

The
VIRTUAL MUSEUM
of the
LANCASHIRE & YORKSHIRE RAILWAY

Accident Reports.

11 September 1871

BoT Report into Accident at
North Dean.

(2 Pages).

at 7 p.m. He waited in the siding at Burnley for 20 or 25 minutes; and at the end of that time he saw the excursion train approach the station, and pass through it without stopping, at a speed, as it appeared to him, of 20 or 25 miles an hour. He followed the excursion train from the siding as quickly as he could, knowing that it was absolutely necessary for him to overtake it before it reached a tunnel which is on the first gradient of 1 in 69, and about one mile from Burnley. It was dark, and 9.15 at night. After leaving Burnley, he lost sight of the train for a short distance, owing to the curve on the east of that station; and when he caught sight of it again, he found that it was only about 100 yards in front of him, as well as he could judge by the three red lights which he saw at the tail of it. He shouted to his fireman to apply his break, while he shut off his steam, and reversed his engine; and he soon afterwards struck the train, but, as it appeared to him, without much violence. He continued to assist it up the incline in the usual manner until he reached the summit. As the train proceeded forward after the collision, there was an interval between it and the engine, of about 30 yards; but the driver of the engine saw, while drawing quietly up again to the tail of the train, that the light in the van had been knocked out by the shock. He therefore directed his fireman to go across the buffer-plank, and ask the guard whether any damage had been done. The fireman stepped over accordingly to the guard's van. He found it in darkness, and assisted the guard to re-trim and re-light his hand-lamp; and, finding that nothing serious had occurred, he returned and reported the result to the engine-driver. About 200 yards from the summit, the driver of the pilot-engine dropped gradually behind, to ascertain whether the couplings of the train were all right; and finding that they were so, and that the whole train was proceeding forward, he then returned to Burnley. On reaching Burnley he carefully examined his engine, and found that it had not received any damage; and about 25 minutes later another excursion train arrived, and he assisted it in a similar manner up the incline.

This collision occurred, then, in the course of a practice which is stated to have been carried on, on this and other parts of the line, for the last 20 years,—of employing a pilot-engine to assist heavy passenger trains in surmounting steep gradients, the engine joining the train whilst both are running at a considerable speed. The speed on this occasion was rather greater than usual, inasmuch as the excursion

train was comparatively a light one, and the engine-driver was able to pass through Burnley in approaching the incline, at 20 miles an hour. The driver of the pilot-engine was the more liable, for this reason, to make the mistake or miscalculation which, on his part, was the cause of the accident. This is, no doubt a convenient mode of working, in so far as the avoidance of delay to the trains so assisted is concerned; and the engine-drivers become very expert, in running up behind the trains, and in joining them without shock, while they are travelling at considerable speed. But there must always be some risk in the operation; and the more so when it is carried on in the dark, and round curves on which the view of the following engine-driver is more or less obstructed, and when, as in this particular case, the engine-driver is compelled to join the train which he is following within a limited distance of the point from which he starts. This practice is stated to have been carried on at Burnley for 20 years without any previous accident, although on certain busy days as many as 12 or 14, and sometimes even 20 trains in a day have been so assisted. At the same time, it cannot but be considered that it would be a safer arrangement to cause the pilot-engine to join the train while it is at rest, than to allow it to follow and catch it up while in motion, when it is required for duties of this description.

As regards the question, whether it is desirable, in the case of assisting trains up heavy gradients by means of pilot-engines, to attach these pilot-engines *behind* the trains, there is much to be said on both sides. On the one hand there is undoubtedly some risk of the engine at the tail of a long train not working perfectly in unison or harmony with the engine in front of it; and especially of the rear engine not being stopped, in the event of anything happening to one or more carriages in the middle of such a train, in time to avoid risk or accident to the passengers. But on the other hand, the most fatal accidents have sometimes occurred from the fracture of couplings in very heavy trains, and from portions of those trains having run back down steep gradients, and come into collision with other trains which were ascending those gradients; and the fatal effects of those accidents would no doubt have been avoided if assisting engines had been employed at the tail of those trains.

