

MINISTRY OF TRANSPORT

## **RAILWAY ACCIDENTS**

# REPORT ON THE COLLISION which occurred on 2nd December 1950 at WORTLEY WEST JUNCTION in the NORTH EASTERN REGION BRITISH RAILWAYS

LONDON : HIS MAJESTY'S STATIONERY OFFICE

SIXPENCE NET



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### NORTH EASTERN REGION BRITISH RAILWAYS

#### MINISTRY OF TRANSPORT,

Berkeley Square House,

London, W.1.

11th January, 1951.

Sir,

I have the honour to report, for the information of the Minister of Transport, in accordance with the Order dated 5th December 1950, the result of my Inquiry into the collision which occurred at about 9.16 p.m. on Saturday, 2nd December, at Wortley West Junction, near Leeds, on the Bradford to Leeds line in the North Eastern Region.

As a result of irregular block working, the 8.42 p.m. London Midland Up passenger train from Low Moor to Leeds was allowed to enter the Armley Moor—Wortley West section before it had been accepted by the box ahead. After standing for some minutes at the Wortley West Home signal it had moved forward and stopped near the signal box for the fireman to rejoin the engine, when it was overtaken and struck at about 30 m.p.h. by the 8.50 p.m. Eastern Region passenger train from Bradford to Leeds, which had also been wrongly allowed to enter the section.

There were only five passengers in the first and three in the second train; of these, six were taken to hospital and two were detained with serious injuries. The guard of the leading train was also injured and detained in hospital and four other Railway servants were treated for shock. Assistance was rapidly fortheoming, the first ambulance arrived in less than 20 minutes and all the injured were soon on their way to hospital. Prompt steps were taken to protect the running lines.

The 8.42 p.m. train was hauled by a Class 4 P, 2-6-4 type, tank engine running bunker first, and comprised six non-corridor coaches; its overall length was 406 feet and its weight was 284 tons. The vacuum brake operated on all wheels of the coaches and the steam brake on the coupled wheels of the engine; the maximum brake power was 166 tons, equivalent to 67% of the total weight. All coaches had steel underframes, and bodies were of wood construction except that the second, fifth and sixth vehicles had steel panels. The third coach was of lighter construction than the others and had been in service for 42 years.

The 8.50 p.m. train consisted of three non-corridor coaches and was drawn by a Class N.1, 0-6-2 type, tank engine, also running bunker first. Its overall length was 200 feet and it weighed 144 tons. The vacuum brakes, which operated on all wheels of the coaches and on the driving wheels of the engine, gave a maximum power of 93 tons, equivalent to  $64\frac{1}{2}$ % of the total weight.

The shock of the collision drove the leading train forward about 45 yards and caused serious damage to some of the coaches, of which the third suffered the most. The brake compartment at the rear of this coach collapsed and was driven into the adjoining third-class compartment, solebars, headstock and underframe having been broken and buckled. The front of the fourth coach was telescoped for nine feet and the headstock was bent; the brakevan at the end of the last vehicle was also driven in for about 6 feet. The engine and two leading vehicles were undamaged, and the only wheels derailed were those of the bogies under the telescoped ends of the third and fourth coaches.

The engine of the 8.50 p.m. train was badly damaged; the bunker was driven in, the main frame and trailing buffer beam were buckled, and the pony truck was pushed back to the firebox, when the engine overrode the brakevan in front of it. The bodies of the three coaches were displaced from their frames and there was other minor damage. None was derailed.

Little damage was done to the track, but the Up and Down Main lines were blocked, and the two adjacent goods lines were temporarily obstructed by debris. Traffic between Bradford and Leeds was diverted until 11.0 p.m., when the two goods lines were reopened. Clearance of the main lines proceeded throughout the night and normal working was resumed at 12 noon on the following day. 3rd December.

The night was fine and clear, and it was very cold and frosty.

