

serial temperature soundings were taken (see Diagram 1 and Sheet 6). The sounding line parted on one occasion, owing to the spring of the Hydra rod failing to disengage the sinkers; and on another occasion the rod when it reached the surface had nearly 100 fathoms of sounding line entangled around it, owing, in all probability, to the perfect stillness of the water for some considerable distance over the bed of the sea, so that the quantity of line allowed to run out in excess of the depth (necessary to obtain by the time intervals a proof that the bottom had been reached) descended exactly on the sounding rod, and remained entangled by the last coil hitching itself round the other parts before "heaving in."

Of the fifteen dredgings five were unproductive, the dredge having come up empty twice and foul thrice. One of the most successful dredgings in this section, so far as procuring a large sample of the deposit from the bottom was concerned, was obtained by sinking the apparatus with 3 cwt. of sinkers attached to a Hydra rod at the bottom of the dredge net, the depth being 3150 fathoms. The bag came up with a large quantity of mud in it. The temperature of the mud was found to be the same as the bottom temperature given by the deep-sea thermometers, and some champagne was cooled by placing the bottles in it. The first trawling in 1950 fathoms, the deepest up to that time attempted, was unsuccessful, as the beam of the trawl, which was of fir, was broken at the bottom, whilst the pressure of the water was sufficient at that depth to crush the softer parts of the wood to such an extent that, when the beam was brought to the surface, the knots were standing out nearly three quarters of an inch beyond the general surface of the wood.

This section (see Diagram 1) shows a remarkable rise in the bed of the Atlantic from 2000 to 1525 fathoms, at a point about 160 miles S.W. of Ferro Island (see Sheet 6). This elevation, which appears to be of small extent, is probably of volcanic origin. Westward of it the bed of the ocean sinks until a depth of 3150 fathoms is reached 1100 miles from Tenerife, after which it gradually rises to 1900 fathoms 1650 miles from Tenerife, and again sinks to 3000 fathoms (which depth it retains for 200 miles, until within 100 miles of Sombrero Island). In short, the soundings clearly indicate the existence of depressions on each side of the section, separated from each other by a gradual submarine elevation of over 1000 fathoms (6000 feet). As the United States surveying vessel "Dolphin" had obtained some soundings on this elevation in 1851, it was named the "Dolphin Ridge."

The temperature of the water at the bottom was, at all depths exceeding 1800 fathoms, exceedingly uniform, varying only  $1^{\circ}5$ , or from  $35^{\circ}5$  to  $37^{\circ}0$ ; but although this range is small, it is sufficient to indicate a decided difference between the bottom temperatures on the eastern and western sides of this section. For instance, the twelve temperatures on and to the eastward of the Dolphin Ridge only vary half a degree, from  $36^{\circ}5$  to  $37^{\circ}0$ , the mean being  $36^{\circ}8$ ; whilst the mean of the seven temperatures west of