

was washed out of the chains just after noon; he must have sunk immediately, for although the vessel was stopped for about an hour, no sign of him could be seen. At 4 P.M. the ship entered Port Nicholson, and at 5 P.M. anchored in 9 fathoms off the town. In passing through Cook Strait the surface temperature was found to be 9° higher at the western entrance than in Port Nicholson.

The section from Sydney to Cook Strait shows that on the Australian coast the incline of the bottom from the 100 fathom line (which was 17 miles from the shore), to a depth of 2100 fathoms 57 miles from the land, was about 1 in 20, which is less abrupt than had been previously found to be the case farther to the southward off Twofold Bay, where it was about 1 in 6. From Station 164D, 2100 fathoms, the bottom slopes gradually to 2600 fathoms, at a distance of 240 miles from the coast, and continues at that depth for 140 miles, when it rises with a gentle incline to 1100 fathoms, 780 miles from Sydney, and 335 miles from the entrance to Cook Strait, after which comparatively shallow soundings were obtained (under 400 fathoms) to the entrance of Cook Strait. The most westerly of these shallow soundings was one of 275 fathoms, 200 miles from the land, and 125 miles east of the 1100 fathoms sounding. The bottom on this bank was extremely hard, so much so that but a small quantity was brought up by the sounding rods; but as both the trawl and dredge dragged freely along, without catching in any irregularities, it seems to be smooth on the surface. A reference to the general chart seems to indicate that a bank of soundings, of less than 500 fathoms, extends a considerable distance west of the North Cape of New Zealand. Such being the case, the bank is probably continuous all along the western side of the North Island.

The bottom temperature in this section at depths exceeding 2000 fathoms was $34^{\circ}5$, in less than 2000 fathoms the temperature increased gradually to the surface.

The surface temperature increased from 62° at Sydney to 69° twenty miles from Port Jackson, remaining at or above that for 30 miles, and then decreased gradually for the next 50 miles to between 63° and 64° , which temperature was retained for 300 miles, after which it gradually fell to 58° at the entrance of Cook Strait.

The serial temperatures show that immediately adjacent to the Australian coast, the warm southerly current appears to affect considerably the position of the isotherms above 45° ; the isotherms of 40° , 45° , 50° , and 55° are found at greater depths on the New Zealand side of the section than on the Australian side (see Diagram 11).

The deposits in depths of from 290 to 1200 fathoms off the Australian coast were green muds, containing a considerable quantity of glauconite, and resembling in many respects the deposits at similar depths off the south coast of Africa. The carbonate of lime ranged from 44 to 48 per cent., and consisted of the shells of *Globigerina*, *Orbulina*, *Pulvinulina*, *Pullenia*, *Miliola*, *Textularia*, *Discorbina*, *Cristellaria*, and