

indications of the coldest water being at the greatest depth, were not so marked as between St. Paul's Rocks and the American coast, for the temperature of  $34^{\circ}2$  was found at the depth of 2150 fathoms, whilst at 2350 fathoms there was a temperature of  $34^{\circ}7$ . The former temperature, however, rests on the indication of one thermometer, whilst the latter is the mean of two, and the thermometer that gave the temperature of  $34^{\circ}2$  at 2150 fathoms gave a temperature of  $34^{\circ}4$  at 2350 fathoms. It is probable, therefore, that the temperature of  $34^{\circ}2$  may be  $0^{\circ}5$  too low.

The serial temperature soundings showed that, notwithstanding a change of surface temperature of  $24^{\circ}$ , and of latitude of  $18^{\circ}$ , the isotherm of  $40^{\circ}$  was nearly parallel with the surface, its average depth being 410 fathoms, and its range 80 fathoms, viz., from 380 to 460 fathoms. Above the isotherm of  $40^{\circ}$  the temperature increased gradually to the surface (see Diagram 5).

No observations on currents were made, except the ordinary ones of ascertaining its direction and strength, by means of the difference of the position of the ship, by observation and dead reckoning.

On the 3rd October, at Station 130, the velocity of the wind was 18 miles per hour in the forenoon and 20 in the afternoon, the force registered being 4; on the 6th October, at Station 131, the velocity was 12 miles per hour, the force registered being 3; and on the 14th October, at Station 134, the velocity was 11 miles per hour, the force registered being 2. On the 15th October, at anchor off Tristan da Cunha, the velocity was 16 miles per hour, the force registered 4 to 5.

On the 14th October, at daylight, the peak of Tristan da Cunha was sighted, bearing S.S.W., distant 54 miles, and at 7 A.M. the ship stopped to sound and dredge at Station 134 (see Sheet 16). At 3 P.M., having completed dredging, a course was shaped for the island, the weather being fine; and at 10 P.M. the vessel was stopped off it, and "laid to" for the night. The peak of Tristan was visible in the early morning, but clouded over at 8 A.M., and was not seen during the remainder of the day, except for a short interval at 5 P.M.

Between the coast of America and Tristan the greatest depth obtained was 2350 fathoms. There were many indications of an extensive plateau surrounding the Tristan group, with depths varying from 1425 to 2000 fathoms.

The deposits in depths less than 2100 fathoms on the Tristan plateau contained from 85 to 95 per cent. of carbonate of lime, which was almost wholly composed of the shells of pelagic organisms, whilst the three soundings in depths greater than 2100 fathoms towards the American coast contained from 35 to 55 per cent. It was observed that as the ship proceeded southward the Foraminifera in the deposits became dwarfed, and some tropical species disappeared. There were quartz fragments in the deposits near the American shores, but these disappeared or were exceedingly rare in the deposits towards the centre of the South Atlantic.