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Some Notes of a Visit to the Works of the Grand Trunk Railway, west of Toronto, February, 1855.

By FRED. CUMBERLAND, *Esq., Chief Engineer of the Ontario, Simcoe, and Huron Railway.*

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Having been favoured some short time since with an invitation to join a party of gentlemen on a private inspection of the works in course of execution on the Grand Trunk Railway of Canada, west of Toronto, I availed myself of an opportunity I had long desired, and having seen much that interested, and I confess, surprised me, I thought some descriptive notes of the more interesting points upon the line might be acceptable to the Institute; and accordingly I propose (without entering upon any close or technical criticism), to offer to your notice this evening the memoranda I have preserved in connection with the principal objects which attracted my attention. Works of this nature seem amongst us to be objects of general interest only at the time of their initiation, or when, being completed, we discover that they are of some importance to us; or, if it be otherwise, the interest which they attract is too frequently founded on a restless spirit of suspicion—a wilful faculty too prevalent amongst some of us for adopting a system of depreciation, instead of (what my experience teaches me would be the wiser one), of encouragement and support.

When I started on my visit, therefore, I had not been prepared by rumour to find very much to gratify or surprise me, and as I think it part of the business of this Institute to trace out and follow, as far as the opportunities of its members will admit, the progress and the manner of the public works constructing about us, it may not be altogether unprofitable perhaps if I acquaint you with what is doing on this line.

Most of us are acquainted with the system of construction adopted by the Province as the standard of the Grand Trunk Railway—that it is one of more substantial character than had previously obtained either in the United States or Canada, founded indeed on the British system, so far qualified and lowered, however, as was necessary to economy, yet consistent with stability and permanence. The first illustration of this standard of any moment is to be found in the Humber Viaduct, 8½ miles from Toronto, over the river and valley of that name. At the point of crossing, this valley (extremely picturesque in character), is 1500 feet wide between bold and precipitous banks, giving an elevation of 68′0 to grade line above the stream. The viaduct consists of 8 piers and 2 abutments, giving nine spans of 60 feet each, and a total length of structure of 560 feet, the remainder of the crossing being effected by embankments containing some 80,000 yards of material. The piers are of white brick on stone foundations, and will be spanned by wrought iron girders, the weight of metal in which will be somewhere about 150 tons. The construction of these girders being identical throughout the line (except for larger spans than those now mentioned) it may be well here to explain briefly that the guage being 5′ 6″ the girders are placed 7′ 6″ from centre to centre, the top and bottom flanges being 2′0″ wide and the main web 4′2″ in height, so that the clear width between the girders is identical with the guage of the road. Across, projecting over, and attached to these are heavy timber beams—upon which are laid the track strings—the whole width of the floor being 16.0 feet, the track occupying the centre and having a pathway on each side of it protected by handrails. It would be difficult to imagine a more simple or satisfactory system of construction than this, and on contemplating it one cannot help reverting with some regret to those not very distant times, (only immediately previous indeed to Stephenson and Fairbairn's enquiries in relation to the Menai Bridge), when the crossing of such a valley as the Humber would have been effected by a structure involving much more intricacy of design, vastly more material, and far heavier expense. There is one consideration, however, which may qualify our lamentations on past labours lost, and it is this, that although economically these structures are far more satisfactory than those in which engineers but recently indulged, they are undoubtedly less pleasing to the eye and altogether injurious as in connection with the picturesque, for their outline consists of two-hard horizontal lines, without relief, break or beauty of any description, a form indeed which how grand soever the structures in themselves, will, I suspect, mar every landscape and parallyze the hand of the most soulless artist.

We next came to the Mimico Valley Viaduct, 12 miles from Toronto, consisting of one centre span of 60 and two side of 30 feet each, giving a full length of structure of 162 feet, 28 feet high above water line, and together, with an embankment of some 30,000 yards, constituting a crossing of 600 feet in length.

The next work of importance is that in the valley of the Etobicoke at Brampton, 20 miles from Toronto, which is 1500 feet wide, having two girder bridges of 60 feet span each.

At 27 miles from Toronto we come to the most important structure of the line, forming the crossing of the valley of the River Credit, 2000 feet in width between banks. It consists of 8 spans of 96 feet each, giving a full length of structure of 931 feet, the remainder of the crossing being by embankment containing about 150,000 yards of material, about half of which is from a cut on the west side in indurated clay similar to the specimen which I present.

The piers and abutments of this structure are constructed entirely of a very beautiful quality of sandstone of fine close and hard grit, and of a very agreeable warm colour. This stone is brought by tramroad from the Georgetown quarries, 4 miles distant, and as it has attracted much attention recently as a material available for Toronto works I have secured a specimen for your inspection. Of this the piers and abutments are constructed in courses rising from 2′6″ to 18″ in height, with self face, ½″ beds and joints and bold 3″ drove arrises at the external angles, with two bold plinth courses and tooled capping for girders.

These masses of masonry, of a description unsurpassed by anything I had previously seen in Canada, rise to a height of 115 feet above the water line, and this in connection with the great length (nearly 1000 feet) results in an effect which is grand in the extreme, although of course the appearance is marred as yet by the incompleteness of the structure, the presence of temporary trustle work and the want of unity which the absence of the girders begets. On enquiry I find that the masonry, when complete, will consist of 13,000 cubic yards, and the weight of the wrought iron girders 405 tons Much as one is gratified on a first view of the Humber viaduct, on seeing that at the Credit one is tempted to regret the necessity existing there for the use of brick; for the Georgetown stone, built in the bold style adopted at the Credit, gives such complete assurance to the mind of permanent stability, and such satis-