

crossing in throwing them partly off the rails so as to check their speed before they dashed into the siding and came into collision with the coal waggons standing in it. The conduct of this signalman therefore deserves special commendation.

This collision would not have occurred had there been proper runaway points on the up line a short distance on the Huddersfield side of Brockholes junction: these no doubt will now be provided, as well as below Honley and Berry Brow.

Nor would the collision have occurred had the runaway vehicles, like the rest of the train to which they had been attached, been provided with automatic break appliances, as the breaks could then have been applied before they had been uncoupled from the train. The Lancashire and Yorkshire Company have, however, been making good progress in fitting their rolling stock with automatic break appliances. During the six months ending 30th June 1886 they had so fitted 44 engines and 331 vehicles, making the total thus fitted at that date 309 engines and 1,328 vehicles. In addition to this they have a large number of vehicles still fitted with Fay's or Newall's continuous (mechanical) breaks.

The Assistant Secretary,
Railway Department, Board of Trade.

I have, &c.,
C. S. HUTCHINSON,
Major-General, R.E.

Printed copies of the above report were sent to the Company on the 21st October.

LANCASHIRE AND YORKSHIRE RAILWAY.

Board of Trade, (Railway Department.)
1, Whitehall, London, S.W.,
November 3, 1886.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in compliance with the Order of the 15th ultimo, the result of my inquiry into the causes of the collision which occurred on the 12th ultimo at Bolton Junction station, on the Lancashire and Yorkshire Railway.

In this case, while the 12.5 p.m. coal train, from Ince, viâ Bolton, for Entwistle was crossing from the main up goods line to the down line of the Blackburn branch at Bolton station it was run into by a special cattle train from the North Docks Liverpool, viâ Bolton, for Wakefield.

Complaints of injuries have been received from seven cattle drovers, who were travelling in a carriage in front of the rear van of the cattle train; the driver, fireman, and guard of the cattle train were also injured.

In the coal train, five waggons were broken up, and three others damaged. In the cattle train, the engine was thrown partly over on its right side and damaged; the drovers' carriage was also slightly damaged.

The collision occurred at 1.56 p.m.

Description.

At Bolton Junction station the lines from Wigan and Blackburn unite near the centre of the station, through which there are four lines of rails, viz., two platform lines and two goods lines; the four Wigan lines merge into two, before reaching the mouth of the first of a series of short tunnels, 170 yards from the junction, but the four Blackburn lines become two in a much shorter distance. There are cross-over roads on both the Wigan and Blackburn lines close to and just beyond where the four lines merge into two.

The junction is properly signalled, the levers working the points and signals being interlocked in a raised cabin situated in the fork of the junction, and about 100 yards from the mouth of the tunnel on the Wigan line. The only signals to which it is necessary here to refer are the junction up home-signals for the Wigan line, situated at the eastern mouth of the series of short tunnels and visible for about 155 yards; the first up distant-signal, 620 yards from the up home-signals, close to the western mouth of the tunnels, and visible for nearly a quarter of a mile; and the second up distant-signal, 125 yards beyond the first one, and underneath the Bullfields East cabin up home-signal, and also visible for nearly a quarter of a mile. The line is worked on the absolute block system, and had one of the two trains which came into collision been a passenger train, the Bolton signalman would not have been justified in giving

permission for the second train to pass Bullfields East cabin while the first was occupying the line only 150 yards inside the up home-signals; this rule, however, is not enforced where neither of the trains is a passenger train.

The Wigan line falls towards Bolton for some distance on a gradient of 1 in 460.

The collision occurred 150 yards inside the junction up home-signals for the Wigan line, and about three-quarters of a mile from the spot where a driver can first see the outermost up distant-signal for this line.

Evidence.

1. *Thomas Potts*, signalman, 18 years in the service, 16 years signalman.—I have been about 12 years in Blackburn Junction cabin, Bolton, where I came on duty on the 12th October at six a.m. for eight hours. I had a train boy with me in the cabin. The coal train from Ince arrived at 1.49 p.m., and I gave "Line clear" back to Bullfields. I was justified in doing this as the train had passed my cabin, which is about 100 yards in advance of the home-signal at the tunnel mouth. I was first informed on the telephone from Lostock junction about 1.52 p.m. that a cattle train was passing, and at the same time I got the "Be ready" from Bullfields East. I accepted it, and at 1.55 I got "Train on line," and took the train into block. When I had accepted this signal the engine of the coal train (which train had stopped a short distance on the Manchester side of the junction points) had run round to the other end of its train by means of the cross-over road on the Blackburn branch, and had rejoined it. The coal train started immediately the engine was coupled on, and the engine had about got to the end of No. 21 points on the Blackburn line, when I saw the engine of the cattle train issuing from the tunnel at a speed which I knew was too fast for it to stop. I shouted out, and the driver and fireman both jumped off when near the cabin, the driver having reversed and put steam on, and the tender's breaks being applied. The driver of the coal train, seeing the cattle train coming, slackened his speed, but did not come quite to a stand when the collision happened, the engine striking about the eighth coal waggon; the speed of the cattle train must, I think, have been about 25 miles an hour on collision. The engine of the cattle train did not get beyond the coal train, but turned partly over on its right side. I had last taken off the distant-signals towards Liverpool at 11.41 a.m., when according to the repeaters they were working properly. No. 41 is a distant-signal on the wall by itself. No. 42 distant-signal is slotted by the Bullfields East home-signal. Had there been nothing in the way the cattle train need not have stopped till reaching Bury junction. About a quarter of an hour after the collision I saw the driver on the ground; he was knocked about, and said that he could not stop, though he had used every endeavour to do so, and that the signals were all against him. It was raining when the collision occurred, about 1.56 p.m. Had it been a passenger train approaching from Liverpool, I should not have accepted the "Be ready" while the coal train was crossing the junction.

2. *James Shaw*, signalman; 10 years in the service, five years signalman.—I have been employed at Bullfields East cabin for about six months, and I came on duty there at 6 a.m. on the 12th October for eight hours. The coal train passed the cabin at 1.43 p.m., and was cleared back from Blackburn Junction at 1.47 p.m. I got the "Be ready" from Bullfields West for the cattle train at 1.51 p.m., and accepted it at the same time. I received "On line" for it at 1.53 p.m., and it passed at 1.53 p.m. I noticed that it seemed running at a good speed, and I made the remark to a point-cleaner who was in the cabin that the train would not be able to pull up if anything was crossing the junction at Bolton, having the coal train in my mind. I observed that both distant signals from Blackburn Junction were at danger, neither of them drooping. I had not noticed the

high speed of the train in time to check it by my home-signal, though it would hardly have been of much use if I had. I did not observe any breaks on when the train passed my cabin, and I did not observe what the driver was doing. The speed was as fast as that of a passenger train; the steam was shut off. I did not see where it had been shut off. I gave train "On line" for the cattle train at 1.53, and it was accepted at the same time. I could not say whether the engine was reversed. I did not hear the driver give the break whistle.

3. *John Walmsley*, driver; 14 years in the service, two years driver.—I joined the 12.5 p.m. coal train from Ince for Entwistle, via Bolton, at Ince about 11.50 a.m. on the 12th October. We stopped at Bullfields East, and left it with tank engine (running bunker first), 24 loaded waggons of coal, and a break-van at each end. We got a clear home-signal for running into Blackburn Junction, Bolton, but the distant-signals were at danger, perfectly so, not at all drooping. We ran through the junction at Bolton and stopped on the up goods line. My engine was then detached, and I ran round my train by the down goods line and the cross-over on the Blackburn branch. I started immediately I was coupled on, at about 1.57 (this was eight minutes before time), and had just got over the junction points when I saw the engine of the cattle train coming out of the tunnel with the signals against it. I made a sharp move to get the engine clear, and then shut steam off, and the engine of the cattle train struck about the sixth waggon in my train, when I had nearly stopped. It remained mixed up in the debris of the waggons and leaning over on its right side. Five waggons were smashed and three others damaged. Neither I nor my fireman was hurt. My engine got away with five waggons and the break-van. The rails were rather greasy. The speed of the cattle train may have been about 13 miles an hour when it struck my train. My guard, who was in the rear van, was not hurt.

4. *Wormald Collinson*, goods guard; 18 years in the service, eight years goods guard.—I started from Normanton between 5 and 6 a.m. with a special train of butter for Liverpool, and left the North Docks at 12.10 p.m. with a special train of cattle for Wakefield. It consisted of 16 loaded cattle waggons, a drover's carriage, and a break-van in which I was alone. We stopped at Kirkdale by signals without over-running, and then at Holland tunnel (the other side of Wigan) for water, then at Canal cabin, Wigan, by signal for 11 minutes. After this we were slackened by the distant signal at Chewmore, after which all signals were off until we sighted the Blackburn Junction distant-signals, which were both at danger, without any drooping about them; I sighted these from Bullfields West. The speed was then about 25 miles an hour; I cannot say when steam was shut off. As far back as Gilnow crossing (about quarter of a mile from Bullfields West) I had thought the speed was too high and applied my break in consequence as hard as I could, and never released it up to the time of the collision, when the speed was still between 12 and 15 miles an hour. I could not tell when the driver reversed his engine. I jumped off in the tunnel into the 6-ft. space. I tumbled down and hurt my shoulder. At Sowerby bridge, on the journey from Normanton, my

driver said his break was not a good one. I do not remember having driven with him before. My break was not a good one for holding; the blocks are of iron. I had not made any report of the break.

5. *William Beavers*, acting driver; 14 years in the service, two years cleaner, 12 years fireman, and for the last five years occasionally acting as driver.—Up to about 12 months before the collision I had been in the habit of running as fireman with passenger trains between Liverpool and Normanton, every three weeks for about a year, but during the past year I had only run once as fireman, in June I believe. On the 12th Oct. I left Normanton at 5.30 a.m. with a train of butter for Manchester and Liverpool; we reached Liverpool at 10.40, where I did not leave my engine, and returned from the North Docks at 12.15 p.m. with a special train of cattle for Bolton and Wakefield. My engine was a six-wheeled coupled engine, and six-wheeled tender, running engine first from Liverpool, and I had a train of 16 cattle waggons, a drivers' carriage, and break-van. I had never worked the engine before, and the fireman had only been with me once or twice. The only break applicable from the engine was the screw tender break, working six iron blocks, one on each wheel. On the journey to Liverpool I overran about an engine's length at Sowerby Bridge, from the break not acting as well as I expected, and I then told the guard he had better look after his break, as mine was a very poor one and was not set true. On coming back from Liverpool I had to reverse in order to stop at the Canal Bridge signals at Wigan. This was the last stop before the collision, and I got clear signals until I approached the distant-signals from Blackburn Junction, Bolton; the first of these is below the home-signal at Bullfields East, and the other in advance of Bullfields East cabin, against the wall; the first of these signals was drooping, but I took it for a signal at danger, and the other was fully at danger. I saw both signals as soon as they could be seen, about a quarter of a mile off. I had shut off steam at Lostock junction, put it on again slightly on finding the distant-signal off at Lostock intermediate cabin, but shut it off before reaching this cabin, and never applied it again. Before getting to Gilnow distant-signal (about $1\frac{1}{2}$ miles from the point of collision) I was afraid my speed was too high, and told my mate to apply his break, and he did so, and it was never again released, but I tried to get another half turn out of it, and did so, when about passing Gilnow. This reduced the speed slightly, and on finding the Bolton distant-signals against me I opened the sand-boxes, which deliver dry sand in front of the leading wheels, and reversed my engine between the West and East Bullfields cabins. I then whistled for the guard's break, and put steam on against the engine, doing this latter after I had passed the inner distant-signal. I then put some sand from the foot-plate in front of the tender wheels, and whistled in passing the junction home-signal. I jumped off a few yards before the collision. I tumbled down and was hurt in my knee; the fireman followed me and hurt his back. The speed when I jumped was from 10 to 13 miles an hour; at Gilnow it had been about 30 miles an hour. I do not know where I had allowed the speed to become too fast. I never felt the guard's break applied at all. I left steam on when I jumped off, and I shut it off myself after the collision. I had had the impression that if I was allowed to pass Bullfields East cabin, the signals were clear up to the water column at Bolton station platform. I did not say anything at Liverpool about my break blocks wanting adjusting. I have worked with engines of the same

class as No. 476 before. I think the guard did not apply his break as well as he might have done. My fireman was a cleaner, and I had to instruct him in some of his duties.

6. *Charles Milson*, acting fireman; $3\frac{1}{2}$ years in the service, cleaner most of the time.—I have acted as a fireman about once a week for two years. On the 12th October I was told off to act as fireman with Beavers. I had been once with him before to Bradford. I had once before been to Liverpool and back as fireman this year. The journey went all right from Normanton to Liverpool. I don't remember any case of overrunning at Sowerby Bridge, nor did I hear any conversation at that place about breaks between the driver and guard, but on the way the driver had said to me it was only a poor break that he had. I was with the driver all the time we were at Liverpool, and I am quite sure he had nothing to drink. On the return journey the driver told me to put on my break at Gilnow; I did so, and he tried to put it on harder, and he got it on a little harder. He shut off steam at Lostock junction. He put it on again near the intermediate cabin, and soon shut it off again. He then told me to open the sand-boxes, and I did so before reaching Bullfields East. He then reversed the engine as we entered the tunnel, and put on steam directly afterwards. He whistled for the breaks about the centre of the tunnel or perhaps a little sooner. I did not see the driver put sand in front of the tender wheels. He jumped off after we had left the tunnel, and I jumped after he did. I fell on the ballast and was hurt in my back. I did not hear the driver say anything about the guard not having applied his break. On passing Gilnow the driver asked me what was the name of the cabin he was passing. The break seemed to skid only the first pair of wheels, but not to act so well on the others.

7. *William Collins*, chief main line inspector in the goods department.—I was in the inspector's cabin at Bullfields on the 12th October. The cabin is situated about midway between Bullfields East and West. As the cattle train was passing my attention was drawn to it by the excessive speed at which it was travelling; it seemed to be running at from 35 to 40 miles an hour. I then looked at the signals, and saw that the distant-signal for Blackburn Junction, on the Bullfields home post, was at danger; it was a good signal. I remarked to a shunter named Alfred Jones and the waggon inspector, named Charles, that the train would not stop at Bolton, unless the driver hit something; the men with the train did not seem to be doing anything to stop, and neither the tender break nor the guard's break seemed to be on; the wheels were not skidding, but the engine had not steam on. The train was running as fast as a passenger train fitted with the vacuum break would have been passing this point. I did not see the guard.

8. *Joseph Brown*, pointsman.—I was walking through the tunnel from Bullfields to Bolton, as the cattle train was passing through it. It seemed to be travelling at a speed of from 25 to 30 miles an hour. I saw the train was going too quick, and I called out to the guard as the van was passing me to put on the break. I did not see the guard. I did not hear the blocks rubbing on the wheels, and I do not think the break was applied. I noticed as the engine was passing me that the fireman was putting on his tender break, and the driver whistling; he was whistling before he entered the tunnel; when I first heard the train, I was under the impression it was a passenger train from the speed at which it was travelling.

Conclusion.

This collision was caused by the driver of the cattle train approaching Bolton at an injudiciously high speed, and not taking sufficiently prompt measures to reduce that speed on finding the distant-signals (of which the outer one is visible about three-quarters of a mile from the point of collision) at danger against him, the result

having been that he overran the home-signal at which he ought to have stopped by about 150 yards, and there came into violent collision (he himself acknowledging to a speed, on striking the coal train, of from 10 to 13 miles an hour) with a coal train which was slowly moving—in the contrary direction to the cattle train—from the up goods line towards the up line from Blackburn.

Neither driver nor fireman of the cattle train was well acquainted with the line on which they were travelling; the driver, who was only a fireman of 12 years' service as such, and occasionally for the last five years acting as driver, had only worked once in the last 12 months as fireman between Liverpool and Normanton viâ Bolton, and for the previous 12 months he had been in the habit of working every third week as fireman with passenger trains between Liverpool and Normanton. The fireman, who was only a cleaner of 3½ years' service as such, acting as fireman about once a week for the past two years, had only been once before (in the present year) from Liverpool to Normanton viâ Bolton; comparative ignorance of the road, therefore, contributed no doubt to some extent to account for the want of judgment displayed; this ignorance was manifested, 1st, by the driver having asked the fireman the name of a cabin he was passing when about a mile from Bolton; and 2nd, by his not having whistled for the guard's breaks till he had passed the junction distant-signals and entered the series of short tunnels which occur between Bullfields and Bolton. The driver had also the impression, derived no doubt from his experience as fireman with passenger trains, that as the Bullfields East cabin home-signal was off, he would have a clear road up to the water column at Bolton platform, though I much doubt whether he would have been able to stop even there, had the coal train not been in his way. Both driver and fireman complained of the tender break not being in proper adjustment; they had, however, said nothing about this at Liverpool, and had taken no means to have the defect rectified. Granting, however, that the break was not as efficient as it might have been, this, combined with his comparative ignorance of the road, should have caused the driver in approaching Bolton to use great caution, and to pay the utmost attention to signals; neither of which he appears to have done.

The guard of the cattle train was well acquainted with the road, and, judging from the evidence of a goods inspector who was watching the train as it passed him about half a mile from Bolton, from that of the signaller in Bullfields East cabin, and from that of a pointsman whom the train passed in the tunnel close to Bolton, it is almost certain that the guard's break was not applied as the train passed either of these men; the guard must consequently be held deserving of serious blame for not having more promptly used the means in his power for stopping at the Bolton Junction up home-signals.

The locomotive foreman at Normanton did not, I think, display good judgment in appointing two men, neither of them thoroughly efficient, to act as driver and fireman of the special train to Liverpool and back. He should have made sure that one of the two, at any rate, was thoroughly well acquainted with the road.

Considering the very blind approach to Bolton station from Wigan, it seems to be most desirable that *all* trains should be stopped at Bullfields East cabin when the junction at Bolton is obstructed.

I would also suggest that when carrying drovers, cattle trains should, as regards block working, be treated as what they really in such cases become, viz., passenger trains.

It will be observed that the engine of the cattle train was a tender engine with a screw break for the tender wheels only. In view of the small amount of break power with which goods, cattle, and mineral trains are supplied, it is most desirable that the engines of these trains as well as the tenders should be supplied with breaks. The Lancashire and Yorkshire Company are, I am informed, proceeding with the fitting of the vacuum break to *all* their engines and tenders, and I trust they will push the work on with all possible speed.

The Assistant Secretary,
Railway Department, Board of Trade.

I have, &c.,
C. S. HUTCHINSON,
Major-General, R.E.

Printed copies of the above report were sent to the Company on the 27th November.