

## LANCASHIRE AND YORKSHIRE RAILWAY.

Board of Trade, (Railway Department,  
1, Whitehall, London, S.W.,

8th June 1883.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in compliance with the Order of the 26th April, the result of my inquiry into the causes of the collision which occurred on the 20th April, near the entrance of the Exchange station, Liverpool, on the Lancashire and Yorkshire Railway.

In this case, as the 9.20 p.m. down passenger train from Southport (via Waterloo), due at the Exchange station, Liverpool, at 10.12 p.m., was approaching that station, it came into collision, 115 yards outside the incoming home-signals, which were at danger, with an unattached engine and tender which had been allowed to proceed along the incoming line considerably further than was necessary before setting back on to its train, which was standing in the station.

Twelve passengers were injured and also the rear guard of the train.

The driver of the unattached engine, who was on the side frame oiling when the collision occurred, was knocked on to the ground against the parapet of a bridge, and seriously injured.

In the passenger train,—which consisted of tank-engine, running chimney first, and 11 vehicles, all fitted with the Vacuum Company's automatic vacuum-break,—the engine had its buffer-plate and both frames bent, one buffer broken, the steam-chest cover broken, and the break-gear damaged; the carriages were but slightly damaged.

In the unattached engine the buffer-beam and framing were badly damaged, and the tank had two large holes knocked in it.

In consequence of the injuries received by the driver of the unattached engine, I was unable to examine him when I first held the inquiry, and this report has consequently been delayed.

*Description.*

The main arrival line at the Exchange station, Liverpool, is connected by means of facing-points with five platform lines, all of which are arranged and signalled to be used for both the arrival and departure of trains. The signal-cabin A., in which the levers for the majority of the points and signals are worked, is nearly opposite the end of the main arrival platform, the first set of facing-points (No. 14) on the arrival line being about 75 yards on the down side of the centre of the cabin, the down home-signals being 25 yards further out, and the down distant-signal 310 yards from the down home-signals.

The unattached engine had started from No. 2 platform line, where it had been standing 65 yards inside No. 14 points, and it had no necessity to have gone further beyond those points than to have allowed room for them to have been reversed, so that the engine could have set back on No. 5 line, where the train it was to take to Burscough was standing. Instead, however, of stopping where it would have been just inside the down home-signals, it was allowed to go forward along the down line for about 115 yards outside those signals, where the collision occurred.

There are a sharp curve, viaduct, and buildings near where the collision took place, and the greatest possible view which could be obtained of each other from the approaching engines would probably not exceed 100 yards. The gradient is rising towards the station at 1 in 88.

Block-working is in force from cabin A. outwards, the next block station being Great Howard Street cabin B., 620 yards distant. There is an intermediate cabin (Great Howard Street A.) between the two, for the working of the junction of a siding with the down line. Great Howard Street down home-signal is slotted from this intermediate cabin.

*Evidence.*

1. *John Evans*, 27 years in the service, signalman 6 p.m. The unattached engine (No. 699) was 16 or 17 years: I have been in station-cabin A. then going into No. 2 line with a carriage, and as since it was opened, 10 years ago. I came on soon as the 10.5 p.m. train from Preston had run into No. 5 dock, at about 10.7 p.m., I gave the duty at 10 p.m. on the 20th April, to remain till

driver of engine No. 699 a lamp-signal to come out for the purpose of backing on to the carriages of the Preston train, which it had to take to Burscough junction at 10.15 p.m. For the engine to come out I had set Nos. 14 and 15 points, Nos. 21 and 22 being already right for No. 5 dock. My intention was that the engine should run along the down road far enough to clear No. 14 points, to do which it had no occasion to pass the down home-signals. It is the custom to deal with this engine in this way, and not to pass it through the cross-over road and so back to its train. The engine began to move about 10.8 p.m., being at the time a little in advance of the cabin. For the Southport passenger train, due at 10.12, I got the "Be ready" at 10.9, and about the same time I restored the points Nos. 14 and 15 after the engine had passed through them, and at the same time waved the engine back. I did not actually see the engine move back, but concluded it was doing so after the usual practice, and I therefore thought myself justified in accepting the Southport train at 10.10 p.m. My down signals still remained at danger, and were locked at danger because I had not yet set the road for the Southport train, and this I should not have done till after engine 699 had got back to its train. After I had given "Line clear" for the Southport train I found engine 699 not coming back and went to the window to look for it, and then found to my surprise it was away along the down line, as I could see by the steam, and in less than a minute I heard the collision. I heard no break-whistle for either engine, but only the Southport engine whistling for my signals between the Great Howard Street cabins. All I could do when I observed No. 699 not coming back was to give a red lamp-signal; shouting would have been of no use, on account of the distance. The collision occurred about 10.11 p.m. It was a fine night; not very dark. I observed that there were two men on the foot-plate of No. 699 when it left the siding. It was running chimney first. It had a white light in front.

