Off Kerguelen Island.—During the month of January 1874, the Challenger took many soundings and dredgings in the bays and several miles off the east coast of Kerguelen (see Chart 21), in depths varying from 20 to 130 fathoms.

In all cases the deposit was a green Volcanic Mud[1] with a strong smell of sulphuretted hydrogen, and composed principally of mineral particles and the siliceous skeletons of organisms. Generally these muds did not effervesce with acids; sometimes, however, a few spots of effervescence were observed. The carbonate of lime never appeared to make up more than 1 or 2 per cent. of the deposit, and consisted of a few fragments of Echinids, Mollusc shells, Polyzoa, and Foraminifera. These last were *Miliolina*, *Uvigerina*, and *Discorbina*; only one or two pelagic Foraminifera were noticed in these muds. The mineral particles made up from 20 to 60 per cent. of the deposit, and consisted of fragments of felspar, plagioclase, augite, magnetite, hornblende, olivine, sometimes decomposed with red tint, lapilli, pumice, and brown volcanic glass. The size of these particles was from 0·5 mm. to 0·1 mm. in diameter, the larger sized particles being found in those soundings nearest the coasts. The frustules of Diatoms made up in every case a large part of the deposit, and along with the siliceous spicules of Sponges, probably as much as 50 per cent. in some of the samples. The soundings farthest removed from the coast contained generally much the larger proportion of siliceous remains. These muds contained but little clayey matter, and when dried were grey-green, slightly coherent, and earthy in aspect.

Off Heard Island.—On the 2nd February, after leaving Kerguelen Island, a successful sounding and dredging were obtained (see Chart 18) at Station 150 in 150 fathoms, on a hard bottom. The bottom was covered with a coarse gravel; the dredge brought up a large number of stones, fragments of rocks of irregular form, varying from 1 to 7 centimetres in diameter, with the angles more or less rounded, but much less so than those of ordinary rolled pebbles. They were blue-black, and the majority had a compact structure and were fine grained, while others were porous with a rough surface, all belonging to the felspathic basalts (dolerite). Among these volcanic fragments were noticed two or three pieces of granite and one of sandstone. The majority of these stones were overgrown by Foraminifera, Sponges, Actiniaria, Brachiopods, Ascidians, *Serpula*, and Polyzoa. It was roughly estimated that 20 per cent. of the deposit was made up of the remains of calcareous organisms, and that 15 per cent. came from Sponge spicules and other siliceous remains, and that 60 per cent. consisted of the mineral particles, and 5 of amorphous clayey matter.

The deposit in the sounding and dredging in 75 fathoms off Heard Island (see Chart 22) was a greenish black Volcanic Sand, composed essentially of black volcanic sand and remains of organisms. There was only 2·58 per cent. of carbonate of lime, consisting of shells of *Miliolina*, *Discorbina*, *Uvigerina*, and one or two *Globigerina*, along with fragments of Polyzoa, Molluscs, Echinoderms, &c. The mineral particles made up 80 per cent., and

[1] Green Mud should have been green Volcanic Mud in the Tables (see p. 78).