#### DESCRIPTION

1. The four tracks between Armley Moor and Wortley West Junction are designated Up and Down Main, and Up and Down Goods; they run straight in an easterly direction through Armley tunnel down a long 1 in 50 incline, as indicated on the accompanying drawing. At Wortley West the goods lines turn off towards Wortley South and the main lines continue towards Leeds on a left-hand curve through Wortley East, where they join the Wakefield-Leeds line. The line is on a high embankment on the north side at Wortley West, but the ground on the other side is approximately level with the railway and the signal box is located here in a convenient position overlooking the junction points.

2. There are four Up Home signals protecting the junction, with the respective Wortley East and South Distant arms under them; there are also ground discs for controlling movement over the crossovers between each pair of lines. The view of all these signals from Armley is slightly obstructed by the tunnel, and in order to check their visibility, I travelled over the route on an N.1 class engine running bunker first, under similar conditions to those prevailing on the night of the accident. The Wortley West Up Main Home and Starter were "off," and a tail light was exhibited at the place where the rear coach of the 8.42 p.m. train had been standing. The night was clear and there was no smoke in the tunnel, so that some of the signal lights could be seen from Armley Moor Station, nearly 1,000 yards away. They were not, however, properly defined until the engine emerged from the tunnel, when they came into full view at a range of 550 yards. It was difficult to distinguish the tail light amongst the group of other red lights and at first it appeared as if it were a ground signal. It was not until the engine was about 100 yards away that this light stood out clearly from the others, and by this time a driver might well have been looking out for the Wortley West Up Main Starter, which was just coming into view around the left-hand curve to Wortley East.

3. There are no track circuits between the Up Armley Starter and the Wortley West signals, nor are there any controls on the block instruments which are of the Great Northern three-position drop handle type. Telephone communication between the Armley and Wortley West signal box is through the Leeds District No. 3 Section circuit, and permission to use it must first be obtained from the Section Controller. There are, however, single needle telegraph instruments in both hoxes for normal intercommunication. The telephones from Wortley West to the South and East Junction boxes are on separate circuits.

4. The weekday traffic through Wortley West averages 48 passenger and 8 freight trains on the Up and 46 passenger and 6 freight trains on the Down lines. In addition 40 engines are turned daily round the triangle formed by the three Wortley junctions.

#### REPORT.

5. Conditions on the night of the accident were so cold and frosty that the Up Goods to Main Home signal No. 34 at Wortley West failed to return to Danger when its lever was put back by Signalman W. H. Licence after the passage of a freight train at 8.53 p.m. After working the lever several times without effect, he decided to go out and loosen the wires at the signal post. Before doing so he gave "Train out of section" to Armley as soon as he received it from Wortley East and he turned the Up Goods block instrument back to "Line Blocked"; the corresponding Up Main instrument was showing the same indication. Licence then telephoned to Signalman E. C. Hill at Armley and told him of his proposed action.

This conversation took place shortly before 9.0 p.m. and Licence left his box immediately afterwards. On reaching the signal post he shook the wires but the arm did not move, so on returning to his box five minutes later, he worked the lever again several times till at last the signal responded. At about 9.3 p.m., while he was still doing this, he received from Hill the "Call Attention" signal, followed by 3-1 on the Up Main instrument for the 8.42 p.m. train. Licence correctly refused this train because No. 38 crossover was still locked in the reverse position. Even when he got No. 34 signal back to normal his troubles were not over, because he then found No. 37 locking bar also held fast by the frost.

