

two associated forms, though alike in other respects, presented one constant difference, namely, that the smaller shells had a large primordial chamber, whilst those of the larger variety had no recognisable primordial chamber, or one of very small size. The two forms were, however, in every case treated by de la Harpe as distinct species.¹ The more extended observations of M. Munier-Chalmas upon the genera *Nummulites* and *Assilina*² led to a somewhat different view, namely, that the difference was one of development only, and the "pairs" were two forms of the same species. The recent researches of the same author and of M. Schlumberger, upon other genera of Foraminifera, have revealed the existence of somewhat similar pairs amongst the Biloculine, Triloculine, Quinqueloculine, and Fabularian *Miliolæ*.³

The last-named authors offer two hypotheses by which these facts may be explained, but reserve their conclusions for a future paper. It is nevertheless worth mentioning that, in a later memoir, Dr. de la Harpe, after noting the occurrence of *Nummulites* in couples, as already described, and indicating that a different spiral measurement accompanies the diminution or apparent absence of the primordial chamber, though expressing no definite opinion on the subject, suggests that he should have been inclined to regard the difference between the corresponding shells as one of sexual character, had it been clear that any distinction of sex existed amongst the Protozoa.⁴

Pelagic Species.—One of the subjects brought prominently into notice by the observations taken on the Challenger Expedition is the relation of the surface-fauna of the ocean to that of the bottom-deposits. So far as the Foraminifera are concerned the question is by no means a new one; but the Challenger collections, and those more recently made by Mr. Murray on the cruises of the "Knight Errant" and "Triton," have brought many fresh facts into notice, and furnished new ground for its discussion.

The Foraminifera as a rule are not of pelagic habit. On the contrary, by far the larger proportion, probably 98 or 99 per cent. of the known recent "species" or "varieties," including the whole of the porcellanous and arenaceous groups and the bulk of the hyaline forms, inhabit the sand or mud of the sea-bottom, and are endowed with no swimming or floating powers. This may be regarded as a well ascertained fact. But, on the other hand, there are a certain number of forms belonging to eight or perhaps nine genera, which it is equally certain pass their existence, either in part or entirely, at the surface of the ocean or in mid-water. The practical importance of these comparatively few species is due to the extraordinary abundance in which they are found, and the relatively large proportion of the entire mass of the bottom-deposit which is made up of their shells.

¹ *Bullet. Soc. Vaudoise Sci. Nat.*, 1879, vol. xvi. pp. 229, 230.

² *Bullet. Soc. géol. France*, 1881, sér. 3, vol. viii. p. 300.

³ *Comptes rendus*, 1883, vol. xcvi. pp. 862, 1598.

⁴ *Bullet. Soc. géol. France*, 1881, sér. 3, vol. ix. p. 171.