2. *John Glennon*, 19 years in the service, signalman 15 years, 4 years in Great Howard Street cabin B.: I came on duty at 10 p.m. on the 20th for eight hours. The first train I dealt with was the train due from Preston at 10.5. I gave the "Be ready" for this train to Evans at 10.5; he accepted it at once, and it passed at 10.7, and it was cleared at 10.8, at which time Evans accepted the Southport train, for which I had given the "Be ready" at 10.7. I had to draw the Southport train nearly to a stand waiting for "Line clear," but on getting this I lowered the home-signal, and the train passed my cabin at a speed of about four miles an hour. I observed that the down distant-signal remained at danger, and was not taken off at this time. I did not notice whether any of the station home-signals were taken off. I could not see the spot where the collision occurred, nor did I hear any whistling. It was a nice night, not very dark. I saw the Liverpool distant-signal arm at danger. I cannot speak as to the light.

3. *John Mercer*, 10 years in the service, 18 months signalman: I came on duty in Great Howard Street cabin A. at 6 o'clock, for 12 hours. I have no block instruments. I work the same down home-signal as Great Howard Street cabin B., and I always keep the slot off when not using the siding connection with the down line. I was looking out of the window when the Southport train was passing at a speed of five or six miles an hour. I could see nothing of the engine No. 699 coming towards me. I was still looking out of the window when the train suddenly stopped, with the last vehicle about opposite the cabin. I heard the crash. The carriages did not rebound more than a foot. It was a fine night, rather dark.

4. *John Ellison*, 18 years in the service, nine years driver: I started from Southport with the 9.20 p.m. train on the 20th April. My engine was an eight-

wheeled tank-engine, with six wheels coupled, running chimney first, and a train of 11 vehicles. The whole train, including the six coupled wheels of the engine, was fitted with the Vacuum Company's automatic vacuum-break. We generally work with a vacuum of from 18 to 20 inches. We kept time along the road, and had just stopped at Sandhills. After leaving Sandhills we were nearly stopped at Great Howard Street cabin C., and again at cabin B., where the signal was lowered just as we approached it, the distant-signal from Liverpool station and the home-signal, which can be seen on passing cabin B., remaining at danger. I had used the vacuum-break at cabin C., and had reduced the vacuum to 10 inches. I had then put on the large ejector, and had again increased the vacuum to 18 inches; this does not take a minute with the large ejector. I was running forward at a speed of about five miles an hour, prepared to stop at the Liverpool station home-signals, when the fireman, who was standing on the right-hand side, said, "Woa, mate." I at once applied the vacuum-break sharply (the pressure not being more than 13 or 14 inches, as I had used a few inches to steady the train, the signals being at danger), and almost immediately the collision occurred, almost before I had seen the other engine. The speed had been somewhat reduced, and my train stopped dead on collision. No wheels left the rails in my train. We were neither of us hurt; neither of us jumped off. I could not say whether the light-engine was in forward motion when we struck it. I had shut off steam about half-way between cabin B., Great Howard Street, and the down distant-signal. I saw the fireman on the foot-plate of the light-engine; the driver was on the ballast, between the down line and the parapet of the viaduct. It was a fine night. I was the wrong side of the curve for seeing the engine; it could not have been many yards off when the fireman shouted "Woa." The distant-signal light was out, but I saw the arm at danger.

5. *George Whittle*, 7 years in the service, 3 years fireman: I am accustomed to work between Southport and Liverpool. I was with Ellison on the 20th April. My place was on the right-hand side of the foot-plate. After leaving Sandhills we were nearly stopped at Great Howard Street cabin C., the vacuum-break being used for the stop. We then went on, the signals for cabin B. being taken off before we reached them, but the distant-signal (the lamp of which was not alight), and the home-signals for the stations, were at danger. We passed the distant-signal at a speed of about five miles an hour, where steam was shut off, and as I was coming round the curve I saw an engine with a white head-light. I at first thought it was on the up road, and I did not observe that it was on the down line till it was two engines' length off. I thought it was then moving slowly forward, and our speed was still about five miles an hour. I at once shouted to Ellison to stop, and he at once applied the break, but the collision occurred almost at the same time. Our train stopped dead, and the other engine went back towards the station. I then found the driver of the light-engine leaning against the lattice of the girder. He was insensible. I did not see the fireman. I was not hurt, nor did I jump off.

