



DEPARTMENT OF TRANSPORT

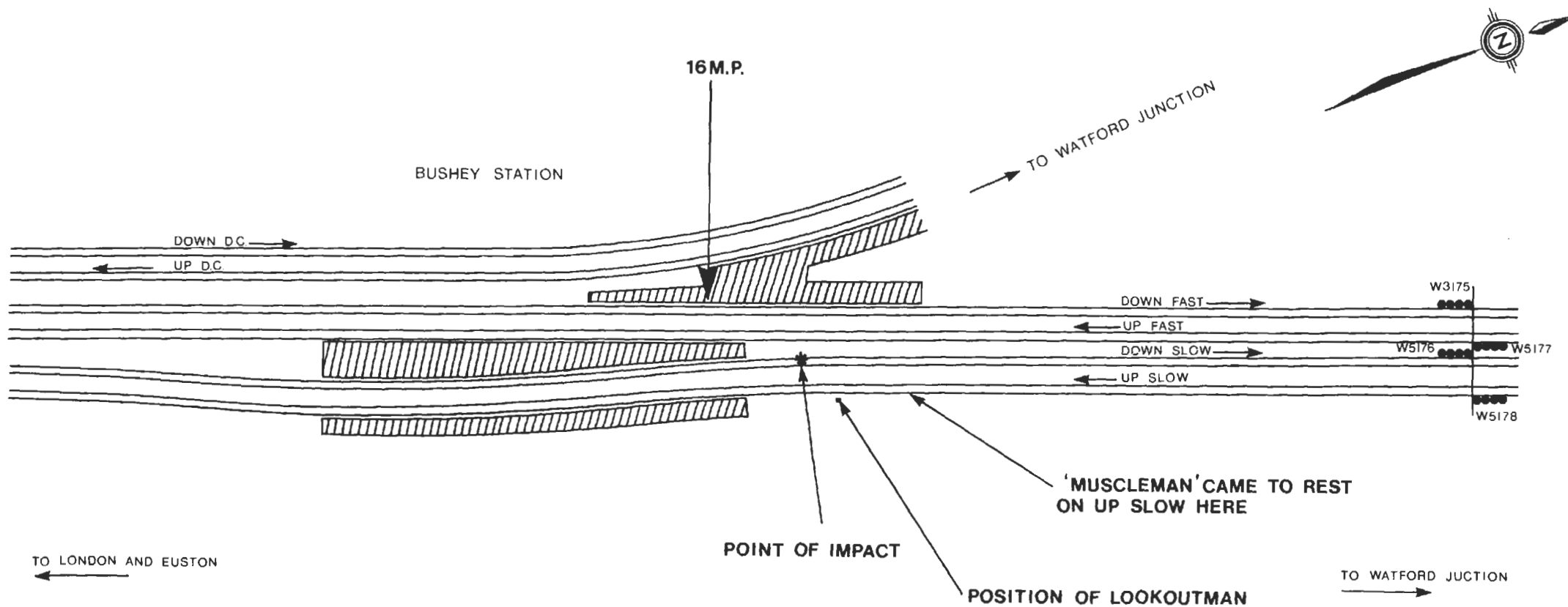
RAILWAY ACCIDENT

Report on the Accident that occurred on 20th April 1980 at Bushey

IN THE
LONDON MIDLAND REGION
BRITISH RAILWAYS

LONDON: HER MAJESTY'S STATIONERY OFFICE

£1.50 net



DERAILMENT OF AN EMU PASSENGER TRAIN AT BUSHEY 20th APRIL 1980

16th June 1981

SIR,

I have the honour to report for the information of the Secretary of State, in accordance with the Direction of the 30th April 1980, the result of my Inquiry into the derailment of a passenger train that occurred on the 20th April 1980 near Bushey Station in the London Midland Region of British Railways. At about 00.40 the 00.13 Down passenger train from Euston to Bletchley which consisted of a four-car Class 310 electric multiple-unit, No. 052, was travelling along the Down Slow line at about 75 mile/h when it struck an item of track maintenance plant, known as a Musclemán, and weighing about $\frac{1}{2}$ ton that was being man-handled across the tracks to a work site. Damage to the train was slight but the leading bogie of the first vehicle was derailed. There were about 45 passengers on the train but none of them or any of the train's crew were injured. I regret to report, however, that Trackman M. Ricciotti, of the Divisional Civil Engineer's Department, who was the lookoutman for the gang of men that were moving the Musclemán, was thrown to the ground as a result of the incident and sustained a broken pelvis. The emergency services were alerted promptly and Ricciotti was conveyed to hospital; one passenger was also taken to hospital suffering from shock but was not detained. The remainder of the passengers were derailed, some were conducted forward along the track to Watford Junction Station, the others were guided to Bushey Station, and travelled by way of the local DC electric lines to Watford Junction from where a diesel-multiple unit carried them forward; the delay was about 1 hour 32 minutes. Both Slow lines were closed by the incident and there were heavy delays to following services; the Up Slow line was re-opened at 01.25 and the Down Slow at 03.25 but in the case of the latter a 20 mile/h speed restriction was imposed. The weather was fine; it was dark with good visibility.

DESCRIPTION

The Site

1. Bushey is on the West Coast Main Line about 16 miles north of Euston. Immediately to the south of the station there are 6 lines of way lying more or less south to north, namely from the east:- Up (southbound) Slow, Down Slow, Up Fast, Down Fast, Up Local DC line, Down Local DC line. To the north of the station the DC lines diverge sharply to the west; the accident occurred immediately to the north of the station about 10 yards beyond the ends of the platform ramps, there is a falling gradient of 1 in 337. The general features are shown on the Plan at the front of the report.

