

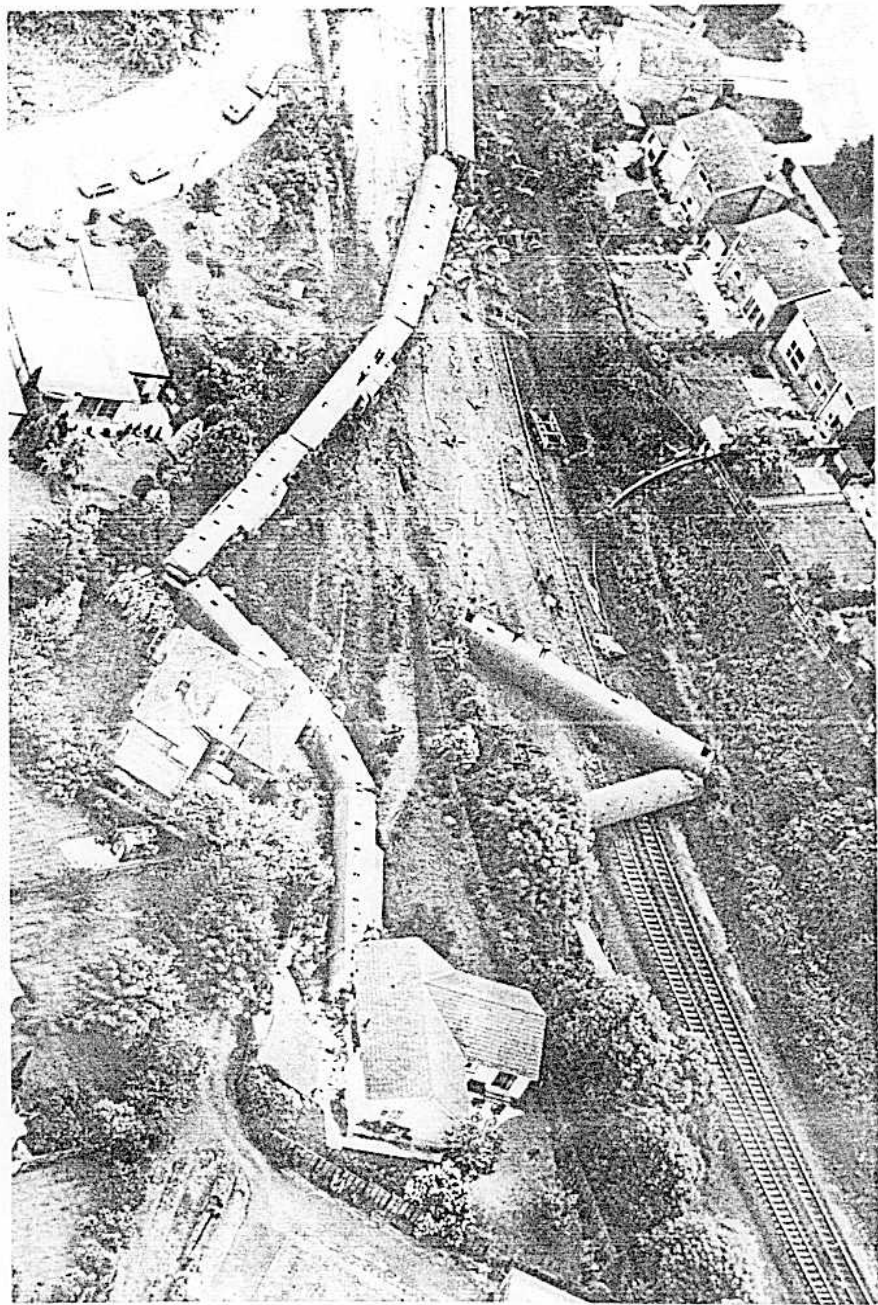
DEPARTMENT OF TRANSPORT

RAILWAY ACCIDENT

Report on the Derailment that occurred on 24th June 1984 at Morpeth

IN THE
EASTERN REGION
OF BRITISH RAILWAYS

LONDON: HER MAJESTY'S STATIONERY OFFICE



Photograph A
Aerial View of Train — Photograph by Gordon Amory of Daily Express

SIR,

I have the honour to report for the information of the Secretary of State, in accordance with the Direction dated 4th July 1984, the results of my Inquiry into the high-speed overturning derailment that occurred 40 minutes after midnight on the morning of Sunday, 24th June 1984 on the Up line on the Morpeth Curve some 16 miles north of Newcastle upon Tyne in the Eastern Region of British Railways.

The train was a locomotive-hauled Aberdeen to Kings Cross sleeping-car train which comprised seven modern Mk III sleeping cars with two bogie brake vans, one at each end of the train. It was running at speed under clear signals as it approached Morpeth. The Morpeth Curve is of some 14 chains radius (285 metres). From the north, the curve is left-handed and commences within the length of Morpeth Station platform. The maximum permitted speed around it is 50 mile/h; the train entered the curve at a speed of between 85 and 90 mile/h and overturned shortly afterwards. The driver, who suffered a bad cut over his left eye, a broken collar bone and a badly lacerated leg, later remembered nothing of the accident.

The first vehicles to overturn were probably the leading two sleeping cars and the coupling between them parted. The leading car remained coupled to the van and locomotive causing them to overturn too. The locomotive came to rest on its off-side against a bank having crossed over the Down line, which it destroyed, and the two vehicles following it jack-knifed behind it and came to rest on their sides across both lines completely blocking the railway.

The second sleeping car led the remainder of the train on a tangential course across the Down line and into a group of bungalows, two of which were badly damaged. All the coaches were on their off-sides except the rear sleeping car and a van which remained upright although both were derailed.

The emergency services were quickly called by local residents who were woken by the crash and who turned out with torches, ladders and hammers to break the sleeping-car windows, and gave immediate assistance to passengers in the train; a civil engineers' gang which was already beginning to assemble to start work after the train had passed also gave immediate assistance.

The accident was the third at Morpeth in living memory. The first, in 1926, was the result of a malicious act of vandalism. The second, due to excessive speed, which occurred on the Down line on 7th May 1969, also to a sleeping-car train, caused six deaths and 21 injuries, of which 19 were serious. It is a measure of the excellence of the design of the current Mk III sleeping car that not a single person was killed in this latest accident, and of the 29 passengers and 6 train crew taken to hospital with injuries, all the passengers and 3 of the crew were discharged after treatment; only the driver and 2 sleeping-car attendants were detained with more serious injuries.

The derailment not only destroyed both lines, but all communications between Morpeth Signal Box and the South were also cut; however, the Down line was closed to traffic for engineering maintenance purposes North of Morpeth and no other train was signalled at the time. Breakdown cranes had difficulty raising the locomotive because it was embedded in a bank, but the Down line was restored to traffic at 14.50, and the Up line at 16.10, on 26th June, with restrictions of speed to 10 mile/h. In the meantime trains were routed via the Blyth and Tyne lines which bypass the scene of the derailment.

At the time of the accident it was dark but it was a clear and warm night.

DESCRIPTION

Layout and Signalling

1. Figure 2 at the back of this report illustrates the Up line from Berwick upon Tweed at 65 miles 78 chains up to the Morpeth Curve at 16 miles 50 chains. (Mileages are from Newcastle). The maximum line speed from the north as far as Alnmouth is 125 mile/h with the many permanent restrictions of speed as shown but thereafter it is reduced to 100 mile/h. After passing over the viaduct at Alnmouth where the speed is 80 mile/h, the line speed is 90 for 2 miles, 80 for 2½ miles reducing to 65 for half a mile around the Southside Curve, 80 for half a mile and then 100 mile/h for 4½ miles until the Up and Down loops and crossovers at Chevington are passed. The speed is thereafter 90 mile/h for 2 miles to Widdrington Level Crossing where the

speed increases to 100 mile/h for 5½ miles past Longhirst Level Crossing and Pegswood Station. These were the permanent speed restrictions as shown in the Northern Area Sectional Appendix at the time.

2. Prior to 30th December 1977 the maximum line speed from Pegswood had been 80 mile/h reducing to 70 mile/h at 18 miles 16 chains to cross the viaduct, and then to 60 mile/h around the right-handed Morpeth North Curve, and to 40 mile/h on the left-handed main Morpeth Curve. On that date the line speed was increased to 100 mile/h reducing to 80 mile/h at 17 miles 61 chains to pass over the viaduct, to 70 mile/h around the Morpeth North Curve, and finally to 50 mile/h around the main Morpeth Curve where the cant was increased from 4½ in (114 mm) to 150 mm to accommodate the increased speed.

3. The start of each change of line speed is marked by a yellow metal 'cut-out' sign placed at the side of the line where it is easily seen by day and can be seen in a train's headlights by night. But drivers are expected to know the line and its restrictions of speed to enable them to reduce speed in good time for each restriction.

4. The gradients approaching Morpeth from the north are somewhat undulating but are hardly noticed by the drivers of most trains. They are rising at 1 in 330 to 23 miles 50 chains approaching Widdrington Level Crossing where they begin to fall at various gradients of from 1 in 272 to 1 in 498 to 21 miles 11 chains approaching the Butterwell connection. The line then rises, with one short exception, firstly at gradients of between 1 in 574 and 1 in 825, and then more steeply at gradients between 1 in 319 and 1 in 157 to near the 18-mile post where it falls at 1 in 272 for one mile approaching Morpeth Station where the line is nearly level.

5. *The Morpeth Curve.* On the Up line the Morpeth Curve begins at 16 miles 50 chains which is nearly at the centre of the platform. The 50 mile/h speed restriction 'cut-out' sign is mounted at the foot of the northern end platform ramp where it is clearly visible. The curve in all is 34.8 chains (700 m) long and consists of a transition curve 101 m long leading into a 285 m radius curve which extends for a further 77 m. There is then a transition curve 26 m long to a curve of 370 m radius which continues for 123 m. It then reduces over a transition curve 17 m long to 336 m radius which extends for 214 m where the final 144 m long transition curve begins.

6. There is a rail lubricator 20 m beyond the start of the curve to lubricate the high rail and a continuous check rail, which is not lubricated, commences 7.5 m further on. The check rail was nominally 50 mm from the low rail. The top of the south-end platform ramp is only 4.5 m beyond the start of the 285 m radius curve. Following the derailment, accurate measurements of radii of curvature were made and a reduced radius of 220 m found over the first 10 m of the 285 m radius curve; this is about 5 m on either side of the top of the platform ramp. The first signs of derailment were 41 m beyond the top of the ramp. The rails in both the Up and Down lines were co-planar and were canted at 6 in. (150 mm). The track prior to the curve is laid in 110A lb. FB continuous welded rail on concrete sleepers, but at the time of the accident the Up line throughout the curve was in 95 lb. bull-head jointed rail secured by steel keys to chairs on timber sleepers spaced at 28 sleepers to the 60 ft rail length. Figure 1 illustrates the curve and shows the position of the locomotive and vehicles after the derailment and the bungalows that were damaged.

The Signalling and 'Morpeth' Warning

7. Trains are signalled under the track-circuit block regulations; signals are controlled from Morpeth Signal Box which stands beside the Up line some 260 m north of the station. The signal box has a small 'entrance-exit' panel on which a route, when set, is indicated by a row of white lights and the position of a train by a row of red lights. Signal aspects are also indicated but trains are described to adjacent signal boxes by bell signal. These boxes are Stanington some 2½ miles to the south and Chevington some 9 miles to the north. In addition to the block bell and railway telephone, there is a GPO telephone on the train recorder's desk adjacent to the signalling panel.

