

the open ocean are found from 750 to 1000 metres, ascend not only to the coast banks of Ireland, where the water is warm and the specific gravity low, but also to the coast banks of Newfoundland (see Fig. 489, p. 659, showing the vertical distribution of *Clione* on our northern track).

How is this remarkable distribution to be explained? First of all it shows that our conclusions as to the distribution of animals must be drawn with great caution. Except the single occurrence of *Clione* to the west of Ireland, all the captures agree as to temperature, specific gravity, and viscosity, both in deep water as well as on the Newfoundland banks. We require further information regarding the physical and biological conditions in order to understand the difference between the coast banks and the ocean. The biological conditions, especially the great difference between the food supply on the coast banks and in the ocean, will be discussed after touching upon certain physical conditions.

As previously mentioned, Ostwald has pointed out the influence exercised by salinity on the size of organisms; in surroundings of low salinity certain organisms absorb water and increase in volume, while in high salinities they diminish in volume. To what degree this fact may entail a difference between the size of organisms belonging to the salt oceanic waters and the size of organisms in the fresher coast waters, can only be decided by future investigations. Possibly the richer nourishment offered by coast waters affords the organisms a better chance to store up fatty substances (*Clione* as well as *Noctiluca* store up fat), which increase the power of floating. Finally, we may raise a question which seems to be worthy of future investigation. Is the viscosity of the water influenced by the number of organisms suspended in it? That this may be so is conceivable when we think of china ink, for instance, which is more or less viscous according to the amount of substance dissolved in the water. Investigations as to the actual facts occurring in nature have not yet been made. Those who have observed the extent to which coast water may be filled with suspended substances, detritus as well as living organisms, may perhaps find this question worth consideration.

#### MIGRATIONS

We have considered how far and in what manner the appearance, shape, size, and also the several organs of different