PHOENIXVILLE BRIDGE-WORKS.

height giving less deflection under a load, and allowing of overhead bracing as well as that below the track.

But the less quantity of iron required to do the work is not the whole explanation of the less cost of American as compared with English bridges. A second and equally important reason is the less amount of manual labor required to construct and erect them—owing to the general use of machinery in forming all the parts.

English bridges are made of low-price iron and require a great deal of it, and a great deal of hand-labor in constructing and erecting.

American bridges have all their principal parts formed by machinery. They are of exact uniform dimensions, in similar spans, and hence perfectly interchangeable, like the parts of the locks of the American rifles, or of sewing-machines. Hence machine-labor can be applied to their manufacture, and the cost at the works reduced to a minimum.

But American bridges have still another advantage. They are so made that nearly all the work is done at the shops, and they can be erected with the least possible amount of labor, and that unskilled. In fact, the cost of erecting the staging is the principal expense; after that a 200 feet span can be erected and made self-sustaining in the space of two days, if necessary. (See letter of T. D. Lovett, Ex-Chief Engineer Ohio and Mississippi Railway Company.)

But the English bridge is only about half done when the scaffolding is built and the iron placed upon it. It has then to be riveted together, which is expensive, as the conveniences for such work at the site of a bridge are not often great. It is slow and tedious, requiring from two to three weeks to put together a 200 feet span.

Taking all these things into account, it will be seen how American bridge-builders have been able to compete with English firms on the large bridge at Buffalo, and in the recent case of the long span bridges of the Intercolonial Railroad of Canada.

CINCINNATI, Nov. 12, 1872.

GENTLEMEN:

Below please find a statement of the force employed and time consumed in raising the last span of Medora Bridge over White River, near Medora, Indiana, for the Ohio and Mississippi Railway Company. Length, centre to centre of end pins, 147 feet 6 inches. Height of truss, 28 feet.

The force consisted of—
Howard and ten men, one truss.
Buzby and ten men, one truss.
Kelly and ten men, running in iron.
Bussing and seven men, connecting top end of tie bars, afternoon only. Employed on other work not connected with raising in the forenoon.

Monday, February 5, 1872, commenced running in iron at 8 A.M., at 5:30 P.M., same day, span swinging clear and top laterals on. Iron moved on an average one hundred and fifty feet. The men all went to Medora for dinner, one and a half miles distant, which consumed one hour strong, making the actual working time eight hours and thirty minutes. Total force, three foremen and thirty men full time, one foreman and seven men four and a half hours, equivalent to three hundred and sixteen and a half hours for one man.

Style of truss, "Pratt or Whipple." Details of construction by Clarke, Reeves & Co., by whom the bridge was constructed at their works in Phoenixville, Pennsylvania.

E. S. Duval, Superintendent of Bridges, Ohio and Mississippi Railway, says:

"I am satisfied that the same length with the same crew of men can be raised in less time than last span at Medora. We had no idea of swinging the span that day. We commenced in the morning; after dinner, however, seeing how rapidly we had advanced in the fore part of the day, we then determined to swing the span before leaving it."

Many of the men had been in the employ of the Ohio and Mississippi Company under my directions for a number of years.

You are at liberty to use the above in any manner you see proper.

Very truly yours,

THOS. D. LOVETT,

Ex-Chief Engineer Ohio and Mississippi Railway Co.