

10,000 tons per annum of Bessemer steel rails are now produced for their own use on the London and Northwestern road. After using them a little over three years, it was found that each steel rail had outlasted more than twenty of iron on one portion of their road at Camdentown. At this spot, where the strain and destruction of the rail is particularly severe, the iron had to be re-rolled every two months during a period of three years; while the steel, at the end of the same period, had endured the same traffic and was yet good.

If an estimate be made of the total cost, say of one mile, (or 100 tons,) of such iron road, for three years, (which was less than the lifetime of the steel rails,) it will be found, if the iron be taken at our value to-day, say \$85, and the re-rolling \$35, re-laying \$5 per ton, with interest at six per cent., the entire cost would reach the enormous sum, in three years, of \$84,150, or \$28,050 per mile each year; while the steel, at its present full value for small lots, say \$165 per ton, would only have cost \$19,470 for the three years, or \$6,490 each year, making a total saving of \$64,680 by the use of steel on one mile of track in three years.

Some may urge this to be an exceptional case, and that each six months would be nearer the estimate for re-rolling, even in the worst portion of our leading roads. If we still give the steel the same proportion of endurance, eighteen times that of iron, the result would be a total cost of \$99,450 per mile for the iron rails in nine years, while the steel cost only \$26,000, making still a balance of \$73,450 in favor of the steel. Should this be carried still further, and the iron only rolled each twelve months, the result would be a balance in favor of the steel of \$85,770; and if the re-rolling only be done once in five years, the total saving (continuing the same proportion for the steel) would be \$170,000 per mile in its favor. These figures, although hastily gone over, are near enough for all practical purposes; and if to them be added the very great saving to the locomotives and rolling stock generally, in having a smooth, non-laminating surface to traverse, in lieu of the battered iron now in general use; whilst to this may be added an entire freedom from those very expensive accidents arising from "broken rails," as the tensile strength of the Bessemer steel is more than double that of the iron; whilst, at the same time, they will bend double cold, and you have a grand total which will place the steel rail far beyond any competition from iron as at present manufactured.

If I have not already tired out your patience, I may at another time present some further views with regard to railway matters which may interest you.

I am, sir, very respectfully, yours.

PHILIP S. JUSTICE.

SPRINGER HARBAUGH, Esq.,

Government Director to P. R. R., Pittsburg, Pa.

APPENDIX O.

HOUSE OF REPRESENTATIVES,

Washington, February 2, 1866.

DEAR SIR: I received the enclosed letter from W. P. Shinn, late superintendent on our Pittsburg, Fort Wayne, and Chicago railway, whom you know to be a very intelligent gentleman, as well as an experienced railroad man. Your Pacific railroad committee being now in session, I desire to call attention to the suggestions made by Mr. Shinn as to the character of the rails to be used in the construction of your great road. It should be made a first-class road at the start.

Very truly yours,

M. WELKER.

Col. T. C. SHERMAN.