

the signal having been lowered ; and that there was an interval of five minutes between the two trains, from 10.31 to 10.36, by his watch. It did not occur to him to check the express train, "because he did not know it was so nearly due." He saw the station-master standing on the platform near the porter's room door talking to two gentleman as the goods train went away.

The station master states that he saw the goods train shunting at the station at 10 o'clock, that he went to the stables and to a pair of points not far from them and near the end of the branch platform, that he was at those points when the express train passed, that he then went into the warehouse to show the warehouse siding to a new porter, Dixon, who had arrived by the 10 o'clock train, and that going into the goods office he there received a telegraph message that the collision had occurred. He denies that he saw the goods train start, and states that he thought it was still in the siding when the express went by.

The porter Dixon, to whom the station-master refers to corroborate his statements, states that the station-master followed him into the goods yard shortly after 10 o'clock, and showed him round the sidings &c., and he gives a version of the course which they took quite different from the statements of the station master. He did not see the goods train go away, but thinks that he and the station-master must have been within 30 or 40 yards of it when it started. He agrees with a goods-clerk and a telegraph clerk that the station-master did not go into the goods office, but received the message reporting the collision outside the office and in the warehouse.

The engine-driver, fireman, and guard of the goods train all state, in opposition to the above evidence, that the ticket-collector (inspector) came to the engine when the train was made up, asked if they were ready to start, and told them to do so ; and that the engine-driver whistled accordingly for the junction signal, which was lowered for them to pass. They all agree further, that the station-master was standing talking to a gentleman near the door of the porter's room on the platform when they started, and that he saw them go away.

After hearing all the evidence that was produced in regard to these questions, I have come to the conclusion that the statements of these three men are correct, and that the station-master, the ticket-collector, and the signalman are to blame for having allowed the goods train, which was booked to stop

at Elland, to proceed in front of the express train from Halifax which was not timed to stop there. They were also to blame for not having, after the goods train had started, taken proper steps to warn the engine-driver of the express train that such a train was in front of him. They ought in common prudence to have done this just as much if the goods train had started without their sanction, as if it had gone with their permission. And, indeed, if it had gone, as the ticket collector and the signalman allege, in opposition to their wishes or injunctions, they would have been in that case the more likely to have realized the danger of allowing the passenger train to follow it so closely, to have checked that train by their signals, and thus to have prevented the collision from occurring.

In order to prevent such accidents from happening in future it is extremely desirable that the block-system of telegraph should be introduced between North Dean and Elland. The signalman at Elland cannot protect a train in the usual way by means of his distant-signal after it has passed that signal, because he cannot see it until it comes out of the south of the tunnel. And it is not right that any engine or train should be allowed to leave North Dean for Elland until the previous engine or train has been telegraphed clear from Elland, or vice versa.

The engine of this express passenger train was running tender first, for want of a turntable at Halifax, which should be supplied without delay.

The guard of the goods train being a spare, or relieving guard, was not supplied with a time-piece, though he is required to note his times of arrival and departure ; and he had not applied for one because other guards in a similar position are not so provided. The means of ascertaining the correct time at the different parts of their journeys are quite as necessary to these men as to the regular guards.

A raised stage, with levers for working all the neighbouring switches from that stage, and locking apparatus, as well as telegraph-instruments, are much required at North Dean. The view of the signalman is much obstructed there at present by the waggons in the siding.

I have &c.

H. W. TYLER.

Capt. R.E.

W. D. Fane, Esq.
Board of Trade.
Whitehall.

LANCASHIRE AND YORKSHIRE RAILWAY.

Board of Trade
(Railway Department),
Whitehall, 5th Dec. 1865.

SIR,

I AM directed by the Lords of the Committee of Privy Council for Trade to transmit to you, to be laid before the Directors of the Lancashire and Yorkshire Railway Company, the enclosed Copy of the report made by Captain Tyler, R.E., of his inquiry into the circumstances which attended the accident that occurred on the 25th ultimo, near the Wigan station of the Lancashire and Yorkshire Railway.

The Secretary of the Lancashire and Yorkshire Railway Company. I am, &c.
J. E. TENNENT.

SIR,

Manchester, 29th November 1865.

In compliance with your instructions I have the honour to report, for the information of the Lords of the Committee of Privy Council for Trade, the result of my inquiry into the circumstances which attended the accident that occurred on the 25th instant near the Wigan station on the Lancashire and Yorkshire Railway.

