

LANCASHIRE AND YORKSHIRE RAILWAY.

Sir, *Liverpool, 28th September 1870.*

In compliance with the instructions contained in your minute of the 26th 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 19th instant at the Bootle Lane station of the Lancashire and Yorkshire Railway.

The Bootle Lane station is $2\frac{1}{2}$ miles north of Liverpool, on the line to Wigan and Manchester; and is about 1,600 yards north of the Sandhills station, where the line from Southport joins the line from Wigan. On the south of Bootle Lane, and between that station and the Sandhills station, there is, principally on the west of the passenger lines, a very extensive depôt for goods and coal; and this is also the site of the locomotive works, sheds, and sidings for this section of the Lancashire and Yorkshire Railway. The principal entrance to the numerous sidings south and west of Bootle Lane, used for these various purposes, is by means of a pair of points immediately to the south of the Bootle Lane passenger platform. These points are worked from a cabin directly over them, and are, as well as other points, interlocked with the main line signals, and with certain siding signals. There are gongs communicating from this cabin to a cabin 672 yards south of Bootle Lane, called the Kirkdale Junction cabin, and to a cabin in the goods yard 120 yards south of Bootle Lane. The line north of Bootle Lane is worked by block telegraph, for the protection of the traffic passing through a tunnel in that direction. The Kirkdale Junction cabin is provided with telegraph instruments, and the portion of the line south of Bootle Lane is about to be worked on the block system.

There is a rising gradient of 1 in 400 from the Kirkdale Junction cabin to the Bootle Lane cabin. The up passenger line from Liverpool and Sandhills is protected by a (*spectacle*) distant signal, 336 yards from the Bootle Lane cabin, worked from that cabin, and by a main signal over the cabin. There is also a signal-post south of the cabin, with three arms upon it, applying to three different sidings approaching the cabin.

The 8.30 p.m. passenger train from Liverpool for Manchester left the Exchange station, Liverpool, at 8.34 by the guard's watch on the day in question, consisting of an engine and tender, a second-class, a composite, a first-class carriage, and a break-van; all the carriages having been connected with the break-vans on Fay's system of continuous breaks. It was due to stop first at Bootle Lane. The engine-driver found the signals all right for him to proceed, at Sandhills and at the Kirkdale Junction cabin; but in approaching Bootle Lane he found the distant signal at danger. After giving a long whistle for the signal to be taken off, he shut off his steam 100 or 150 yards south of the distant signal, or about $\frac{1}{4}$ of a mile south of the Bootle Lane cabin, while travelling at a speed of 14 miles an hour. He next looked for the home signal; and he states that while the arm over the cabin applying to the main line was obscured by steam and smoke, he noticed that the upper arm on the siding signal-post was lowered; and that he mistook that arm (which applied to No. 1 siding) for the main line signal. It was only when he came within 20 yards or so of the siding crossing that he saw some waggons moving along that crossing into the siding. He then whistled for the breaks, and reversed the engine; but his engine at once struck one of the waggons, at a speed of five or six miles an hour.

Neither the engine nor any vehicle in the passenger train was thrown off the rails; a buffer was knocked off the engine, and a cylinder cover was cracked. None of the carriages were damaged; they went forward to Manchester, and returned the next morning as usual. Four of the passengers have complained of injury.

The engine-driver had been driving altogether for about four, and regularly for two years. He had passed over this section of the line twice a week for about three months, and was therefore well acquainted with the signals, and with the Bootle Lane station and sidings, and with the fact that shunting was continually being carried on there.

The guard had been running on this section of the line twice a day each way for six months. He was engaged with his parcels and letters when the train passed the distant-signal. He had applied his break slightly before he heard the engine-driver whistle for the breaks, and he had then just time to "take two turns" on his break-wheel before the collision occurred. The collision occurred at 8.39 by his watch, two minutes after the train was due to leave Bootle Lane.

