

### The Canadian Journal Postage Free.

The Members of the Canadian Institute and the Subscribers to the Journal, will be glad to be informed that for the future no charge will be made for the transmission of the Canadian Journal through the Post to any part of Canada. We believe we are correct in stating that this boon has been obtained through the instrumentality of the Hon. Malcolm Cameron. Such an encouraging instance of the desire of the members of the Government to favour by every legitimate means the claims of Science and Literature, will surely induce increasing exertions on the part of those who wish to witness the progress of Canada in scientific and practical knowledge, keep pace with the increase of its commercial wealth and the extension of its political importance.

### Second Trial of Newall's Railway Break.

The second trial trip on the East Lancashire Railway, for testing the efficiency of this break was more systematically conducted, and its results have been ascertained with greater accuracy.

A much larger train was used than on the present occasion, consisting of 10 carriages, besides the locomotive and tender, eight of which had breaks attached. Length of train, 86 yards; weight, 88 tons, exclusive of the passengers. Order of carriages attached to engine and tender:—1, Van with break; 2, second-class carriage with break; 3, composite carriage with break; 4, composite with break; 5, second-class carriage with break; 6 and 7, first and second-class carriages without break; 8 and 9, two composites, each with breaks; van with break. Of the nature of the apparatus it is only necessary to repeat that a shafting with connecting rods stretches along over the top of the entire train, from the elbow of the engine driver to the hand of the guard behind (with flexible joints and sockets to accommodate curves, expansions, or contractions of the train), and that it is in the power of either of these, or of any one servant on the train, whichever may have the greatest presence of mind, on the alarm of danger, to apply the whole of the breaks in a moment. The trial ground extended over the 30 miles of rail between Manchester and Blackburn; the experiments being seven with the new breaks, and two with the old breaks, for the sake of comparison.

**First Experiment.**—On a slight curve on a down incline of 1 in 532 at Within's-lane, between Ratcliffe and Bury, the speed attained when the fog signal for putting on breaks exploded, being 38 miles per hour—the train was brought to a complete stand in 218 yards. Rails rather slippery, owing to a fog.

**Second Experiment.**—On a level at the station at Bury. Speed 40 miles per hour. Train brought up in 100 yards: in other words, the train ran only 14 yards beyond its own length after the signal was given to put on the breaks.

**Third Experiment.**—On a descending gradient of 1 in 38, down the first part of the Accrington-bank, 21 miles north of Manchester. Speed 40 miles per hour. Train pulled up in 450 yards.

**Fourth Experiment.**—On lower portion of Accrington-bank, with a descending gradient of 1 in 40, speed 48 miles per hour. Train brought up in 371 yards. This experiment was regarded as highly satisfactory. The rails were rather slippery, and the weight of the engine was unfavourable to the experiment, the locomotive being a ponderous one, made for goods trains, and not having breakage power to the tender sufficient to stop itself on such an incline, a fact showing how much the engine had dragged at the train after the patent breaks had exerted force enough to have stopped it, was seen in the draw-bars of most of the foremost carriages being drawn out from 10 to 20 inches. It was a matter of surprise to some of the old servants accustomed to work trains down this bank that a train at such a speed could be stopped by any possible means.

**Fifth Experiment.**—On the straight and level run at the Blackburn station. Speed 48 miles per hour; rails dry. Train stopped in 172 yards.

To witness the last and following experiments the company had alighted and stood on the station platform. The train was taken a few miles back each time towards Accrington, in order that a very high speed might be attained. A fog signal on the rails at the middle of the station was the notice to apply the breaks.

**Sixth Experiment.**—Speed 40 miles per hour. Stopped in 138 yards, or about 14 seconds of time.

**Seventh Experiment.**—Speed 56 miles per hour. Stopped in 310 yards. (The actual distance run by this train was 328 yards; but, as the last 128 yards were on a decline of 1 in 110, the 18 yards were deducted for the sake of a comparison with the previous experiments, to allow for extra gravitation.)

**Eight Experiment.**—For this experiment two of the patent break wheel carriages were taken off, and two other carriages were substituted with the old or ordinary breaks. The train then came into the station at a speed of 42 miles per hour. There were two guards, and each applying a break, and the driver applying the break to the tender, the stoppage of the train was entrusted to these three. The train went a distance of 663 yards before a stoppage could be effected. Allowing 43 yards for the disadvantage of the slight incline, over the last 463 yards, the distance was agreed to be taken at 620. By a calculation made on the spot, it was held that, comparing the speed of this train with the previous one, it ought to have been stopped in 180 yards instead of 683. In other words, the balance in favour of the new break train, as compared with a train having ordinary breaks, was the difference between 180 and 620.

**Ninth Experiment.**—This was the last trial made, and it was agreed to try the train with one ordinary break in addition to the engine driver's break. Speed 40 miles per hour. Stopped in 861 yards; or, allowing 61 yards for extra gravitation after reaching the incline, the distance was taken at 800 yards.

Taking the last experiment in comparison with the sixth, we have two trains at equal speed (40 miles), and the one is brought to a stand by a single person with the new apparatus in 133 yards, while the other runs 800 yards before it is stopped by the exertions of two persons, the guard and driver. The scientific and practical men present, without exception, expressed themselves highly gratified with the results. Mr. Fairbairn said, without pledging himself after an inspection such as had now been afforded to an approval of every detail of the invention, he would say that, so far as he could see, it was a very successful one, and he thought it was likely to lead to a change that was not important to this company alone, but to the locomotion of the whole kingdom. It had one important feature—that it could throw the whole weight of compression by the breaks on every carriage and every wheel of the train at once.

It was stated that a train with the new apparatus had been on this line from the 15th September, travelling a total of 5,874 miles, and making 2,856 stoppages, without the machinery once getting deranged or requiring repair, and that the wheels of the carriages in the time were little worn, while those with the ordinary breaks would have been worn flat in places to an extent requiring 3-8ths of an inch turning off by the lathe, in diameter, to bring them round, or into shape again. The power of the breaks has been known on a level line to bring a train to a stand, in spite of the tractile power of the engine with full steam on. Another advantage observed was, that the new apparatus gives perfect communication between guard and driver, as the break need only be applied in a modified degree to attract the notice of either; or, if this was not enough, a bell attached would render the communication more complete. It has been suggested that, as there are periodical meetings of all the great railway authorities in London, their attention should be called to the new agent, and that the train might be sent up the London and North-Western line to enable them to test it.

### Obituary.

DIED, at his residence on Ann Street, December 7, HUGH SCOBIE, Esq.

The loss which Canada has sustained by the untimely death of this enterprising man, will be better understood if we enumerate a few of his works: He was Editor and Proprietor of the *Daily Colonist*; the *British Colonist*; the *News of the Week*; the *Canadian Almanac* (an edition of 40,000 copies); Publisher of the *Canadian Journal*; the *Municipal Manual* for Upper Canada; of numerous Charts of the Great Lakes; Plans of Cities and Towns; Maps of the Districts of Canada; Maps of the Western and Eastern Divisions of Upper Canada; and a large number of Educational Works. He was the third son of Captain James Scobie, of the 83rd Highlanders, and, at the time of his death, was only in his 43rd year. The citizens of Toronto manifested the well-merited esteem they entertained for the deceased when living, and their painful regret at his death, by closing their places of business during the progress of a very numerous procession, which attended his remains to the grave.