different systems, for there may be unequal settlement, and the adjustment, however accurately made in the first place, may not long continue. It can, it is true, be tested at any time by unscrewing the suspension bolts until the truss ceases to settle, and then screwing up again until the truss begins to rise, but it will generally happen that after a bridge has been a long time in operation, the two systems bear very unequal proportions, and when the truss itself is not so constructed as to be susceptible of adjustment, the arch almost always sustains the whole weight of the bridge and its load.

"These, and many other considerations, have led the writer to the conclusion, that the best method of constructing bridges, is to place entire dependence upon the arch, using the truss merely as a system of counter bracing, and a support for the roadway."

During the year 1847, the New York and Erie Railroad being then in progress of construction, and requiring a number of important bridges, a general competition was invited by its managers. Models and plans of the various bridges in use were placed before the engineer department; minute examinations were caused to be made of bridges built after the several plans presented. Ample opportunities were afforded for explanation and discussion of the merits of each, and every means resorted to, to elicit useful information on the subject.

Among the competitors were advocates for the simple truss, without the arch; others claimed superiority by the peculiar method adopted in combining the two systems; while others contended that the arch alone, if properly confined, was much superior to either plan.

After a full discussion of the subject, occupying a considerable length of time, it was found that there had been