the greatest skill, and the best materials and workmanship, will probably produce the best bridge.

Judging from the preceding tabulated statement, the arch truss seems, prima facie, to labor under a somewhat formidable disadvantage in the fact that it shows an amount of action upon material 10 or 15 per cent. greater than the three preceding plans just especially referred to. But for the light of experience, we might be led to discard the plan without a trial.

But, having chanced to be the first plan of iron Truss successfully put in use, and having had its capabilities fully tried and demonstrated, before any formidable competitor appeared in the field, it could not be dislodged from its position, until a rival plan could not only theoretically, but also practically demonstrate its superior claim to public favor.

The result has been such as to show that even a very considerable excess of action upon material, may be overbalanced by more advantageous action of thrust material, and greater simplicity and facility of construction; insomuch that the Whipple Patent Arch Truss, with trifling modifications from the original pattern, has competed successfully with all other plans, for the class of structures it was originally designed and recommended for (common bridges of 50 to 100 feet), during more than a quarter of a century, which has been fruitful in efforts at improvement in iron bridge construction.

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COUNTER BRACING.

The elasticity of solid materials, is manifested in bridge trusses, by their downward deflection under