

this way imperceptible by any direct effect upon navigation beyond the 45th parallel of north latitude, a peculiarity which has produced and still produces great misconceptions as to its real character.

The mode of determining the surface temperature of the ocean is sufficiently simple. A bucket is let down from the deck of the vessel, dashed about for a little in the water to equalize the temperature, and filled from a depth of a foot or so below the surface. The temperature of the water in the bucket is then taken by an ordinary thermometer, whose error is known. A common thermometer of the Kew Observatory pattern graduated to Fahrenheit degrees can be read with a little practice to a quarter of a degree, and a good-sized centigrade thermometer to a tenth. Observations of surface-temperature are usually made every two hours, the temperature of the air being taken with each observation, and the latitude and longitude noted at noon, or more frequently by dead reckoning if required.

Every observation of the surface-temperature of the sea taken accurately and accompanied by an equally exact note of the date, the geographical position, and the temperature of the air, is of value. The surface observations taken from H.M.S. 'Porcupine' during her dredging cruise, in the summer of 1869, are given in Appendix A.

The surface-temperature of the North Atlantic has been the subject of almost an infinite number of such observations, more or less accurate. Dr. Petermann, in a valuable paper on the northern extension of the Gulf-stream, reduces the means of more than a hundred thousand of these, and deduces the scheme