

lashed to the sounding-line at a little distance from one another, a few feet above the attaching ring of a 'detaching' sounding instrument. The lead is run down rapidly, and, after the weight has been disengaged by contact with the ground, an interval of five or ten minutes is allowed to elapse before hauling in. The shorter of these periods seems to be quite sufficient to insure the instrument acquiring the true temperature. In taking serial temperature soundings—that is to say, in determining the temperature at certain intervals of depth in deep water—the thermometers are attached above an ordinary deep-sea lead, the required quantity of line for each observation of the series run out, and the thermometers and lead are hove in each time. This is a very tedious process; one serial sounding in the Bay of Biscay, where the depth was 850 fathoms and the temperature was taken at every fifty fathoms, occupied a whole day.

I ought to mention that in taking the bottom temperature with the Six's thermometer the instrument simply indicates the lowest temperature to which it has been subjected; so that if the bottom water were warmer than any other stratum through which the thermometer had passed, the observation would be erroneous. This is only to be tested by serial soundings, but in every locality where the temperature was observed during the 'Porcupine' expeditions the temperature gradually sank, sometimes very steadily, sometimes irregularly, from the surface to the bottom, the bottom water having been constantly the coldest. It is probable that under certain conditions in the Polar seas, where the sur-