are here confronted with an inter-play of several different factors. It is, by the way, worthy of notice that there is an interval of twelve or thirteen hours between the two principal maxima of temperature; this agrees with the tide-period, and we *know* that the velocity of the current varies with the tide.

In previous investigations in the Norwegian Sea we have several times encountered variations which are most naturally explained by supposing that there are great undulatory movements of the water-layers, and the investigations just described strongly corroborate this supposition. The problem is one of the greatest importance, and its solution will, in more ways than one, lead to a fuller comprehension of the science of the sea, in the first place with regard to the dynamics of the water-masses, and in the second place with regard to certain biological questions. The discontinuity-layer is often a boundary between two different worlds of living organisms, and it is a point of interest for the study of these to know if this boundary is moving up and down, for this would probably imply that the organisms themselves (possibly even shoals of fish) were also being moved up and down. On the continental slope, just below the edge, there live multitudes of marine animals, the warm water having one characteristic fauna, and the deeper cold water another. Now, if the fairly definite boundary between the two water-masses swings up and down, one must expect that there is a comparatively broad transitional region, where the particularly hardy individuals of either of these characteristic domains would live together. Where the change of temperature is slow and regular the effect upon the organisms would be of little importance; not so, however, where there is a marked discontinuity-layer, as for instance in the Norwegian Sea. The proof that there are such oscillations would also be of very great importance for our methods of studying the sea. Let us look, for example, at Fig. 190, showing a section from Shetland to the Faroe Islands, taken during the "Michael Sars" Expedition on the 10th and 11th of August. The positions of the stations are shown in Fig. 104, p. 122. Isotherms are drawn at intervals of two degrees Centigrade; single hatching indicates salinities between 35.00 and 35.25 per thousand, and cross-hatching salinities above 35.25 per thousand; in the deep layers the salinity was below 35 per thousand. The lines both for temperature and salinity are strikingly wave-like in the intermediate water-layers. The saltest water has come from the Atlantic in the south, and the cold deep water