

250 feet of wire nearly straight, and almost as tight as a fiddle string, was not sufficient to break it.

This weight always acted freely upon the wire irrespective of any movement or deflection caused by the passing of a train, the versed sine of the natural curve being always the same. The wire in this state was used as a datum from which the deflection caused by the passing of a train was measured.

Wires such as these described were strained throughout the whole of the tubes ; and at intervals of 60 feet, strips of cardboard were so placed and attached to the tube that the wire just played upon without actually touching them.

These arrangements being completed, and a mark made upon the cardboard to correspond with the position of the wire when the tubes were not loaded, similar marks were made when the load was in the different positions shown in the diagram. The actual deflection was thus very readily ascertained.

In the spring of 1858, Mr. Stockman, who had been employed under Mr. George Robert Stephenson in making the working drawings for the whole of the tubes and girders used in the construction of nearly 1000 miles of the Grand Trunk Railway, was sent to Canada by Mr. Robert Stephenson, for the purpose of inspecting the tubes and ascertaining whether any defects, either in design or workmanship, could be discovered in any of the works, so that in making designs for future works, advantage might be taken of the experience that was thus to be obtained. During his visit, the tubes of the Victoria Bridge which were completed were fully tested. For result see diagram. Mr. Stockman reported the workmanship and material of the tubes to be unexceptionable.



Again, in December, 1859, just before the Victoria Bridge was opened, Mr. Bruce, an engineer of great experience, and who had for many years enjoyed Mr. Robert Stephenson's confidence, visited Canada, accompanied by Mr. Stockman, and witnessed the final testing of the whole of the tubes. The result is given, Plate 25. This latter visit was in accordance with a wish expressed by the late Mr. Robert Stephenson a short time before his death.