tures—of the same length of span, built upon the same scale—of like kind, and amount of material, and of equal perfection in workmanship, when submitted to the same test, will not only demonstrate the relative value of particular combinations, but will as clearly exhibit the nature and intensity of the destroying forces in each.

It was therefore determined to try the various combinations of bridge trusses in use. That these experiments might be fully relied upon, to show the relative merits of each, it was decided to use in all future models the same amount of material in value, as was contained in that already tested; for this purpose, it was necessary to make a correct estimate of quantities, and to place a value upon timber and iron, by which the whole amount of material might be regulated.

As these trials were strictly private, there could be no inducement to favor one plan of truss, to the injury of any other.

Where great dependence was placed upon iron rods, the wire representing the same in the models, was of the best charcoal iron, manufactured especially for these experiments, and all other precautions were taken to ensure a fair and impartial trial, of all the various forms of trusses before the public.

Persons interested in several of the plans were kind enough to furnish bills of material distributed according to their best judgment, the whole value not exceeding the prescribed limit.

A close inspection of the cause of failure in any particular form of truss may be obviated in a repetition of the ex-