The goods train which thus came in the way of the passenger train, left Liverpool at 8.20, with an engine and tender and 24 waggons, without a break-van. The guard rode on the last waggon, which was loaded, and he applied the break of the waggon from the buffer on which he sat, when he was required to do so. At Kirkdale Junction the train entered the south end of No. 1 siding, and it ran along that siding towards Bootle Lane, where it arrived at 8.30. After it had waited for six minutes in the siding, the Bootle Lane signalman allowed the engine-driver to proceed to the main line for the purpose of going on with his work. The guard was obliged to make four or five shunts with the train, in order to distribute his waggons into various sidings; and the engine and waggons required to be taken backwards and forwards between the sidings and the main line, under the direction of the goods inspector and with the permission of the signalman, for that purpose. But as soon as the engine-driver had got out of No. 1 siding, and had taken his whole train upon the main line, the signalman signalled to him to return into the sidings. He proceeded accordingly to back his train, with five waggons detached, which were to go into the sixteenth, while the remainder were to go into the tenth siding from the main line. The goods train was thus being pushed back when the engine of the passenger train came into collision with a waggon, twenty-third from the engine, and last but one in the train.

This waggon was thrown off the rails, and had one pair of its wheels knocked from under it, and the axle bent; and its body was partly broken up. Two other waggons also left the line, but they were not so much damaged. The goods train was only slightly in backward motion when the collision occurred, and no person connected with it was hurt.

The signalman who was on duty at Bootle Lane has been employed at that station for two years and six months. He states that he lowered his siding signal at 8.31, by the clock in his cabin, after receiving notice by gong from the cabin in the sidings to allow the goods train to leave No. 1 siding, the passenger train having been due at 8.37. The shunting being so frequent, and occupying so much time at these sidings, it appears to be impossible for this man to carry out the printed regulations, which directly or indirectly require that the main line should be kept clear of goods trains ten minutes before passenger trains are due. He states that the collision occurred at 8.36, five minutes after he allowed the train to go out; but the engine-driver of the goods train believes that only three minutes elapsed between his leaving the siding and the collision, and the guard of the passenger train gives 8.39, as already stated, as the time of the collision.

In the case of this collision, the engine-driver of the passenger train does not appear, in the first place, to have paid sufficient attention to the distant-signal from Bootle Lane, or, in the second place, according to other evidence, to have been misled as he states by

the siding signal. The signalman, at all events, is very confident that the siding signal, after having been lowered to allow the goods train to leave the siding, was turned again to danger before this engine-driver came in sight of it. If the engine-driver did, while still at some distance from Bootle Lane, see the red light turned off from the upper siding signal, it must, in any case, have been turned on again as he approached it. On the other hand, the waggons backing into the siding would have had no light on them, and would not have been visible to the engine-driver in the dark until he was very near them.

The distant-signal from Bootle Lane is on a bank, and is well seen in the daytime during clear weather; but it has the disadvantages of being at some little distance from, and on the wrong side of, the main lines of the railway, as well as of being only 336 yards from the cabin. It would be better to remove it to a greater distance, placing it on or near the bridge by the Kirkdale Junction cabin; and I may observe that the latter cabin is in a most dilapidated state, as regards both its timber-work and its apparatus. A new cabin should be provided here without any delay, and should be supplied with a locking-frame and with proper appliances.

But still more important are the improvements required at Bootle Lane. The shunting between the sidings and the main line may be said to be

constant, continuing day and night with comparatively little intermission. Not only is it, as I have already stated, impossible for the signalman to keep the main line clear for the numerous main line trains, but great inconvenience and danger are also caused to passengers using the station. They are frequently detained, after taking their tickets on one side of the line, by shunting or other trains, and are thus unable to cross over to join their trains on the other side of the line. The remedies for such a state of things are sufficiently obvious, and are the same as are necessarily applied under similar circumstances in other places. An independent siding should be formed at the back of the passenger station, to be used in place of the passenger line for the distribution of waggons, the marshalling of trains, and for all shunting purposes; and a new passenger station should at the same time be constructed, with a booking office, on a bridge over the line, and with suitable means of communication on both sides of the line between such bridge and the public road, which passes at a considerable elevation over the railway.

