horizontal, and depending on the form of the curve assumed by the cables.

The vertical component at each point of suspension is half the weight of the bridge and load, or 1300 tons.

The horizontal component is equal to the vertical component multiplied by half the span in feet, and divided by twice the deflection of the cables in feet.

To obtain this value in tons, we will observe that half the span is 525 feet, and twice the deflection is 120 feet. The vertical component is 1300 tons. The horizontal component is, therefore,

\[ \frac{1300 \times 525}{120} = 5687 \text{ tons.} \]

The resultant of the horizontal tension, 5687 tons, and the vertical weight, 1300 tons, is—

\[ (5687^2 + 1300^2)^{\frac{1}{2}} = 5834 \text{ tons.} \]

This is the strain against which provision is to be made—no less than 5834 tons, or 11,668,000 pounds.

The strain produced by the weight of the bridge acting across the line of the cables, is, therefore, more than double the actual weight supported.

But it has been stated that each strand of sound No. 10 wire is capable of sustaining any tension less than 1500 pounds. There will, therefore, be needed to balance the draught on the cables produced by the weight of the bridge thus loaded,

\[ \frac{11,668,000}{1500} = 7779 \text{ strands.} \]