

ly below the surface of the ground. These loose materials consist principally of sand and coarse gravel, with here and there a patch of the clay, and large blocks of rock either mixed up with them, or strewed loosely over them. In the neighbourhood of St. John's and the peninsula stretching out to Cape St. Francis, these superficial matters are principally of coarse sand, dark grey and brown, having a semi-stratified arrangement, and being frequently at least ten feet thick. I never could discover, in any part, shells or other relics of the sea. It lies perhaps most abundantly on the sides of the gently sloping grounds, as for instance in the town of St. John's; but, though never found on the very summits of the hills, it spreads over much of the higher grounds, being seen abundantly along the road from Portugal Cove to St. John's, at a height of 400 or 500 feet above the level of the sea. It is every where full of angular pieces of slate rocks, many of them of a large size, lying, without any regard to arrangement, imbedded in the mass.—Some rounded blocks of stone occur also; but I do not recollect ever having seen a piece that might not have been derived from the immediate neighbourhood. At Ferryland some beds of white clay are found on the sides of a cliff, which is used by the inhabitants for plastering and white-washing. Large boulders are every where to be met with. In Port de Grave, some of a dull gritstone, apparently part of the Trinity Bay sandstones, rested on the top of the slate hills 400 or 500 feet above the sea. In Come-by-Chance lay some immense blocks of red sienite, perfectly rounded, probably derived from the hills W. of Random Island. Along the south shores of Avalon, the mass of drifted materials is, I think, less than on the north. On the summits of the Lamalin Islands, however, 200 feet above the sea, were some large angular blocks of grey slate, resting on red porphyry. Between Burgeo Islands and Cape Ray, the gravel resembles that on the East of the Island, but is mixed with much finer and purer sand. Blocks of the primary rocks, too, here occur in abundance; and on the S. side of St. George's Harbor an immense block of gneiss and mica slate was seen; this was about four yards across in each direction, and five or six feet of it were exposed above the surface of the ground. Its edges were not greatly rounded. In going from St. George's Harbor to Grand Pond, the banks of the brooks never exposed anything but sand and boulders of granite, gneiss, and similar rocks. (1) The whole of the flat country mentioned as occurring about the N. E. end of Grand Pond and Deer Pond, appears to be covered by a thick bed of loose sand, containing occasionally small quartz pebbles. Small cliffs of this sand, 30 feet high, were often exposed on the banks of the rivers. It is frequently regularly stratified. I concluded at first that before the Humber had worn a sufficiently deep channel through the hills below Deer Pond, this flat country had been covered by a fresh water lake, in which the sand was deposited. I afterwards, however, found patches of the same sand on the banks of the Humber Sound 20 or 30 feet above the sea level. I searched several times but did not discover a single shell, or other organic body in this sand to show whether it might be considered a tertiary formation or not. Whether boulders of granite, however, or other rock, occurred, they always, as far as I observed, rested upon and were never enclosed by this sand. On the north side of St. George's Bay, near Ship Cove, a small valley is almost filled up by clay, mud and sand, with boulders. (See diagram No. 12.) This mass forms a low crumbling cliff, 30 or 40 feet high; on the sides of which I found abundance of shells, buried sometimes several inches in the clay. They were in different stages of decomposition, some of them crumbling under the touch. The fragments I brought away have been examined by Professor Stuwitz, and he declares them to be common and existing species—one is a pholas, others myra arenosa, buccinum undatum, a tellina, &c.—The small cove was entirely occupied by a pebble beach and no shells visible in it except these old ones 30 feet above high water mark. It is possible however, that they may have been brought there by birds, and become afterwards covered by the falling clay. I certainly could find no *bed* of shells in the cliff, and the case is therefore

(1) A gentleman in St. George's Harbor assured me he had seen pieces of coal and other rocks brought down by the ice in Crabb's River and the other brooks on the south side of St. George's Bay.