

LONDON AND NORTH WESTERN RAILWAY.

Public Safety and General Purposes Department,
Ministry of Transport,
7, Whitehall Gardens, London, S.W 1.
7th March, 1922.

SIR,

I have the honour to report, for the information of the Minister of Transport, in accordance with the Order of the 8th February, the result of my Inquiry into the circumstances of a collision which occurred at about 5.12 a.m. on the 6th February, in Summit Tunnel, between Littleborough and Walsden, on the Rochdale-Todmorden Branch of the London and North Western Railway.

The collision was a following one. The 4.32 a.m. down passenger train from Victoria Station, Manchester, to Normanton, collided with the rear end of the 1.15 a.m. down goods train from Miles Platting to Normanton. The latter train had been in section between Littleborough and Walsden for about a quarter of an hour, and had become divided in the tunnel between these two stations when the passenger train followed it into section and collided with the rear portion.

There were at the time only five passengers in the train, of whom one was slightly injured in the head and three others subsequently complained of shock. The guard of the goods train was more seriously injured, his right thigh being broken. One of the three guards in the passenger train was severely bruised and the driver was slightly bruised.

The goods train consisted of 24 loaded and 67 empty wagons with a 20-ton brake van, drawn by engine No. 1554, 0-8-0 type, with eight-wheeled tender, fitted with vacuum brake operating blocks on all engine and tender wheels; total weight in working order, 107 tons 13 cwt.

This train became divided, shortly before the subsequent collision, between the 39th and 40th wagons. The division originated in the cotter end of the draw-bar of a private owner's wagon. This draw-bar terminates in an eye-piece, the end of which was broken out. The metal was badly flawed, and a considerable portion of the fracture was old. The second division occurred owing to the breakage of the draw-bar screw on the 53rd wagon. This fracture was out of the solid and was almost certainly the result of the accident. Considerable damage was done by the collision to the goods stock, the brake van and four wagons being broken up and eleven other wagons damaged.

The passenger train consisted of one 6-wheeled parcel van and six 8-wheeled bogie passenger or brake van stock, total weight 215 tons. It was drawn by engine No. 1097, 4-4-0 type, with 6-wheeled tender; total weight in working order, about 71 tons. The train and engine were fitted throughout with the vacuum automatic brake. The parcel van and three passenger coaches of this train had windows broken or were otherwise slightly damaged by the collision. The front buffer plate of the engine was broken and both main frames bent, in addition to other slight damage.

It was quite dark at the time of the accident, and there was a severe frost. There appears to have been a patchy fog at the top of the bank, but at Littleborough the atmosphere was fairly clear.

Description.

Littleborough Station is situated between Smithy Bridge and Walsden on a double line of railway, running in the locality approximately south-west and north-east, and then curving westward towards Todmorden, which is north by east of Rochdale. Between Littleborough and Walsden is Summit Tunnel, 1 mile 1,125 yards long, the southern end of which is about 2,400 yards from Littleborough Station. North of Summit Tunnel is another short tunnel 66 yards long, separated from Summit Tunnel by a gap of about 156 yards. The collision occurred in Summit Tunnel about 515 yards from the Walsden end.

The direction of down trains is northward, and the gradients between Littleborough and Walsden are as follows:—

For 10 chains	...	...	...	...	1 in 259 rising
For 2 miles 59 chains	...	...	...	...	1 in 330 "
For 11 chains 8 yards	...	...	...	...	level
Thereafter	...	...	...	...	1 in 182 falling

The block posts concerned from south to north and the distances between them are as follows:—

Smithy Bridge East					
Littleborough West	...	...	...	...	1,178 yards
Littleborough Station	...	...	...	...	552 "
Summit West	..	.	...	...	1,920 "
Summit East	...	...	...	...	3,924 "
Walsden Station	...	...	...	...	1,262 "

Littleborough Station signal box lies east of the up (island) platform, west of which is the up main line; the up platform loop line lying between this platform and the signal box. The down home signal, which is of the two post bracket type, is erected on and near the north end of the down platform, 168 yards north of the signal box, with the main line signal arm on the right, the signal leading to the down loop (which diverges from the main line about 50 yards to the north) being on the left. The down main starting signal is about 520 yards north of the signal box. It is sited on the right of the line to which it refers, and is therefore erected between the up and down main lines.

Report.

It is clear from the evidence that the collision would have occurred whether the original division of the goods train had taken place or not. This division evidently happened on the change of gradient near the Walsden end of Summit Tunnel.

