

Another series of investigations in this field were those of C. G. J. Petersen, regarding the distribution of mollusca in the Kattegat. In *The Cruises of the "Hauch,"* Petersen¹ has employed the only empirical method of investigating the distribution of animals, viz. to analyse the distribution of species in relation to various external conditions, as for instance, high or low salinity, high or low temperature, great changes in temperature or salinity, etc. It proved possible in the Kattegat to define areas of distribution of certain species, coinciding with areas where characteristic physical conditions prevailed.

Similar methods have been employed by Chun for the study of pelagic organisms. An important branch of this science has the object of studying the changes occurring in the physical conditions of the ocean, and the influence of these changes on the occurrence or abundance of organisms. By means of a continually increasing co-operation between hydrography and biology, both equally necessary in the study of such problems, oceanography has made great progress, especially during the international investigations in the study of the sea.

The additions which during the cruises of the "Michael Sars" it has been possible to make to these branches of science consist mainly of information regarding the vertical and horizontal distribution of animals, accompanied by physical observations of various kinds. These biological and physical investigations place us in a position to test certain ideas regarding the adaptations of animals, and thus acquire knowledge on certain important mechanisms of life.

The following review of some of our principal results can by no means claim to be complete. The literature referred to, the various fields of biology discussed, and even the selection made from the material collected by our recent expedition, have all been limited for the purpose of this review. Still I hope to indicate some new contributions to science, and at the same time to convey some idea of the general methods and aims of biological oceanic research.

COLOURS OF MARINE ANIMALS

From time immemorial seafaring men have possessed a certain amount of knowledge as to the colours of marine animals.

of 1882 (H.M.S. 'Triton')," *Proc. Roy. Soc. Lond.*, vol. xxxv. p. 202, 1883; Murray, "The physical and biological conditions of the seas and estuaries about North Britain," *Proc. Phil. Soc. Glasgow*, vol. xvii. p. 306, 1886.

¹ Petersen, *Det videnskabelige Udbytte af Kanonbaaden "Hauchs" togter*, Kjöbenhavn, 1893.