8. Signals are 4-aspect colour-light equipped with the automatic warning system (AWS). AWS consists of a permanent magnet placed in the four-foot about 182 m on the approach side of each signal. When the signal is displaying a Caution or Stop aspect, the magnet causes a horn to sound in the driver's cab and the warning is shown on an indicator. If the driver does not acknowledge this by pressing a button, the brakes are automatically applied after about 3 seconds and the train will eventually stop. When the signal is displaying a green aspect however, an electro-magnet is used to cancel the permanent magnet's signal and rings a bell in the cab. Acknowledgement of the bell is not required.

9. Colonel Robertson, in his report into the 1969 accident, concluded that the driver had relaxed his customary concentration and had failed to reduce his train's speed sufficiently to negotiate the Morpeth Curve. He therefore proposed the use of an AWS permanent magnet to be placed some 182 m on the approach to an illuminated permanent speed restriction sign to be situated, not at the commencement of the restriction itself, but at the point from which a driver would have to begin braking his train sufficiently to

reduce its speed. This was introduced and has become known as the 'Morpeth Warning' or an 'Automatic Warning Indicator'. Colonel Robertson agreed that AWI should be provided wherever the line speed is 75 mile/h or more and the reduction of speed is 30% or more. Its extension was already being considered to include line speeds down to 60 mile/h where the reduction of speed is 40 mile/h or more. It should be noted that no AWI was required on the 50 mile long stretch of line between Berwick upon Tweed and Morpeth (See Figure 2) at any of the 12 reducing speed restrictions.

The Train

10. The train was the 1E48, 19.50 Saturdays only Sleeping Car train from Aberdeen to Kings Cross. The numbers of the vehicles are shown in Figure 1. It consisted of diesel-electric locomotive No. 47 452 and nine bogie vehicles. It was buck-eye coupled throughout and screw coupled to the locomotive, and was fitted with the two-pipe air brake. With the locomotive the train was 217.3 m long overall.

11. The locomotive was fitted with a headlight which enabled the driver to see passing 'cut-out' restrictions of speed. The cabs of all Class 47 locomotives are fitted with the AWS equipment (See Paragraph 8). Each driving position also has a 'Driver's Safety Device' (DSD), consisting of a foot pedal which has to be continuously depressed. Releasing the DSD causes the brakes to be automatically applied after 6 to 7 seconds. The cabs of High Speed Trains have an alternative facility termed a 'Vigilance Device' by which a pedal has to be depressed at regular intervals. Failure to do so starts an alarm and failure to then react applies the brakes. Class 47 locomotives, however, are not so fitted. The cab instruments (brake gauges, speedometer, etc.) are internally electrically lit with a control switch on the panel. The cabs have electric heating as well as an electric footwarmer. At the rear of the cab there is an inward-opening door at each side and forward of these a window with a sliding opening section.

12. The locomotive weighed 123 tonnes and had a brake force of 83.5% or 102 tonnes. Its maximum permitted speed was 95 mile/h. It was 19.38 m long overall and its estimated centre of gravity, considering the quantity of fuel it probably had on board at the time of the accident, was 1440 mm above rail level. Coupled to it was an empty Brake Van Corridor weighing 32 tonnes, and 18.47 m long overall. Its centre of gravity was quite low. The seven sleeping cars were all Mk III which are of two types. They each have two lavatories, and either 13 sleeping compartments or 12 compartments and an attendant's pantry. The corridors taper slightly towards the ceiling but are about 457 mm wide (18 in.) at waist level. There are fire doors towards each end of the corridor which are magnetically held open against springs; when released the doors automatically close. The main access doors are at the ends of the coaches on both sides. Each sleeping compartment has a fixed window and there are five windows in the length of the corridor; all are doubled glazed. A hammer for breaking windows in an emergency is mounted in a case beside the passenger alarm in each sleeping compartment, together with a suitable notice for its use.

13. The sleeping cars are of integral steel construction without separate under-frames, and are carried on BT 10 c bogies which incorporate air-bag suspension giving them a very good and quiet ride. The cars are also fully air conditioned by equipment mounted beneath the floor level. The coaches weigh 43.5 tonnes, are 23 m long overall, and are designed to run at 125 mile/h. Their estimated centre of gravity with water tanks full is 1600 mm above rail level. A further Brake Van Corridor was coupled at the rear of the train.

The Course of the Derailment and Accident Damage

14. As shown in Figure 1, the point of initial derailment was easily identified at 16 miles 940 yards which is 41 m beyond the top of the south end Morpeth Station Up platform ramp. (See Paragraph 40). The Up line was not at all damaged up to this point and for a distance of 5.5 m beyond it, and thereafter, although damaged for a length of 100 m, it was still in situ. The Down line, however, was destroyed for a length of 144 m commencing 9 m south of the point of derailment on the Up line. One rail was thrown out of the Down line and across the Up line and lay up the bank beside the Up line, the end of it piercing a greenhouse in a garden at the top. Ballast thrown up in the derailment broke windows in four houses beside the Up line and passed over their roofs into the roadway beyond them; roof tiles, windows and doors were damaged.

15. The locomotive came to rest on its 'off'-side up against the side of the cutting and 7 m clear of the Down line. Its rear cab was stove in but the leading cab suffered little damage. The leading van and first sleeping car (Coach G) jack-knifed across both tracks between the two cutting sides. (See Photograph B).

16. The second sleeping car (Coach F) broke away from the car ahead of it and followed a path almost tangential to the track at the point of derailment. It came to rest with about one third of its length embedded into an unoccupied bedroom of a timber-framed bungalow 188 m from the point of derailment. The following four sleeping cars veered further from the railway, and Coach E was forced sideways onto the corner of another bungalow by the momentum of the following Coaches D to B, breaking the back of the sleeping car and severely damaging this bungalow too.

17. All the cars so far mentioned came to rest on their off-sides. Coaches F, D and B had their sleeping compartment windows uppermost and their corridors against the ground, but with Coaches G, E and C, the situation was reversed and the corridors were uppermost. The leading end of Coach D which had veered off course and driven the rear end of Coach E ahead of it around the house, had parted from it, and there was access from these ends of both coaches. Coach A and the van behind it remained upright although derailed.

18. Although the off-sides of the overturned coaches were badly scored, surprisingly the internal accommodation was hardly damaged and few of the double glazed windows were broken in the accident; they were later broken by rescuers, as were the locomotive's windscreens. A noteworthy aspect of the derailment was that all the ten bogies of Coaches F to B came to rest on the Up Main Line by Coach A, indicating that all five coaches had derailed and lost their bogies in a similar manner as they left the track in the same area as each other.

19. The signalling and telecommunications equipment was little damaged except that the main cables carried in troughing beside the Down Main line were destroyed over a considerable distance, and one signal was destroyed.

20. Although the locomotive had a maximum permitted speed of 95 mile/h, the sleeping-car train was scheduled for an average speed of 80 mile/h for the comfort of passengers to which could be added a 4-minute allowance for temporary restrictions of speed between Edinburgh and Newcastle, of which there was none on the night of the accident. The Schedule could therefore be adhered to at an average speed of about 76 mile/h.

EVIDENCE—PART I

Foreword

21. On 13th July, prior to my Inquiry which I opened in Newcastle upon Tyne on 17th July, I received a verbal request from the Director of Public Prosecutions via the Department of Transport's Legal Advisor, that I should adjourn my Inquiry before taking evidence from the driver of the train, Driver Allan, and associated witnesses. This I agreed to do. Part I of this report, therefore, covers the evidence of witnesses as to the facts of the derailment and my conclusions, and Part 2 the subsequent enquiries, including matters concerning Driver Allan's trial.

As to the Running of the Train and the Derailment

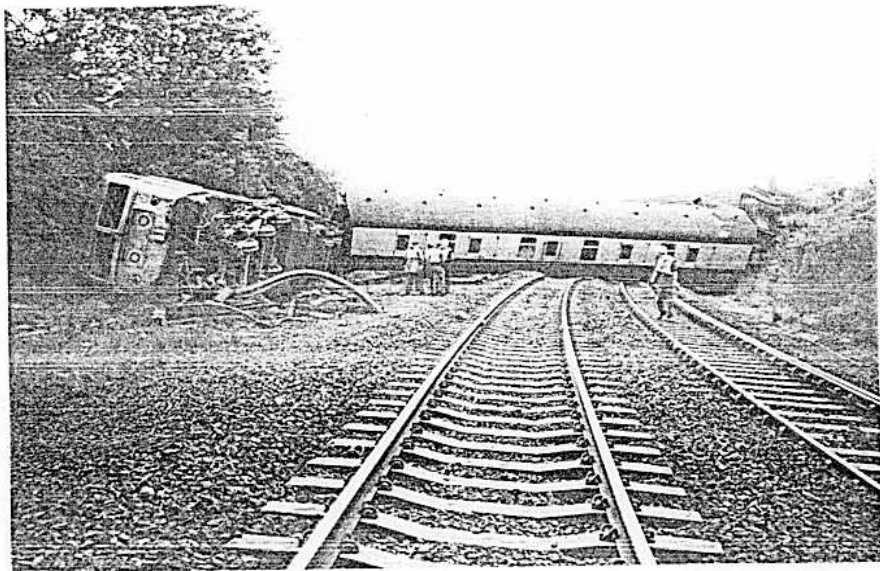
22. The Signalman at Morpeth at the time of the accident was *Relief Signalman J. Earle*. He had come on duty at 21.00 on the Saturday evening and was awaiting the passage of train 1E48 which was the last train due to pass that night. Following its passage, all trains were to be diverted onto the Blyth and Tyne line to enable some civil engineering work to commence on the Up line and within the length of the platform. One member of the civil engineer's gang was in the box awaiting Earle's authority to commence work.

23. Signalman Earle acknowledged the bell signal from Chevington as 1E48 passed that box at 00.31 and he immediately described the train on to Stanington. He then lowered the level crossing barriers at Longhirst, set the route and cleared all his signals in good time for the train to pass. The train passed his box at 00.39 which, in his view, did not indicate that the train had been speeding; many passenger trains took only 8 minutes over this section.

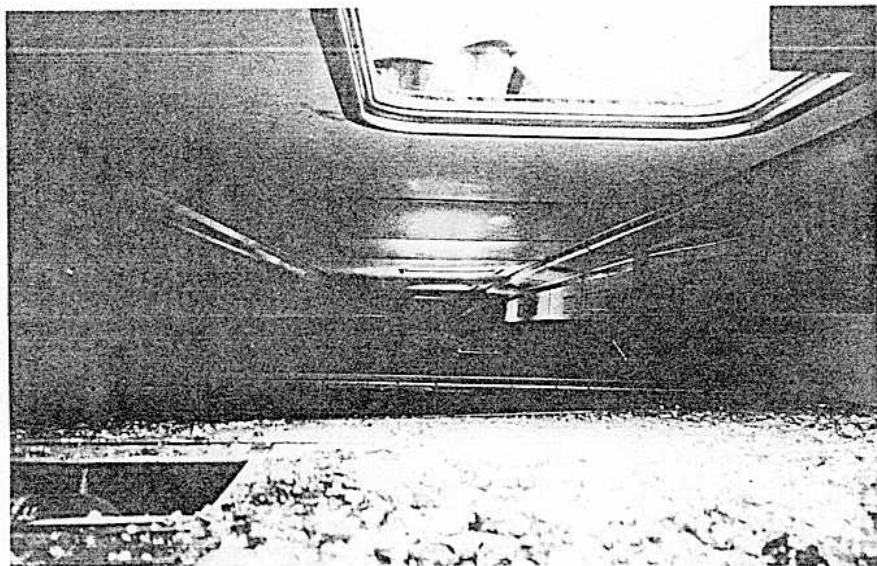
24. He was sitting in his chair with the signalling panel between himself and the railway, when the train passed; he had been a signalman for 27 years and had served at Morpeth for over 8 years, and had no conception that the train might have been speeding as it passed. Very soon afterwards the power to the south of his box failed but he assumed, at first, that it was only a power failure. He heard no sound of the derailment from his box, probably because it occurred around the curve and behind the station buildings; but at about 00.42 the guard telephoned him from the station and told him what had happened.

