

under the boulder-bearing sea, by which, and the present atmospheric and aqueous agencies, it was worn and wasted into its present form. Still the work of decay goes on; for yearly the frosts loosen immense masses from its brow and dash them to the beach, to be removed by the ice and the tides, and scattered over the bottom of the bay. The rains and melting snows also cut huge furrows down its front. These agencies of destruction as yet, however, only add to the magnificence of this noblest of all our sea-cliffs. The dark basaltic wall, crowned with thick woods,—the terrace of amygdaloid, with a luxuriant growth of light-green shrubs and young trees that rapidly spring up on its rich and moist surface,—the precipice of bright-red sandstone, always clean and fresh, and contrasting strongly with the trap above and with the trees and bushes that straggle down its sides, and nod over its deep ravines,—constitute a combination of forms and colors equally striking if seen in the distance from the hills of Horton or the shore of Parrsboro', or more nearly from the sea or the stony beach at its base. Blomidon is a scene never to be forgotten by a traveller who has wandered around its shores or clambered on its giddy precipices."

#### "HOW GOLD OCCURS.

"No geologist who examines these veins can, I think, doubt their aqueous origin; but different opinions may be entertained as to the precise mode of introduction of the metallic minerals. The facts already stated, in reference to the structure and mode of occurrence of the veins, and the manner in which the gold is associated with the other minerals present, appear to me to prove conclusively that the veins were formed at the time of the disturbance and alteration of the containing beds, and in consequence of the mechanical and chemical changes then in progress. In this case the gold and other metallic minerals were probably contained in solution in the silica-bearing, heated waters which penetrated the whole of the beds, and from which, as from a sponge, these silicious and metallic matters have been pressed out in the folding and contortion of the beds. In Nova Scotia it appears that these changes, by which the older sediments have been brought into their present state, occurred in the latter part of the Devonian period, as I have pointed out in my paper on these rocks in the *Canadian Naturalist and Geologist* already referred to, and in a previous chapter of this work. Accordingly, in one of the gold districts of Nova Scotia, as already

explained, nuggets and grains of gold are found in the Lower Carboniferous conglomerate associated with debris of the quartzose and slaty matrix. This interesting example, first noticed by Mr. Hartt, proves that the gold veins were in their present state at the time when this old gravel of the Lower Carboniferous period was being formed.

"To sum up our conclusions on this subject: The rocks containing the auriferous veins of Nova Scotia are of Lower Silurian age. The veins themselves were opened out and filled with the minerals which they now hold at the time when those Lower Silurian rocks were contorted and altered, and this probably occurred in the Devonian period, contemporaneously with the production of intrusive granites, and in connexion with the changes of metamorphism then proceeding. It was certainly completed before the beginning of the Carboniferous period, since which time little change seems to have occurred in the veins.

"In all parts of this district, the conditions under which the precious metal occurs in the rocks are similar to those above described; but at the "Ovens," in Londonderry county, we have the remarkable and, in so far as I am aware, unique spectacle of a modern gold alluvium now actually in process of formation under the denuding action of the waves. The slaty rocks of this coast holding auriferous quartz veins are daily being cut away by the waves of the Atlantic, and the gold is accumulating in the bottom of the shingle produced, and in the crevices of the subjacent rock. The portion of this deposit available at present is only that on the beach; but there can be no doubt that if the bed of the sea were elevated into land, the alluvia exposed would be precisely similar to those of California or Australia. We have thus in Nova Scotia marine gold alluvia of Lower Carboniferous and of modern date, and there are, no doubt, others of intermediate ages; but their amount, in so far as yet ascertained, does not seem to be great, and the chief supply of gold is likely to be derived, as at present, from the original repositories in the quartz veins.

"The annual yield of gold from the Nova Scotia mines is stated in the report for 1865 to be 24,867 ounces; that for 1866, 24,162; and for 1867, 27,583. These amounts cannot, however, be considered as approaching to the possible productiveness of these mines in the future. The total area of the gold region may be estimated at about 7,000 square miles, and the proclaimed districts do not