"Near this spot the officers of H.B.M.S. Challenger took magnetic observations, August 29th, 1873, dip 22–32. Caught plenty of fish."

A few successful dredgings were obtained by laying out the dredge in a boat astern of the ship while secured to the rocks, and heaving it back.

The soundings close to St. Paul's Rocks showed a hard or rocky bottom, or a Globigerina ooze containing numerous fragments of the rocks and olivine, enstatite, serpentine, magnetic grains, and actinolite.

A detailed Report on the Petrology of St. Paul's Rocks has been published in Volume II. of the Narrative of the Cruise,[1] to which the Reader is referred for details. The following note, giving the chief results of the investigation, has been furnished by Professor Renard, F.G.S.:—

"The position of St. Paul's Rocks, far removed from any continent, together with their aspect and lithological characters, caused them to be considered as the last trace of some vast district lost by submergence. Darwin, struck by the peculiar character of the mineral mass, denied its volcanic origin. He says:[2]—'It is not of volcanic origin, and this circumstance, which is the most remarkable in its history (as will hereafter be referred to), properly ought to exclude it from the present volume.' Speaking of the lithological character of these islets, he described them as composed of rocks unlike any which he ever met with, and would not characterise them by any name. He considered the northern rock of the group to be formed of a sort of "harsh stone," which breaks up into fragments so regular as to be mistaken for blocks of altered orthoclase, and, moreover, saw what he considered to be veins of serpentine running through the whole mass. The observers of the Challenger Expedition, following Darwin, classed the rocks composing the group as serpentine. In doing so they have placed them very nearly in the class they should occupy in the lithological series. Mr. Buchanan ascertained during the voyage that the rock contained magnesia, alumina, and peroxide of iron, and that many specimens gave off water on heating in a closed tube. The naturalists who have visited the island have drawn attention to the fact that the rocks to the south are covered over with a substance that gives them at a distance a dazzling white appearance. This is due in part to the excrement of an immense multitude of seabirds that gather on the rocks, and in part to a coating of a white, hard, brilliant material which will be described hereafter.

"The olivine rock of St. Paul's Rocks presents in general an unusually fresh appearance; showing signs of decomposition only along the crevices. This peridotite is perfectly homogeneous to the naked eye and very compact. Its colour is blackish-grey, bordering to green and black; splinters of the rock are translucent on the edges and of a greenish tint. The lustre varies from subvitreous to resinous; the splinters redden before the blowpipe, and are infusible; the streak is grey or greenish; in hardness it is inferior to felspar. An analysis by Dr. Sipöcz has given SiO_2, 43·84; Al_2O_3, 1·14; Cr_2O_3, 0·42; FeO, 8·76; MnO, 0·12; NiO, 0·51; CaO, 1·71; MgO, 44·33; H_2O, 1·06 = 101·89. On calculating this analysis we find that the rock contains 75 per cent. of olivine and 25 per cent. of enstatite. Thin sections from slightly decomposed specimens show that the rock is composed of olivine, enstatite, and chromic iron.

[1] Report on the Petrology of St. Paul's Rocks, by the Rev. A. Renard, Narr. Chall. Exp., vol. ii., App. B.
[2] Darwin, Volcanic Islands, p. 32, 1851.