25. He immediately sent the emergency alarm signal to Stanington, which was not acknowledged. He replaced Signal M148 protecting Longhirst Crossing to Danger and placed a reminder collar on its operating button. He was not similarly able to protect his Down line but the line had been closed for engineering works and no train was signalled. After warning the signalmen at Chevington and Alnmouth he called the emergency services on his GPO telephone at 00.45.

26. The guard in charge of 1E48 was *Guard W. G. Brown*. He had taken up duty at Edinburgh (Waverley) at 22.40 and at about 22.50 had met his driver on Platform 1 although, at that time, he did not know his name. When they realised they were working the same train Brown told the driver that he would see him later. When the train arrived from Aberdeen he went to his van to collect the train consist; then walked to the front of the train to tell his driver the composition of the train and that the first stop was to be Newcastle.



Photograph B
Locomotive and leading Van
Up line is on the Right



Photograph C
Overturned sleeping car—corridor uppermost
illustrating the fireman's problem

Brown told me that the leading brake van was empty. They did not do a brake test because the train had already been in service under another crew, and the train left, on time, at 23.05.

27. Guard Brown told me that he had stayed in his van at the rear of his train throughout the run to Morpeth, which was uneventful, and he had no feeling that the train might have been speeding. He had looked at the van's brake gauges and their readings indicated that the brake was properly coupled throughout the train and should have been working. He was reading a book as the train approached Morpeth but when he saw the lights of the town approaching he became aware that the driver was not making the necessary brake application to slow the train which seemed to be coasting. The gauges in his van confirmed his belief and he was just getting up to apply the brake himself when there was a loud bang and he was thrown violently forward.

28. The train soon came to a stand, so he picked up his lamp and got out. On seeing people coming out of their houses beside the Up line he climbed up the side of the cutting towards some garden fences and asked a local resident to call the emergency services, which he agreed to do. Brown then returned towards the signal box but on seeing a light in a room at the station where there were some men, he telephoned the signalman from there to tell him what had happened. He then returned to his train to continue to assist passengers.

29. *Guard's Inspector R. Simpson* also joined the train at Edinburgh. He spent the first ten minutes of the journey with the guard and then proceeded to check the sleeping car attendants. Having done this he went into berth E1 to write his check sheet where he opened the blind and saw that the train was passing Tweedmouth. He told me that the journey to Morpeth was uneventful and normal and that there were no noticeable brake applications. When approaching Morpeth, however, he was held against the side of the coach by centrifugal force until the coach rolled over and finally came to a stand. He managed to climb out of his compartment door which was above his head and crawled along the corridor and out at the rear end of the coach. He found himself in a garden where a local resident told him that the emergency services had been called. So he joined in the general rescue operations until the fire brigade arrived.

30. Several passengers have written to me concerning their experiences in the derailment. Some thought that the train had been travelling far faster than usual and others that it had not been. In particular, Mr. Mark Barker who is the Marketing Manager of the Commonwealth Games (Scotland 1986) Organisation, told me that he was a regular traveller and was in compartment 17 of Coach E. He was concerned at the movement of the coach which was pitching and rolling unusually for some 20 minutes prior to the accident and that his body was sliding up and down in his bed; his hat also slid along the rack above his head. After the derailment he got out of his bunk and crawled along the corridor in the same manner as Inspector Simpson and helped break windows with hammers provided by local residents until the firemen arrived some 4 minutes later. He had not noticed the hammer in his compartment, nor any emergency instructions there.

31. On the morning of 16th July I called on *Chief Fire Officer D. Mee* at Morpeth Fire Brigade Headquarters. He described how his men had taken over the rescue operations from local residents and passengers, and the difficulty they had experienced in getting into the coaches which had their corridors uppermost. The problem is clearly illustrated in the Photograph C which Mr. Mee gave me. After getting through one of the three central corridor windows, his men were in an 18 in. high space with the locked berth doors beneath them. The keys with which they had been provided would not fit the doors and there was insufficient room to use crowbars. Finally, their own cutting equipment was incapable of gaining access through the roofs of these coaches.

32. *Sub Officer W. E. Cromer* of Cramlington Fire Brigade had reported that he had arrived on the scene at 00.58 after being called at 00.41. He detailed three men to set up some lighting while he and a fireman rescued five people from the leading sleeping car. He then went to the locomotive's driving cab where he found the driver being supported by two people. He manoeuvred himself to the driver's left side to discover how badly he was hurt but a doctor very soon arrived. To the best of his knowledge he did not come into contact with any of the driving controls.

33. I called on the doctor, *Dr. J. A. Cunningham* on the afternoon of 16th July, and asked him to describe how he got to the driver's side. Photograph B shows the locomotive on its side. Dr. Cunningham told me that those who had attended the driver had got in through the lower (off-side) broken front windscreen, and that the driver had fallen from his chair and was sitting across the side of the cab with his back to the front of the locomotive. The driver was conscious and reacted to his requests to move his limbs. Although he was close beside him he did not notice any smell of alcohol on his breath. After deciding that the driver could be moved, the firemen and others took him out of the front window and onto a stretcher.

34. Early on the morning of Tuesday, 17th July I travelled in the driving cab on the same service having joined it at Berwick upon Tweed; it had been delayed earlier and was running some 40 minutes late. My train

was hauled by a similar Class 47 locomotive which was also fitted with a headlight (the light on locomotive 47 452 can be seen in Photograph B). The accident occurred on a Sunday morning when the lights at stations at which trains do not stop would have been extinguished, whereas on the Tuesday morning they were still lit; this included Pegswood and Morpeth Stations.

35. I noticed that the yellow speed restriction signs were clearly visible in the train's headlight as they passed which gave the driver a good indication of his whereabouts. The cab instrument lights were turned on and the speedometer was also very easily seen. We crossed the river at Alnmouth with the town lights beyond, followed by Wooden Gates Level Crossing, and passed the lights of Warkworth town. The lights of Warkworth Automatic Half-Barrier Level Crossing, followed by the lights of houses on both sides, were easily seen. Then followed the 100 mile/h sign, the bright lights of Longhirst barrier Level Crossing, and the 80 mile/h sign as we approached the viaduct which were also clearly visible. The bright lights of Morpeth town then came into view and we passed over the crossovers and ran alongside loop lines, under a bridge, passing the 70 mile/h sign, the red position-light signal at the end of the Up loop to our left, and Morpeth Level Crossing, which was very easily seen, with many houses and street lights including a row of bright yellow lamps on our right. After passing under another bridge we then saw the lights of Morpeth Signal Box on our left. We then passed the banner repeater signal at Morpeth Station and had a good view of the 50 mile/h sign at the north end of the Up platform.

36. Shortly after midnight on the morning of 24th June when 1E48 passed, *Leading Trackman W. M. Brewis* was acting as lookout man on a tamping machine on the Down line near Ulgham Grange Level Crossing, some 6 miles north of Morpeth. He saw the train's headlight approaching when the train was about a quarter of a mile away. He sounded the machine's warning siren and the driver sounded his own horn as he passed.

As to the State of the Track

37. *Leading Trackman T. R. Air* normally patrolled between Longhirst and Widdrington, but on the 18th and 22nd June he patrolled the Morpeth section in place of the regular man who was on holiday. In patrolling the track on Friday, 22nd June, he noted no loose fishplates, no missing keys, and no movement of base plates. The track drainage in the area was good and there were no remarks in his *Patrolman's book* that the track was other than in good condition. He did, however, notice oil contamination in the area of Morpeth Station platform from locomotives which had stopped there.

38. *Permanent Way Supervisor J. D. McLaughlin*, who was based at Morpeth, was responsible for the East Coast Main line from Newcastle Manors to Amble Junction, including the Blyth and Tyne Goods line. Mr. McLaughlin told me that the high-speed track recorder had last passed over the curve on 10th April and the Matisa track recorder on 24th May, and that both showed the track to be in excellent condition. He had last personally examined the Morpeth Curve on Friday, 25th May, when he had found nothing of any concern. He told me that the track was well formed and stood up well to the traffic on it. He noted the oil spillage in the station and made plans to clean out the 'oily' wet bays. The work was due to be done following the passage of the last train on the night of the accident and his men were due to report at Morpeth at 01.00.

39. At 01.00 on 24th June he was called from Belford where he was working; he arrived at Morpeth at about 02.00, where he met *Mr. Broddle*, and together they determined the point of first derailment, and checked the track gauge and cross levels for 40 sleepers on the approach side of it. The gauge was accurate to within 2 mm and the cant to within ± 3 to 6 mm, which were well within working tolerances. He also checked to see if the speed restriction cut-out signs were present, which they were. They had been newly repainted some time before the accident.

40. *Mr. R. P. Broddle*, who was the Assistant to the Permanent Way Maintenance Engineer arrived at the scene of the derailment at 01.45 whilst the emergency services were still busy. After helping the Police set up an incident control room at the station, he joined Mr. McLaughlin in inspecting the track. The point of first derailment was easily seen extending for 3.6 m from 16 miles 940 yards to 16 miles 936 yards. (This is 41 m south of the top of the Up platform ramp). He told me that it was noticeable that there was no matching line or mark on the surface of the cheek rail, nor on the sleepers between the running rails. There was, however, a fresh mark on the chair lug beyond the derailment mark on the outside of the high rail. He confirmed that the track gauge was good and that the largest cant variation was 4 mm. He twice examined the track for 120 m on the approach side of the point of derailment but could see no faults in it that could possibly have caused a derailment. He was categorical that the work of ballast replacement to clear wet and oily bays in the station area as planned by Mr. McLaughlin had not begun in any way. He confirmed that the track gauge on the Curve was consistently 4 mm to 6 mm wide, which is normal for this curvature and considering the age of the track.

41. He noted that the Up line was undamaged for some 5.5 m beyond the initial point of derailment but was badly damaged for 90 m thereafter, being virtually undamaged where the first two coaches lay across both lines. He also noted that the Down line was completely demolished for 145 m. He therefore started to arrange for the Up line to be reinstated using materials taken from sidings, to enable the breakdown cranes to gain access to the site.

