APPLICATION OF RESULTS.

The results deducible from the preceding general theory of Bridges, will now be condensed and practically applied, to determine the proportions of the parts of a bridge of assumed dimensions.

In proportioning the parts of structures it is customary, and also highly expedient, to throw a considerable excess of strength in favor of stability, and many practical men have even repudiated theory altogether, as leading to results which cannot be relied upon. The fault has been, either that the theory itself was erroneous, or sufficient allowance was not made for imperfections of material and workmanship.

With a theory confirmed by experience, and with resisting powers assigned to the materials, sufficiently far below the limits given by experiments on perfect specimens, the utmost confidence can be placed upon the results.

Dimensions arbitrarily assumed, in accordance with the usual custom, are certainly less to be relied upon than those determined upon correct principles of calculation.

In determining the weights of bridges, it is necessary to prepare a bill of timber from assumed dimensions, and multiply the number of cubic feet, by the weight per cubic foot of the material; which we will take, as an average, at 35 pounds. The quantity of timber will be assumed (in the following cal.