der the number used, and the upper end under a higher number; and also, the weight acting by thrust upon the diagonal meeting the former at the upper chord. The last, or highest number, determines the weight sustained by the tension vertical under that number, the vertical being a member of one of the four sets of alternate thrust and tension pieces connecting the two chords.

A third series of numbers, formed by reversing the order of the second,—placing the lowest number of the third against the highest of the second series, and vice versa; divided, as before, by the number of panels, and multiplied by w; will shew the w'ts sustained by thrust and tension of diagonals, in the reversed order; i. e., whereas one series shews the amount of tension a particular diagonal is liable to, the reversed series shews the *thrust* the same piece must exert in a different condition of the load.

Thus we ascertain that nearly all of the diagonals are exposed to two kinds of action, thrust and tension, and it is only the preponderance of the larger over the smaller of these forces, which has place when the truss is fully loaded, and it is only this preponderance which is to be used as co-efficient to $(w + w')$, in estimating the stresses upon the different portions of the chords, and as co-efficient to w', in modifying the effects of variable load upon diagonals, as affected by weight of structure.—For instance; we have, as the effect of variable load upon diagonal $2/4, . . 2w \div 16$, as the greatest