

of data required for the consideration of such subjects, that the basin of the North Atlantic should be selected for investigation, more particularly as peculiarities of climate seemed there to be limited in space, and well defined and even extreme in character.

It seems at first somewhat singular that there should be any room for question as to the causes, the sources, and the directions of the ocean currents which traverse the ocean in our immediate neighbourhood, and exercise a most important influence on our economy and well-being. The investigation is, however, one of singular difficulty. Some currents are palpable enough, going at a rate and with a force which make it easy to detect them, and even comparatively easy to gauge their volume and define their path; but it seems that the great movements of the water of the ocean, those which produce the most important results in the transfer of temperature and the modification of climate, are not of this character. These move so slowly that their surface movement is constantly masked by the drift of variable winds, and they thus produce no sensible effect upon navigation.

The path and limits of such bodies of moving water can only be determined by the use of the thermometer. The equalizing of the temperature of bodies of water in contact with one another and differently heated, by conduction, diffusion, and mixture, is however so slow, that we usually have but little difficulty in distinguishing currents from different sources.

Up to the present time little had been done in determining the depth and mass of currents by the