heteropoden, pl. ii. fig. 1, g.

² Ueber die Morphologie und die Verwandtschaftsverhältnisse der wirbellosen Thiere.

³ Bidrag til Kännedom om utveckling af Mollusca Acephala Lamellibranchiata, *K. Svensk. Vetensk. Akad. Handl.*, 1848.

⁴ Vergleichende anatomie des Nervensystemes und Phylogenie der Mollusken.

⁵ Grundriss der vergleichenden Anatomie.

⁶ Zur Entwicklungsgeschichte der Cephalopoden, *Zeitschr. f. wiss. Zool.*, Bd. xxiv.

⁷ Development of the Squid, *Loligo Pealii*, *Anniv. Mem. Boston Soc. Nat. Hist.*, 1880.

⁸ Mollusca, *Encyclopædia Britannica*, 9th ed. vol. xvi.

⁹ Zur Kenntniss der Morphologie und der Verwandtschaftsverhältnisse der Cephalopoden, *Arb. Zool. Inst. Wien*, t. vii.

¹⁰ On the Morphology of the Cephalous Mollusca, *Phil. Trans.*, 1853, p. 40.

¹¹ *Loc. cit.* pl. v. fig. 5.

¹² Mollusca, *Encyclopædia Britannica*, 9th ed. vol. xvi. p. 664.

¹³ Vergleichende Anatomie des Nervensystemes und Phylogenie der Mollusken, p. 269.

¹⁴ Zur Kenntniss der Morphologie und der Verwandtschaftsverhältnisse der Cephalopoden, *Arb. Zool. Inst. Wien*, vii. p. 71.