

Mr. Hulbert said he could speak from actual experience that no such danger existed. He had tried the single and the double rail, and he believed the latter was much the better. He had tried different ways of splicing rails, and found they did not answer.

Mr. Tulley suggested placing fish plates at the joints, and instead of fastening them with bolts to fasten them with wedges.

Mr. Hulbert said he had tried that plan also, but found it impracticable. The wedges in the double rail never became loose. They were placed on the outside, in order to form an even gauge. The wedges were sawed. The rails were made of hard maple, and lasted about five years. He found it lasted better as a rail than any other timber, especially when the sap was laid upwards. He believed it was possible to curve as short with wood as with iron, while there was a decided advantage in descending grades. A grade of over 300 feet in the mile could be descended with perfect ease, while on an iron track the wheel would be likely to slip. If the curves were properly laid, a truer curve could be made. He always took pains to place the best wood on the outside of the curve, and found that they did not wear out any sooner than the other parts of the track. He made the embankments sixteen feet wide. His contract for the Gosford and Quebec Railway was twelve feet broad; but he made it sixteen feet. He placed the price of making embankments at 10 cents per yard, and grading 10 cents. He spoke of the line which he was now constructing, where sand could be easily obtained, and there were no rock cuttings. The following was an estimate of the stock for a road 60 miles long, to run 200 tons per day: 3 locomotives (\$7,600 each, gold), \$22,800; 40 four-wheeled platform cars (\$225), \$13,500; 3 eight-wheeled box cars (\$300), \$2,400; 3 passenger cars (\$1,500), \$4,500; 10 gravel and rep. cars (\$200), \$2,000; 10 rubble cars (\$60), \$600; 4 hand cars (\$125), \$500; total \$46,400. To run two trains per day, of 100 tons each, leaving an extra locomotive for repairs, &c.: Cost of running one train of one hundred tons the round trip—1 engineer, \$3; 1 fireman, \$1.50; 2 brakemen (\$1), \$2; 4 cords 3ft. wood (\$1.25.) \$5; oil, \$1; total \$12.50. Running expenses per ton, 12½c. Cost of building a road on a fair route, timber at medium price, no large bridges, \$4,000 per mile. Rolling stock and incidentals, \$1,000. Say road complete with rolling stock, \$5,000 per mile. The above is a fair and I consider, a safe estimate for the general run of the country and prices of timber in Canada. The highest grade on the Gosford line was fifty feet per mile against the load.

The following report from T. F. Molesworth, Esq., of the Public Works Department, was submitted to the Committee.

I have examined the model in connection with the system of wooden railway construction, and find three different classes of rails patented for inspection.

1st. Mr. Foster's compound wooden rail, formed of blocks of hardwood, bolted between longitudinal pieces of timber so as to form an endless rail, having the cross sections of the grain of the timber in the blocks presented as a bearing surface to the wheels.

2nd. Mr. Hulbert's plain wooden rail, consisting of longitudinal pieces of hardwood, 14 feet in length, laid on and notched into the cross ties, and fastened thereto by wooden wedges.

3rd. Mr. Hulbert's compound wooden rail, where a longitudinal strip of timber is placed underneath the rails, breaking points with them, and having iron bolts fastening each end of each rail to the longitudinal pieces underneath.

In the construction of wooden railways in a new tract of country, that system of rail which combines the greatest simplicity of construction with economy in first cost, is the one which should be selected for use—provided this is not more than counterbalanced by any advantage which may be derived from the adoption of a more

complicated and costly system. But in the comparison of the construction of these rails I do not see that such an advantage is to be gained, and therefore I prefer Mr. Hulbert's wooden rail.

In comparing the advantages of a light iron track with a wooden one, on a railway for use in opening up a new district, I have made the following estimate of cost and maintenance of rails for 15 years, presuming that the traffic would be of such a light nature that the road laid with iron rails of 56 lbs. to the yard, would stand 15 years without renewal, and allowing three years for the period of renewal for the wooden rails.

RAILWAYS WITH LIGHT IRON RAILS.	
Iron rails for one mile, 56 lbs. per yard	
88 tons, at \$50	\$4,400 00
Fish plates at \$1 per pair.....	500 00
Spikes.....	200 00
Ties, 2,112, at 20 cents.....	422 40
Track laying	250 00
Total cost	\$5,772 40

RAILWAYS WITH PLAIN WOODEN RAILS.	
2,640 ties, notched, at 20 cents.....	\$528 00
25,000 feet B. M. hardwood rails, at 10c	250 00
1,510 wedges.....	50 00
Track laying.....	250 00
Total cost.....	\$1,078 00

The difference in first cost being \$4,694 40 per mile, allowing one man per mile for maintenance work on each road, and the duration of the ties, ballast, and other things, being equal on both systems, the comparisons of difference of cost in maintenance for that period will be between the cost of renewal of the iron rails, fish plates and spikes on the one, and the wooden rails and wedges on the other, with the addition of the extra labor for more frequent renewals, and may be stated thus:

IRON RAILS RENEWED ON ONE MILE IN FIFTEEN YEARS.	
88 tons (less cost of old iron) at \$28....	\$2,464 00
Fish plates and spikes, half amount renewal.....	350 00
Cost per mile.....	\$2,814 00

WOODEN RAILWAYS RENEWAL.	
Hardwood rails and wedges, costing \$300 per mile, renewed once in each three years.....	\$1,500 00
Extra labor required for renewals.....	750 00
Cost per mile for 15 years.....	\$2,250 00

The difference in cost of renewal being in favour of the wooden rail.

The difference in first cost in favor of the wooden rail amounts to \$4,694 40, or say \$4,600, the interest on which, at six per cent., amounts to \$276 per annum on \$4,140 in the period of fifteen years, for which the renewals of each rail are given. I think there can be no doubt that, taking these facts into consideration, the wooden railway supplies a desirable means of opening up the resources of a new district, with a light traffic, which would not yield a proper return for the more costly iron. But, in the construction of such a railway through a fertile district, the works should be constructed with a view to the wooden rail being replaced by an iron one at a future period, when the increased traffic should render such a change desirable.

GRAND TRUNK.—The accounts of this company for the half-year ending the 30th of June last show that 253,193½ had been received for passengers, 417,903½ for merchandise and live stock, 1,364½. The total working expenses amounted to 455,959½, or 67·59 per cent. of the receipts, and the renewal of permanent way, &c., to 77,039½, together 532,998½, leaving the net revenue 141,624½. From this was deducted 17,205½ for postal and military

revenue, 24,841½ for discount on American currency, 18,277½ for interest on loans and debentures, and 62,545½ for rents of Atlantic and St. Lawrence and Detroit lines (in full), to Montreal and Champlain, and Equipment Bond interest, leaving a balance of 18,755½. The accounts between the Buffalo and Lake Huron and Grand Trunk were stated to be in abeyance pending a settlement of open questions under the agreement between the two companies. The total expenditure on capital account to the 30th of June amounted to 18,144,173½, including 44,598½ during the past half-year. Mr. Child, an auditor of the company, who made a special journey to Canada to investigate the accounts, states in his report that he had satisfied himself that the system pursued throughout the entire establishment in Canada was such as to ensure an ample check, and that all revenue was duly accounted for; and that the receipts, although largely in excess of the corresponding period last year, would have been very much greater had the company been possessed of more rolling stock, without materially enhancing the working expenses. During the half-year he had duly verified the charges against revenue; and with regard to the supply of stores it was perfectly clear to him that the practice had been to accept the lowest tender that bore within itself the assurance of satisfactory execution. With regard to the rates charged, he states that they were undoubtedly low, and that the Canadians got their traffic carried at lower rates than most other communities. The local rates were somewhat better in winter, owing to the absence of competition by water. As regarded the through traffic, it appeared to be a necessity for the company to cultivate it; the Grand Trunk being the longest route, in many instances, between the West and the Atlantic, its executive had little option left but to follow the lead of the great American lines. He concluded by stating that from the way in which Mr. Morland conducted his audit in Canada he was convinced that so long as Mr. Morland's services could be retained there would be no necessity for any other investigation in Canada. He regarded the check of one auditor in Canada in conjunction with the auditor in London as supplying all that could be desired.

GREAT WESTERN RAILWAY.—Traffic for week ending November 26, 1869.	
Passengers	29,692 58
Freight and Live Stock.....	50,096 45
Mails and Sundries.....	2,176 90
Total Receipts for week.....	\$81,965 93
Corresponding week, 1868....	68,231 92
Increase.....	\$13,734 01

—The Section of the International Railway between Dorchester and Sackville will be opened for traffic on the 13th.

Insurance.

FIRE RECORD.—Sherbrooke, E. T., Dec. 6.—An extensive fire broke out in the sash factory of William Long, and destroyed \$10,000, worth of property belonging to him. The carriage factory of Richard and R. Long, adjoining, were also destroyed, at a loss of \$2,700. There was no insurance on any portion of the property.

Point Levis, P. Q., Dec. 13.—A destructive fire took place, by which Samples' large hotel and two other buildings were completely burned down.

Alton, Ont., Dec. 7.—A fire broke out in a saw mill belonging to Mr. B. Wilkinson, on the north-western branch of the Credit, which consumed the mill and its contents. The property destroyed was valued at \$1,500. The origin of the fire is unknown; but it is supposed to be the work of an incendiary.

Port Hope, Dec. 13, 1869.—A correspondent writes:—Three barns and a stable belonging to James Ashford, Lot 1 & 2, Hope, were destroyed by fire last Wednesday, the 8th inst. The greater