6. In the meanwhile, Signalman Hill at Armley misunderstood the telephone conversation with Licence and seems to have got the strange impression that it would be all right to allow the 8.42 p.m. train to go forward into the section ahead. He therefore cleared his signals for it without having received "Line Clear" from Wortley West. The train passed Armley at 9.6 p.m. and arrived at the Wortley West Up Main Home signal two minutes later. Licence was much surprised to see this train come to a stand at his signal, but unfortunately, instead of sending "Obstruction Danger" and pegging his block instrument to "Train on Line" in accordance with Block Regulation 12, he rang up Armley box again and spoke strongly to Hill, He told him that a train had arrived at his Home signal which should not have been there and that it should never have been allowed to enter the section at all. Licence added that he had got his "points across" and it was impossible for him to do anything. Hill again replied "Right", or something like that, but did not say anything to explain his action. Licence then spoke to the Controller on the same telephone and asked him to call the lineman to attend to the points.

Hill, on the other hand, denied that Licence had spoken strongly to him about the train having been sent forward irregularly and thought that the message was to the effect that Licence was all right on the Main line but would need a lineman for the defective bar. Hill took this message to mean that the Up Main was clear, and, although he had neither received "Line Clear" nor "Train out of Section", he booked in his register the following entries :---

"Is Line Clear", accepted under Regulation 3	9.2 p.m.
"Train Entering Section" forwarded	9.6 p.m.
"Train out of Section" received	9.7 p.m.

He had given "Train out of Section" to Bramley (the box in rear) at 9.6 p.m. and then had immediately accepted the 8.50 p.m. train. It was advised to him at 9.11 p.m. and he promptly offered it to Licence who once again correctly refused to acknowledge the hell code.

7. This signalman was still having difficulties with No. 37 lock bar and had also to deal with a light engine which had arrived at his Down Main Home signals Nos. 42 and 44 while he had been out of the box (these signals are also Wortley East Starters). He had spoken to the signalman at Wortley East about it and then had booked its arrival, but did not do anything else because he was still busy with the crossover. A few minutes later, at about 9.9 p.m., he decided to allow the engine forward so that he could send it to Wortley South for turning. He therefore reversed No. 39 crossover, pulled No. 40 locking bar and lowered No. 42 signal. The engine ran forward on to the Down Goods and came to a stand clear of No. 27 ground disc. Shortly after this the fireman of the 8.42 p.m. train arrived to carry out Rule 55. Licence explained the situation to him and the fireman then signed the book, noting the time as 9.15 p.m.

8. Hill at Armley continued to offer the 8.50 p.m. train by sending the 3-1 code, and finally Licence, having at last got the lock bar free and No. 38 crossover replaced to normal, was able to accept trains on both the Up Main and Goods lines. He therefore acknowledged Hill's signal, thinking it was for the 8.42 p.m. train which was still standing at his Home signal. As soon as he pegged "Line Clear" on the Up Main instrument, he received the "Train Entering Section" signal and promptly turned his indicator to "Train on Line". He took these signals to be Hill's completion of the bell codes for the train which had been incorrectly sent forward to him, but he did not telephone to Armley again to verify the position. Licence next lowered his Home signal so that the driver could draw down to the box to pick up the hireman and when the train was coming to a stand he obtained "Line Clear" from Wortley East and lowered his Starter. A moment or so later he saw another train coming "pell mell" on the Main line and watched the collision, which he was powerless to avert.

This was the 8.50 p.m. train, which Hill had also allowed to enter the section ahead incorrectly. He had accepted Licence's acknowledgement as applying to the second train when he had never received clearance for the first. Without considering the implication of these irresponsible actions, he had lowered his Starting signal and the train, which had been standing at the station for a minute or two, left immediately.

9. Both signalmen admitted their mistakes. Licence explained that he had been taken aback at a time when he was trying to free the crossover and get traffic moving again. He thought by refusing the train initially it would be impossible for anything to be offered on top of it and he never realised that his final acceptance could be taken as referring to another train. Hill, on the other hand, could offer no adequate explanation for his actions. He not only admitted that he had sent the first train forward irregularly and made false entries in his books, but also that having booked the train as accepted at 9.2 p.m., he offered it three times again between then and 9.6 p.m. in the hopes that Wortley West would accept it and so clear the position.

