At first thought, it might appear that the two stresses found for GH should be added together to obtain the total stress; but such is not the case, for the wind pressures cannot pass by both the vertical sway bracing and the upper lateral bracing: so the greater stress must be taken. In all practical cases, the greater stress will be found by considering GH as belonging to the upper lateral system.

The bending moment on the post is

$$\tfrac{1}{2}H(d-f) = (P+P')(d-f);$$

and, if m be the distance between centres of gravity of post channels, the stress on *one* channel produced by the bending will be

$$C = \frac{(P+P')(d-f)}{m}.$$

The released weight V, on the windward post, passes down the leeward post, producing a stress equal to $\frac{V}{2}$ on each channel, making the total wind stress on *one* channel

$$C + \frac{V}{2}.$$

According to the method given in Chapter IV., if twice this stress, or $2C + V$, exceed the live-load stress on the post, multiplied by seven and a half ($7\frac{1}{2}$), and divided by the intensity of working tensile stress for lower chords, the post must be proportioned for dead-load and wind stresses, instead of dead-load and live-load stresses.

All these formulas, except that for the stress in GH, may be made applicable to the portal bracing by putting for d the length of the batter brace, for f the perpendicular distance between centre lines of upper and lower portal struts, for P' the pressure on one-half of the batter brace, and for P one-fourth of the sum of all the pressures concentrated at windward and leeward panel points of the top chord.

If P_l be the pressure at the leeward hip, then the stress on the upper portal strut will be given by the formula

$$C = \frac{d}{f}(P+P') - P' + P - P_l.$$