As to the Locomotive, its Controls and the train's brakes

42. *Rolling Stock Engineer G. T. Proctor* from Tyne and Wear arrived at the scene of the accident at 02.10 and, following a short briefing, was asked to examine the locomotive's controls. He told me that there was no-one at the cab when he got there and he entered it through the broken off-side windscreen which was close to the ground (which everyone seems to have done). Once inside, he had to climb up to the driver's chair, which was well above his head, using various items at the back of the cab as footholds. He then noted the controls as follows:

- (a) The master key was 'inserted and unlocked' and the master switch was in the 'forward' position.
- (b) The locomotive's air brake was fully released and the train brake was in the 'running' (i.e. not applied) position. (Both these brakes are on the left side of the driver's desk).
- (c) The 'power control' was in the 'full power' position. This is on the right of the desk, and Mr. Proctor suggested that the driver might have pulled it into that position with his right hand as he was thrown out of his seat.
- (d) The AWS indicator was 'all black' as if the train had been running on clear signals.
- (e) The AWS 'change over handles' were in the 'On' position (and 'off in the rear cab') as they should have been, and the isolating handle in the engine room was in the working position and wire sealed as it should have been. He did not check the position of the DSD isolating cock.
- (f) All gauges in the cab were reading zero.
- (g) The brake selector switch was in the 'Passenger' position.
- (h) The 'Control' and 'Lighting' circuit breakers in the engine room had tripped out—thus stopping the engine.
- (j) There were no signs of the brakes having been violently applied as there would have been had an emergency brake application been made.

43. From the repair book carried in the locomotive, he noted that the brake blocks had been changed on 11th and 18th June—there was no mention of any AWS or DSD equipment fault having been reported. Mr. Proctor later examined all the reservoir and brake pipe cocks throughout the train. They were all 'open' except for those at the rear of the train which were closed as they should have been, and except for some where the train had parted and where he could see the reason for them being moved in the derailment. All the train pipe cocks were fitted with safety handles as required.

44. He examined the trailing buckeye coupling of Coach G (E10505) which was still locked in the closed position. From the damage to it and the coach's tread plate he concluded that the coupling had parted after the sleeping cars were on their sides and had begun to 'jack-knife' from each other.

45. *Assistant Engineer (Traction and Equipment) C. Wood* examined the locomotive in Gateshead Depot on 28th June, after its recovery. He tested the operation of the brakes, the AWS equipment and the DSD equipment. He has made a full report from which it can be concluded that everything was in working order prior to the accident. In particular, the AWS and DSD equipment were still functioning and the brakes would have been automatically applied 3 seconds after passing a magnet at a signal at 'Caution' (or an AWS). In the case of the DSD the brakes began to apply 5 seconds after its release. He noted that the seal on the DSD isolating cock was broken although the cock was correctly in the 'open' position. There was no entry in the repair book as to why the seal was broken as there should have been.

46. The speedometers in both cabs of the locomotive were tested by *Traction Maintenance Engineer M. Hayhoe* on 27th June. Both were reading high as follows:

Mile/h setting	No. 2 Cab (Leading)	No. 1 Cab (Rear)
50	54	55
70	73	77
80	83	88
90	94	98
	10	

He explained that, as the speedometers measured the rotational speed of axles, their readings were dependent on wheel tyre wear. The normal tolerance was $\pm 3\%$. Reading high, as they were, the train would have been travelling slower than 50 mile/h if the speedometer was reading 50 and hence the speedometer errors were 'safe side'.

47. On 27th June Mr. Hayhoe also examined the DSD pedal and its operating mechanism in the leading, No. 2, cab. He found it mechanically free and unobstructed. On 11th July he carried out tests to measure its 'depression' and 'release' loads, and also on a similar locomotive, No. 47 426. The results were as follows:

	47 452 <i>No. 2 Cab</i>	47 426 <i>No. 1 Cab</i>	47 426 <i>No. 2 Cab</i>
Depression load	23 lb.	27½ lb.	30½ lb.
Release load	11½ lb.	13 lb.	11½ lb.

In each case the loads were measured at the mid points of the pedals.

As to the Speed and Mechanism of Derailment

48. Mr. M. McLoughlin, a Principal Scientific Officer at the British Railways Board, Railway Technical Centre, Derby, was called to attend the derailment and arrived there shortly after 08.30 in the morning. Mr. McLoughlin has had many years' experience in examining the results of derailments and in studying their causes.

49. He found that engineers on site had already identified the point of first derailment and had numbered the sleepers from it '+' in the direction of approach (i.e. towards the station) and '-' beyond it. He noted that a number of wheel flanges had crossed the high (six foot) rail and confirmed the chainage as being 16 miles 940 yards. He counted at least five derailing marks between sleeper 0 and -19, and confirmed that there were no corresponding marks on the cess side check rail, indicating that the left-hand wheels had lifted clear of that rail.

50. He also noted (as others had not) that there was a small flat on the outer corner of the rail head some 3 mm to 4 mm wide commencing at sleeper +30, indicating that wheels had been running with their treads on the outer edge of the rail and their flanges on the gauge face (i.e. with their axles already lifted as shown in Figure 2a) for some 21 m prior to the point of first derailment. He had only seen this once before some 11 years previously when he witnessed some controlled experiments. Grease from the rail lubricator had been smeared over the gauge corner of the rail for some 18 m.

51. Damage marks to the concrete sleeper ends of the Down line began 15 m beyond the point of derailment and 8 m after this there was blue paint on the 'six-foot' rail of the Down line, indicating that a coach was on its side at this point. There were wheel marks on the check rail of the Up line commencing at sleeper -19 (beyond the point of derailment) and continuing over 6 sleepers following which there were marks of wheels having run derailed on the sleepers in the 'four-foot'. He considered these to have been made by the last sleeping car in the train which had remained upright, with the van behind it.

52. From the above evidence he believed that the train had overturned quite quickly, beginning at a point some 18 m from the top of the platform ramp and that wheels had derailed some 23 m further on. He concluded that the first coaches to overturn were the first and second sleeping cars which had then separated from each other. He thought that the leading sleeping car and the van ahead of it had caused the locomotive to overturn very soon afterwards and to cross the Down line; the very serious damage to the Down line, and the fact that all the bogies from the rear half of the train had been discarded by their overturning coaches in the same area, supported this view.

53. Mr. McLoughlin presented calculations carried out by Dr. R. A. Clark of his organisation. The calculations were based on an iterative process which considered ever-increasing lateral centrifugal force which drove the vehicle body over onto its bump stops and the primary and secondary suspensions onto theirs, until the inside wheels were completely unloaded. The speeds at which this occurs, based on calculated centres of gravity and a curve radius of 280 m with 150 mm of cant, were as follows:

	<i>Centre of gravity above rail level</i>	<i>Speed</i>
Mk III Sleeping Car	1600 mm	85 mile/h
Class 47 Locomotive	1440 mm	91 mile/h

He had used the Radius of 280 m (instead of the design radius of 285 m) as being the average of a number of measurements taken after the accident at the point of derailment. A slight local tightening of the radius of

curvature to 220 m between the transition curve and the curve itself which had been detected had been considered but because of its very short duration during which a vehicle would be affected by the resulting additional force, and because vehicles would have supported each other through their buck-eye couplers, he thought the above speeds would have been only slightly reduced. He concluded, therefore, that the train had probably been travelling at between 85 and 91 mile/h, but no faster. Had the minimum radius been 285 m, the speed would have been about 1 mile/h higher.

54. A study of the train's passing times at Tweedmouth, Alnmouth and Morpeth signal boxes indicate average speeds as shown in the following Table. The signalmen are required to note the times to the nearest minute but their clocks are individually operated and are likely to be out of synchronisation; I have allowed variations of $\pm 1\frac{1}{2}$ minutes at each box in my calculations:

Box	Mileage	Distance	Passing	Nominal	Speeds Mile/h		
	Miles Chains	Miles	Time Hr Min	Journey Time (Mins)	Min	Av	Max
Tweedmouth	65 m 78 c	31.1125	23.53	29	61.2	64.4	67.9
Alnmouth	34 m 69 c	18.075	00.22	17	58.6	63.8	70.0
Morpeth	16 m 63 c		00.39				

55. A computer study of the speed of a train similar to the one involved in the accident, running at full power and taking gradients and curves into account, indicates that, had it accelerated from 60 mile/h at Alnmouth, it could have achieved 88 mile/h at the Morpeth Curve. It would however have passed through the left-handed Southside Curve just north of Acklington at about 80 mile/h. This curve, which extends from mile posts 30 $\frac{1}{2}$ to 30, is of 40 chains (805 m) radius. At the time of the accident it was 'canted' to 140 mm giving a 22 mm cant deficiency at the required 65 mile/h which would have been unnoticeable. Had the train been travelling at 80 mile/h the cant deficiency would have been 85 mm which might have caused luggage to fall off the sleeping compartment racks. The average speed of the train between Alnmouth and Morpeth would then have been some 81 mile/h compared with the maximum of 70 mile/h indicated in the table above.

56. An alternative is that the train was braked to 65 mile/h for the Southside Curve and was on full power thereafter. In this case it would have achieved 86 mile/h at the Morpeth Curve and the average speed would have been 71 mile/h. It is most likely therefore that the train somewhat exceeded the restriction around the Southside Curve, which accounted for the reports by passengers, and was on full power thereafter.

Summary and Conclusions—PART I

57. I am satisfied that the signalman had set the route for the train; that the signals were all at green, and that the signalling played no part in the accident.

58. The point of derailment was easily identified, and I am also satisfied that the track on the approach to it and a little way beyond was in good condition; also that work programmed to be done after the passage of the train had not begun.

59. The guard's evidence concerning the brake-gauge readings, the thorough examination of the air pipes throughout the train, and the braking equipment on the locomotive, indicate that the brakes were in working order. The locomotive controls indicated that no brake application had been made approaching the Morpeth Curve, or even as a final emergency measure.

60. Trackman Brewis' evidence shows that the driver was alert by sounding his horn some 6 miles or 4 minutes running time north of Morpeth. From my own experience of the journey on 17th July, I am satisfied that, had Driver Allan been alert, he could not have been mistaken as to his whereabouts on his approach to Morpeth.

61. The marks on the rails and final positions of the coaches and bogies indicate, without doubt, that the coaches overturned on the bend. Calculations show that the train's probable speed was somewhere between 85 and 91 mile/h, whereas the maximum permitted speed was 50 mile/h. From the signal-box passing times it seems the train was being driven at between 60 and 70 mile/h and probably began accelerating some 12 miles from Morpeth for it to have attained its overturning speed.

62. I therefore conclude that Driver Allan failed to reduce his train's speed before entering the Morpeth Curve.

*EVIDENCE—PART 2, Concerning Driver Allan
The Charges Made Against Him*

63. Driver Allan was originally charged before a magistrate, at Bedlington Court on Friday 26th October, under two Acts. The first was Section 17 of the Regulation of Railways Act 1842—"It shall be lawful for any Officer . . . of a railway company . . . to seize and detain any engineer, driver, waggon driver (etc.) . . . employed by the said company . . . who shall be found drunk . . . or who shall negligently do any act whereby the life or limb of any person upon such a Railway might be injured or endangered" . . . (etc.). A fine of £10 or two months imprisonment was later amended to £400 and/or three months imprisonment (See Appendix B for the whole of Section 17).

64. Section 17 replaced the similar Section 13 of the Act of 1840 which was read in conjunction with Section 14 of that Act. Section 14 permitted more serious cases to be remanded to the Quarter Sessions. Both sections of the 1840 Act however, were repealed by Section 95(1) of Schedule 12 Part 1 of the Transport Act 1962. This meant that Section 17 of the 1842 Act could only be tried in a Magistrate's Court.