10. Section Controller G. Whitley, who was on duty in the Leeds District Control Section confirmed that there had been telephone conversations between the two signalmen though he thought that the first one was not until 9.10 p.m., when Licence told Hill that he had just got his Up Goods Home signal back to Danger but that he was still fast with the bar. Whitley asked him which way the crossover was set and Licence replied it was from Goods to Main and that he was going out to see what he could do and that he wanted the lineman. Whitley then spoke to Hill and asked him to call the lineman. A few minutes later the Wortley West signalman came on the telephone again and asked to speak to Armley. He sounded very angry and asked Hill what he meant by sending forward a train which had not been accepted, adding "You know I was fast", to which Hill replied, "Oh, yes, I thought it was all right letting him down". Licence then said "I am all right now" and rang off. Whitley could not recollect any other conversations between the two signalmen used it to give each other train information.

11. There was no conflict or ambiguity about the trainmen's evidence. Driver H. Kaye of the 8.42 p.m. train told how he was stopped at Wortley West Up Main Home signal, and, as it was not cleared immediately, he sent his fireman to the box to carry out Rule 55. After waiting some five to eight minutes, the signal was lowered though the Wortley East Distant beneath it was still at "Caution". Kaye therefore drew down to the box to pick up his fireman who was waiting for him. He had just come to a stand with the brakes only partially applied, when the collision occurred.

12. Fireman E. Hainsworth of the same train said he waited for the light engine to pass him before crossing the lines and so took some minutes to reach the box. The signalman told him that something was wrong with the locking bar but after trying the lever several times he at last got it back. Hainsworth then signed the train register and noted that the time by the cabin clock was 9.15 p.m. He left the box immediately after the signals were lowered and was just getting on to his engine when he heard a crash and the train ran past him about half a coach length. Having seen that some of the coaches were damaged he went forward to protect the opposite line.

13. Driver J. E. Archer of the 8.50 p.m. train said he was detained at Armley Station for about three minutes. He started immediately the signal was lowered and coasted down the falling grade towards Wortley West. On emerging from the tunnel he saw the Wortley West Up Home "off" for Leeds with the Wortley East Distant at Caution, hut he did not notice any tail light on the line in front of him, and it was not until he was a few yards from the obstruction that he realised there was a train ahead. He applied his brake but it had not time to take effect before the collision occurred with his train travelling at a speed of about 20 m.p.h. He explained that as his engine was running hunker first he was standing near the brake on the left-hand side in the direction of travel, and having seen the Wortley West Home "off" he was looking out to the left in order to pick up the Starter. He noticed the four Wortley West Home signals with the Distants under them when he came out of the tunnel and he thought he saw the two ground discs as well. He said that they were all showing red or yellow lights, except the Main Home which was green. On seeing this signal "off" he concentrated his attention on the Starter and thus did not notice the tail light amidst the group of lights ahead of him.

14. Fireman L. Marsden said he also was looking out after leaving Armley Junction and saw the Wortley West Up Main Home "off" and all the other signals at Danger or Caution. He was looking out on the right-hand side but did not realise there was a train ahead until they were practically on top of it. He also did not notice the tail light amongst the group of red signal lights.

15. Passed Fireman R. D. Duxbury, who was in charge of the light engine, said that he saw a train standing at the Up Main Home signal when he arrived on the Down Goods and stopped clear of No. 27 ground disc. After about five minutes the signal was lowered and the train moved forward, but it stopped again when the last coach was a few yards past the Home signal. Just at this moment Duxbury saw another train approaching from the Armley direction. He thought it was travelling at about 40 m.p.h. when it crashed into the rear of the first. Duxbury was quite certain that the tail light of this train was alight hecause he saw it as soon as the rear coach had stopped clear of the Home signal. Immediately after the accident he noticed that the Wortley West Home and the Wortley East Distant under it were both "off."