I have, &c.

H. W. TYLER.

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

Printed copies of this report were sent to the company on the 12th October.

LANCASHIRE AND YORKSHIRE RAILWAY.

*Brighouse,
25th October 1870.*

SIR,

In compliance with the instructions contained in your minute of the 24th 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 night of the 21st instant, near Brighouse, on the Lancashire and Yorkshire Railway.

The Brighouse station is on the main line of the Lancashire and Yorkshire Railway from Manchester to Normanton, and is rather more than 37 miles from Manchester, and rather less than 13 from Normanton. The North Dean junction and station are $4\frac{1}{2}$, and the Elland Station is $3\frac{1}{2}$ miles, on the west of Brighouse.

The Brighouse station is approached from the west on a falling gradient of 1 in 528, and on a curve of 62 chains radius. It is protected by a platform signal, and by two distant-signals, 589 and 930 yards, respectively, from the booking office. The furthest signal is visible to an approaching engine-driver for rather less than 300 yards; and, the line running through a rock cutting, the view is much obstructed in approaching both the distant-signals. The nearer is simply used as a repeater to the further distant-signal, because the latter is not visible from the station.

On the evening in question, the 7.0 p.m. train from Liverpool, and the 8.15 p.m. train from Manchester, were joined together as usual at Rochdale; and left that station at 9.5, five minutes late, for Normanton. At Sowerby Bridge, the Manchester portion was detached for Bradford; and the Liverpool portion started for Normanton at 10.5, two minutes late, consisting of an engine and tender, six carriages, and a break-van. Three of the carriages were coupled to the van by Fay's continuous breaks; and the van, in which the guard rode, was in the centre of the train. This train reached North Dean at 10.11; left it again at 10.12, one minute late; left Elland at 10.18, two minutes late; and proceeded in due course towards Brighouse, where it was due to stop at 10.21.

The engine-driver believes that he was travelling at a speed of 15 miles an hour in approaching the Brighouse distant-signal, as he had shut his steam off in the cutting some 500 or 600 yards before he came in sight of that signal. He found it at danger, and

at once whistled for the breaks. In proceeding forward he caught sight of three red lights, at the tail of a train standing about 180 yards within the distant-signal. He then reversed his engine, applied his steam, and whistled again for the breaks; and his fireman sanded the rails. They had reduced the speed to four or five miles an hour, as they believe, before their engine struck the third-class carriage at the rear of the train in front of them.

The guard of this train was busy preparing his parcels, of which he had a great number, for Huddersfield, when he heard the engine-driver whistle, first for the signal, and immediately afterwards for the breaks. He turned on his breaks as fast as he could, and had hardly got them fully applied before the collision occurred. He first noticed a reduction of speed after hearing the whistle for the distant-signal, at which time he considers that the train was travelling at the rate of 18 or 20 miles an hour; and he also considers that the speed was reduced to 4 or 5 miles an hour when the collision occurred.

The engine of this train left the rails with its leading and driving wheels, in consequence of the buffer-beam mounting a pair of wheels from under the carriage which it struck at the rear of the train in front of it; but the trailing wheels, and all the wheels of the tender, remained on the rails; and none of the carriages were thrown off the line. The buffer beam of the engine was broken; and some of the cylinder-taps, the head-lumps, and certain minor parts, were damaged. Neither the tender nor any of the carriages were damaged, but the break-wheel in the van was broken by the guard as he fell against it, and grasped it in rebounding from it. The guard was slightly injured, but neither the engineman nor the fireman were hurt, and only one passenger in the train appears to have complained of injury.

The passenger train with which the above train came into collision, left Bradford at 9.32 p.m. for Huddersfield, consisting of an engine and tender and four carriages, of which the leading carriage was a break-carriage, and all of which were coupled together with Fay's continuous breaks. It left Halifax, according to the guard, at 10.2, two minutes late; North Dean at 10.8, three minutes late; and Elland at 10.12 also three minutes late; and it came to a stand about 10.20, between the repeating-signal and the distant-