

bearing S. $\frac{1}{4}$ E. After trawling, sail was made at 10 A.M. towards the Friendly Islands. It was intended at first to try to pass over the La Rance Banks, but on due consideration it was thought more advisable to avoid them, as from the description given they appear to be merely the shoal parts on the outside of a large coral bank, which would require more time to survey than could be spared for the purpose.

On the 17th, at 9 A.M., a sounding and serial temperatures were taken in 2900 fathoms, at Station 171A (see Sheet 27), the bottom temperature being $34^{\circ}3$, slightly colder than that between Australia and New Zealand, after which the ship again proceeded towards the Friendly Islands. During the past forty-eight hours a strong easterly current was experienced, running more than a mile per hour.

After leaving the Kermadecs, no Cape Pigeons, Albatrosses, Prions, nor any other of the southern birds, which had been constant attendants on the ship while in the Southern Ocean, were noticed. For several days between the latitudes of 25° and 28° S., no birds were noticed from the deck of the ship. The night before arriving at Tongatabu a *Phaëthon flavirostris* came on board; it flew straight at the quartermaster's light near the wheel, and nearly knocked it over.

On the 19th, at 3 A.M., having run within 15 miles of the island of Eooa, the vessel was hove to until daylight, the weather being dark and misty. At 6 A.M. sail was made for Tongatabu, the low land of which and of Euaigee Island were seen at 7 A.M., and at 9 A.M. the ship proceeded under steam through the east channel for the anchorage.

Between Wellington, New Zealand, and Tongatabu the Stations were few, and at too irregular distances to admit of a section being constructed; the deepest water obtained was 2900 fathoms, where the bottom temperature, as stated above, was nearly the same as that between Australia and New Zealand, but sufficient observations were obtained to allow a temperature section being drawn between New Zealand and the Fiji Islands, from which it will be seen that the isotherms all close together as the latitude decreases, or in other words that whilst the surface temperature gradually increased from 57° to 78° , the isotherm of 40° , which at New Zealand was at the depth of 800 fathoms, was found to be only 490 fathoms from the surface at the Fiji Islands (see Diagram 12).

The deposits off the east coast of New Zealand in 1100 and 700 fathoms were blue muds, with a thin characteristic layer of a reddish colour on the surface. They contained only from 4 to 9 per cent. of carbonate of lime, the chief part of the deposit consisting of continental débris derived from the neighbouring land. The dredgings were rich in *Pourtalesia laguncula*, Agass., *Serolis bromleyana*, Sulm., *Protocaulon molle*, Köll., and *Leptoptilum gracile*, Köll., and contained a very large number of other deep-sea species in addition.

The deposits off the Kermadec Islands in 520, 630, and 600 fathoms were volcanic muds, containing very many large blocks of pumice. The dredgings here also yielded