The piers and abutments are of the most substantial character, the masonry of which they consist being massive, well built, and finished most accurately. The approaches consist of solid material, and are constructed in a manner such as will render them thoroughly permanent.

The tubular beams comprising the superstructure of the bridge are formed of the best materials, and the workmanship is unquestionable. In fact, both as regards the quality of the iron in the plates, rivets, and other parts, and the manner in which the whole is put together, we believe that better work cannot be produced; and our views in this respect will, we believe, be fully borne out by the results of the tests to which we subjected the whole of the tubes.

As you may be aware, the Victoria Bridge was designed to sustain practically a load of one ton per foot run of its entire length; which load, added to the weight of the tubes themselves, it was intended should cause a horizontal tensile strain of five tons per square inch, and a compressile strain of four tons per square inch, and the load applied as a test was as near the above load as possibly could be provided. For the purpose of registering the deflections of the various tubes, a steel wire, extending throughout the entire length of the bridge, was strained as tightly as possible, being supported at every bearing of the tubes over pulleys with heavy weights attached, so as to keep an equal amount of tension upon it. This steel wire formed the datum line from which all the deflections were measured and marked on slips of card attached to vertical boards, which were fixed up at various points along the tubes.

The train forming the testing load was sufficiently long to cover a pair of tubes from end to end, and it was run first on to one tube, when observations were registered both in that tube, and in the adjoining empty one also, which was of course affected, owing to its connection with the loaded tube.

As the effect produced was the same in all the ordinary pairs of tubes, it will only be necessary to give you the observations taken in one pair, which were as follows:

While the load was in the first tube only, the deflection of that tube in the middle was $\frac{7}{8}$ of an inch, and the adjoining empty tube was lifted in the middle. The load then being placed over both tubes, the deflection was the same in each, and was $\frac{3}{4}$ of an inch. in the middle.

And when the load was run on to the second tube only, the effect on the two tubes was similar to that in the first experiment.

We next tested the large central span which is quite unconnected with any other tube, and the load extending from end to end caused a deflection not more than $1\frac{3}{8}$ inch. in the middle.

In all the experiments the tubes returned to their original position when the weight was removed.

The result of the tests applied to the whole of the twenty-five tubes is highly satisfactory, inasmuch as the actual deflections were considerably within the calculated deflections for such a load, according to