durability), facility of repair, and uniformity of action, to be preferred before this plan of bridge, lately patented by Mr. D. C. McCallum, of Owego, assistant engineer of way and structures on the New York and Erie Railroad. The bridge shown in elevation on plate No. 4 has been built lately for the New York and Erie Railroad at Lanesboro', over the Susquehanna river, in the place of one built by ourselves, several years since, under the orders, and according to the plan, of the chief engineer of that road, but proved unequal to the duty imposed upon it, and its removal became a matter of necessity. We objected to the plan of the original bridge built in that locality, as we have ever done to any plan of bridge in which the attempt was made to unite the independent systems of arch and truss, and make the stability of the bridge dependent upon their uniformity of action. In this plan of Mr. McCallum, they are not independent as heretofore, but the action of the arch in the upper chord is made an integral part of the truss itself. And, instead of two systems acting unequally, and to the ultimate injury of the structure, we have the best features of both united in a manner which admits of entire uniformity of action.

"On the 29th of January, 1852, a number of civil engineers, bridge builders, and mechanics of experience, assembled to make and witness such experiments as they might deem proper and satisfactory, for the purpose of testing the stiffness of the bridge across the Susquehanna river, near Lanesboro'." A committee was appointed to conduct the experiments, and report the facts, and from their report we quote the following: