

Distance from middle of upper to middle of lower chord	19 feet.
Distance from middle of skew-back to middle of lower chord	4½ "
Distance from middle of top chord to middle of arch	3.5 "
Cross-section of upper chords	400 square in.
" lower "	280 "
" arch at crown	800 "
" " skew-backs	711 "

Let x = distance of top chord from neutral axis.

" $x - 3.5$ = distance of arch at crown from neutral axis

" $19 - x$ = " bottom chord " "

" $23.5 - x$ = " arch at skew-back " "

" P = pressure per square inch, on top chord.

" $\frac{P}{x}(x - 3.5) =$ " arch at crown.

" $\frac{P}{x}(19 - x) =$ " bottom chord.

" $\frac{P}{x}(23.5 - x) =$ " arch at skew-back, hori-

zontally.

The equations in this case are,

$$400 Px + \frac{P}{x} 800 (x - 3.5)^2 + \frac{P}{x} 280 (19 - x)^2 + \frac{P}{x} 711 (23.5 - x)^2 = 275,000 \times 37,$$

$$\text{and } 400 Px + 800 \frac{P}{x} (x - 3.5)^2 = 280 \frac{P}{x} (19 - x)^2 + 711 \frac{P}{x} (23.5 - x)^2.$$

From the second of these we find $x = 11.8$.

Consequently the distance of the neutral axis will be,

Below top chord	11.8 feet
" arch	8.3 "
Above bottom chord	7.2 "
" skew-back	11.7 "

These values substituted in the first equation will give $P \times 222,000 = 7,175,000 \times 11.8$, or

$P = 381$ lbs. = pressure per square inch on top chord.