A check by moments about the hip gives the stress in the lower chord at the end panel $3\frac{1}{2}W''\tan \theta$, which shows that the chord stresses are all right.

Next let us determine if any stiffening be required in the end panels.

An examination of Table XXV. shows that the diameter of the end lower lateral rod is one and eleven-sixteenths inches. Consulting Table IX., we find that the greatest working-stress that can ever come upon such a rod, including the initial tension, is

$$14.399 + 2.375 = 16.774 \text{ tons.}$$

The cosine of the angle which the rod makes with the planes of the trusses is about 0.8: therefore the component of its stress in the direction of the chord is

$$16.774 \times 0.8 = 13.419.$$

Referring to Appendix I., we see that it will be necessary to assume values for $A_3$, $h$, and $c$, in order to find the reduced dead load $W_2$. From previous experience these values may be taken as follows: $A_3 = 10$, $h = 9$, and $c = 1$, making

$$W_2 = 370 - \frac{30 \times 10 \times 9}{15} = 190 \text{ pounds.}$$

The reduced panel dead load will therefore be

$$\frac{190 \times 20}{2000} = 1.9 \text{ tons,}$$

and the stress on the end panel of the windward lower chord, when the structure is subjected to a wind pressure of thirty pounds per square foot of surface, will be

$$3\frac{1}{2}W_2\tan \theta = \frac{3}{2} \times 1.9 \times 0.833 = 5.54 \text{ tons,}$$

showing that stiffening is decidedly needed. This result could have been predicted with certainty from what was stated in Chapter IV. concerning Table I.

Next let us find the sections required for the tension members.