2. The fast and slow lines are all electrified on the 25kV overhead line system, they are equipped with four-aspect colour-light signals and train working is in accordance with the Track Circuit Block System, controlled from Watford Signal Box. The maximum permissible speed along the Down Slow line at the time of the accident was 75 mile/h.

3. Trains travelling along the Down Slow line come into view when they are a little over $\frac{1}{2}$ mile away so that a lookoutman observing a train travelling at line speed could give about 25 seconds warning to the men that he was protecting.

4. The fast lines were in the possession of the Engineer at the time and on-track ballast cleaning machinery was working on the Up Fast line about $\frac{1}{2}$ mile to the north.

The Musclemán Machine

5. This machine is a device for lifting and/or slueing railway track. At Bushey the cant on the Up Fast line is 6 inches, whereas the ballast cleaning machines could not operate satisfactorily where the cant was more than 4 inches. In such circumstances a Musclemán can be used to lift the track whilst men reduce the cant by manually removing ballast from beneath the sleepers.

6. The Musclemán is manufactured and owned by Permaquip Limited, Nottingham and comprises a lifting gantry or top frame and a petrol-hydraulic power pack, to power the lifting and slueing functions, mounted on a four wheeled crab so that the unit can be hand propelled along standard gauge railway track. Two hydraulic rams can lift the whole assembly when it stands on two legs astride the four-foot way and with a pair of clamps attached to either rail head the track can be lifted and/or slued.

7. For ease of man-handling the machine readily splits into 3 parts as follows:-

1. Top Frame, approximate weight 672 lb
2. Crab Frame, approximate weight 504 lb
3. Power Pack, approximate weight 154 lb

Two poles can be passed through lugs on the top frame to facilitate carrying. The train struck a top and crab frame assembly weighing about 1,176 lb.

8. The following extracts from the British Railways Rule Book are applicable:-

Section P.2.5. Lookoutman unable to maintain adequate protection

Should the Lookoutman consider that he cannot give adequate protection to any particular men because they are moving too far away, or for any other reason, he must sound his warning and, after all the men have stood clear, advise the men and the man-in-charge that he can no longer be responsible for them.