6. *Thomas Carnan*, 13 years in the service, eight years guard: I was head guard of the 9.20 p.m. train from Southport on the 20th. I was in the front break-van of the train, which consisted of 11 vehicles. I have control of the vacuum-break, with which the train was fitted. We were keeping time, and after leaving Sandhills were nearly brought to a stand at Great Howard Street cabin C., and after proceeding the Liverpool signals were at danger. We passed the distant-signal at a speed of about five miles an hour, which was not exceeded before the collision. I had seen a white light in front, but did not know until the collision that it was that of an engine which was on the down line. I felt the break go on just before the collision, and noticed that the gauge showed zero,

the speed being slightly reduced. I felt no rebound, and I was not hurt. The collision occurred at 10.12 p.m. The gas light went out in my van. Two young ladies in the carriage next the van asked me why we had stopped. I helped to find the Preston driver, who was more or less insensible.

7. *James Taylor*, 3½ years in the service, five months guard: I was in the rear compartment of the 9.20 p.m. train from Southport on the 20th April. I have control of the vacuum-break. The collision took me quite unawares, the speed just before having been five miles an hour. I think there were about 18 inches of vacuum just before the collision. I was in the elevated part of the van, looking forward. I was knocked forward and then backward and then forward again. I was struck in the face and neck. I was off duty for about 10 days. After the collision I saw that the pressure gauge was at zero.

8. *Thomas Latham*, two years with the Lancashire and Yorkshire Railway Company, and five years previously telegraph clerk with the London and North-Western Company: I am cleaner and extra fireman, and have been out constantly for the last two or three months, and seven or eight times in Liverpool before this collision. I had arrived at Liverpool at 8.17 p.m. from Preston. The engine was then engaged shunting about 35 minutes, and we then went to the shed to turn and water, and came back to the station at about 9.45 p.m., preparatory to taking a train to Burscough at 10.15 p.m. We then did some more shunting, and were standing in No. 2 dock when the train arrived from Preston at about 10.5. We then got a hand-signal to come out from the signalman, the shunter Ryan having also said, "Right, go on out." The engine was a tender-engine with an ordinary screw-break. The driver was on the right-hand side of the frame, oiling, and he told me to start the engine. I accordingly did so, and had cleared No. 14 points, through which I had intended to set back, when the driver said from the framing, "Go on down a bit." I accordingly went ahead, thinking perhaps there was another set of points, or that the carriages of the 10.15 p.m. train were to be dropped down on the engine preparatory to being set back on to another platform line. I was then stopping of my own accord, and the engine would not have gone another four or five yards when the other train ran into the engine. I was looking at the time for a signal, and had neither heard nor seen the other train. I could not tell the speed. My engine was knocked back 30 or 40 yards. I was knocked against the fire-box, but not much hurt. The driver was knocked off the frame and injured. I have worked the same train before, and have had the carriages dropped down on the engine, as I had expected they would be on this occasion.

9. *Patrick J. Ryan*, 16 months in the service, nine months shunter in Liverpool Exchange station: When engine No. 699 was standing in No. 2 dock, waiting to join the 10.15 train, I told the driver that he was to go out and back on to its train as soon as it had come in from Preston and the signalman had given his permission. I did not see the engine again till after the collision. I remember no case of carriages being dropped down on the engine of the 10.15 train, and then it being backed into another dock.

Signalman *Evans* recalled: I was not aware the distant-signal light was out; I cannot see the green back-light when the signal is at danger.

10. *Henry Whitman*, 17 years in the service, nine years extra driver, 14 months driver: I had brought in the train from Preston arriving at Liverpool at 8.17 on the 20th April, and I had to take out a train for Burscough at 10.15 p.m. We were about 25 minutes shunting; after this went to turn and water the engine, and then went into the middle road, where I remained

