

it amongst the coke, while his fireman was knocked with his chest against the break handle. He was still lying in the coke when he felt a second collision, caused by the engine of the passenger train running against his engine; and the first thing he remembered afterwards was the voice of the passenger driver, asking if he was "all right." The passenger driver was rather better prepared for the collision, inasmuch as he heard the pilot engine strike the goods engine just before his engine struck the pilot engine. Neither he nor his fireman were injured. The speed of these engines is stated to have been only 5 or 6 miles an hour. It could not have been great; and if the distant signal had been working properly the collision would not, probably, have occurred.

The pilot engine and its tender framing, as well as the tank, were much damaged. All the buffer planks were broken in the three engines, and the passenger engine lost its patent lubricator, besides having the angle iron of the framing fractured. The passenger driver, however, worked his train forward to Manchester, with all its carriages. Seven of the passengers complained afterwards of the effects of the collision. Two of the waggons of the goods train were thrown off the rails.

This collision was, then, the result of a misunderstanding between the station master and signalman on the one side and the engine driver of the goods train on the other. The previous night had been foggy, and the trains throughout the district generally had been delayed. The signalman was aware that seven or eight trains within one mile were all approaching his end of this single-line tunnel. It was his practice to keep the end of the tunnel and the single line always clear for any train from the Marsden end; but on the present occasion, in the midst of his difficulty, and in consequence of this block in the traffic, he was imprudent enough to allow the passenger train to enter from Marsden, under the belief that the goods train would be able, without difficulty, to shunt back before its arrival—some six minutes later. Men of this class, as well as of a higher class, are very apt to commit irregularities under such circumstances, especially when it appears to them, as far as they can see, that

no risk is incurred. If the engine driver had done what was expected of him, or if the distant signal in the tunnel had worked properly, no collision would have occurred, and the irregularity would not have come to light. But the station master, who had nothing to do with the admission of the passenger train, hurried the goods driver forward. The driver, not unnaturally, thought that the station master wanted to get the passenger train which stood behind him up to the platform, and, being obliged, under any circumstances, to go into the tunnel, where it was difficult to communicate with him, he went forward unexpectedly to a point to which it was impossible to make any signal, and from which he could not easily be recalled. When the goods train had nearly cleared the points through which it was intended to shunt, the station master called to the guard to apply his break, and signalled to a man he had sent forward for the purpose to call back the engine driver. But the latter could not have seen a hand signal from the mouth of the tunnel, in consequence of the steam and smoke that were in it; and the noise of his own train would probably have combined with that of the passenger train to prevent his hearing from his engine the shouts that were addressed to him. The distant signal, not being in good order, was useless to protect him, and the two collisions occurred, after he had run back nearly 200 yards, about 50 yards inside the tunnel.

A *repeater*, as it is called, should be placed in the cabin or outside the tunnel, to show when the distant signal within it, is working properly, and when the light is burning. The works for the second tunnel, too long delayed, should be pushed forward as rapidly as possible. And in the course of adding to the siding accommodation, improved arrangements should be made, under which it will not be necessary for the engines of shunting trains to enter the tunnel, or to foul the single line leading to it.

I have, &c.,

H. W. TYLER.

*The Assistant Secretary,
Railway Department,
Board of Trade.*

LONDON AND NORTH-WESTERN RAILWAY.

*Board of Trade
(Railway Department),*

SIR, *Whitehall, 17th December 1868.*

I AM directed by the Board of Trade to transmit to you, to be laid before the Directors of the London and North-Western Railway Company, [Lancashire and Yorkshire Railway Company,] the enclosed copy of the report made by Captain Tyler, the officer appointed by the Board of Trade to inquire into the circumstances connected with the collision which occurred on the 2nd instant, at Hillhouse, on the London and North-Western Railway, between a passenger train belonging to the London and North-Western Railway Company and an engine belonging to the Lancashire and Yorkshire Railway Company.

I am, &c.

R. G. W. HERBERT.

*The Secretary of the
London and North-Western
Railway Company.*

*The Secretary of the
Lancashire and Yorkshire
Railway Company.*

*Walton-on-the-Naze,
12th December 1868.*

SIR, IN compliance with the instructions contained in your minute of the 8th instant, I have the honour to report, for the information of the Board of Trade,

the result of my inquiry into the circumstances which attended the collision that occurred on the 2nd instant at Hillhouse on the London and North-Western Railway.

The Hillhouse engine sheds and sidings are $\frac{3}{4}$ of a mile to the east of the Huddersfield Joint Station of the London and North-Western and Lancashire and Yorkshire Railway Companies, and the signalman in charge is provided with a low cabin, with a low semaphore signal at that cabin, and with a distant signal 728 yards from it in the direction of Huddersfield.

On the morning of the 2nd instant there was a thick fog at Huddersfield. The 7.0 am. passenger train from Manchester to Leeds left the Huddersfield station at 8.40 a.m., 13 minutes late, consisting of an engine and tender, five carriages and a brook van. The engine driver, after having learnt in starting that the previous train was 20 minutes ahead of him, approached the Hillhouse distant signal, which is 500 yards from the station, by his own account, at a speed of five or six, or, according to the evidence of the guard, at 18 miles an hour. When he saw through the fog, at a distance of 20 or 30 yards, that the distant signal was at danger, he slackened his speed, and in obedience to rule 28, at page 9 of the London and North-Western Company's printed regulations, drew cautiously within it. He had thus reduced his speed to three or four miles an hour, when he sud-

denly felt a smart shock of a collision from behind, which knocked him down amongst the coal in his tender. And it then appeared that an engine belonging to the Lancashire and Yorkshire Company, following on the same line of rails, had come into collision with the break van at the tail of his train.

The guard of the passenger train had applied his break on finding the Hillhouse distant signal at danger, and hearing the engine driver's whistle; and the speed of the train had been reduced (as he states) to four miles an hour, when he heard another whistle to indicate that the line was clear. He took off his break, and he felt that the engine driver had applied his steam, when, turning his head round, he observed the Lancashire and Yorkshire engine "about 15 yards behind him." He had just time to jump out of his van before that engine struck it, at a speed which he estimates at 15 miles an hour. Neither this man nor the engine driver remember having heard anything of the Lancashire and Yorkshire engine, nor any whistle from it, before the collision.

The van was shaken on its framing, and one of its windows was broken. Nine of the passengers in the train complained of injury.

The Lancashire and Yorkshire engine was returning with its tender and a break van to Wakefield, and was intended to pick up waggons at Mirfield for Horbury Junction, and anything else that might be waiting for it along the line. It was started from the Huddersfield station by the signalman, according to the evidence of the driver and guard, at 8.45; and they learnt from him that the passenger train which had preceded them would stop at Bradley. The engine driver states that he was travelling at a speed 10 or 12 miles an hour, when he approached the Hillhouse distant signal, and that, although he found that signal at all right, he shut off his steam after passing it, and gave a long whistle to warn the signalman of his approach. His fireman also applied the tender break when he was 200 or 300 yards past the distant signal, and he prepared to stop at the cabin signal if he should find it at danger. He took the break off again later, and was running towards the cabin signal with his steam off, at a speed of "seven or eight miles an hour," when he saw the passenger train through the fog, about 20 yards before him. He states that he then had time to reverse his engine, turn on his steam, and whistle three or four times sharply, before the collision occurred.

The evidence of two goods guards who rode in the Lancashire and Yorkshire goods van goes to prove that the speed of their engine and van was even less than that stated by the engine driver. The head guard states that they approached the Hillhouse distant signal at three or four miles an hour, and that they went more slowly after passing that signal, reducing the speed "to perhaps two miles an hour, and not more than one mile an hour, when the collision occurred." This man must, of course, have been very considerably mistaken as to the speed, inasmuch as, if he were correct, the collision could not have occurred. But there seems to be no reason for believing that the driver of the Lancashire and Yorkshire engine was running at excessive speed, or for attaching blame to him. He found the distant signal at all right; he ran forward, as was his duty; he received no warning of the passenger train being immediately in front of him, and he could only see it through the fog for a short distance before he struck it.

The signalman at the Hillhouse cabin was intending to allow an engine to run from the shed to the down line for Heaton Lodge, a little after 8.30, and had turned his distant signal to danger, for its protection, when he heard the engine of the passenger train then due, whistle from the Huddersfield station. He therefore kept the engine for Heaton Lodge in the shed, and took the distant signal off again, to allow the passenger train to pass. He was unable in the fog to see anything of the train, but he "kept the distant signal at all right, for about a minute

"and a half, and then turned it again to danger." He next heard three sharp whistles, which he knew by the sound to come from a Lancashire and Yorkshire engine, and shortly afterwards the shock of the collision.