65. The second charge was under Section 34 of the Offences against the Person Act 1861: "Whosoever by any wilful omission or neglect shall endanger the safety of any person conveyed . . . upon a Railway shall be guilty of a misdemeanour". Offences under this Act may be tried by the Crown Court. Accordingly, the first charge was withdrawn and application was made for trial in the Crown Court which was granted.

66. Driver Allan was charged under three counts before the Honourable Mr. Justice Kennedy on 5th June 1985 at Newcastle Crown Court as follows:

Count 1 Damaging property with intent contrary to Section 1(2) of the Criminal Damage Act 1971 (in that he) without lawful excuse damaged a locomotive and 7 coaches the property of British Rail being reckless as to whether such property would be damaged and being reckless as to whether the lives of passengers and crew in the said coaches could thereby be endangered.

Count 2 Endangering the Safety of Passengers contrary to Section 34 of the Offences against the Person Act 1861 (in that he) by an unlawful act endangered the safety of persons conveyed upon a Railway.

Count 3 Endangering the Safety of Passengers contrary to Section 34 of the Offences against the Person Act 1861 (in that he) by wilful omission or neglect endangered the safety of persons conveyed upon a Railway.

In his summing up to the jury on 17th and 18th June, Judge Kennedy directed that the case should be tried on the third count only and that they should disregard the first two. The following evidence pertinent to my own inquiry is drawn from the summing up, and from statements made available to me.

Evidence as to Driver Allan's Actions

67. Six passengers gave evidence. *Mr. Clark* who had not travelled by sleeper for four or five years, had noticed the train rocking for about half a minute some time before the accident to the extent that it was "on the verge of being alarming". *Mrs. Flood* had placed a bouquet of flowers on the parcel shelf above her bed. The train had "rocked like a ship at sea and the bouquet fell to the floor". She had climbed down and retrieved it, spoken to her husband and climbed back onto the top bunk; the only time thereafter that the train rocked badly was immediately before the crash. *Mrs. McEachen* said that her case fell off the rack when they were still north of Morpeth. She got up and restored it. Other passengers spoke of sliding up and down in their beds but were not unduly alarmed by it.

68. Four men working on the adjacent Down line gave evidence. In addition to *Leading Trackman Brewis* (See Paragraph 36), who was only some 5½ miles north of Morpeth, and who heard the train's horn sound as it passed his tamping machine, *Mr. Quigley* also said that the train was running normally past his machine some 2 miles further north and *Neal* his look-out man heard the train sound its horn as did *Mr. Mackenley* a permanent way Trackman walking south near Belford level crossing, 35 miles north of Morpeth.

69. In addition to Dr. Cunningham who attended Driver Allan in the cab of his locomotive (See Paragraph 33) and who did not smell any alcohol on the driver's breath, five people who were with the driver after the accident gave evidence. *Police Constable Feltham* got into the cab and asked Driver Allan how he felt. Allan at first did not reply but later said that he could move his legs. Feltham sheltered Allan while fireman broke the locomotive's windscreen to gain easier access. He did not notice any alcohol on the driver's breath, but *Mr. Thompson* an ambulanceman who accompanied Driver Allan to the Royal Victoria Infirmary and who spoke to the driver, did so. And so did *Dr. Gardner* who later took a blood sample from the driver.

70. When Driver Allan reached hospital at 01.47 he was seen by *Dr. Adams*. He described his injuries as a large bruise on the back of the head, and a 'flap laceration' some 60 mm long. He had a graze over the crown

of his head and grit in his eye together with a bruised and swollen right hand, and he was tender at the back of his neck. He was conscious but disorientated although he was speaking coherently and responding to questions. Although Allan remembered being in the ambulance he had no apparent recollection of the accident which, Dr Adams said, was consistent with a head injury. He did not smell any alcohol on his breath.

71. Dr Gardner, a police surgeon of Newcastle visited Allan with Police Inspector Guthrie of Newcastle at 03.55. Allan said that he remembered passing Berwick and Alnmouth (50 miles and 18½ miles respectively north of Morpeth), but nothing further. Dr Gardner did observe that Allan smelt of alcohol but it was not overpowering and he had none of the usual signs of intoxication. He was not flushed, he had no muscular inco-ordination, his mouth and skin were not dry, and his behaviour and memory seemed normal. He could do 'fine movements' by way of testing and he was not breathing heavily. In his opinion, at that time, Allan was not adversely affected by alcohol. Allan admitted then to Inspector Guthrie that he had taken a drink before joining his train.

72. Driver Allan was interviewed by Detective Inspector King in the presence of Detective Sergeant Crombie both of Newcastle, in Ward 19 of the hospital at 08.40 on the morning of 25th June, the day following the accident. Allan then said that he had signed on duty at Haymarket Depot at 21.43 on the evening of Saturday 23rd June and had then driven his car down to Waverley Station. He had parked his car and after drinking two cans of Tennants Lager (he said at about 21.15) in the car park he walked around the station until his train arrived, which he boarded at about 22.50. His last food had been a substantial dinner before leaving home. His train left on time at 23.05 and the run was a normal one. He remembered going through Alnmouth but after that he remembered nothing. He had driven with his cab heater and footwarmers turned on and the cab window shut. He could only assume that he had a coughing fit, hit his head and knocked himself unconscious. He admitted that he had had bronchitis for 20 years and that he regularly suffered from coughing fits; he also said that he thought he had a small coughing fit at Berwick. He took medicines for it as necessary. He said that he had suffered a blackout from coughing 18 months previously; on that occasion he had a small coughing fit which made him pass out 'just for a second'.

73. As for the train's run, he thought he would have been coasting towards Alnmouth at 80 mile/h to slow for the 65 mile/h restriction to the south of it. His DSD pedal was working normally and he had not 'wedged' it in any way.

74. On 12th July Inspector King together with Detective Sergeant Crombie again interviewed Driver Allan but at his home address in Drem. After being allowed to read the statement he had made on the 25th June, he answered Inspector King's questions as follows: He said that he had left home on the night of the accident at about 20.50 by car. He stopped at a public house in Musselburgh where he drank, on his own, a ½th gill of whisky followed by one pint of Foster's Lager. He had left the public house at about 21.20. Arriving at Waverley Station car park at about 21.35 he entered the 'East End shunter's Bothy' and telephoned Haymarket Depot to sign on. He then collected two further cans of lager from his car and drank them on his own in the bothy. One was a Tennants ordinary lager and one was Extra Strong, each of them being just under one pint. He left the bothy at 21.55 and spoke to Mr. Paul whom he passed on the station. He wandered around the station until boarding his train at 22.50.

75. During this interview he said that he did not normally drink before driving a train nor whilst on duty and was not a heavy drinker. But he could suggest no reason why he had done so on that occasion—he had had no family row nor had he any money problems. He knew that it was an offence against British Railway Rules to drink on duty or to be intoxicated on duty. In answer to the question "Would you consider that the drink you took on that night to be a heavy intake, that is abnormal for you?" he replied "Yes". When Inspector King asked him "Surely, as you have admitted being an infrequent and light drinker that the quantity of your alcoholic intake on that night was way above normal?" he replied "I have to say yes"—and then to: "And consequently your driving ability therefore was likely to be impaired"—he replied "It could have been".

76. When Inspector King reminded him that he had said that he thought he had had a coughing fit at Alnmouth and whether he could remember that, he replied "I thought I could remember that", but he claimed in this, his second, interview that he could remember nothing after passing through his home town station at Drem.

77. The blood sample taken from Driver Allan at 04.42 on 24th June was analysed that day by Dr. R. M. King a Scientific Officer of the Home Office Forensic Laboratory at Wetherby. It was found to contain 39 milligrams of alcohol per 100 milli-litres of blood. (39mg/100ml) Dr. R. M. King considered that the reading was consistent with the stated amount of alcohol taken. Although the Rate of Metabolism of alcohol varies between individuals he used an average figure of 15mg/100ml of blood per hour to conclude that the maximum concentration is most likely to have been between ½ hr and 2 hrs after the last drink was taken, i.e.

between 22.25 and 23.55. Assuming it to have been at 23.10, the maximum concentration would have been about 120mg/100ml at that time.

78. Professor M. D. Rawling of the University of Newcastle made a similar calculation based on the driver's age of 58 and 14 stone weight, and the fact that he ate a substantial dinner before leaving home. He estimated that the level at 23.00 on 23rd June when the train left Edinburgh would have been 84mg/100ml (this assumes a Rate of loss of alcohol of just over 10mg/hour) and at the time of the accident would have been between 74 and 90mg/100ml. He agreed that the maximum concentration would have been between $\frac{1}{2}$ hr and 2 hrs after the last drink was taken.

79. He described the effects of alcohol as a depressant of the function of the brain but not of all areas equally at the same time. Hence depressing inhibitory mechanisms resulted in less restraint of the activity of other parts of the brain. The first depressant actions were upon the higher intellectual and integrated functions impairing discrimination and memory, as well as concentration. The effects were broadly proportional to the blood/alcohol concentration. Studies had established a relationship between alcohol concentration and the probability of road traffic accidents. At concentrations below 50mg/100ml there was no apparent increase in the relative risk probability, but thereafter the risk increased; scientific information was in accordance with experience gathered from road traffic accidents. In his judgement therefore, blood alcohol levels of 50mg/100ml, and possibly less, would lead to impairment of judgement, of mental function, and of psychomotor performance resulting in a diminished driving performance. The degree of impairment would be related to the alcohol level and would be greater, on average, in an individual unaccustomed to regular alcohol consumption. Finally he said, alcohol promotes sleep.

80. At Driver Allan's trial the defence suggested that a severe bout of coughing leading to fainting had occurred as the train closely approached the Morpeth bend. Driver Allan's wife said that they had been married since 1952 and that his bronchitis began in 1979. She described one occasion in October 1981 when he suffered a terrific fit of coughing leading to Allan throwing back his head and fainting; he turned very red as his face swelled up and when he fainted went blue. She called their doctor's partner Dr. Waugh but he never came. She thought that the black-out had lasted for almost a minute.

81. Mrs. Allan's cousin Miss Rodgers described a second episode when she called at the Allans' home in the autumn of 1981 or 1982. (Mrs. Allan thought that it was in June 1982). While sitting in the garden Allan began coughing and finally fell off his chair onto the ground, banged his head and broke his glasses. On that occasion he seemed to be unconscious for a minute or two. Mrs. Allan had wanted to call the doctor on that occasion too but her husband would not let her because it was a Sunday and he was due to start work on the Monday. She did however phone on Monday morning and the doctor visited Mr. Allan and he was on sick leave for three weeks. He was told to visit the hospital and that he could use his car to get there. He was never told not to drive his car or not to drive a train because of his coughing.