The lines of the London and North-Western and the Lancashire and Yorkshire companies are very near to each other at Wigan, and there is a short junction line between them half a mile to the south of the Lancashire and Yorkshire station, which line is used principally for the interchange of mineral, but occasionally also for that of passenger traffic. The signalman of the Lancashire and Yorkshire Company at this junction has control over the traffic with the neighbouring sidings connected with the Lancashire and Yorkshire Railway. One siding, called the *short* siding, between the main lines of the two railways, is provided with a scotch block 94 yards to the south of the junction cabin. A portion of this siding is level, but the remainder rises slightly towards Wigan, to join the main line of the Lancashire and Yorkshire Railway. The points which connect it with the main line are worked by a rod from the junction cabin.

On the afternoon in question the 5.30 passenger train from Manchester (via Bolton and Wigan) to Liverpool started from the former station about three minutes late. It consisted of an engine and tender, 12 carriages, and two break-vans, and was approaching the Wigan junction above referred to about 6.55,

at a speed of perhaps 20 miles an hour, when the engine-driver heard a crash and felt a violent shock to his engine. The night was dark but clear. The driver fancied he saw something dark by the side of his engine, and, looking back, he saw the carriage next behind the tender leave the rails. He whistled for the breaks, and observed as he passed the London and North-Western Junction line that the carriages appeared to go in the direction of that line, and "turn over," while the engine broke away from them and ran forward. After coming to a stand, he started again to obtain assistance from the station.

The engine had its buffer broken, and its injector pipe bent, and the axle boxes of the tender were fractured. A goods waggon lay across the end of the siding somewhat damaged on one side, and with a spring gone from each side, but with its wheels under it. Four carriages and a break van were thrown off the line and turned over, three on their sides and one on its end, while the other nine vehicles remained on the rails. One passenger, who appears to have fallen from the first carriage as it turned over, was killed on the spot, and five others have complained of injury.

There was a strong wind blowing on the evening in question from a south-westerly direction, and there can be no doubt that the accident was caused by the truck which was thus found at the end of the siding having been blown along it towards the main line, and sufficiently near to the points for the engine to strike its side in passing. The leading carriage having been thrown off the rails as the truck swung round, and its progress having been obstructed by the points and crossings which it encountered, the engine unfortunately broke away from the train, and the momentum of the carriages in the rear contributed to damage and overturn the carriages in front, and to cause loss of life and injury, as above described, to the passengers.

There had been two waggons in the siding before 3.40 on that afternoon. But at that hour a coal train, called Blundell's train, was stopped at it while the engine was backed into the siding, a waggon was drawn out, and after being attached to it was taken on with the train. The guard of the coal train believes that he found the scotch-block open when he first took the engine into the siding, and he admits that he went away and left it open after he had drawn the waggon out of it. He is in the habit of going sometimes two, three, or four times a week, as the case may be, into the siding, and he shuts the scotch-block before he leaves it when he can conveniently do so, but leaves it open when he is hurried away.

On the present occasion he did not wait to shut the scotch-block because the 2.40 express passenger train from Manchester was overdue behind him, and he was anxious to get his train out of its way as fast as possible. He was in the habit of warning the pointsman after dark when he left the scotch-block open, but not during daylight; and it was daylight when he took the waggon out of the siding at 3.40, though it had become dark 3½ hours afterwards when the accident occurred.

The guard cites No. 226 of the company's printed regulations, which directs the guards to attend to the security of private or other sidings where there is no man stationed "for attention to the signals being properly shown," and "for seeing the scotches turned across the rails," as a proof that the pointsman rather than himself was properly responsible for seeing that the scotch was applied in this instance; while the pointsman asserts on the other hand, that he has never considered it to be any part of his duty to look after it. The pointsman states, indeed, that the guards have sometimes put it on, and sometimes they have not, and that in the latter cases it has been "left off." He states further, that he cannot leave his post by day, because he has no signals for the sidings, and that the goods drivers would be liable to come out upon the main line during his absence at the siding, when he would be unable to show them a red flag.

The pointsman (or signalman) who has taken night duty at the junction for the last three years, says "I always ask the guards when they leave the short siding at night whether they have put the scotch-block on. If not, I put it on myself. I am never on duty there by day; I have never had any orders about it, or lock and key to it. I have myself put it on many times when the guards have omitted to do so."