A platelayer was stationed near the distant signal, to warn the engine drivers, by means of explosive signals, of the condition of that signal when it was at danger. It was in that position when the passenger train passed him, but he did not place an explosive signal on the rail, and it so happened that in that case it was not required. The Lancashire and Yorkshire engine passed him, he thought, about three minutes after the passenger train, but he did not warn the driver because the signal was at all right.

The signalman at the east end of Huddersfield station booked the passenger train as passing him at 8.43, but he did not book the starting of the Lancashire and Yorkshire engine, as he ought to have done; and it hardly appears to be possible for him, considering the condition of his means and appliances, to perform this duty regularly. This man states that there was an interval of four or five minutes between the starting of the passenger train and that of the Lancashire and Yorkshire engine. But there is no means of ascertaining precisely and with certainty what that interval was. The London and North-Western Company's printed regulations do not contain any definite rule as to the starting of trains at any particular intervals after one another, though they prescribe, with regard to an "intermediate station," that "(except when the trains are regulated by telegraph) the red signal will be shown for five minutes upon the main post at the station; but if a train arrives within this interval, the driver may be authorized by the signalman to proceed, after intimating to him the description of the preceding train, and the time which has elapsed since it has passed. If an interval of five minutes has elapsed before the arrival of a following train, the caution signal must be exhibited for five minutes more."

This rule, by no means satisfactory under any circumstances, is still less so when applied to the working and starting of trains or engines from such a place as the Huddersfield station. About 150 passenger and goods trains run in each direction daily between Huddersfield and Hillhouse, besides engines to and from the sheds 20 or 30 times a day, and 10 or 12 assisting engines returning from Diggle to Heaton Lodge and Leeds. The character and amount of this traffic, and the want of proper means and appliances, render it impossible for the signalman to work it with order and regularity on any proper system; and I do not see that any of the Company's servants, acting under such disadvantages, can properly be found fault with on account of this collision.

It occurred in a dense fog. The signalmen at Hillhouse and at Huddersfield had no means of communicating with each other. The platelayer employed as fogman between them had no means of knowing when it was right to stop a train, or when to allow it to proceed, except by the indications, of the Hillhouse distant signal. That distant signal, as it happened, gave him exactly the wrong indication in each case, having been at danger when it was desirable the passenger train should have gone forward out of the way of the Lancashire and Yorkshire engine, and at all right when the Lancashire and Yorkshire engine ought to have been stopped to prevent it from overtaking the passenger train. The Hillhouse signalman was unable to see when the passenger train passed it, and therefore to turn it to danger at the proper moment. And the remedies required have been too long delayed, and are only too much wanted in other parts of the district.

The London and North-Western Company should lose no time in providing at Huddersfield and Hillhouse improved and elevated cabins, from which the points and signals may be conveniently worked, with locking apparatus, and telegraph communication be-

tween the signalmen. And it is exceedingly desirable that this portion of the line should be worked on the "block system," so that no pretence should be made of keeping up intervals of time which cannot in practice be preserved between the engines and trains; and intervals of space, which may always under

proper arrangements be maintained, should be substituted for them.

I have, &c.

*The Assistant Secretary,
Railway Department,
Board of Trade.*

H. W. TYLER.

LONDON AND NORTH-WESTERN RAILWAY.

*Board of Trade
(Railway Department),*

SIR, *Whitehall, 29th January 1869.*

I AM directed by the Board of Trade to transmit to you, to be laid before the directors of the London and North-Western Railway Company, the enclosed copy of the report made by Colonel Yolland on the collision which occurred at the Euxton junction on the London and North-Western Railway on the 18th ultimo.

I am, &c.

*The Secretary of the
London and North-Western
Railway Company.*

R. G. W. HERBERT.

*Board of Trade
(Railway Department),*

SIR, *Whitehall, 15th January 1869.*

I HAVE the honour to report, for the information of the Board of Trade, in obedience to your minute of the 2nd instant, the result of my inquiry into the circumstances which attended a slight collision that occurred at Euxton junction, five and a half miles south of Preston, on the London and North-Western Railway, on the 18th ultimo. Three passengers are returned as having been slightly shaken.