till I got the hand-signal to come out, preparatory to setting back on to the carriages of the Burscough train, which were in No. 5. When I saw the hand-signal given by the signalman I was on the left-hand side frame of the engine, oiling the small ends of the connecting rod, and I told the fireman to start, expecting I might have to draw along on the incoming line far enough to allow of the empty carriages standing on No. 5 being backed on to my engine, so that the last vehicle (a Midland carriage) might be set back into the middle road, and the rest of the train set back into No. 5 ready to start for Burscough. After the train from Hellifield had come into No. 5, the shunter told me to "go out" and nothing more, and the pointsman then gave me the hand-signal. Observing that the fireman was stopping when a little past the home-signal, I told him to drop down a bit, thinking we had not gone sufficiently far from the points for the train to be backed on to us, I being still on the left-hand framing. The fireman thereupon released the break, and the engine went forward a bit. When it had stopped I went round the front to the right framing to oil there, and had been kneeling down on the framing about a quarter of a minute when the Southport engine ran in, without the least warning, I having heard nothing of it. My engine was perfectly stopped. I was knocked off against the girder of the bridge, and remained insensible for 13 hours. I was hurt in the head and arm and wrist, and am still on the sick list. There was one white light on the centre of the smoke-box of my engine. This ought to have been red, but it is very seldom that the lights are turned for an operation of this kind. As I passed the signalman's cabin he said nothing to me. I had been similarly engaged only once previously on the 9th April, and then the train had been dropped down on my engine, as I had expected it would have been on the present occasion. On the 9th April I had received the same instructions "to pull down" as on the present, nothing more. I could have oiled before going into the station, but I was afraid of the oil running away if I did it too soon. Had I been on the foot-plate myself I should not have gone so far down as the fireman, and should have been more on the look-out. I was standing on the middle road opposite B. box when I was oiling. On the 9th April I had gone down a few yards only past the home-signal.

Signalman *Evans* recalled: Before engine No. 699 went into No. 2 it had brought a carriage out of No. 5, which had been the last carriage on the train due from Hellifield at 9.42 and which had arrived at 9.52. The driver went out with this carriage as soon as he had taken hold of it, and at once set back with it into No. 2, and the engine after this never moved again till it went out after the arrival of the train at 10.5 p.m. To liberate the engine of the Hellifield train, engine No. 699 would not have had to go further than No. 14 points.

11. *James Leddon*, 13 years in the service, 11 years signalman: I have been all the time in B. station box, where I came on duty at 8.30 p.m. on the 20th April. I remember the train arriving from Preston at 8.17 p.m. The engine after shunting went to turn and water, and then came back shortly before 10. It went and stood near the arrival home-signals, where the Hellifield train was pushed down to it. The engine of the train then went into the middle road, and No. 699 then pushed the train back into No. 5, and then at once took the last vehicle, a Glasgow and South-Western carriage, and put it at once into No. 2. There the engine remained till the Preston train arrived at about 10.5 p.m., and then it went out and met with the collision. I am perfectly sure that engine No. 699 never went into the middle road after the driver had shunted his train there on first arriving from Preston, but that he went straight into No. 2 after pushing back the train into No. 5, and never went out of it till when he heard the collision.

*Conclusion.*

This collision was brought about by three causes : first, by the unnecessary use of the arrival line for shunting purposes, when the departure line could have been just as conveniently and far more safely used for the purpose ; secondly, by the signalman in station-cabin A. giving "Line clear" to Great Howard Street cabin B. for the Southport train, on the expectation that the unattached engine, which was at the time going forward on the arrival line close to the home-signals, would come back at once, whereas it continued to go forward to Southport ; thirdly, by the misconduct of the driver of the unattached engine in allowing his fireman (an inexperienced youth) to move out the engine along the arrival road while he was engaged in oiling it, and in not seeing that the head-light was turned to red when running out along that road.

With regard to the first cause, the practice of using the arrival rather than the departure road for shunting purposes seems to have prevailed for some time. In some cases, of course, it might be necessary to do this, in order to leave the departure road free, but when, as in the present instance, this is not the case, the signalman should be imperatively ordered always to use the departure road only for the purpose. In the present case the unattached engine had, by a mistake, gone along the wrong or incoming road for no less a distance than about 115 yards outside the home-signals. Had it by mistake gone the same distance along the departure road, no collision would have occurred.

As to the second cause of the collision, the signalman who committed the grave error of giving "Line clear" for the Southport train to Great Howard Street cabin while the unattached engine was in the section between the two cabins, on the faith that the engine would at once come back, is, of course, very much to blame. He is an old and experienced signalman, but in his anxiety not to delay the Southport train he completely ignored the block-telegraph rules, the observance of which would have prevented the want of judgment of the driver and fireman of the unattached engine from leading to serious consequences.

The third cause of the collision was mainly the fault of the driver of the unattached engine, a man of considerable experience, and who had acted as driver for about 10 years. When the signalman called the engine to come out of No. 2 line to set back upon its train in No. 5, the driver was on the side frame, oiling, and allowed the fireman to start the engine. When the latter had done so, and had moved as far as the home-signal, the driver, thinking he had not gone far enough to allow of some operation which he fancied (but wrongly) was to be carried out with the carriages of the train he was to join, told him to go on further, and then, being still on the frame intent on oiling, did not observe how far the engine had gone, and neither heard nor saw anything of the other train till the collision occurred and he was knocked off and seriously injured. His memory as to what had occurred immediately before the collision appears to have been greatly affected, as there is no other way of accounting for some curious discrepancies between his evidence and that of other servants of the Company, including his own fireman. This driver is much to blame, first, for having allowed his fireman, a comparatively inexperienced lad, to take the engine out the siding ; secondly, for not having more carefully observed where he was going ; and thirdly, for not having seen that the head-light was changed from white to red before going along the incoming road.

