

oceans, seem to indicate that the oceans are not quite so poor as Hensen's results would imply. But the nature, reproduction, and vertical distribution of the "plankton" differ entirely in the warm part of the ocean and in boreal waters. The only thing we can do at present is to compare these two classes of conditions, and to compare the groups of phenomena regarding adaptation found in the ocean.

Generally speaking, I think our experience justifies the opinion that the scientific investigation of an ocean must commence with observations of a qualitative kind. A chemist, intent upon the investigation of a complex chemical compound, sets to work in the same way, first endeavouring to make out the nature of the single components of the compound, and in many cases he will find it practicable to make preliminary, merely relative, estimates as to the quantity of each component present before entering into an absolute quantitative analysis.

Hensen himself has shown how to make a definite selection in the case of the complex "plankton"-problem by taking up for quantitative investigation the occurrence of one single organism, viz. the pelagic egg of the plaice. In this case, of course, an infinitely more clearly defined and sharply limited problem presented itself, and Hensen endeavoured to solve it for certain areas of the North Sea and the Baltic, developing the very interesting idea that the number of spawning plaice might be arrived at by studying the number of pelagic eggs within a restricted area, and ascertaining the number of eggs spawned by the average female plaice. While studying the cod eggs of the Norwegian Sea I have very often had occasion to consider the same problem, but I have never ventured to attempt its solution. Even in this case I considered it necessary, first of all, to make qualitative investigations, commencing with a detailed study of the areas where the eggs of each species occur.

Pelagic
fish-eggs.

The Norwegian waters are peculiar in varying greatly in depth: in the course of a few miles one may find depths ranging from a few to a couple of hundred fathoms; they are very instructive although, compared with the North Sea or the Baltic, they exhibit extreme conditions.

Another point to be considered is the fact that eggs, as soon as spawned, are carried away by currents, the distance which they travel depending on various local conditions. The influence of these currents must, therefore, be ascertained, as the eggs cannot be considered as stationary.