The train in question passed Littleborough Station with clear signals at 4.50 a.m. Driver Henshaw stated that on entering Summit Tunnel the engine began to slip. Owing to the frost both sanders were made up, and the train in consequence came to stand about half way through the tunnel. Dickinson, the fireman, then got off the footplate, and, being unable to free the sanders by tapping the pipes, opened the valve underneath one of the sand boxes. The train was then restarted. After the engine had reached a point estimated by driver Henshaw and his fireman at between 12 and 20 wagon lengths from the Walsden end of the tunnel, both men felt a pluck on the train. From the position in which the broken portion of the draw-bar eye was found there is little doubt that the defective draw-bar parted at this moment. Neither Henshaw nor Dickinson realised that their train had become divided, though the latter stated that he looked back along the train, but that the atmosphere was too thick with smoke and fog—which, he said, was denser at the top of the bank than at Littleborough—to allow him to see more than four or five wagons behind the engine. The front portion of the train, therefore, ran on, and it was not until they were warned by the signalman at Todmorden East that the enginemmen became aware of what had happened.

2. The circumstances in which the passenger train was allowed to proceed into the occupied section are as follows:—

February 6th was a Monday, and during the previous day all four signal boxes between Smithy Bridge East and Walsden Station, viz.: Littleborough West, Littleborough Station, Summit West and Summit East, had been closed since about 5.45 a.m. Signalman F. Barker came on duty at 4.30 a.m. on Monday and proceeded to re-open Littleborough Station box at 4.40 a.m.; his main line signals were, of course, pulled off in both directions. On giving the opening signal to the boxes on either side of him, viz.: Smithy Bridge East and Walsden Station (the other intermediate boxes not being due to open until 6 a.m.), Barker found that there were goods trains in section on both up and down roads, and therefore left his signals off. The up train passed immediately afterwards at 4.42 a.m., and Barker states that he replaced his up line signals to danger behind it, and observed the arms of the stop signals and the repeater of the distant signal respond to the lever movements. He then accepted another up train at the same booked time. A minute or two afterwards he telephoned to Smithy Bridge East to ascertain the whereabouts of the down train (the leading one of the two trains concerned in the subsequent collision) and heard that it was then passing that block post. At 4.47, having received the out-of-section signal for the first up goods from Smithy Bridge, he offered the second up train and received acceptance at once. The down goods passed his post, as already related, at 4.50 a.m. and the second up train at 4.51. Barker stated that he replaced his down signal levers when the former train passed, but that he did not observe the position of the arms after having done so. Immediately after he gave the out-of-section signal for the down goods to Smithy Bridge a light engine was offered to and accepted by him on the down road. This engine was due to work the 5.15 a.m.

up passenger train from Littleborough, and came to a stand accordingly, at 4.58 a.m., clear of the crossover road about 100 yards south of the signal box. Barker then shunted this engine across the main lines and into the up passenger loop where the coaches were waiting. He gave the out-of-section signal for this light engine at 5.0 a.m., and directly he did so the 4.32 a.m. passenger train from Manchester was offered to him on the down road, and accepted at once. Barker did not offer this forward to Walsden as the goods train was still in section. Two minutes afterwards, at 5.2 a.m., the down passenger train was sectioned from Smithy Bridge East, and at 5.4 it arrived. Barker expected the preceding goods train to take between 16 and 20 minutes to arrive at Walsden, and did not therefore, on the arrival of the passenger train, only 14 minutes after the goods had left, think it necessary to make inquiries from Walsden on the telephone about the latter.

Meantime, owing to the severe frost, the permanent way staff had been called out to take any action necessary to free point, etc., mechanism which might have become frozen. Foreman platelayer Shepherd was called out for this duty at 3.0 a.m. and proceeded to Smithy Bridge East. Having done his work there, he travelled to Littleborough on the light engine already referred to. Signalman Barker states that he saw Shepherd on the platform while the down passenger train was standing at the station, and he asked him what he was doing. Shepherd replied that he had come to see that the points were all right, and asked, "How are things?" to which Barker replied, "Quite all right as far as I know." Shortly after this, Barker saw the passenger train, which had been standing at the station a minute or two, start away, and at the same time noticed that both his down home and starting signals were showing a green light, though the levers were back in the frame. He then told the station staff that the train had irregularly entered the section, and sent the "vehicles running away on right road" signal to Walsden. He also asked Shepherd to have a look at the signals, saying, "I daresay those signals will be frozen off." Shepherd did so, and freed the home signal by pulling at and releasing the wire near the pulley leading under the down platform, whereupon the arm returned to danger. He tried to free the starting signal in a similar manner, but finally had to go up the ladder and shake the arm before it would return to the normal position.

