swimming. On this subject Souleyet [1] contradicts the statements of Péron,[2] Rang,[3] and d'Orbigny.[4] It appears, however, that they generally swim in a nearly vertical position with the head uppermost, or else slightly sloping, so that the ventral (pedal) side is turned upwards. They swim by moving the ends of the fins successively backwards and forwards.

The Gymnosomata, like the other Pteropoda, are nocturnal in their habits, ascending to the surface during the night and sinking to a lower level in the daytime, being driven down by the brightness of the light; and thus one can scarcely gather Pteropoda on the surface during the day. Mr Murray, however, informs me that he has frequently taken Gymnosomata at the surface in the Arctic seas during the daytime with a hand net.

It is impossible to distinguish, as d'Orbigny supposed,[5] twilight from nocturnal species. That writer thought that each species inhabits a definite zone of depth, since the different species come to the surface at different times, but it has been experimentally shown by Alexander Agassiz,[6] that no species of the pelagic fauna descends to more than 100 fathoms. It is then in this bathymetrical zone that the Pteropoda perform their daily oscillations, accompanied by some other pelagic animals, several of which serve as their prey.

The anatomical structure of the Gymnosomata will be described in the anatomical part of this Report.

4. The Gymnosomata of the Challenger Expedition.

The number of Gymnosomatous Pteropoda collected by the Challenger Expedition is comparatively not very extensive. This can be readily explained by the fact that these animals are not very numerous in species, and since they are pelagic and nocturnal in habit, they can only be captured by the tow-net during the night, when trawlings were not frequently made, or by sinking the nets to slight depths during the daytime, and also because many common surface forms were not always preserved.[7]

The number of the Challenger Gymnosomata is nevertheless greater than that of any other scientific expedition. The thirteen[8] stations at which they were captured yielded one new genus and specimens of all the other genera, except *Clione*, furnish-

[1] Voyage de la Bonite, Zoologie, t. ii. p. 273.
[2] Histoire de la famille des Mollusques Ptéropodes, *Ann. Mus. Hist. Nat. Paris*, t. xv. p. 69.
[3] Description d'un genre nouveau de la classe des Ptéropodes, *Ann. d. Sci. Nat.*, ser. 1, t. v. pp. 286, 287.
[4] Voyage dans l'Amérique méridionale, t. v. p. 128.
[5] *Loc. cit.*, p. 67.
[6] *Bull. Mus. Comp. Zoöl.*, vol. vi. p. 153.
[7] Narr. Chall. Exp., vol. i. p. 270, note by Dr. John Murray.
[8] I do not include in this number the station (not specified) between Cape Verde and Bahia, at which the *Pneumonoderma* (*violaceum*, I think), recorded in the Narrative of the Cruise, vol. i. p. 219, was taken. This station is unknown to me, because I did not find, in the collection sent to me, specimens of *Pneumonoderma* from any station between these two localities.