

The earliest known of these was the great vein of the Acadia mine in the Cobequid mountains, discovered by the late Mr. G. Duncan, and on which I reported in 1845. These hills consist on their southern side of parallel bands of olive and black slate with beds of quartzite, all very highly inclined. The iron vein is a great irregular fissure, extending for many miles parallel to the bedding, and apparently accompanying a band of quartzite. It contains in addition to crystalline and often micaceous Specular iron and Magnetic iron, large quantities of a rich earthy red ore, which from the crystalline planes which it presents, would seem to have been a Carbonate of Iron decomposed and oxidised. These iron ores are associated with large quantities of a crystalline ferruginous Dolomite, allied in composition to Ankerite. This may be regarded as the veinstone to which the iron ores are subordinate, and which in the thinner parts of the vein occupies nearly its whole breadth. At the outcrop of the vein it is in some places weathered to a great depth into a soft and very pure yellow ochre. Small quantities of sulphides of iron and copper and of sulphate of barium are occasionally present. In addition to the above, which may be regarded as the primary contents of the vein, there occur in some parts of it secondary deposits of concretionary Limonite, which have of late years afforded a very large part of the ore smelted by the Acadia Company.

In some places the thickness of this vein has been found to be 150 feet, with intercalated masses of rock, but it is very irregular, diminishing occasionally to mere strings of ankerite. It is remarkable that in the Cobequid mountains, which are cut by transverse ravines to the depth of about 300 feet, the vein does not appear to be well developed in the bottom of the ravines, but only in the intervening heights. At first I was disposed to account for this by supposing that the deposit is wedge-shaped, diminishing downward; but I have more recently been inclined to believe that the large development of the vein is dependent on differences in the containing rocks which have rendered them harder and more resisting at the points of such greater developments.

With respect to the age of these beds, they must be older than the Lower Helderberg rocks, which both at the eastern end of the Cobequids and at the East River of Pictou, rest upon them. They are on the other hand probably newer than the auriferous pri-