in a sort of horse-shoe round the bay; they are composed of hard black rock, and another yellowish rock with black laminæ in it, "full of variously coloured pseudo fragments," according to Darwin a variety of the former black rock.

There are in places bands of a green stone resembling Serpentine. The whole is intersected by various veins, mostly nearly vertical and running in all directions, consisting of various rocks, viz.: brown ferruginous laminæ, a coarse conglomerate of beach pebbles, and a finer conglomerate which contains fragments of sea shells and nullipores, and which are considered by Darwin as evidently of later origin than the main mass of the rocks. These seams of conglomerates have the appearance of having been formed of beach fragments washed into fissures in the rock and consolidated there. Each face of the containing fissure is covered by a peculiar dense and hard black layer of about a quarter of an inch in thickness. This black layer is mentioned by Mr. M'Cormick in "Ross's Voyage"; Mr. Buchanan found it to be composed of "phosphate of lime, peroxide of manganese, a little carbonate of lime and magnesia, with traces of copper and iron."* He considers that the rocks as a whole may be classed as Serpentine.

Mr. Darwin has dwelt on the importance of the fact that the rocks are not volcanic, like nearly all other oceanic islands. The depth to the eastward of St. Paul's Rocks is irregular, and a depth of only 1,500 fathoms was obtained shortly before we approached them, succeeded by deeper water. There is no connecting ridge between the rocks and Fernando Noronha. No doubt the rocks are the remnants of a much larger tract of land now submerged, probably once continuous with these irregular masses in their neighbourhood, and which may have had a vegetation of its own.

With regard to the present vegetation, as stated by Darwin and Ross, there are no aerial plants on the rocks, not even a lichen; I found, however, a microscopic alga (*Protococcus affinis*), growing on the guano in sheltered places and colouring it of a dull green. In the stagnant pools on the rocks grow two low green algæ, *Prasiola minuta* and *Oscillaria sordida*, and a few diatoms.

The rocks are poorly supplied with the larger species of seaweeds, apparently because these are unable to endure the constant heavy surf. The high tide-mark is formed by a band of a pinkish white nullipore (*Lithothamnion polymorphum*); its calcareous masses form an incrustation on the rocks, in places two inches in thickness, and which is bored in all directions by tubicolous annelids, and has its surface thus pierced all over by

* J. Y. Buchanan, "Proc. R. Soc," No. 170, 1876, p. 613.