

## LONDON AND NORTH EASTERN RAILWAY.

Ministry of Transport,  
7, Whitehall Gardens, London, S.W. 1.

8th June, 1925.

SIR,

I have the honour to report, for the information of the Minister of Transport, in accordance with the Order of the 12th May, the result of my Inquiry into the circumstances of a double collision, which occurred at 4.35 p.m. on the 25th April, at Tees Valley Junction, near Barnard Castle, on the London and North Eastern Railway.

As an empty train from Kirkby Stephen direction was passing Tees Valley Junction a special goods train from the Middleton-in-Teesdale branch, which converges on the Kirkby Stephen line at this junction, over-ran the outer and inner home signals at danger and came into collision with the third wagon from the engine of the Kirkby Stephen mineral train. Immediately afterwards a goods train on the down line from Barnard Castle to Kirkby Stephen, assisted by an engine in rear, ran into the wreckage.

As a result of the double collision, the fireman of the train engine drawing the goods train to Kirkby Stephen, and the driver and fireman of the assisting engine of this train were injured. Burnett, the driver of the empty mineral train from Kirkby Stephen, was slightly injured, but did not cease duty.

The train engine of the down goods train to Kirkby Stephen was overturned at the top of the embankment, and that of the up goods from Middleton-in-Teesdale had the right side tank holed and the footplate damaged. Considerable damage was done to the wagon stock, 29 vehicles being derailed and 39 damaged, of which 6 were totally wrecked. Extensive damage was also done to the permanent way at the scene of the collision.

The special goods train from Middleton-in-Teesdale to Barnard Castle which over-ran the signals was drawn by engine No. 1618, 0—6—2 type tank, running chimney first. This engine weighed, in working order, 56 tons 10 cwts., of which all except 11 tons 12 cwts. was carried on the coupled wheels. This engine was fitted with hand and steam brakes operating single blocks on all the coupled wheels. The train consisted of 35 wagons loaded with stone, having a gross aggregate weight of 518 tons 9 cwts. Four-wheeled van No. 7380 was attached in rear, having a gross weight of 9 tons 14 cwts. This brake van was fitted with double blocked wheels, but without sanding arrangements.

The weather at the time was showery.

### *Description.*

Tees Valley Junction signal cabin controls the double junction between the Tees Valley single line branch leading to Middleton-in-Teesdale and the Tebay branch leading to Kirkby Stephen. The double line from Barnard Castle approaches this double junction in a general direction from east to west, the single line to Middleton diverging north-westward, and the double line to Kirkby Stephen continuing in a general westerly direction. The up and down trains from and to Kirkby Stephen respectively were therefore running on the double line, and the loaded train from Middleton-in-Teesdale was approaching the junction on the single line. The point of collision was the fouling point between the Middleton and Tebay double junction.

Measured from the centre of the junction signal box, which lies south of the Tebay double line, the distances to the various points concerned are as follows:—

Tees Valley Branch up distant signal	... 1,462 yards west.
" " " outer home signal	... 487 " "
" " " inner home signal	... 85 " "
Fouling point of Tees Valley and Tebay double junction on up line	... 13 " east.
Trailing points of double junction on up line	62 " "

From Middleton-in-Teesdale, as far as Mickleton, a distance of about a mile and three-quarters, there is a considerable rising gradient. From Mickleton to Tees Valley Junction, a distance of about six miles, the gradient falls continuously for a distance of about the first four miles, the maximum inclination being 1 in 66 for a short distance; the average over the first 2 miles being about 1 in 150, and for the

next 2 miles about 1 in 90. About 4 miles from Mickleton there is a short length of rising gradient to a point a short distance beyond Cotherstone, which is about 2 miles west of Tees Valley Junction. Following this rising gradient, which has a total length of about 430 yards and an inclination varying between 1 in 194 and 1 in 177, there is about 150 yards of level followed by gradients shown in the following table:—

For 230 yards	...	...	1 in 272 falling.
" 730 "	...	...	1 " 187 "
" 210 "	...	...	1 " 144 "
" 510 "	...	...	1 " 78 "
" 105 "	...	...	1 " 122 "
" 320 "	...	...	1 " 318 "
" 440 "	...	...	1 " 86 "
" 130 "	...	...	Level.
" 62 "	...	...	1 in 198 rising.
" 62 "	...	...	Level.
Thereafter to the junction, a			
distance of 50 yards	...	...	1 in 110 falling.

The Tees Valley branch up outer home signal is therefore situated about half-way down the 1 in 86 falling gradient near the junction.

#### *Report.*

The evidence shows that the cause of the over-running of the junction home signals was the fact that the engine was overpowered.