The above regulation is, no doubt, so far in the guard's favour, and it would naturally have been a great object to him, as well as very necessary on the score of safety, to get away from the siding as quickly as possible when an express passenger train was overdue behind him. The pointsman, also, has some reason in urging that it is difficult for him, under present circumstances, to leave his post and attend to a scotch 94 yards away from him. But he might surely have found an opportunity of turning it across the siding between 3.40 and 6.55 if he had desired to do so; and any man anxious about the safety of the traffic would have taken care to make the siding secure, at all events on so tempestuous a night, whether it was within the strict line of his practice or duty, or whether it was not. It would appear that as the siding does not fall towards the main line, this man, who is always on day duty, and has been so for seven years, did not concern himself, in the midst of his other duties, about the position of this scotch at all, and that it did not occur to him that the accident would be likely to happen. When he first heard the crash, and was struck by some of the debris, he ran away to make his escape from he did not know what; and in going afterwards to ascertain what was the matter, he "heard from the guard that a telegraph pole had got in the way." He did not remember when he had last seen the scotch before the accident.

Rule No. 77 of the company's printed regulations, addressed to station masters, clerks, and their assistants, directs, that "when carriages or waggons have been placed in a siding, care must be taken that the scotch blocks are placed across the end of the siding; and when the siding inclines towards the main line the breaks must be pinned down and the wheels locked so as to prevent the possibility of their slipping or being blown down upon the main line." It is to be inferred that the junction signalman, who is the station master's assistant in this matter, should have obeyed this rule as regards the scotch. But, inasmuch as the siding did not fall towards the main line, it was not incumbent upon him under this rule to pin down the breaks of waggons left upon it.

On the 1st November 1861, however, the company issued a printed notice, copy of which I enclose. It is a renewal of an old instruction, No. 103, and it states that "in all cases where stop-blocks are affixed to sidings the same shall be kept locked, and the key retained in possession of the person who has charge of the siding." It further states that "in all cases where there are waggons or carriages, &c. in sidings the breaks must be put down before leaving them; or, should they be without breaks, spraggs must be used, or the wheels chained to the rail, so as to prevent their running out of the siding." And it is notified that any neglect in carrying out this instruction will be very severely dealt with.

The signalman above referred to had no copy of this order, and did not remember to have received it; and he could not have carried out that part of it which referred to locking the scotch (or stop-block) because he had not been provided with a key for the purpose, and there was no hasp, staple, or lock of any sort upon the scotch.

It is desirable that he should now be provided with a lever and rods for working the scotch from his cabin. He would thus be able to secure the safety of the siding without leaving his post. It is the more necessary that the scotch should be controlled by the signalman, because the engine-drivers

of Messrs. Pierce and Knowles, private owners, come into the siding (and sometimes leave the scotch open) as well as those of the Lancashire and Yorkshire Company.

I am glad to learn that orders have been given for the erection of signals to guard the sidings near this junction; and I would take the opportunity of strongly recommending that a raised stage should be con-

structed, with locking apparatus, and all those accessories to safety which are now provided at such posts.

I have, &c.

H. W. TYLER,
Capt. R.E.

W. D. Fane, Esq.
Board of Trade,
Whitehall.

LANCASHIRE AND YORKSHIRE RAILWAY.

Board of Trade
(Railway Department),

SIR, Whitehall, 26th January 1866.

I AM directed by the Lords of the Committee of Privy Council for Trade to transmit to you, to be laid before the Directors of the Lancashire and Yorkshire Railway Company, the enclosed copy of the report made by Captain Tyler, R.E., the officer appointed by my Lords to inquire into the circumstances connected with the falling of the viaduct at Mytholm Bridge on the Holmfirth branch of the Lancashire and Yorkshire Railway on the 3rd ultimo.

The Secretary of the
Lancashire and Yorkshire
Railway Company.

I have, &c.
W. D. FANE.

SIR, No. 1, Whitehall, 22d January 1866.

IN compliance with the instructions contained in your minute of the 23d ultimo, I have now the honour to report, for the information of the Lords of the Committee of Privy Council for Trade, the result of my inquiry into the circumstances which attended the fall of the viaduct at Mytholm Bridge on the Holmfirth branch of the Lancashire and Yorkshire Railway on the 3d ultimo.

