

the weight of the sounding line plus the impetus given it by the descending sinkers will be dragging the line off the reels. Directly, therefore, a sudden lengthening of the intervals was observed it was known that the sinkers were at the bottom, and the heaving in of the line was commenced by bringing it to the drum of the donkey-engine. Care was taken not to heave up too quickly at first, and also to keep the ship carefully in position over the line, for if allowed to fall off, the wind drifting her to leeward, brought an unnecessary strain on the sounding line. When hove up, the water bottle and thermometers were taken off, and the lower part of the cylinder of the sounding rod unscrewed and its contents carefully preserved.

The preceding table shows the rate of descent of the sounding lead from 500 to 3000 fathoms, and being the mean of a great number of observations, will probably be useful to surveyors taking deep-sea soundings with apparatus similar to that used on board the Challenger, as any great difference from the numbers therein given would show either that the weights were at the bottom, that the line was incorrectly marked, or that a current was affecting it.

The time-intervals observed in seven of the exceptionally deep casts obtained by the Challenger are given in the following tables, from 1000 fathoms to the depth obtained; five of them with 4 cwt., and two with 3 cwt., of sinkers attached.

It may be as well to remark here that although only the time each 100 fathom mark entered the water, and the intervals between these times are given in these tables, in actual practice the time each 50 fathom mark entered the water was registered when 2000 fathoms of line had been paid out, and the time each 25 fathom mark entered the water when 3000 fathoms had run out, so that it was possible to detect at once when the sinkers reached the bottom.