I have, &c.,

H. W. TYLER,

Lieut.-Col. R.E.

The Secretary
(Railway Department),
Board of Trade.

LANCASHIRE AND YORKSHIRE RAILWAY.

North Dean,
Sept. 26th, 1871.

Sir,
IN compliance with the instructions contained in your minute of the 23rd instant, I have the honour to report, for the information of the Board of Trade, the result of my inquiry into the collision that occurred on the 11th September at the North Dean station on the Lancashire and Yorkshire Railway.

In this case, the 6.40 p.m. passenger train from Liverpool for Normanton came into collision, at 11.7, while approaching the North Dean station, with the 8.50 p.m. goods train from Halifax for Wakefield, which usually leaves North Dean about 10.0 p.m., while the latter train was shunting back into a siding on the west of that station.

The North Dean station, at which the branch from Halifax and Bradford joins the main line of the Lancashire and Yorkshire Railway Company, is 31 miles on the east of Manchester. The main line is straight for a mile and a quarter to the westward, but the Halifax branch runs into the station on a sharp curve from the northward, and on a gradient of one in forty-five. There is a signal-cabin on the south side of the main line at the station, containing a locking-frame by Messrs. Yardley and Company of Manchester; and the levers in this locking-frame are used for working

the safety points of the sidings as well as the main line junction points, but not the point connections of the sidings with the main lines. There are sidings on both sides of the line, and at both ends of the station; the goods traffic as well as the passenger traffic through this station being very heavy and important. But I need only now refer to the sidings on the north side and at the west end of the station. The points leading to those sidings are 108 yards on the west of the signal-cabin, and are not worked by the junction signalman, but are worked by a lever on the ground, opposite to them, and by any porter or shunter who happens to be near them, and who is required to work them. Further westward, and 38 yards from the siding points, there is on the line of the siding a safety-switch, which is worked from the signal-cabin; and five yards still further to the westward there is a signal applying to the siding, and also worked from the signal-cabin. The safety-switch, as originally constructed, was necessarily opened by the signalman from the cabin whenever an engine or train entered the siding, as well as when they required to come out of the siding; but about 12 months since it was found, having regard to the siding-accommodation at the station, inconvenient in the practice of working that goods waggons should be capable of being

shunted into the siding either by engine or horse power when the safety points were moved over by the signalman only, and when therefore the signals in other directions were locked at danger. To obviate the inconvenience thus experienced, and to give extra facilities in the shunting of goods waggons, an arrangement was adopted, of slotting the connection with the safety-switch in such a way as to enable the waggons to be pushed into the siding without that switch being worked by the signalman, at the same time that no engine or waggons could be brought out of the siding unless with the consent of the signalman. The locking-apparatus, in so far as it applied to trains backing into the siding, thus became of no use; and it is, in fact, a result of this alteration that the present collision occurred.

The passenger train in question left Liverpool punctually at 6.40 p.m., and Rochdale about 9.35 p.m., upwards of half an hour late, there having been many excursion trains in its way between Liverpool and Rochdale. It consisted, on leaving Rochdale, of an engine, tender, and nine carriages, of which four were coupled together with a continuous break, and a guard rode in the last carriage of the train. It stopped at all stations between Rochdale and North Dean, where it was due to arrive at 10.11 p.m.; but it was again delayed by other excursion trains, and it did not approach North Dean until after 11.0 p.m. The engine-driver, finding the home-signal and the distant-signal at danger as he approached North Dean, shut off his steam, and his fireman applied the tender break; and he thus drew up within the distant-signal, and almost brought his train to a stand about half way between the distant-signal and the home-signal. But before he had quite stopped his train he saw the home-signal turned off from red to green at the signal-cabin, and he accordingly re-applied his steam to draw forward into the station. It was a very dark night, and the engine-driver had the light of the signal only to guide him. He had proceeded, as he thought, 150 or 200 yards, and had attained a speed of 8 to 10 miles an hour, when he suddenly saw, by the light of his own head-lamps, the goods engine in front of him, backing into the siding; and he had just time to shut off steam again, and whistle for the breaks, before his engine came into collision with the goods engine. The passenger engine remained, however, on the rails, with all its wheels, as well as all the carriages behind it. The buffer-plank of the engine was broken, as well as the injector apparatus, but it was able to proceed with the train, after the collision, to Normanton. Very little damage was done to the carriages, and none of the passengers have complained of injury.

