From this it does not seem that such migrations as those mentioned above are due to changes in temperature and viscosity alone. We must, for the present, suppose that the animals have the power of actively altering their level in the water-layers. Ostwald's observations on the viscosity of sea-water, and on the floating capacity of organisms, should render these questions easier of solution, and their further investigation should form a very interesting object for future expeditions.

Effect of currents on the distribution of animals.

The currents of the ocean exert a very strong influence on the distribution of many animals. All seafaring men and the inhabitants of all shores have known for ages that drifting objects are carried very far by the currents of the sea, and that "rare" and strange animals are stranded on the coasts. Along the entire coast of Norway, even up to the Barentz Sea, drifting objects and stranded fish are found, which really belong to the distant warm Atlantic. Numerous accounts of the passive migrations of animals through currents are to be found in literature, many of them valuable notwithstanding the fact that these conditions have only exceptionally been made the subject of systematic investigation.

Looking at the current-chart (Fig. 508), we see that the central part of the North Atlantic, south of a line drawn from the Bay of Biscay to the northern United States, forms a separate current-system. The branch of the Gulf Stream flowing north-east towards the coasts of northern Europe receives an admixture of cold water from the Labrador current, and also large volumes of water, as well as numerous organisms, from the main body of the Gulf Stream. Entering the Norwegian Sea this branch of the Gulf Stream runs through the Faroe-Shetland Channel, sending off one branch to the North Sea and another branch along the coast of Norway right up to the Barentz Sea. This current system enables us to understand many of the laws governing the distribution of pelagic forms as referred to in Chapter IX. Thus the warm-water fauna of the North Atlantic belongs mainly to the central current system; isolated specimens belonging to this fauna not only occur in the north European Gulf Stream, but are found in the Norwegian Sea, and on the northernmost coasts of Norway (see the discussion of the distribution of pelagic fishes in depths between 150 and 500 metres in the Atlantic, and the occurrence of Atlantic fishes in the Norwegian Sea, p. 644). The distribution of the animals of the coast banks