82. Driver Allan was seen by Dr. Cull on 10th August 1984, six weeks after the accident. He found that Allan suffered from bronchitis and emphysema and he thought there were some signs of the allegation of 'cough syncope', which he thought the driver's wife and her cousin had well described. He explained that a middle-aged or elderly man with a chronic respiratory disease such as bronchitis with emphysema, can lose consciousness after a bad bout of coughing. The coughing so distorts and interrupts the normal movement of the blood supply that a patient loses consciousness and falls to the floor. The blood then resumes its normal flow because the person is horizontal and consciousness returns, leaving the patient confused, light headed, unsteady and dazed for a further minute or two. Dr. Cull said that on what he had heard of the facts of the accident he could not exclude the possibility that Driver Allan may have suffered 'cough syncope' just before the accident; he expressed it as being perhaps an even chance. But he conceded that there was no unusual chest problem having been present on the night of the accident which would have made it more likely to have occurred. The driver had not recently had any flare up of chest troubles nor complained of any diesel fumes in the cab.

83. At his trial Driver Allan declined to give evidence on his own behalf. In his summing up Judge Kennedy pointed out that if the driver had *allowed* himself to 'nod-off' or *allowed* his attention so to wander that he was no longer liable to respond as a driver should, then the case would stand proved—the critical word was 'Allowed'. But if the reason was outside his control, such as a faint following 'cough syncope', it would not. The jury returned a verdict of 'Not Guilty'.

As to Events at Edinburgh Waverley

84. I re-opened my inquiry in the Area Manager's Office at Waverley Station, Edinburgh at 11 30 on 4th July 1985 in the presence of Mr. R. D. Taylor Traction and Train Crew Manager Scottish Region Glasgow, Mr. John Walker for ASLEF and Detective Inspector King. Driver Allan was present throughout.

85. Mr. Taylor described the signing-on arrangements in force at the time of the accident. All members of train crew were controlled by the Operating Department but footplate staff (i.e. drivers and secondmen) were still located at Haymarket Depot and booked on and off duty there. The remainder of the train crew booked on and off duty at Waverley Station. In this case Driver Allan was required to sign on at Haymarket Depot which is some 10 minutes drive by car west of Waverley Station or 50 minutes walk. A minibus is provided 'round the clock' to convey footplate staff to Waverley Station and to other points within the Edinburgh area. However, the minibus service was not available for a number of turns of duty and an appropriate 'walking time allowance' was included within a man's shift hours for pay purposes, and this was so in Driver Allan's case.

86. *Mr. G. C. I. Tully* was on duty as minibus driver on the night of the accident. At 21.43 Driver Allan telephoned him on a Railway network telephone to say that he was 'on duty'. Tully noted the fact and said that he would tell the time clerk who was not then in the office. Tully had then been in the office for about an hour and had seen the previous clerk leave the office at about 20.00. Driver Allan had sounded quite normal on the telephone.

87. The time clerk on duty that night was *A. R. Campbell*. Although they normally changed duty at 22.00, he told me that Mr. A. Pullen, the previous time clerk, had arranged with him to change duty at 20.00, and that he (Campbell) had been on duty since 19.45. At 21.45 he went to the toilet and asked Tully to stand in for him. When he returned at 21.50 Tully told him that Driver Allan had signed on by telephone, and that he, Campbell, did not actually see the driver. He told me that about one third of drivers who commenced their train working duties from Waverley signed on by telephone; they were mainly the men who lived to the east of Edinburgh. The same applied to Haymarket Station which was some 20 minutes walk from his office in the depot, and to those joining their trains (normally the high-speed trains) at Craigentinny Depot.

88. Campbell told me that minibus-driver Tully had a full programme of booked work and that the service was not available for all drivers. The practice of signing on by telephone was limited to the 'unsocial hours' i.e. between 21.00 and 06.00 each night. Campbell had worked as time-keeping clerk for 2 to 3 months and the practice was the 'accepted norm' when he joined the office; he had previously worked on the parcels and passenger side since 1979.

89. *Station Supervisor W. D. Currie* had started work at Waverley Station on the night shift at 22.00. At about 21.55 as he was on his way to Platform 10 to supervise the departure of the 22.05 train, he saw Driver Allan walking through the car park towards the station. One hour later he again saw him on Platform 1 from which he was due to drive the 23.05 sleeping-car train. He was talking to a passenger at the time and Driver Allan passed between the train and himself, about 4 yards away; they did not speak to each other. He described his gait as slow but quite normal. He had known Allan for 15 years and found it hard to believe that he had been drinking. He had been a station supervisor for 10 years and in the last five years had only had to check men for drinking on three occasions,—these were a railman at Craigentinny, a charge hand at Waverley, and a porter (railman) at Waverley. In each case the men had been immediately suspended and reported for disciplinary action. The charge hand had been dismissed. He told me that if he thought that a man had been drinking and the man denied it, he would seek a second opinion where possible.

90. *Train Crew Supervisor A. P. Paul* was on duty at Waverley Station until 22.00 on the night of the accident. His duty was to check that all trains were properly manned and to take the necessary action following train failures or men failing to sign on for duty. At 21.55 he passed Driver Allan who was ascending the stairs to the driver's briefing room in the building opposite to platforms 10 and 11. Paul was going off duty at the time, and passed the time of day with him. He had known him for 13 years but not personally, and he smelt no alcohol on his breath as they passed.

91. He had been at Waverley for 11 years and had had to deal with only three drivers who were said to have been drinking. He had asked the Station Manager or the Traction Assistant to give him his opinion and the three drivers were taken off duty and sent home. He told me that if he could not obtain a second opinion he would not hesitate to take a man off duty on his own initiative.

92. *Mr. J. Walker ASLEF* told me that Scottish Region have 'alcoholic panels' to deal with those men who admit to having an alcohol problem. Such men were helped and not disciplined.

93. *Driver P. M. Allan* had joined the Railway in 1942 as a porter and became a driver as a 'passed fireman' in 1952. He had been a main-line driver since 1972 based at Haymarket Depot. He had last 'signed for' the East Coast Main Line Route in September 1983 indicating that he knew the route well.

94. On the night of the accident he had completed one week of night duty as follows:

Sunday 17th	—	on duty 23.51
Monday 18th	—	on duty 21.30 as spare man
Tuesday 19th	—	Rest day.
Wednesday 20th	—	on duty 23.00
Thursday 21st	—	on duty 22.12
Friday 22nd	—	on duty 20.06
Saturday 23rd	—	on duty 21.45

He told me that night shift did not worry him at all but when the change came from night to day shift he lay awake half the night and wanted to go to sleep when it was time to get up.

95. He had lived in Drem for 17 years. On his way to work he had stopped in Musselburgh and visited a public house 'down a side street' but he could not remember its name. He had arrived at Waverley Station at about 21.25 and had telephoned from the shunter's bothy which was beneath the old Waverley East Signal Box, using the Railway telephone there. He had had two cans of lager in his car for a considerable time and took them to the bothy and drank them there. After reading the driver's notices on the first floor of the station building he had "wandered around the station" waiting for his train to arrive. He told me that from time to time he had met friends in Edinburgh and had a drink with them.

96. I asked Driver Allan two questions. The first was—why he had drunk so much on his way to work and after signing on for duty when he claimed to be a light drinker; he had absolutely no explanation to give. The second question was—why had he admitted to Inspector King that he had drunk at all, to which he replied "It seemed the easiest thing to do". Driver Allan told me that his memory of the journey on the night in question had not returned and he could remember nothing after having passed through Drem, which was his home town.

97. *The Regional Medical Officer, Dr. F. Heyes*, in a written statement, said that Driver Allan had had his routine medical and eyesight examinations at the appropriate times. Nothing untoward was detected when inspected at the age of 55 on 27th October 1980 when his clinical examination was normal and within the standards required, nor was anything noted when examined on 1st November 1982 aged 57. He had had no need for any other examination since 1976 when he injured his left leg, was off sick for 10 days and gained a full recovery.

98. Dr. Heyes had been in discussion with Allan's own general (lady) practitioner on 3rd July 1984. She told him that about two years ago he had fainted and as a result had hit his head and was possibly concussed but made a good recovery. He had also fallen between his locomotive and the platform in January 1983 and was possibly concussed but gained a full recovery. These are the only two events for which she was consulted and he had had no other significant illness to her knowledge over the past few years. Dr. Heyes had no other information concerning the health of Allan.

99. I am informed that on the second occasion when he fell between the platform and his locomotive, the platform was icy and Driver Allan made a claim against British Railways which was settled.

100. Following my interviews on 4th July I visited those parts of Waverley Station where Driver Allan had been seen on the night of the accident. The station has been considerably altered since that date but the diagram at Figure 3 depicts it as it was then. Driver Allan parked his car at 21.35 (as stated to Mr. King in paragraph 74) behind the Goods Depot not far from the bothy where he telephoned at 21.43. He was seen in the car park at about 21.55 by Mr. Currie and also at about that time by Mr. Paul ascending the stairs which would have taken Driver Allan 3 to 4 minutes to walk. Assuming that the telephone call took 1 minute, from his own evidence he must have collected from his car and then drunk almost two pints of lager in the intervening 7 to 8 minutes.

101. On leaving the station building and turning right one ascends steps up onto a station overbridge. Turning left (southwards) the bridge gives access into East Market Street, and not far away on the other side of the street steps, known as 'Flesh Market Close' lead up between buildings. A number of public houses in this area stay open all night. Driver Allan was next seen at about 22.50 walking along platform 11 towards the head of his train by Mr. Curry and by his guard. In spite of his claim that he had wandered around the station, he had apparently not been seen in the intervening 45 to 50 minutes.

102. I have taken advice on the effects of cough syncope from Dr. D. P. Winter an Employment Medical Adviser of the Health and Safety Executive. He tells me that cough syncope is a physiological state and not a disease process. The condition occurs in middle-aged smokers with bronchitis; it is almost exclusively confined to men and frequently alcohol, bad teeth and other infections play some part in initiating an attack. It is not uncommon, and is usually brought about by prolonged and violent coughing. Because of

'retrograde amnesia', a subject may honestly believe that he became unconscious after coughing once or twice even though a witness would know that the coughing had been prolonged. During an attack, a subject's muscles are totally flaccid and he will collapse to the floor unless retained in some way. Dr. Winter considers it unlikely that the subject would retain pressure on a DSD pedal during such an unconsciousness, which will be transitory and nearly always last for only a few seconds. It would be exceptional if he remained unconscious for a minute or more.

CONCLUSIONS

103. Following my public inquiry I concluded that the train's speed traversing the Morpeth Curve was between 85 and 91 mile/h, and that Driver Allan had clearly failed to properly control his train. There are two possible reasons for this; that he suffered a severe bout of coughing shortly before he should have begun to reduce the train's speed and remained incapable until the train overturned. It seems that Driver Allan had never reported to the Railway medical officers the fact that he suffered from an incapacitating coughing condition. In any case he had only to take his feet off the DSD pedal to stop the train if he had begun to cough uncontrollably and he could also have shut off power and applied the brakes very quickly. Alternatively it is possible that he became drowsy and inattentive because of the drink he had taken. Although he may have failed to reduce the train's speed sufficiently for the 65 mile/h restriction some 13 miles north of Morpeth, he was alert enough to sound his horn as he passed Brewis 7 miles further on. In the last six miles approaching Morpeth at some 80 mile/h or more he may have fallen asleep, or become so drowsy that he completely forgot about the approaching curve. I must say that I am strongly inclined to the possibility that he fell fully or nearly asleep as being the most likely.

