

## APPENDIX A.

*Summary of the Results of the Examination of Samples of Seawater taken at the Surface and at various Depths.* By WM. LANT CARPENTER, B.A., B.Sc.

*Surface-waters.*—Care was taken to obtain these samples as pure as possible, and free from any contamination caused by matters derived from the vessel, by dipping them up in clean vessels at a few inches below the surface at or near the bow of the ship. In two instances, however, the samples were taken from abaft the paddles.

*Waters taken at depths below the surface.*—It was found desirable to coat the brass Water-Bottles internally with sealing-wax varnish, owing to the corrosive action of the seawater. The apparatus was then found to work perfectly satisfactorily in all cases in which there was sufficient weight on the sounding-line to which they were attached to keep the bottles perpendicular, or nearly so. When, from the smallness of the attached weight, or the roughness of the sea, the sounding-line was at an acute angle with the general level of the sea-surface while it was being drawn up, the results of the examination of water thus obtained rendered it highly probable that some water at or near the surface had found its way into the bottle, and that its contents were not to be relied on as coming from the lowest depths.

When bottom-water was obtained from depths beyond 500 fathoms, it was almost invariably charged with a quantity of very fine mud in suspension, rendering it quite turbid. Many hours' standing was necessary for the deposit of this; but it was readily removed by filtration. In no instance was there any evidence of water from great depths being much more highly