oridges depends. But, judging from experience and observation, it may be recommended that iron sway-rods be made of iron not less than \( \frac{3}{8} \) inch in diameter, for bridges of five panels or under, \( \frac{3}{4} \) inch from six to ten panels, inclusive. For twelve and fourteen panels, \( \frac{1}{2} \) inch for ten middle panels, and \( \frac{5}{8} \) inch for the rest; and, for sixteen the same as last above, with the addition of a pair of 1 inch rods in the end panels.

These are the least dimensions recommended (in all cases exclusive of screw thread), for ordinary bridges with panels not much exceeding 10 feet. For panels approaching or exceeding 12 feet, \( \frac{1}{2} \) inch may properly be added to the above specified diameters generally.

If upper sway rods connect in the middle of cross-struts, with a longitudinal reach across two panels, [see cxx, and Figs. 38 and 39], they may safely be made smaller than when they cross one panel only.

The action of wind is nearly a uniform pressure from end to end of the structure, and causes much the same progressive increase of stress upon sway-rods, as the weight of structure and uniform load produces upon diagonals in the trusses—a fact which was recognized in assigning larger sway-rods at and near the ends of long bridges. But the casual impulses resulting from unevenness in track or platform, giving slight lateral movement to passing loads, and acting at single points here and there, this way and that, do not produce an accumulation of effect toward the ends. Hence, as it regards withstanding the latter forces, no variation in sizes of sway-rods is required.

CXXXI. Sway-rods acting by tension would obviously draw the opposite chords toward one another, but for the resistance of transverse beams or struts,