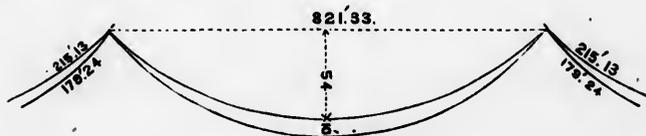


were entirely disconnected ; but as they are united it cannot be correct. This part of the subject may be considered further under the next head.

THIRD ASSUMPTION.—That “each pair of cables carries its own particular load, in addition to a large portion of the load due to the pair of cables above or below them.” There is here a kernel of truth, but I shall proceed to prove that what Mr. Wasell exaggerates into a mountain, is nothing but a mole-hill.

Considering the case of the upper cable, we find the conditions to be approximately as shown in the following diagram, viz.: a central half span of 410 feet, with 54 feet deflection, balanced by a land span of 214 feet (or half length 107 feet) with a deflection of nearly 1 foot.*



The length of the central curve under these conditions is $829\frac{42}{100}$ feet, and of the curve of land span $214\frac{1}{100}$ +. A full ordinary load on each cable, including dead and live load, is 745 pounds per foot, and as the factor of tension in this case is $1\frac{957}{1000}$ the total tension resulting is

$$T = 829\frac{42}{100} \times 745 \times 1\frac{957}{1000} = 1,209,265 \text{ pounds.}$$

* This is on the supposition that the land span be considered horizontal instead of inclined, which does not alter the effect of expansion, etc.