state of the proposed site, I should think it could be effected easily and at little expense. The undulating motion and lateral vibrations being most destructive to the suspension principle, I have thought it advisable to introduce the chains C C in figure 1 and 2, by which both are completely done away with. These chains are started at a distance below the road way sufficient to allow them to assume nearly the same curve as the suspending chains, which they are made to do by rods connecting them to the road way. They are made fast to and run along the longitudinal beam of the centre section of the bridge (C D E F figure 2,) at the opposite side of the road way from their starting point. Thus crossing each other at about half way between the centre of the bridge and the abutment. They are connected to, and their weight (only 16 cwt.) evenly distributed over the roadway, by iron rods crossing the lateral axis of the bridge and made fast to the transverse beams at equal distances from the centre of the Bridge. Thus it will be seen that no undulatory motion can arise as the Bridge is held down at all points by these chains I E F K, figure 2, G C D H, no lateral motion can take place, as should the bridge have a tendency to move or swing in the direction of C D figure 2, it is withheld by the chain G C D H; towards E F, it is kept steady by the chain I E F K.

The damages sustained by the Menai Bridge in the year 1837, 38, were hardly covered by £8000, Sterling. The whole said to be the effects of lateral vibrations.

The destruction of the 3rd span of the Chain Pier at Brighton, was owing to undulations arising in the centre part of the span. I do not think that bridge built on Dredge's principle over the River Saint John at the Grand Falls, would be safe without these guys for this reason. The chief point in Dredge's principle, is extreme lightness in the centre of the bridge, from the great elevation above a running stream, and so close to Falls there must constantly be a small current of air playing under the roadway, which from its extreme lightness in the middle, would be constantly kept in a state of vibration; when that vibration is once started, it takes comparatively but a small force to increase it, and if half a gale of wind lasted for four or five hours, I think it would break up the bridge.

I should likewise recommend iron longitudinal beams to be used; the transverse beams would require simply to be laid upon them, and when the timbers decayed, repairs might be effected without interfering with the frame. I should likewise recommend that the bridge be put up at as near as possible a mean temperature, and that the iron work be rubbed over with a non-conductor of heat. There is no danger to be apprehended from the action of cold upon it, as there is an Iron Suspension Bridge at Saint Petersburg, which has been found to answer well, but I do not know how the sudden changes from heat to cold, and *vice versa*, that occur in this climate, might affect it. Working Plans of the Masonry and the way of carrying the chains over should accompany this, but cannot be drawn without an accurate plan and section of the ground.

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