

Proceeding from the centre towards either end, these moments corresponding to a full load decrease in intensity till they become positive, being everywhere determined by the ordinates of a parabola.*

The central chord strains will be :—

$$20,536,880 \div 34.3 = 598,743 \text{ pounds.}$$

The greatest positive moments (compression above and tension below) occur when one arm only is loaded ; the greatest negative moments over the pivot pier occur when both arms are fully loaded, and those at the centre of each arm and near the ends of the draw take place when neither arm is loaded.† The maximum moments at the end of each panel are given in the tables in Appendix G, the values being obtained by measuring on a diagram the ordinates of the curves of strain ; the corresponding chord strains are likewise given in the tables, their values being found by dividing the moments by the depth of truss at the corresponding point. To find the strains which actually take place in the chords, a correction must be made for the strain which is carried horizontally by the members of the web ; these corrected strains are also given in the tables, the tensile strains being distinguished by a negative sign ; as the strains carried horizontally by the web are all in tension, being carried by the diagonal ties, the actual amount of compression in the chord materially predominates over the tension.‡

The web is formed in two systems which are connected only through the chords. As each system is supposed to carry but half the load, in calculating the strains on their members the dead load will be assumed to be 480 pounds to the foot, and the live load 560 pounds. The strain in each post will be the same as the weight carried by the tie which depends from it ;§ the strain in each tie is equal to the weight carried, multiplied by the proper coefficient for the inclination of the tie.

* Shown on the diagram in a broken line — . — . — . — . — . —

† The resultant curve of maximum intensity of strain for all parts of the draw, without regard to the sign of the moments, is drawn on the diagram in a plain heavy line.

‡ Strictly speaking, plus the weight of the upper chord for one panel ; this weight however is small, and the calculation need not be complicated by it.

§ These corrected chord strains, expressed in tons of 2,000 pounds, are given on the skeleton diagram on Plate XII.