

CHAPTER VIII.

PROPORTIONING OF MAIN MEMBERS OF TRUSSES, LATERAL SYSTEMS, AND SWAY BRACING.

HAVING found all the stresses in the main members of the truss and in those of the lateral systems and sway bracing, and having written them alongside the respective members in the diagrams, the next step is to calculate the sections required. The diagrams for the lateral systems and sway bracing may be roughly drawn in pencil; for they need not be preserved, as the sizes of the members are to be written on the truss diagram.

For the tension members of the trusses, the sections required can be found by dividing the stresses on the diagram by the proper intensities of working-stress, as given on p. 12; remembering that the intensities for main diagonals are to be interpolated. When found, the required areas for the sections should be written on the diagram, after the stresses, prefixing them with the letters S. R. (section required), as shown on Plate V. Then, by using Carnegie's "Pocket-Companion," pp. 94-105, or some equivalent tables, can be found the sizes necessary to give *at least* the section required, taking care that the sections be in good proportion.

The stresses in the counters are to be increased for initial tension by the amounts given on p. 10; or, what is the same thing, the size required can be found from Table IX. by looking down the column headed "Working-Stress = 4 tons per square inch," if the bridge belong to Class A, or down the one headed "Working-Stress = 5 tons per square inch," if it belong to Class B or Class C, until a stress is reached which is equal to or greater than one-half or the whole of the stress on the diagram, according to whether double or single counters be