

CHAPTER VIII.

Cape of Good Hope to Prince Edward and Marion Islands—The Crinoidea and Myzostomida—The Crozet Islands—
The Petrels—Arrival at Kerguelen.

CAPE OF GOOD HOPE TO PRINCE EDWARD AND MARION ISLANDS.

ON the 17th December 1873, the Challenger left Simon's Bay for the southern cruise, at 6.30 A.M. As the vessel steamed out to the open sea considerable differences in the temperature of the surface water were observed. In Simon's Bay it was $64^{\circ}5$, but at 10 A.M., when the Cape of Good Hope bore W. by N., distant 5 miles, it had fallen to $55^{\circ}5$, and was accompanied by a corresponding decrease in the temperature of the air, which fell $3^{\circ}8$. At noon, when Cape Hangklip bore N. 78° E., and Zwart Kop N. 14° E., the surface temperature had again risen to $65^{\circ}0$, and there was also a rise in the temperature of the air. At 1.30 P.M. a sounding and dredging in 98 fathoms, and serial temperatures at every 10 fathoms, were obtained. The dredging was very successful. The deposit consisted of a green glauconitic sand, containing 50 per cent. of carbonate of lime, which was composed chiefly of Foraminifera, fragments of Molluscs, Polyzoa, *Serpula*, and Echinoderms. At 6 P.M. sail was again made and a course shaped to the southward.

On the 18th, at 6 A.M., sails were furled, and the ship sounded and dredged in 150 fathoms, and at 8.30 A.M. again made all sail to the southward towards Marion Island. The deposit was nearly the same as on the preceding day. Glauconite is exceptionally abundant in these deposits on the Agulhas Bank; the grains are about one millimetre in diameter, and are isolated or agglomerated into phosphatic nodules several centimetres in diameter. Besides these grains, the Foraminifera are often filled with a pale green glauconitic substance, which only rarely shows all the typical characters of glauconite. In these deposits there was much green-coloured amorphous matter, which, when heated on platinum, burned like an organic substance, became black, then red, and gave off an organic smell.

On the 19th, at 1 A.M., the temperature of the surface water rose from 65° to 72° , and remained at from 72° to 73° all day. At 6 A.M. a sounding and dredging were obtained in 1900 fathoms, as well as serial temperatures and specimens of the water from several depths (see Sheet 18). The deposit was a Globigerina ooze, containing 90 per cent. of carbonate of lime, which consisted almost entirely of pelagic Foraminifera. In the dredge were several irregular brown-coloured phosphatic nodules, containing 49 per cent. of tricalcic phosphate. Whilst sounding and dredging, the current was found