#### CONCLUSION

16. Responsibility for this accident rests primarily on Signalman Hill of Armley Junction. In the first place he broke one of the fundamental rules of block working by sending the 8.42 p.m. train into the section ahead without first having received "Line Clear" for it. His excuse that he misunderstood Licence's first telephone conversation is quite unacceptable. Hill also made false entries in his register and kept offering the train after it had left, in the hopes that it would be accepted and so clear his position. His further action was equally irresponsible. He had no justification whatever for accepting Licence's second message as an indication that the train had passed into the section ahead and he should never have offered the second train until he had made certain there had been no misunderstanding about the first. When he finally received "Line Clear" he lowered his Starting signal at once without pausing to think of the possible consequences. Hill is a young man of 28, with  $3\frac{1}{2}$  years' experience as a signalman; his previous record had been clear, but in view of his behaviour on this occasion he is clearly unfitted for such responsible employment. I understand that he has now resigned from the Railway service.

17. Signalman Licence of Wortley West box must also accept some responsibility. He should have sent the "Obstruction Danger" signal immediately he saw the 8.42 p.m. train arrive at his Home signal and he should have pegged his block instrument to the "Train on Line" position in accordance with the clear instructions set out in Block Regulation No. 12. Having once tacitly accepted the arrival of the train by his failure to send this signal, Licence put himself in a false position, but he should never have acknow-ledged the "Line Clear" signal from Armley until the 8.42 p.m. train had passed into the section ahead. Signalman Licence is a man of 30, with 14 years' service, of which he has been a signalman for the last nine years. He has had an exemplary record. He had been working under some difficulty on the night of the accident owing to the failure of the points and signals, and the action which he took to overcome his troubles was commendable, but this does not excuse him for his serious breach of regulations.

18. I am satisfied that none of the enginemen were responsible for the collision. Driver Kaye of the 8.42 p.m. train took prompt action in sending his fireman to the box to carry out Rule 55. Driver Archer was running under clear signals with his train under proper control though his speed was probably greater than he estimated. Although the tail light of the train ahead would have been visible as soon as Archer emerged from Armley tunnel I do not think that either he or his fireman can be criticised for their failure to observe it until too late. Having seen the Wortley West Home signal at Clear the driver would naturally have been looking out for the Starter, which was just coming into view to the left of the other signals. In such circumstances the tail lamp might easily have been missed amongst the group of other red signal lights at the junction.

#### Remarks

19. This accident would have been prevented by a simple form of block control, such a "Line Clear" release of the Armley Starter which would have prevented the first train from leaving Armley without proper acceptance. There are still so many other places where this and other safety devices are more urgently required that execution of this work cannot be recommended at present. It was stated by the British Transport Commission, in their 1948 Annual Report, that a comprehensive programme for accelerating the modernisation of block controls and the provision of track circuits, requiring about six years to complete, was being initiated by the Railway Executive, but in their 1949 Report, the Commission gave the warning that the restriction on capital expenditure would necessarily hinder the execution of this programme, in addition to curtailing normal modernisation and betterment.

The need, however, for accelerating rather than retarding this important work is emphasised by the discreditable failure of a signalman to carry out the fundamental block working regulations, on which the safety of railway operation so largely depends, and it is by no means an isolated case. In addition to the signalman's serious negligence at Whitehouse West Junction to which I referred in my Report dated 4th October 1950, other instances of signalmen's errors have been brought to notice in recent months and they seem to suggest that the standard of reliability and discipline of some signalmen is not all that might be desired. It is hardly necessary to point out that all signalmen, even in junior grades, are in a position which requires a high sense of responsibility : unless, therefore, the right type of man is attracted to the service and the discipline and morale of signalmen as a whole are maintained at the standard which has been expected in the past, more expenditure on safety equipment will be needed to prevent inevitable failures of the burnan element.

I have the honour to be,

Sir,

Your obcdient Servant,

C. A. LANGLEY, (Brigadier).

The Secretary,

Ministry of Transport.