It was in charge of driver William Pearson with fireman Stobbart. These men took over engine No. 1618 at Darlington, and Pearson was there told that he had to assist the 3.15 p.m. goods train to Middleton. This was the only information he received, and he had no knowledge of his future movements. On arrival at Middleton he turned his engine, and after taking water was told by guard Foster, who had travelled down with the Darlington goods train, that he was to go into the quarry to pick up a train of stone. This train was picked up in two portions, the first consisting of 23 loaded wagons, and the second of 12 loaded wagons and a brake van. After this had been done the signal was pulled off, and driver Pearson realised that he was right away to Barnard Castle. When the signalman came to him with the staff and ticket for this single line branch, Pearson said that he complained that the guard had not told him what the load was, and that he started away without this knowledge, though he could see that there were a good many wagons. He added that the reason why he started without knowing the composition of his train was that he trusted the guard, who was a man of considerable experience on the branch, not to have overloaded the train. It had been raining on and off all the afternoon, and the rain started again just as the train left the yard. On the rising gradient between Middleton and Mickleton there was no actual difficulty in pulling the load, although there was a certain amount of slipping—a not unusual feature. So far as Pearson could judge from this portion of the journey, therefore, his engine was not in any way overloaded. As soon as he reached the falling gradient beyond Mickleton he shut off steam and applied the brake at the usual place. His fireman added that the driver first of all put on the hand brake, as is the usual practice with an engine of this class, and then applied the steam brake. Pearson said that the brake took hold and that the wheels started to skid at once. He therefore instructed the fireman to open the sanders, which were kept running all the time. Pearson appears to have realised that the train was, as he said, a bit out of hand all the way down the bank, but he hoped to be able to regain control on the rising gradient at Cotherstone. When he reached this station, at a speed estimated by him of 10 miles an hour, he put the engine into back gear and applied steam, but picked up the wheels as before. He did not whistle for the guard's brake, as he assumed that he knew the road as well as he did himself, and would therefore apply the brake where necessary. About 100 yards from the Tees Valley Junction distant he sighted it in the warning position and therefore tried to stop the train at the outer home. Just before he reached this he saw the train on the other road converging on to the junction, and whistled to attract his attention. At about the same time he reversed the engine again and applied steam, which resulted in the wheels picking up. He then replaced the gear into the forward position and applied the brake and subsequently reversed again. He was unable, however, to stop the train, though he thought that had he had another 100 yards to run he might have done so.

The evidence of fireman Stobbart was in the main confirmatory. He also denied that any information was given by the guard as to the train loading, and said that he never, as a matter of fact, came nearer to the engine than about a wagon length away. Stobbart realised that as the train was approaching Cotherstone they would not have been able to stop there if they had wanted to, but he still thought that they would be able to regain control on the bit of rising gradient beyond this station. He added that as the train was nearing the outer home at Tees Valley Junction his driver remarked that he would not be able to stop. Before reaching Cotherstone he felt a slight jerk on the couplings sufficiently marked for him to understand that the guard had applied his brake, and from his driver's expression he realised that he had formed the same impression. Stobbart was a good witness, and his evidence was clear.

Goods guard Thomas Henry Foster, in charge of the train, knew as soon as he left Darlington that he was to be in charge of this special goods train from Middleton, and concluded that engine No. 1618 was to work it back. He said that from information supplied by the shunter he told driver Pearson that there were to be 30 wagons altogether, adding that he was on the footplate at the time. When the first lot of 23 wagons was backed on to the 12 standing against the brake van he realised that the total would be five more than, as he said, he had told the driver. He did not correct this information because he said there was only just time to get through the branch, which, of course, is a single line one, clear of the passenger train. Just after passing Mickleton Station, Foster applied the van brake first partially, and later, on nearing Romaldkirk (about a mile and three-quarters beyond Mickleton), he put this brake on hard. Although the van is not fitted with sanders he is sure that the wheels did not pick up. He realised that the driver had lost control after passing Cotherstone, but could not do anything more to check the train.

Horne, the driver of the other (Kirkby Stephen) up train, with which Pearson's train collided, noticed the latter approaching the junction on the Middleton branch. His fireman said that it was passing the outer home signal and Horne then applied both brakes and whistled. He realised later that as the trains were running both engines were likely to collide, and therefore released his brake and just managed to get past so that the engine of the other train hit the third wagon.