DISCUSSION

Provision of the AWI Morpeth Warning

104. Had the restriction of speed from 100 to 50 mile/h been applied in one stage, the rules agreed following the 1969 accident for the provision of a 'Morpeth' AWI warning would have led to such a warning being provided. The driver would then have received a warning 'horn' in his cab and, had he not reacted to it within about 6 seconds, his train would have been automatically braked so as to reach a safe speed before entering the curve. But the 'cascade' of three successive permanent speed restrictions which had historically applied of 80 mile/h on the viaduct, 70 mile/h round the North Curve, and 50 mile/h round the main curve itself, fell outside these rules, and no AWI was provided.

105. Since this second accident on the Morpeth Curve, the Rules have been amended to take account of serious restrictions of speed where the restrictions are 'cascaded'. In general, each restriction must be considered as if it were from the initial approaching speed. Where this is greater than 75 mile/h and the restriction is greater than one third of it, then an AWI shall be provided. The requirements have been extended to include approach speeds between 75 and 60 mile/h although the criteria are slightly different and consideration is being given to extending the use of the equipment below 60 mile/h, but at a later stage. Having decided that an AWI is to be provided, its position and that of its associated permanent magnet must be such that the train's speed, when the train is automatically braked, would not exceed other subsequent restrictions within the cascade. Nor must the AWI magnet and warning board conflict with the normal AWS signalling system. Almost all 'cascade' restrictions occur within a distance of 4 miles.

106. In agreeing this extension of the Rules for AWI, it has been necessary to consider to what extent, and to what speed restrictions AWI should be applied, for it is not practicable to extend the system to cover all restrictions of speed. Col. Robertson who agreed the original protection in 1969 no doubt thought that it was adequate at the time, and a great step forward in achieving safety, which it was. But even now there will be situations where cascaded restrictions extend over a considerable distance, such as on the approach to Kings Cross main line terminal in London, and every such case will have to be individually considered.

107. AWS has not always been effective in preventing drivers passing signals at Danger; they sometimes automatically cancel the horn and drive as if no warning had been given. I am told that the new Rules for AWI on Eastern region will involve the installation of 37 sets of equipment at restrictions where the approach speed is 75 mile/h or more, a further 47 for speeds between 60 and 75 mile/h and a further 92 if the warning is to be extended to lower speeds, making 176 in all. The figures on the other Regions are similar. There is the fear that drivers may cancel and ignore these warnings as they sometimes do at the similar AWS warnings.

108. There is however a system installed on a number of high-speed and metro railways that has virtually eliminated such accidents; I refer to automatic train protection or 'ATP'. This involves indicating to the driver, by a method of cab signalling, the safe speed at which he can drive either because there is a train ahead, or because there is a permanent speed restriction on the line ahead. The driver is required to keep his train's speed below that indicated, and if he does not do so, he is first warned and then the brakes are applied.

He cannot over-rule this application. The high-speed railways I have referred to include the Japanese Shin KanSen line, the French TGV lines, and the Italian Direttissima line from Florence to Rome. Most modern metro lines have this protection, including the new Dublin 'DART' metro but in Britain only the Victoria line of the London Underground has it. Had AWI been applied at Morpeth the accident would probably not have occurred, and if ATP had been provided it could not have occurred.

109. It has been suggested that all high-speed trains should be fitted with a 'black box' which could record their speed, acceleration, braking, and the position of the main controls. Had one been fitted it could have provided evidence on which a better judgement could have been made on the way in which the driver lost control of his train, but it could not have prevented the accident. In my view therefore the limited funds available are much better spent on the provision of AWI, (or ATP) equipment, and vigilance devices in place of DSD on the locomotives. I do not therefore support the suggestion.

The Driver's Safety Device

110. This accident, in common with a similar one to a sleeping-car train as it approached Paddington Station on 23rd November 1983, has shown that some designs of Driver's Safety Device (DSD) fitted to locomotives may be ineffective in detecting if a driver is drowsy or asleep, and of automatically stopping the train. Had Driver Allan suffered from an attack of cough syncope the DSD clearly did not stop the train on this occasion either. Mr. A. W. Walters, Traction and Train Crew Manager of Eastern Region BR told the court at Allan's trial that, on BR, drivers became incapacitated about three times in a year and on twelve occasions when they did so during the last four years the DSD was known to have operated successfully seven times. On the five occasions on which it had not, a second man in the cab had applied the brakes, or a train had hit the buffers before the brakes had been applied. Since the Paddington derailment trials have been carried out to test a more sophisticated driving aid and, in the meantime, standard vigilance devices as fitted to the high-speed trains will be installed in certain classes of locomotive including the Class 47s involved in this accident.

Drinking on Duty on British Railways

111. Following this accident British Railways were asked to carry out a survey of disciplinary cases involving the taking of alcohol. Their findings are attached at Appendix A. From the three years analysed, Railmen are the worst offenders (47.9% of all incidents) but they can rarely cause a serious accident. Civil Engineers' staff and Guards are next on the list (13.9% and 13.1% respectively) followed by drivers (8.1%) clerical staff (6.7%) and mechanical and electrical staff (5.3%). There is a negligible incidence among the signalling and signal technician grades. Considering the Regions, Scottish Region with over 100 cases each year, of which 12 were drivers and 15 were guards, had 55.8% of all incidents, the other Regions each having only about a quarter of this number, and Western Region only about 10 per year. As for Scottish Region, the overall figures for the three years were 95, 113, and 121 illustrating an 18.9%, followed by a 7%, annual increase between the three years. Reported cases of train crew being drunk have however reduced over this period from 18 to 8 for drivers, and from 17 to 11 for guards per year.

112. The British Railways Board points out that in terms of the numbers of staff employed the incidence of drinking on duty is statistically very small, and that there have been only two serious accidents since 1972 when alcohol was the prime cause. The most serious accident concerned Driver Wilsdon at Eltham (Well Hall) in Southern Region on 11th June 1972, which was the subject of an inquiry, but a strong smell of drink remained on the breath of Driver Tielus 9 hours after he had driven a freight train into the rear of a passenger train at Wimbledon on 12th October of that year. The drivers in both these accidents had signed on by telephone, Driver Tielus because he had been late for work and had missed his first duty. Col. Robertson, who inquired into the first accident, recommended that the Railways Board should consider taking powers to enable their supervisors to demand a blood alcohol test at the time of an accident; he suggested that such a machinery would "act as a considerable deterrent on drivers who are tempted to drink before driving". In my own Report on the second accident I commented—"had there existed the machinery there need have been no doubt about this aspect". (i.e. that the driver had been drinking). The Board took no action on that occasion.

113. The British Railways Rule Book (see Appendix B) lays down that staff may not Report for duty under the influence of drink and must not drink on duty. By his own admission Driver Allan, a senior and experienced driver who clearly knew what the Rules were, drank both before and on duty, and the matter went undetected. Nevertheless, the Board's Officers believe that they can deal with the problem under their own Rule book more effectively than having to rely on statutory powers. I support them in this. Nevertheless, statutory powers have existed since 1840, and the 1842 Act is still the most used provision.

Various Statutory Powers

114. The relevant Sections of various Acts concerning drinking applicable to Railways (1842 and 1861 Acts) Merchant Shipping (the 1970 and 1979 Acts), Aircraft (the 1980 Order), and for the drivers of road

vehicles (the 1972 Act) are given in Appendix B. In every case except one, the law leaves a judgement to be made as to whether drink has adversely affected a person's ability to operate safely. This includes Section 5 of the Road Traffic Act 1972. The exception is Section 6 of this Act which makes it an offence for a person to drive with an alcohol level exceeding a prescribed limit. In the case of blood-alcohol tests this is 80 mg/100 ml of blood; only a doctor can carry out such tests. In the case of Alcolmeter breath-alcohol tests it is 50 microgrammes per 100 ml of breath; police staff can carry out these tests. This is not to say that levels of alcohol below these limits cannot adversely effect a person's driving, and convictions under Section 5 of the Act are not uncommon.

The Rule Book

115. The relevant extracts of the British Railways Rule Book are also included in Appendix B as is a similar extract from the British Caledonian Airways—Operations Manual. They both ban the taking of alcohol whilst on duty but, whereas the Railway Rule forbids a person coming on duty under the influence of alcohol that 'might' impair their performance, the airline rule forbids any drinking for nine hours before an aircraft departs.

Breath, Blood or Urine Alcohol Testing

116. Following the accident the British Railways Board were asked to say whether or not they contemplated taking powers to enable their staff to be tested. They were asked a number of questions and their replies can be summarised as follows.

117. Firstly they thought that their powers under their Rule Book Section A 2.1, which enabled them to dismiss without notice, was a much more severe punishment than that available in the statutory powers. They point out that it is their practice to suspend a person from duty for up to 5 days for the first offence (this in itself involves a 'fine' of the same order as that available under the Acts), and to dismiss following a second offence. In Scotland suspensions may follow if alcohol is smelt on a person's breath.

118. The Board felt that powers to test for alcohol would necessarily reduce the impact of the Rule Book by introducing a level of alcohol below which action could not be taken. In this I believe that they are confusing Sections 5 and 6 of the Road Traffic Act 1972; only in the latter section is any level defined. In any case their own Rule 1.2.2 implies a level of intoxication which has to be judged, and which puts a considerable burden on their own supervisors, such as Messrs. Currie and Paul in this case. The Board says that the powers of supervisors are already adequate in 'clear cut' cases, but one has to ask whether Driver Allan's case was as 'clear-cut' as they envisage.

119. The Board attach great importance to the support and commitment of the Trade Unions to its policy and practice with regard to drinking on duty. They would be extremely loath to jeopardise that commitment. They point out that if they were to take the necessary powers themselves the Unions "would be reflecting their members views in feeling that Railwaymen were being singled out and that they were no longer to be trusted". I have to accept that the incidence of drink amongst those who can affect Railway safety is statistically very low indeed, but I must point out that the cost of even one incident, as at Morpeth, can also be very high.

120. The Board would like to achieve a situation "for staff, particularly within working groups, to regard alcohol and drugs on duty as totally inadmissible". I fully support them in this but surmise that in Scotland they may still have some way to go before achieving it.

Other Industries

121. Drunkenness on larger vessels of the Merchant Navy can be dealt with on board, but a more serious situation exists amongst some smaller fishing vessels which may be 'owner-skipped'. I have studied a number of cases and, although they all involved serious drinking situations which generally led to little difficulty in obtaining convictions, I note a remark on the papers in the case of W. J. Grant who was convicted at Kirkwall Sheriff Court of being drunk on duty on board a fishing vessel in Orkney Waters; the police commented that they had no power to "breathalise" a suspect in charge of a ship or fishing vessel but would find such a power useful.

122. In discussing the situation on the airlines with Mr. W. J. Campbell, the Flight Safety Adviser of British Caledonian Airways Ltd, he pointed out that airlines had very little problem. He attributed this to the fact that aircrews, including pilots, navigator and engineers had to assemble for a significant period before each flight for flight briefing; were a member of the crew to be under the influence of drink the fact would be easily detected by the others who would report the matter. Were any general power to be taken to enable staff to be tested for alcohol Mr. Campbell thought that the airlines could not object.

Signing On

123. In their paper on alcohol testing the Board accepts that signing on by telephone has been a common factor in many drink-related incidents, but they point out that it is not practicable for all staff signing on in small outstations to be supervised. I suggest, however, that Edinburgh Waverley Station where, at the time of this accident one third of driver's apparently habitually signed on by telephone, can hardly be described as an 'outstation'.

