

cent. This is a good instance illustrating the diminution of carbonate of lime in the deposit with increasing depth, as here the surface conditions were the same, and the character of the mineral particles alike in all the soundings. The mineral particles consisted of feldspars, hornblende, augite, magnetite, and vitreous particles. Radiolaria, Diatoms, and fragments of other siliceous organisms did not make up more than 1 per cent. of the deposits.

*Off Fernando Noronha.*—At Fernando Noronha (see Chart 14) dredgings were taken close to shore, in depths varying from 7 to 25 fathoms. The bottom was covered with a calcareous sand or gravel, of a mottled red and white colour, the fragments varying from 2 to 3 cm. in diameter, and consisting chiefly of calcareous Algæ, with fragments of Echinoderms, Molluscs, Polyzoa, Corals, *Polytrema*, *Amphistegina*, and other Foraminifera. There were also numerous volcanic pebbles.

*Fernando Noronha to Pernambuco and Bahia.*—Between Fernando Noronha and the American coast there is a deep depression, in which a depth of 2275 fathoms was obtained, and comparatively deep water extends to within 30 miles of the American shore. With one exception, the deposits in the section from Fernando Noronha to Pernambuco (see Charts 12 and 15) were Globigerina Oozes, with from 37 to 80 per cent. of carbonate of lime. The exception was a Red Mud from 500 fathoms, the first of the kind obtained since leaving England.

The deposits along the coast of Brazil differed in colour from those which the Challenger found along other continental shores. Here they were red, due, apparently to the large quantities of ochreous matter carried into the sea by the Brazilian rivers. Usually the colour of deposits along continental shores is blue, with a surface layer of a red or brownish colour. The carbonate of lime in the soundings off this coast varied from 60 to 6 per cent. according to depth, distance from the coast, and whether or not opposite the embouchures of rivers. The mineral particles consisted of fragments of quartz, plagioclase, feldspars, sometimes kaolinized, epidote, mica, augite, hornblende, fragments of rocks and vitreous particles, the size varying from 0.05 to 1 or 2 mm. in diameter. Radiolaria and Diatoms were nearly, if not quite, absent from these deposits, and when present they, along with siliceous Sponge spicules, did not appear to make up over 1 per cent. of the whole deposit. The apparently complete absence of glauconite along this coast was also remarkable.

If this and the two preceding sections be examined, by reference to Diagram 4, it will be observed that two elevations, crowned by St. Paul's Rocks and Fernando Noronha respectively, divide the Atlantic at this part into three basins or depressions.

*Off Bahia.*—During the stay at Bahia the pinnace was engaged several days dredging in the bay. In some places the deposit was a white quartz sand containing fragments of feldspar, mica, magnetite, hornblende, and other minerals, and also fragments of Echinoderms, Polyzoa, *Serpula*, and other organisms. In other places it was a dark blue mud,