The Holmfirth branch of the above railway, $1\frac{1}{2}$ miles long, was opened for traffic in June 1850. The viaduct in question, about a mile from Holmfirth, was originally constructed of timber, but on masonry foundations. It was divided into 26 bays, each having a span of 20 feet 6 inches, and was, including the abutments, about 200 yards long, with an extreme height of $85\frac{1}{2}$ feet to the level of the rails. In 1864, the company determined to renew it in masonry, and the contract was taken by Mr. Henry Wadsworth for the low sum of 7,100*l.* Mr. Wadsworth signed the specification, copy of which I enclose, on the 4th July 1864, and the plans on the 20th of the same month. The accompanying plans, with which Mr. Meek, the engineer of the company, has been so good as to furnish me, are tracings of the original plans signed by himself and the contractor. They show, as will be observed, the principal details of both the old and the new viaduct, and the manner in which the piers of the latter were to be constructed intermediately between those of the former.

The viaduct was on an irregular curve of about 20 chains radius. In order to obtain an equal span on each side of the arches, the ends of the piers on the outer side of the curve were $11\frac{1}{2}$ inches wider than those on the inner side of the curve. The new piers were to be 27 feet long at the top, 4 feet thick at the top at the narrow end, and 4 feet $11\frac{1}{2}$ inches thick at the top at the wide end, with a batter of $\frac{1}{4}$ of an inch to the foot on each side and at each end. They varied, therefore, at their base in length and breadth according to their height. The footings were to be in two courses of 12 inches each, projecting 6 inches on each side for each course. The piers were to be snecked on the face, with a through-stone in every square yard of surface, and the viaduct was to be built of "good rubble stones," with "imposts, corbels, "string-course, and coping of tooled ashlar." There were 11 arches, each with a span of 37 feet 8 inches, and a rise of 18 feet 10 inches, and 2 smaller arches, each with a span of 29 feet, and these were all to be

2 feet thick, "of pierpoint masonry, with pitched ace voussoirs, and backed up with rubble masonry."

Mr. Kershaw, an inspector of 15 miles of railway, in whose district the viaduct lay, was employed to superintend the construction of the work without any increase to his salary of two guineas a week. He had first, according to Mr. Watts, been a staff holder in levelling, and was then employed in fixing the profiles of tunnels, where he was found very useful. He then learnt to level and take a section of ground. He had never been employed before in the construction of a bridge or a viaduct, but had been in charge of the permanent way and works on the line between Penistone and Huddersfield, and on the Holmfirth branch since July 1864, and had been "applying for an advance." Mr. Watts, the assistant engineer of the company, explains that "this work was given to him as a means of "getting him an advance, and if it had been successful, he *might* have got 30*l.* or 50*l.* a year more, "as a compensation for the superintendence of the "viaduct." He gave a month's notice after the viaduct fell, and at the expiration of that period left the company's service.

I had not an opportunity of examining Mr. Kershaw on the spot, but I learnt from Mr. Watts that a letter was forwarded to him on the 13th instant, informing him that I should make my inquiry on the 16th; and I requested Mr. Watts further to inform him that I should be happy to receive anything in writing which he might feel inclined to send me. I have since received a letter from him dated the 20th instant, which I herewith enclose. He was required to report to Mr. Meek every fortnight on the state of the permanent way and works in his district, and Mr. Watts states that his reports have been, as regards the viaduct, of one uniform character, that the work was progressing satisfactorily up to within a few days of its fall. That this was the case will be seen from the enclosed extracts from his reports, the last of which is dated 30th November 1865, four days before the viaduct fell. He therein reports "the "filling and ballasting done for one line," and that he is "laying the new road." In addition to Mr. Kershaw's superintendence, it appears that Mr. Meek visited the work three times, and Mr. Watts every month or six weeks, or "about half a score" of times between July 1864 and December 1865.

After the plans had been signed, Mr. Meek acceded, at Mr. Wadsworth's request, to the substitution of Yorkshire lime for Halkin Mountain lime provided in the specification, and a saving of something like 56 per cent.* is stated to have been thus made by the contractor in that important item.

In making my inquiry, I first inspected the site in company with the gentlemen of the Chamber of Commerce at Holmfirth, who have memorialized their Lordships, and others interested, as well as with Mr. Watts, Mr. Wadsworth the contractor, and his brother who had assisted him. I afterwards examined all who afforded me opportunity at the Huddersfield Railway Station.

The site presented a scene of complete ruin. The mortar had evidently been of bad quality, and there

* Mr. Meek has since explained that though there was no agreement on the subject, it was not his intention that the contractor should ultimately benefit by this alteration.