I am desirous, also, that you should make a sufficient examination of the main line from Halifax to Truro, and the line to Windsor, to enable you to say how far the Pictou Railway will compare with the lines previously built in this Province.

I shall be glad also to learn whether, in your opinion, the Pictou Railway, when all the works now being brought to a close by me are completely finished, will compare favorably or otherwise with other lines with which you are acquainted.

In making this proposed inspection, you will find that I have introduced one or two engineering novelties, which I may take this opportunity of alluding to, viz.:

1. "Thorough Underdrainage." This is not commonly done, certainly not on this side of the Atlantic. The object is two-fold, to secure a firm dry road-bed, and to neutralise as far as possible the injurious effects of frost on moist earth-works in this severe climate.

2. "Tunnels and cast-iron pipes as substituted for Masonry Culverts." The former are driven through the solid rock, along the side of the rocky gorges, at the level of the stream, and of ample size for the passage of the water, thus admitting of the crossing of the ravines on solid embankments. The latter are generally cylinders of twenty-four inches diameter, and are employed in place of ordinary box culverts. Both are expedients which I found it necessary to adopt, in order to save time in constructing masonry and in preparing and conveying to the spot the requisite material. I think you will admit that these expedients have proved so successful that they will in all probability be adopted hereafter under similar circumstances. Only one of the tunnels has failed to come up to my expectations, the rock through which it is cut having proved less durable than could be desired. I propose to line this tunnel under the Railway with hard burnt brick or stone.

Without these two expedients I am perfectly certain that the works of construction on the Pictou Railway could scarcely be so far advanced as they now are twelve months hence.

3. "Scabbard Rail-joints." From the results of experiments and investigations, which I first published in the winter of 1859–60, I was led to adopt a new description of rail-joint throughout the whole length of this line. This new rail fastening is simply a plate of steel, enveloping the adjoining ends of the rails (the top surface excepted), and I have had them made of various lengths