where, as in the present case, the pieces exposed to that force may be nearly of the same dimensions. Hence the comparison between trusses Figs. 7 and 8, is more fair and reliable, than between either of these and truss A.

The verticals may be dispensed with in the arched truss, by disposing the diagonals so that they may act by thrust or tension, but I will not stop in this place to examine into the effects of that modification.

XVII. We have hitherto had regard only to the forces and effects produced by the load, independently of the weight of the structure. For the effects of the latter, it is sufficient to regard this weight as included in *w.w*, &c., as far as it regards those parts that sustain their maximum stress when the load is uniform throughout. But the weight of the structure being constant, and not variable like that of the additional load, its effects are always the same, and confined to those parts which act under the uniform load. Hence, it is proper to calculate the effects of uniform weights, *w′w′*, &c., one at each of the bearing points, where the weight of the structure may be regarded as concentrated. In this case, *w′* of course, will be equal to the quotient of the whole weight of the structure divided by the number of bearing points+1, the 1 being added because the two end supports sustain directly a weight equal to that which acts at each of the bearing points *o*, *n*, *m*, &c.

The effects of these weights, *w′w′*, &c. on the parts affected by them, added to the maximum effects of the variable weights *w.w*, &c., as above determined, will give the whole stress to which the various parts will be liable, and which they should be adequate to sustain, as regards truss 8 and truss A.

A. There is another effect of the weight of the structure, as it respects truss 7, which should be taken into account in practice, though it does not very essentially alter the result of this general comparison.

The counter diagonals *nb*, *mc*, *lf*, and *kg*, [Fig. 7,] can