Section T. Part II.6. Duties of Track Chargemen

6.1. Advice to Signalman

Before commencing work which affects the safety of the line, or before any stationary obstruction is placed on the line, the Track Chargeman must advise the Signalman which line(s) will be affected, what work is necessary, and the time it will take.

The Track Chargeman must agree with the Signalman the time at which the work may be commenced and, where a signal(s) is required to be kept at Danger to protect the work, reach a clear understanding with the Signalman as to which signal(s) is involved and obtain an assurance that this will be done.

EVIDENCE

9. *J. Martin*, an assistant permanent way supervisor, told me that he was in charge of a gang of eleven men including Ricciotti, the lookoutman, who were British Railways employees together with two Musclemachine operators who were employed by Messrs Permaquip. Their task was to prepare the Up Fast line for the on-track ballast cleaner by reducing the track cant to less than 4 inches. Martin said that he took possession of the fast lines earlier that night and knew that the slow lines were still open to traffic. He, together with the gang, were in the disused yard at the north and to the east of Bushey Station when Messrs Permaquip's lorry arrived with the Musclemachine machine and their two operators. Martin told me that, until then, he had not seen the machine before and was unaware that it was coming to site. He therefore consulted J. Hall, one of Messrs Permaquip's men, about unloading and transporting it across the slow lines to the Up Fast line. Hall informed him that the lorry's winch was used to off-load the machine, then about 8 men would be required to carry it to the work site; 12 men were available for this task and so Martin considered there would be no difficulty. The machine, which was fully assembled, was duly lowered to the ground immediately alongside the Up Slow line and the power pack unit was removed by Messrs Permaquip's men. Martin said he was not aware at the time that the assembly could be readily dismantled further. The men carried it without too much difficulty, however, and therefore he did not consider it appropriate to consult with the signalman on the telephone regarding obstructing the line before they began to carry the machine across the tracks. He noted that Ricciotti took up a suitable position in the Up Slow cess about 10 yards to the north; the top and crab frame assembly was then carried across the Up Slow line but, on reaching the six-foot space between the slow lines, the machine was put down because one of the machine operators wanted to insert the two carrying poles and to turn the assembly through 90 degrees to make it easier for the men to step over the rails as they carried it. Martin, who was not previously aware that carrying poles were available, said that this took him by surprise and he at once urged the men to hurry because the lines were open to traffic. When he heard Ricciotti's warning horn he looked up and saw a train approaching at speed along the Down Slow line; it was already about mid-way along the station platform and there was scarcely time for the men to abandon the Musclemachine and move clear. The machine was foul of the Down Slow line although not in the four foot way; the train struck it and threw it violently aside. Immediately afterwards, Martin said, he realised that Ricciotti had been injured; the alarm was quickly raised and he was conveyed to hospital as described previously. Illumination at the site was provided by about 15 lanterns of the pressurised paraffin type.

10. *J. Hall* largely corroborated Martin's evidence and further told me that he had worked with the Musclemann on about 20 occasions during the previous 3 years but had never been required to carry the machine across tracks open to traffic before. On this occasion he therefore assumed that all the tracks were closed. He said that after the machine was unloaded from the lorry, he and his colleague detached the power unit and then, whilst they were dealing with it, the gang picked up the top and crab frame assembly and began to carry it across the tracks. He said that when sufficient men were available and no great distances were involved the assembly was occasionally carried in this way. Because of the manner in which the machine was being carried, however, a number of the men had to step over a rail simultaneously and so, with a view to making the task easier, Hall said, he suggested putting the machine down, turning it through 90° and inserting the carrying poles before continuing across the tracks but, as this was being done the accident occurred.