The goods train which was thus setting back into the siding in the way of the passenger train had arrived at North Dean 40 minutes previously, and had been occupied in shunting during the whole of that time. The night inspector at the station, after hearing a whistle from the approaching passenger train, directed the engine-driver of the goods train to set back into the siding, to allow the passenger train to pass into the station; and the goods engine-driver was obeying this order when the collision occurred. He had pushed the whole of his train back into the siding with the exception of his engine and tender; and it was just when the tender was about to enter the siding points that the passenger engine reached the spot, and came into collision with it. The goods driver did not see the passenger train approaching him until it was close upon him, and had not even time to open his whistle before the collision occurred. The goods engine was not damaged, but the tender had its trailing wheels knocked from under it, and its horn-plates and framing broken. None of the servants of the Company were injured in either train.

The night-inspector was himself holding the siding points to allow the goods train to set back into the

siding, and was waving his hand-lamp to the engine-driver, as a signal to him to keep setting back until he should be clear of the main line, and into the siding; and this inspector, who was on the north of the goods train, did not see the passenger train approaching on the south of it, and was not aware of its being so near to the goods train until the collision occurred.

The signalman who was on duty in the signal-cabin had commenced work at 10 p.m., about an hour before the collision. He was an experienced servant of the Company, and had done duty in that cabin for six months continuously. He heard the distant whistle from the driver of the passenger train, and he kept his signals at danger in the first instance against that train, knowing that the main line was obstructed by the goods train. He could not see the goods train, as it was too dark for him to do so; but he heard it shunting back past his cabin, and he was aware that it was being set back into the siding to clear the main line for the passenger train. He was looking towards the siding, in order to ascertain as well as he could when the goods train should have got into it, and when, therefore, he could properly lower his signals for the passenger train to enter the station. While so looking towards the siding, he saw some one who appeared to be at the points waving a hand-lamp, and he saw a white light from that direction. On seeing this white light, he supposed that the goods train had been set sufficiently far back to clear the main line; and under this impression he lowered the home-signal at his cabin, to allow the passenger train to enter the station. It was only upon hearing the shock of the collision shortly afterwards that he became aware of the mistake which he had thus unwittingly made. He had no means, other than that which he adopted—of looking towards the siding for the white light—of knowing when the main line was clear, and when it was right for him to lower his home-signal; and the lever of the safety-switch having been set as if for the protection of the main line, and the siding-signal having been at danger, there was nothing to prevent him from lowering his home-signals to allow the passenger train to run forward into the station, even when the entrance to the siding was blocked up by the goods train.

If, on the other hand, the alteration already referred to in the safety-switch had not been made, it would then have been impossible for the signalman to lower his main line signal while the goods train was shunting back into the siding, or until the goods engine had not only passed into the siding, but had gone back beyond the safety switch in the siding, because the safety switch would in that case, as long as it was lying over for the use of the siding, have locked the main-line signal.

In order to prevent the possibility of such a collision again occurring, it is now desirable that the safety-switch should be altered again to its original condition; and, further, that the siding-points and the safety-switch should be worked both from the cabin and both by one lever, that lever being interlocked with the main-line signals. The signalman will not then be able to lower his signals for the admission of a main-line train from the westward into the station at the same time that a goods train is being shunted back into the siding. In connection with this improvement it is also very necessary that the siding arrangements at the station should be improved and extended, so that much of the shunting which is now continually carried on over the main lines, may be done in the sidings, independently of those main lines. Not only risk, but also delay to the main-line traffic, which is always increasing, will thus, in future, be avoided.

I have, &c.,

H. W. TYLER.

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