

was frequently attached to the beam of the trawl and iron frame of the dredge, and gave in most cases information of the immediate surface-layers of the bottom that could not be obtained by the trawl, dredge, or sounding tube. A tow-net was in like manner

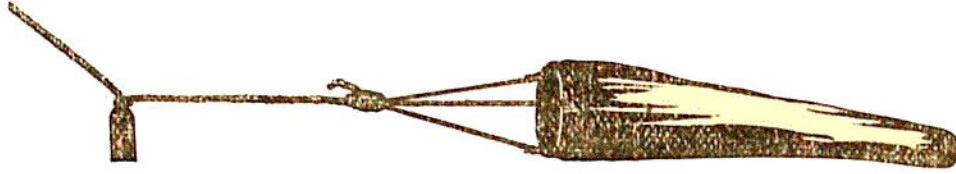


FIG. 15.—Ordinary method of using the Tow-Net.

sometimes fixed to the weights that were placed on the trawling line, some 200 to 500 fathoms¹ in front of the dredge or trawl. This net occasionally came up filled with mud or ooze.

In another way, however, the surface-nets gave still more valuable information. During almost every day of the cruise these nets were dragged at the surface and in depths of 10, 20, 50, and 100 fathoms,² either from the ship or from small boats lowered for the purpose. Occasionally they were sent down to and dragged at depths of 500, 1000, and 1500 fathoms.³ The contents of the deeper nets were carefully compared with the contents of those dragged at the surface and in shallow water. Again, the organic remains found in the deposits at the bottom were carefully compared with the animals captured in the tow-nets on the same day or in the same region. Hundreds of observations of this kind, repeated day after day, led to a very accurate conception of the part played by surface organisms in determining the nature of the deposits now forming on the floor of the ocean at different depths and in different latitudes throughout all parts of the world.

On every occasion during the cruise when the anchor was heaved on board, it was carefully inspected, and specimens of the mud which came up on it were examined and preserved. Recently Mr. Buchanan anchored one of the telegraph ships in 1600 fathoms⁴ with an anchor specially arranged to bring up a specimen of the deposit (see Fig. 16). This was a Tropman anchor, weighing 5 cwts.,⁵ the flukes being connected by a frame to which a canvas bag was laced; with this he obtained over 1 cwt.⁶ of Globigerina Ooze.

The various contrivances have now been indicated by which information is obtained concerning the deposits now forming on the floor of the great oceans and inclosed seas. Although there are many modifications in the trawls and dredges not here referred to, these are not of any essential importance as regards the information furnished about the

¹ 366 to 914 metres.

⁴ 2926 metres.

² 18·3, 36·6, 91·5, and 183 metres.

⁵ 253·7 kilogrammes.

³ 914, 1828, and 2742 metres.

⁶ 50·7 kilogrammes.