

GENERAL SUMMARY OF THE SCIENTIFIC OBSERVATIONS AND RESULTS AT EACH OF THE CHALLENGER OBSERVING STATIONS.

In the following summaries of the observations carried out, and of the scientific results obtained, at each of the Challenger observing stations at sea, the descriptions are almost exclusively limited to those investigations which were undertaken with the view of ascertaining the physical and biological conditions of the ocean.

The date, number, and position of the sounding and dredging or trawling station are stated in the first instance, the numbers of the charts and diagrams on which the positions of the stations, the temperature results, and the nature of the deposits are represented being given within brackets.

The temperature of the air at noon and the mean temperature for the day are then noted, followed by the temperatures of the sea-water which may have been obtained at different depths from the surface to the bottom. These figures showing the temperature of the sea-water are, with the exception of those near the Antarctic regions, taken from the curves of temperature published in the Physical Reports,¹ where the actual readings of the thermometers can be found.

The density of the surface, bottom, or intermediate waters of the ocean, uniformly reduced to the temperature of 60° F., is given, as well as the quantity of carbonic acid in the samples when this was determined, these results being taken from Mr. Buchanan's Report.²

The depth of the sea is recorded along with the nature of the deposit on the sea-floor, the percentage of carbonate of lime being always mentioned, as this gives the best indication of the chemical composition of the deposit.

The above general results are usually shown in tabular form, and precede paragraphs which recount the proceedings of the ship during the day and give an account of the more important operations on board, such as the times when the thermometers, trawl, or other instruments were lowered into the sea and hauled up again, the quantity of line paid out with the dredge or trawl, a note of any special experiments, and a general statement of the success attending the day's work, along with information as to the weather, direction of the wind and current, and unusual occurrences.

The names of the genera and species of fishes and invertebrates (exclusive of the Protozoa), which were captured in the trawl or dredge, are then stated in systematic order. After the name of each species, particulars are added as to the number of specimens secured, their condition at the time of capture, their occurrence at other Challenger

¹ Phys. Chem. Chall. Exp., Part iii.

² Phys. Chem. Chall. Exp., Part ii.