nations that had preceded them in the course of history, in building bridges. The bridge across the Danube, erected by Apollodorus, the architect of Trajan’s Column, was the largest bridge built by the Romans. It was more than three hundred feet in height, composed of twenty-one arches resting upon twenty piers, and was about eight hundred feet in length. It was

after a few years destroyed by the emperor Adrian, lest it should afford a means of passage to the barbarians, and its ruins are still to be seen in Lower Hungary.

With the advent of railroads, bridge-building became even a greater necessity than it had ever been before, and the use of iron has enabled engineers to grapple with and overcome difficulties which only fifty years

ago would have been considered hopelessly insurmountable. In this modern use of iron advantage is taken of its great tensile strength, and many iron bridges, over which enormous trains of heavily-loaded cars pass hourly, look as though they were spun from gossamer threads, and yet are stronger than any structure of wood or stone would be.

Another great advantage of an iron bridge over one constructed of wood or stone is the greater ease with which it can, in every part of it, be constantly observed, and every failing part replaced. Whatever material may be used, every edifice is always subject to the slow disintegrating influence of time and the elements. In every such edifice as a bridge, use is a process of constant weakening, which, if not as constantly guarded against, must inevitably, in time, lead to its destruction.

In a wooden or stone bridge a beam affected by dry rot or a stone weakened by the effects of frost may lie hidden from the inspection of even the most vigilant observer until, when the process has gone far enough, the bridge suddenly gives way under a not unusual

strain, and death and disaster shock the community into a sense of the inherent defects of these materials for such structures.

The introduction of the railroad has brought about also another change in the bridge-building of modern times, compared with that of all the ages which have preceded this nineteenth century. The chief bridges of ancient times were built as great public conveniences, upon thoroughways over which there was a large amount of travel, and consequently were near the cities or commercial centres which attracted such travel, and were therefore placed where they were seen by great numbers. Now, however, the connection between the chief commercial centres is made by the railroads, and these penetrate immense distances, through comparatively unsettled districts, in order to bring about the needed distribution; and in consequence many of the great railroad bridges are built in the most unfrequented spots, and are unseen by the numerous passengers who traverse them, unconscious that they are thus easily passing over specimens of engineering skill which sur-