tal chord, and the diagonals undergoing tension will become ties.

The Queen Post Truss (Fig. 45).—The load is supposed to be carried from panel-point to panel-point by means of stringers, thus avoiding cross-strain on the horizontal chord.

![Diagram of Queen Post Truss](image)

Call span $l$; depth truss, $h$; $w$ load per ft. = $wl$, total load; each panel $\frac{1}{2}l$. Excepting on dotted diagonals, maximum strains occur when load is on both posts. Reaction of either abutment will be half the load supported by the truss, or the load on one post = $\frac{1}{3}wl$. For the horizontal strain of compression in the top chord, engendered by the pull of the end diagonals, take centre of moments around the foot of either post. The forces in action are the reaction of either abutment and the strain on the material, the lever-arm of the former being one panel-length, and of the latter the depth of the truss. As these forces must balance, there results $\frac{wl}{3} \times \frac{l}{3} = T \times h$, or thrust = $\frac{wl^2}{9h}$. The pull in the parallel bottom chord will manifestly be of the same amount. The strain in the chords being derived solely from the end diagonals, the strain in the latter may be