twelve braces, and thirty floor beams. The engine, after having passed through the floor timbers, was arrested in its course by coming in contact with the track stringers and lateral rods. The lower chords being broken, the whole train was prevented from plunging into the stream by the sustaining power of the arch and arch braces alone. This proved the truth of what I have frequently heard you assert, that the arch and arch braces alone were of sufficient strength to sustain the whole structure, independent of any aid which might be derived from the tensile strain of the lower chord. I may further say, that when the bridge was in the condition as above stated, in order to raise the engine from its position, a heavy stick of timber was laid upon the arch chords across the bridge, to which blocks and fall and raising apparatus was attached, and although the latter was strained until it gave way, there was not the slightest evidence of failure in arches or arch braces, there being no supports from the bed of the stream whatever. This test surprised all who witnessed it, and who were not familiar with the principle of the bridge. Subsequent to this, two trains came in collision on bridge No. 54, smashing the engines together, and upon which was piled six cars, so high as to project above the upper chords. No timbers were broken, nor was any injury done to the bridge.

In several instances, trains have been run over these bridges with portions of the engine or cars off the track, and in no case has any accident been caused by their failure. From the above, and other points I might mention, I unhesitatingly recommend your bridge as the safest and most economical structure in use.

Respectfully yours,

N. S. Gardner,

Supt. of Bridges Ohio & Miss. R. R.