The fireman, who had only served in that capacity for about three months, and was but slightly acquainted with the Exchange station, started the engine when his driver told him to do so, intending to shunt back through the points near the home-signals, but, on the driver telling him to go on, he did so, thinking, he says, there were another set of points further on, or that some carriages were to be pushed out of the station against the engine ; he was just stopping and was looking back for a signal when, without the least warning, the other train ran in upon his engine.

The fireman of the Southport train was the first to see the other engine, and, noticing its white head-light as they were coming round the curve, thought, till about two engine-lengths distant, that it was moving along the departure line. On realising that it was on the wrong line he at once shouted to the driver, who immediately applied the vacuum-break, with which the whole train was fitted (the vacuum gauge at the time showing, however, only 13 or 14 inches, the break having been just previously used for steadying the train, in consequence of the Liverpool signals being at danger). The collision then occurred before the break had time to act properly, the speed not having been, it is stated, more than about five miles an hour. The driver was on the wrong side of his engine (on account of the curve) for seeing the other

engine as soon as it was possible to do so. He had noticed the station distant and home signals at danger, and was quite prepared to stop at the home-signals. He saw the arm of the distant-signal, the lamp, it appears, not having been alight.

On approaching the entrance to an important station where shunting is constantly going on, the driver, seeing the signals at danger, should in my opinion have been more on the look-out himself in coming round the sharp curve where the collision occurred, and not have been trusting entirely to his fireman's vigilance.

The signalman in the station-cabin was not aware the distant-signal light was not burning. It is not easy to see the back-light from the cabin, and the signal should therefore be repeated.

As very large improvements are about to be carried out at the Exchange station, the difficulties now encountered in safely working the traffic will be soon more or less overcome.

The 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 28th June.

## LANCASHIRE AND YORKSHIRE RAILWAY.

Board of Trade, (Railway Department),  
1, Whitehall, London, S.W.,  
31st May 1883.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in compliance with the Order of the 24th ultimo, the result of my inquiry into the causes of the collision with the buffer-stops at Ducie Bridge station, Manchester, on the Lancashire and Yorkshire Railway, of the carriages composing the 8.27 a.m. passenger train from Radcliffe to Manchester, which collision occurred on the 23rd ultimo.

In this case, as the carriages in question, eight in number—of which the six front ones were fitted with Fay's continuous (mechanical) break, in the hands of the guard in the front break compartment—were, according to practice, being allowed to run down a descending gradient to the platform at Ducie Bridge after the engine had been uncoupled, the guard failed to control the speed, and the carriages ran with considerable violence into the buffer-stops.

Thirteen passengers complained of injury.

Six of the carriages were damaged, the headstocks, buffer-castings, &c., being in some cases broken, and in others the bodies shifted.

### *Description.*

Ducie Bridge station is a terminal one at the foot of a falling gradient of 1 in 54, which prevails up to within 180 yards of the buffer stops; the gradient then changes to a still falling one of 1 in 95, which continues for about 100 yards, and thence to the buffer-stops, a distance of about 80 yards, the line still falls at 1 in 231. There is a line of rails on each side of the platform, both being used for the arrival of the trains, and to reach No. 1 platform line there is a cross-over road with facing-points on the descending line about 180 yards from the buffer-stops. The signal-cabin is situated near the centre of the cross-over road.

In consequence of limited space the platforms are very short, and it has therefore been customary to stop some incoming trains at the facing-points of the cross-over road, there to detach the engine and let it proceed along one of the platform lines, the carriages being allowed to follow by gravity along the other, under control of the guard; the whole of the platform being thus utilised without having any of it occupied by an engine.

### *Evidence.*

1. *James Storrie*, seven years in the service, signalman all the time.—I am signalman at No. 3 or loop junction cabin, Manchester. I came on duty at the loop junction cabin at 6.0 a.m. on 23rd April for an eight hours turn. The 8.27 a.m. train from Radcliffe

arrived at 8.52 with signals Nos. 49 and 40 off, and signals Nos. 16 and 17 at danger. The general practice is for the train to come to a dead stand, and for the engine then to be hooked off to run into No. 1 or 2 lines, and then, as soon as it is clear, for the train to