#### *Conclusion.*

The only serious discrepancy in the foregoing evidence is the statement of the driver and fireman on the one hand, and that of the guard on the other, as to the information which the latter claimed to have given originally in regard to the train load. It is, I think, unnecessary to come to any conclusion as to whether or not this information was given, since it was, in any event, admittedly incorrect to the extent of five wagons out of 35. The authorised load on this branch from Middleton to Mickleton was 470 tons, and, on the computation at 14 tons a wagon laid down in the Company's printed instruction, the total weight of 35 wagons carrying this class of load would be 490 tons. Actually, it was nearly 520. From Mickleton onwards, however, the authorised load is 525 tons. Although, therefore, as guard Foster admitted, the train was overloaded by 20 tons for the first part of the journey, this really had no bearing on the sequel, since for the latter part the load was within the authorised scale.

Driver Pearson, in his evidence, had a good deal to say about what he suggested was the bad condition of engine No. 1618, and said that he made a remark to this effect to the shed staff when he took it out from Darlington. If he had known he was going to be detailed to bring this train back from Middleton he would, he said, have refused to take the engine out for the purpose, and added that he has known two or three cases of drivers refusing to work this particular engine. His general complaint against it appears to have been based on rough working and the need for overhaul, though he admitted that the brake was in good condition.

It will be, perhaps, as well to dispose of this particular aspect of the case before dealing further with the circumstances of the collision. The engine had run about 40,000 miles since the last general overhaul, which is made periodically after 50,000 miles running. I could not find any confirmation of driver Pearson's statement that drivers had refused to work this engine, and though I have no doubt from his evidence, and that of his fireman, that the engine was beginning to show signs of wear, and was therefore perhaps somewhat rough and noisy, I do not think that its condition generally had really any bearing on this case, or that its brakes were in any way defective.

So far as the responsibility of the men is concerned, the case turns upon whether the overpowering was due to mishandling on the part of driver Pearson, or to circumstances outside his control. Trials subsequently carried out by the Company have, I understand, indicated that the load authorised on the branch for this class of engine is, in fact, too high. Under bad rail and weather conditions such as existed on the afternoon in question, a driver might therefore be unable to control a train of this weight, at any rate without the assistance of wagon brakes. On this latter point it might be suggested that, had the train stopped at the head of the gradient at Mickleton in order to pin down the wagon brakes, the train could have been properly controlled. This is no doubt the case, but at the same time this gradient is not one of those specially scheduled for the purpose, and driver Pearson said that in the whole of his experience as driver and fireman he had never known a train stop at this point in order to pin down brakes. Guard Foster said that he did not make any arrangement to this effect as this gradient is not one of those scheduled, and he did not therefore consider it necessary, seeing that the load was under the authorised tonnage between Mickleton and Barnard Castle.

In regard to individual responsibility, I think that, having regard to the weather conditions and other circumstances, driver Pearson cannot be held directly responsible for failing to stop his train. It now appears that the scheduled load is somewhat too heavy for this class of engine, and it is to this factor that the accident is primarily attributable. At the same time it was distinctly irregular for Pearson to leave Middleton without knowing what his load was, and it is, at any rate, possible that if he had known it was so near to the authorised limit he might have topped the bank at a slower rate of speed and possibly have been able to control his train. Guard Foster was, I consider, also distinctly to blame for not giving an accurate account, if, indeed, he gave any at all, of the load to his driver, particularly as the weather conditions were bad, and the load, though not the maximum, was a considerable one.

I do not think that either Pearson or guard Foster are to be blamed for not stopping at the top of the bank to pin down brakes. Where a train is within the authorised load and the bank is not specifically scheduled, I think that, except in very abnormal circumstances, trainmen are justified in making the assumption that the assistance of wagon brakes is not considered necessary.

#### *Remarks.*

The actual underlying factor in this case was the use of a tank engine for hauling the stone train from Middleton. This appears to be an extremely rare, if not a unique occurrence, and it was due only to the fact that this train was a special, which is very seldom run, and to other circumstances which need not be referred to in detail, that this class of engine was used.

Pearson, for example, has frequently driven a train of this composition over the branch from Middleton, but always with a 0-6-0 type tender engine, such as is normally used for the work. This feature of the case therefore, in itself, goes a long way to explain not only the overpowering on this occasion, but also the fact that the Company's officers have not hitherto realised that there are occasions when the present scheduled load for this class of engine may be unduly high.

As a result of a re-survey of the line, and the further trials referred to in the report, the Company has, I understand, reduced the scheduled loading on the branch for this class of engine, and, if this is the case, a recurrence of the circumstances appears to be unlikely.

The only other feature which calls for comment is the weight and type of brake van for a load of this kind, though it is, of course, impossible to say whether or not the use in this case of a heavier van than 10 tons (nominal) would have prevented the accident. I understand that the question of a standard type of van has been recently under consideration by the Company, and that in consequence a four-wheeled 20-ton van is likely to be adopted as a standard.

I have the honour to be, Sir,

Your obedient Servant,

G. L. HALL,

*Major.*

The Secretary,  
Ministry of Transport.