

contemporaneously with the beds of red marl and marine limestone. If we endeavour to account for the origin of the gypsum by the subsequent conversion of carbonate into sulphate of lime, we encounter this difficulty, that beds of limestone full of fossils are intimately associated with the gypsum, and yet have undergone no alteration. I saw nowhere any passage from the one to the other even at points where the gypsum and limestone alternate. On the other hand, there are abundant proofs in various parts of Nova Scotia of the intrusion of trappean rocks of contemporaneous origin with the lower carboniferous strata, so that I have little doubt that the production of gypsum in the carboniferous sea was intimately connected with volcanic action, whether in the form of heated vapours (or stufas), or of hot mineral springs, or any other kind of agency accompanying submarine igneous eruptions. To the influence of these latter I also ascribe the remarkable mineralogical difference between the inferior carboniferous rocks of Nova Scotia and those of the coal-fields of the United States, which are free from trappean rocks.

The gypsum of Nova Scotia when burnt is used for manure, and is shipped in great quantities for the United States. There are many indications of metalliferous ores in the rocks of the Shubenacadie, and the neighbouring districts, and among other places, I observed near the mouth of the river and on its left bank, a limestone called the Black Rock, containing disseminated crystals of galena with one of magnesia, copper, lead and cobalt.

The limestones containing marine shells on the Shubenacadie occur, 1st, at a place north of Rose's