Bryants, the driver of the passenger train, was, of course, unaware that these signals were giving an incorrect indication. He started on the usual hand signal from the leading guard, and entered the tunnel at between 35 and 40 miles an hour, his usual speed. The tunnel, he said, was clear for about half-way through, but beyond that it was very full of smoke, and he could see nothing. He collided with the goods train with steam fully applied and at a considerable speed. The impact resulted, as already stated, in a second division of the train and the propulsion of the then leading 14 wagons down the bank to Walsden behind the first portion. Bryants brought his train to a stand by shutting off steam and applying the brake, and then sent his fireman, Maddison, forward to protect the up road. Maddison had some difficulty in making his way through the debris in the tunnel, but eventually reached Summit East signal box, after having placed detonators on the up road at the Walsden end of the short tunnel. Finding this box closed, he placed detonators on the up road, broke the window and got in. He then rang up Walsden on the telephone, and gave information of the accident to the signalman. He also tried to get through to Littleborough Station, but getting no answer, concluded that the wires had been cut by the collision, and gave notice of the accident to the Control.

Correct steps to protect the rear of the train were also taken by Marlow, the rear guard of the passenger train.

3. Consideration of the booked times of train movements, etc., shows that the collision must have taken place very shortly after the first division of the goods train; quite possibly before the rear portion had actually come to a stand. Morgan, the signalman at Walsden Station, received the "run-away" signal from Littleborough at 5.7 a.m., seven minutes before the first portion of the goods train passed his box at 5.14. From Walsden to the head of the goods train immediately before the break-away is about a mile. Both driver Bryants and guard Marlow agree that the accident occurred at 5.12, that is, about two minutes before the front portion of the goods train reached Walsden. As this train is hardly likely, on the falling gradient, to have taken more than three or four minutes from the tunnel to Walsden, it is clear that very little time could have elapsed between the break-away and the subsequent collision.

4. Signalman Morgan at Walsden was rung up by the Control (who had been informed by signalman Barker of the irregular entry into the section of the passenger train) very soon after he received the "run-away" signal from Littleborough, and being no doubt somewhat distracted at the time, did not observe that the down goods had passed without a tail light. He did not therefore realise that any diversion had occurred until the second portion, consisting of 14 wagons, passed his box at about 5.18 a.m. This second portion was diverted on to the branch line by the signalman at Todmorden East, and eventually came to a stand at Stansfield Hall.

Conclusion.

It is quite evident that the Littleborough down home and starting signals never returned to danger after the box was opened until they were freed by foreman platelayer Shepherd, and there can be no doubt that they had become fixed in the clear position by the severe frost after their week-end period of inaction. A signalman's responsibility in such circumstances is clearly defined by the Company's regulations, from which the following are extracted:

RULE 58.

The signalman must satisfy himself that his Fixed Signals work well, are kept clear, and show properly. Care must be used in putting a Signal to Danger. It is not sufficient merely to move the lever, but the Signalman must, at the same time, watch the Signal so as to ascertain that it obeys the lever and goes fully to Danger.

* * * *

RULE 69.

A Signalman opening a Signal Box must, as soon as possible, satisfy himself that the electrical instruments, signals, points, etc., are in good working order.

* * * *

The point of the former rule is further emphasised by the following extract from the Book of Instructions to signalmen:—

WORKING OF OUT-DOOR SIGNALS.

Signalmen must carefully observe the working of all out-door signals so as to be assured that they go back fully to Danger in response to the levers. The Semaphore arms in the day, the Back lights at night, and the Electrical Repeaters where such are provided must be carefully watched after each operation.

* * * *

In regard to Rule 69, signalman Barker's time, after the opening of the box, appears to have been fully occupied, and he had little opportunity for making any test movements. His failure, however, to observe, under Rule 58, the down line signals return to danger behind the goods train is clear. He has been 5½ years a signalman and has therefore sufficient experience to realise the particular importance of this duty in circumstances such as these. He neglected, moreover, the opportunity of retrieving his mistake given by the question put to him by foreman platelayer Shepherd. This neglect of duty cannot be excused, and Barker must take the full responsibility for the accident. It is due to him to say that he made no attempt to evade it.

No blame attaches to Bryants, the driver of the passenger train, who could not, owing to the thick atmosphere in the tunnel, have had any chance of seeing the tail lamp of the goods train, nor are the other servants of the Company concerned in any way responsible. The passenger train staff, particularly fireman Maddison, are to be commended for the manner in which they carried out their duties after the collision. The Company's arrangements for meeting the conditions likely to be caused by severe frost appear to have been adequate.

Remarks.

The case is of interest in connection with the question of Automatic Train Control, now under consideration by a Departmental Committee. This question is primarily associated with the safeguarding of mistakes on the part of enginemen, and with the prevention of accidents caused by the passing of signals in the danger position. Cases of this kind, however, which are not attributable to enginemen's mistakes, can also be covered by a system of control at stop signals, the action of which depends not only upon the position of the signal, but also upon that of the controlling lever in the frame.

I have the honour to be, Sir,

Your obedient servant,

The Director General,
Public Safety and General Purposes Department.
Ministry of Transport.

G. L. HALL,
Major R.E.