This portion of railway from Winwick junction to Preston is worked with the assistance of the electric telegraph, on what is termed the "permissive" or "London and North-western block system," which altogether differs from the absolute block system, inasmuch as more than one train may be on the length between two telegraph stations at the same time and on the same line of rails, the second or other train being permitted to follow when an interval of three minutes has elapsed, the signal being placed at "caution;" but if the interval of three minutes has not elapsed, and "line clear" has not been received by telegraph from the station in advance, then the signal is directed to be kept at danger, and the train brought to a stand, and the driver must be warned of a train in advance, and then be allowed to proceed.

On the evening of the 18th ultimo, a coal train proceeding northwards reached the Euxton junction about 7h. 25m. p.m., and a telegraphic message having previously been received that a passenger train was approaching the junction also from the south, the breaksman of the coal train was directed by the signalman to shunt his train into the weigh-bridge siding off the down line, the entrance to which is about 400 yards north of the junction signal box. The signalman at the junction, by his instructions, is directed not to let any down train pass his box until he receives a signal by gong from the man in charge of the weigh-bridge siding that the train has been placed in the siding clear of the main down line.

An excursion train, consisting of engine and tender, nine carriages, and two vans, from Liverpool for Carlisle, reached Euxton junction about 7h. 30m. p.m., and the distant and junction signals being both on at danger against it, this train was nearly brought to a stand still before it got up to the junction; and the signalman states that the driver of the excursion train gave a short whistle, as he understood, to ask whether he might come on or whether he must stand; and he

(the signalman) took his hand lamp, showing a red light, and waved it, intending that he should stand; that the excursion train came on very steadily, and, he says, he told the driver that he might go on very slowly, as there was a coal train shunting. He admits, however, that he had not received the signal by gong from the man in charge of the weigh-bridge siding, and he states that it is not the practice to let the following train go ahead before the gong signal is heard; but that he let him go on this occasion, on telling him what was ahead, and that he was to go slowly. He says, also, he has not often done the same thing before, unless another train had come up, which was the case that night, another excursion train from Liverpool having arrived about 7h. 35m. p.m., and that they let trains go in such cases, but not without letting them know what is ahead. It appears that there was an up train passing the signalman's box at the same time as the down excursion train passed, and as the up train was between the excursion train and the signalman's box nothing was heard by the driver of the excursion train about going slowly, or about the shunting of a coal train; and the signalman admitted to the inspector of police, after the collision had taken place, that he had signalled the excursion train on.

The driver of the excursion train, who had not driven many times on this line, states, that he was waved ahead by the signalman with a hand lamp showing a red light out of the window of the signal box, but the signalman did not speak to them or call out, and he went slowly on, as he understood the waving of the red light was to tell them to go cautiously, and when he came near the junction signal box he saw three red lights ahead, van lamps on a train, and all at once these lights disappeared, and he says he did not know what had become of them; that he passed along cautiously, as he did not know what was going on, and was running about four or five miles an hour when he came in contact with two coal waggons that stood next to the engine, and knocked them off the road. He also stated that they are supposed to get another signal from the man in charge of the weigh-bridge siding, and he intended to run cautiously until he received such all right signal. The two coal waggons which were run into formed the front part of the train that was in the act of being shunted into the weigh-bridge siding; and it appears that the breaksman of this train, while it was in the act of being shunted, and not off the main down line, reversed the lamps on the van at the tail of the train; and it is probably due to this man's misconduct that the collision took place. There is, however, no doubt also that the signalman acted improperly in allowing the excursion train to pass his junction before he received the signal by gong from the man at the weigh-bridge siding.

The next telegraphic station southwards is Coppull, distant four miles from Euxton junction. The signalman states that he had not given "line clear" back to Coppull when the excursion train arrived, and he had not received "line clear" from Leyland telegraph station, to the north, when he waved the excursion train ahead, so that it is a misnomer altogether to call the system of working a block system of any kind, as several trains may be on the length between two adjacent telegraphic stations. It will also be seen, from what I have stated, that as this system is carried out the drivers are not told by the signalman what