

has, however, encountered one solitary case where plankton algæ could be employed for this purpose. *Biddulphia sinensis* (Fig. 248), a neritic diatom from the coasts of the Indian Ocean, was met with in the North Sea for the first time in 1903, to begin with in the southern parts, and then gradually farther and farther north, until at last it was discovered on the west coast of Norway at Bergen. Its travelling rate corresponds to the values which have been otherwise obtained for the velocities of the current along the coasts of Denmark and Norway. Latterly, it has found a fixed distribution-centre in the north-eastern corner of the North Sea, whence it extends

still farther northwards every autumn. The velocity of the current could hardly be determined from the observations of these last few years, as there is always the possibility that this diatom has more than one centre of distribution, but its annual wanderings clearly indicate the direction of the current.

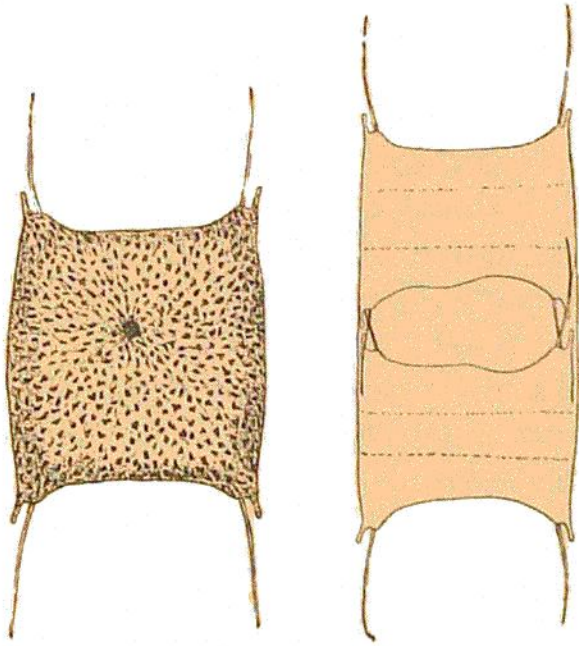


FIG. 248.—*BIDDULPHIA SINENSIS* ($1\frac{1}{2}\mu$).
(Ostenfeld.)

A large quantity of plankton algæ has been collected during the "Michael Sars" Expedition along the whole route, and will contribute valuable information regarding the distribu-

Phytoplankton collected during the "Michael Sars" Expedition.

tion of the different species. We have been particularly successful in our study of the coccolithophoridæ, owing to the improved methods we were able to adopt. I shall deal separately with their distribution in what follows, and at the same time give some particulars of their quantitative occurrence. Part of the material is still incompletely examined. The difficult species of *Peridinium* in particular, and of a few other genera, will require a separate monograph for their special treatment; we have secured immense numbers of these forms. In other respects our observations practically confirm the views regarding the distribution of species that we owe chiefly to Cleve.

I shall now give a preliminary description of the character of the plankton along our route, founded upon an examination of