obtain for the effects produced by the weight of the truss there represented, the following results:

Products for parts exposed to

Thrust.		Tension.	
End diagonals	12w'	Lower horizontal,	28w'
Upper horizontal	28.w'	Diagon'ls *oc, nd, ek* & *fi*,	12w'
Verticals	6.w'	Total,	40.w'
Total,	46.w'		

Substituting w' for w in the corresponding products for truss 8, shewn in Article 13, we have, for parts exposed to thrust, 45.13w', and for those exposed to tension, 40.81w; a result so nearly like that above shewn, that we may regard the two trusses as equal, as to ability, with a given amount of material, to sustain their own weights and equal loads uniformly distributed.

The balance shewn in Article 16 then, in favor of truss 7, is only applicable to that part of the materials provided to sustain the variable load, which, in practice, will probably be from one-half to three-fourths of the whole for spans of considerable length. Calling, therefore, $w = 3w'$, the above balances become reduced from 16 to 12 per cent for tension, and from 3 to 2¼ per cent for thrust, or about 7 per cent on the whole expense; probably, however, something more, since a crushing force is generally more cheaply sustained than a tensile force. Hence the cancelled truss appears to have from 8 to 10 per cent the advantage as to economy, considering the two plans to be equally practicable and convenient.

XIX. With regard to these latter considerations, truss 7 has the advantage as to uniformity in the lengths of pieces, and in the angles, while truss 8 has more uniformity in stress, and consequently in the cross sections of pieces in the same classes, considerations which may be regarded as nearly balanced.

If the road-way pass over the top, (as we have supposed in the above computations,) the truss 7 has a decided