11. *M. Ricciotti* told me that he was permanently employed on lookoutman's duties and belonged to a pool of men who were based at Willesden. He said that he had not seen a Musclemann machine before that night but knew that it was to be carried across the slow lines and that these were open to traffic. He positioned himself so that his view of trains from either direction was not restricted and considered that he would be able to give adequate warning to the men. However, as soon as they put the machine down in the six-foot space he became alarmed and at once urged them to move it quickly. He claimed that he saw the lights of the Down Train as soon as it came into view and immediately sounded his lookoutman's warning horn. Ricciotti could recall little of the accident and did not know how he came to be injured. He also told me that he was fully equipped including a hand-signal lamp. He had been a lookoutman for 30 years and was last examined in the duties in May 1979. Although he recognised the danger when the machine was put down, and saw the train from the moment it came around the bend about $\frac{1}{2}$ mile distant he did not consider it his duty or that it was appropriate for him to show a red light towards it in an attempt to warn the driver of the obstruction.

12. *Driver A. E. Grigg*, who was at the controls of the train, had little evidence to offer. He told me that he was alone in the cab, his train was travelling along the Down Slow line at 75 mile/h under cleared signals, when suddenly and immediately in front of him, he caught a glimpse of someone running, saw 2 post-like objects sticking up and almost simultaneously heard a loud bang as the front of his train struck something. Grigg said he instinctively made an Emergency application of the brake and brought the train to a stand about 600 yards beyond the point of impact when he discovered that the train's leading bogie had become derailed. He contacted the guard, *M. P. Farrelly*, using the train's Loudaphone intercom equipment, informed him of what had happened and advised him to carry out the necessary precautions to protect the train. Both Grigg and Farrelly said that before they began to carry out their respective duties with regard to protection of the train other train crew personnel, who had been travelling as passengers, promptly assisted so that this task was performed most expeditiously including the application of Track Circuit clips to the adjacent tracks; all of these men are to be complimented for the way in which they went about their duties in protecting the train and in the assistance and attention afforded to the passengers.

CONCLUSIONS

13. Driver Grigg was in no way to blame for the accident; his copy of the Weekly Notices advised him that ballast cleaning was in progress along the fast lines between 16 and 16 $\frac{1}{2}$ MP and the Notices implied that the Down Slow might be affected but no restrictions were applied to train movements along that track. He saw no sign of the men carrying the Musclemann until he was immediately on top of them.

14. Some responsibility for what occurred must rest with Supervisor Martin; he had 25 years of experience of track maintenance work and, although he had not seen a Musclemann machine before, should have realised that such a large and heavy item should not have been moved across running lines that were open to traffic without first making proper arrangements with the signalman.

15. Ricciotti must also accept some responsibility for the accident; with his considerable experience as a lookoutman I would have expected him to have expressed his concern to Martin about not being able to provide adequate protection for the men engaged on such a task in the dark. I am of the opinion that when the machine was put down in the six-foot space he rightly expressed his concern, but, in doing so, became distracted from his duty to keep a good lookout. This would explain why the gang received only a few seconds warning. Ricciotti, who is of Italian extraction, does not have a good command of the English language and I consider that it is almost certain that his urgent remonstrations with the gang to remove the machine to a safe place were incomprehensible to them. They did, however, understand his purpose when he sounded his warning horn.

16. The major part of the responsibility, must rest with the staff of the Divisional Civil Engineer, London, who were responsible for planning the work. Clearly heavy items of plant such as a Musclemann machine should not be despatched to a work site without due thought being given as to how they are to be safely manoeuvred into position. It was indeed fortunate that only the leading bogie of the train was derailed and no other train became involved in the accident. I was assured by the Railway Officers who attended my Inquiry that the planning of such operations will receive more careful attention in the future and this should go a long way to help prevent a recurrence of accidents of this type.

17. I do not consider that Messrs Permaquip's staff were in any way to blame for the accident.

I have the honour to be,

Sir,

Your obedient Servant

D A SAWER

The Permanent Secretary
Department of Transport