124. I was therefore extremely glad to be told by Mr. R. D. Taylor on 4th July that, following the accident, it had been decided to completely over-haul the 'signing-on' arrangement at Waverley. A new building is being built on the station where all train crews, including drivers, guards and supervisors will report prior to their train's departure. This will eliminate the need for 'walking time' allowance and will bring into close contact various members of staff and supervisors so facilitating the detection of those who have taken alcohol. It must be the practice that staff should remain in the building until they leave it to join their trains. In spite of the fact that drivers will no longer have their own signing-on arrangements, Mr. Walker of ASLEF told me that he fully supported the development. This is the fifth major new signing-on facility in Scotland and three more are at the planning stage.

Statutory Power to Test for Alcohol

125. The 1842 Act is limited in its application in that it can only be tried before a magistrate. The 1861 Act is based on "wilful omission or neglect" and the prosecution alleged that driver Allan *allowed* himself to 'nod off' having taken alcohol. Judge Kennedy referred to the Act's slightly stilted language coming, as it did, from the nineteenth century. I believe that there is a need to update these two Acts so far as Railwaymen are concerned to bring them into line with the intent of Section 5 of the Road Traffic Act 1972 and other similar Acts. Application of such an Act must still depend on a judgement being made of whether or not any drink taken does or does not affect a person's ability to carry out his duties safely and effectively.

126. I understand the Board's reticence in not wishing to take powers to alcohol test their own staff, and I accept it. It would be inconsistent for it to apply to one grade of employee rather than to another, to one Railway rather than to any other Railway, or to one group of people involved with the safe transport of the public rather than to any other group. But I recommend that powers should nevertheless be taken in a Public Act for three reasons. Firstly that there is no reason that I can ascertain why Railway staff, or bus conductors, or those in charge of ships or aircraft should continue to claim immunity from being alcohol tested. It was so in the cases of Drivers Wilsdon and Tielus in 1972 and it remains so.

Secondly, it would give more support to those supervisors who, being in some doubt as to whether a man had been drinking, wish to seek a second opinion. It would also protect those who had not been drinking. I was impressed by, and fully support, Supervisors Currie and Paul in their determination to apprehend men who drink before and whilst on duty. Such supervisors are in the front line of the fight to prevent men drinking on duty and they warrant the fullest support. My recommendation is therefore that they should be able to require a person to give a breath, blood, or urine sample to prove, without doubt, whether or not that person had taken drink. This can be easily arranged through the British Transport police in most cities. It was the blood/alcohol test whilst Driver Allan was in hospital and the extrapolated estimates by Dr. King and Professor Rawling which brought the matter to light. Driver Allan had then no option but to admit it to Inspector King; and when asked by me why he had admitted it he could only reply "It was the simplest thing to do". It should be noted that the case of Driver Tielus in 1972 at Wimbledon is not included in the British Railways statistics of drink cases.

The third reason for my recommendation, and I consider this to be the most important, is that I believe that the powers to test for alcohol would serve as a significant deterrent to those who flout the Rule Book; in this I strongly support Colonel Robertson's recommendation, not then adopted, which he made in his Report into the Eltham (Well Hall) accident in 1972.

SUMMARY OF RECOMMENDATIONS FOR PREVENTING A RECURRENCE

127. In the Short Term

(a) The extension of the Rules for the provision of the 'Morpeth Warning' to include cascaded restrictions of speed, has already been agreed and an AWI has been installed on the Up line approaching Morpeth.

(b) The 'signing on' arrangements at Edinburgh (Waverley) have already been redesigned, and a new building will be available early in 1986. The practice of signing on by telephone will then be banned and supervisors will have a much better chance of detecting those who have been drinking than hitherto.

(c) As discussed in paragraph 110, a more effective form of DSD or vigilance device should be provided.

(d) The British Railways Board should take note of the Airlines' Rule that staff should not drink for a period before reporting for duty and should consider its application for their own staff.

128. *In the Longer Term*

(e) Powers are required to include the necessary provisions to require staff involved with the safety of others on the Railway to submit to a breath, blood or urine test:

- (1) if, when signing on for duty there is doubt expressed as to their sobriety, or
- (2) following an accident, if the taking of alcohol may have been a contributory factor.

Consideration should be given to extending the provision to those, not already covered in other forms of transport e.g. to bus conductors, and to those involved in sea and air transport and, possibly, in fishing.

(f) The 1842 Act should be replaced by an up-to-date Act in the modern idiom making it an offence for any railwayman to be so under the influence of alcohol or drugs that he jeopardises the safety of others. The 1861 Act should also be updated. Scales of punishment when cases are tried by magistrates or by higher courts should apply to all railways, without the need for Private Acts to update them.

OTHER RECOMMENDATIONS

129. In designing future sleeping-car stock, easier access for firemen should be provided in the event of a car overturning corridor-side uppermost. Corridor windows should be placed opposite to the pairs of doors.

REMARK

130. The General Manager of Scottish Region is fully informed of the disparity between the statement made by A. R. Campbell the time clerk (see paragraph 87) which was at variance with that made by Mr. Tulley who took the call, and has taken the necessary action.

I have the honour to be,

Sir,

Your obedient Servant,

A. G. TOWNSEND-ROSE
Lieutenant Colonel

The Permanent Under Secretary of State
Department of Transport

DRINK RELATED OFFENCES—OPERATING AND ENGINEERING DEPARTMENTS
ANNUAL CASES AND PERCENTAGE OF TOTAL STAFF BY REGION, GRADE OR DEPARTMENT AND YEAR

Operating (Grade)	Region	Midland			Scottish			Southern			Western			Eastern			Total			Totals
	Year	Staff	Cases	%	Staff	Cases	%	Staff	Cases	%	Staff	Cases	%	Staff	Cases	%	Staff	Cases	%	AV/ Year
Footplate Staff	1982	6,603	2	0.03	2,710	18	0.66	3,793	1	0.03	3,054	1	0.03	6,891	—	—	23,051	22	0.10	
	1983	6,200	2	0.03	2,594	11	0.42	3,751	—	—	2,838	—	—	6,455	—	—	21,838	13	0.06	16
	1984	5,976	1	0.02	2,542	8	0.31	3,640	1	0.03	2,776	2	0.07	6,163	1	0.02	21,097	13	0.06	(8.1%)
Guards	1982	3,393	6	0.18	1,322	17	1.29	2,158	2	0.09	1,532	2	0.13	3,263	2	0.06	11,668	29	0.25	
	1983	3,262	3	0.09	1,228	18	1.47	2,223	1	0.04	1,509	3	0.20	3,101	2	0.06	11,323	27	0.24	25.7
	1984	3,171	6	0.19	1,193	11	0.92	2,121	—	—	1,478	1	0.07	3,048	3	0.10	11,011	21	0.19	(13.1%)
Signalmen	1982	2,106	—	—	829	5	0.60	959	—	—	816	—	—	2,291	—	—	7,001	5	0.07	
	1983	2,059	—	—	802	5	0.62	923	1	0.11	787	1	0.13	2,194	—	—	6,765	7	0.10	7
	1984	2,007	—	—	766	8	1.04	865	—	—	742	1	0.13	2,089	—	—	6,469	9	0.14	
All Railmen & Miscellaneous	1982	6,622	7	0.11	2,521	39	1.55	5,035	11	0.22	3,050	4	0.13	5,976	19	0.32	23,204	80	0.34	
	1983	6,334	12	0.19	2,383	46	1.93	4,793	11	0.23	2,811	5	0.18	5,709	16	0.28	22,030	90	0.41	94
	1984	6,186	18	0.29	2,252	61	2.71	5,033	18	0.36	2,679	4	0.15	5,421	12	0.22	21,571	113	0.52	(47.9%)
Clerical/ Supervisors	1982	4,965	3	0.06	1,851	3	0.16	3,028	4	0.13	2,058	—	—	4,359	2	0.05	16,261	12	0.07	
	1983	4,733	5	0.11	1,823	9	0.49	2,956	2	0.07	1,981	—	—	4,088	3	0.07	15,581	19	0.12	13.3
	1984	4,320	—	—	1,687	6	0.36	2,741	1	0.04	1,698	—	—	3,551	2	0.06	13,997	9	0.06	(6.7%)
Average per year		21.6			88.3			17.6			8.0			20.6						156

Engineering Departments	Region	Midland			Scottish			Southern			Western			Eastern			Total			Totals
	Year	Staff	Cases	%	Staff	Cases	%	Staff	Cases	%	Staff	Cases	%	Staff	Cases	%	Staff	Cases	%	AV/ Year
Civil Engineering	1982	7,836	8	0.10	3,146	7	0.22	4,652	3	0.06	3,986	2	0.05	7,380	N/A	—	27,000	20	0.07	
	1983	7,820	5	0.06	3,187	19	0.60	4,508	5	0.11	4,099	—	—	7,212	N/A	—	26,736	29	0.11	27.3
	1984	7,861	4	0.05	3,137	16	0.51	4,493	6	0.13	3,806	2	0.05	7,050	5	0.07	26,347	33	0.13	(13.9%)
S & T Engineer	1982	2,041	—	—	657	—	—	1,161	2	0.17	917	—	—	2,197	N/A	—	6,973	2	0.03	
	1983	2,008	—	—	654	1	0.15	1,159	—	—	927	—	—	2,154	N/A	—	6,902	1	0.01	2
	1984	1,821	—	—	662	1	0.15	1,132	—	—	832	—	—	1,967	2	0.10	6,414	3	0.05	
M & E Engineer	1982	4,342	2	0.05	1,602	6	0.37	2,995	1	0.03	2,402	4	0.17	4,009	N/A	—	15,350	13	0.08	
	1983	4,026	—	—	1,532	4	0.26	2,904	1	0.03	2,243	—	—	3,771	N/A	—	14,476	5	0.03	11
	1984	3,770	2	0.05	1,492	10	0.67	2,932	1	0.03	2,156	—	—	3,550	2	0.06	13,900	15	0.11	
Average per year		7.0			21.3			6.3			2.7			3.0						40.3
Total Averages		28.6			109.6			24			10.7			23.6						196.3

STATUTORY PROVISIONS

RELEVANT SECTIONS—

REGULATION OF RAILWAYS ACT, 1842

17. It shall be lawful for any officer or agent of any railway company, or for any special constable duly appointed, and all such persons as they may call to their assistance, to seize and detain any engine driver, waggon driver, guard, porter, servant, or other person employed by the said or by any other railway company, or by any other company or person, in conducting traffic upon the railway belonging to the said company, or in repairing and maintaining the works of the said railway, who shall be found drunk while so employed upon the said railway, who shall commit any offence against any of the bye-laws, rules or regulations of the said company, or who shall wilfully, maliciously, or negligently do or omit to do any act whereby the life or limb of any person passing along or being upon such railway or the works thereof respectively shall be or might be injured or endangered, or whereby the passage of any engines, carriages, or trains shall be or might be obstructed or impeded, and to convey such engine driver, guard, porter, servant, or other person so offending, or any person counselling, aiding, or assisting in such offence, with all convenient despatch before some justice of the peace for the place within which such offence shall be committed, without any other warrant or authority than this act; and every such person so offending, and every person counselling, aiding or assisting therein, as aforesaid shall, when convicted upon the oath of one or more credible witness or witnesses before such justice as aforesaid, (who is hereby authorised and required, upon complaint to him made upon oath, without information in writing, to take cognizance thereof, and to act summarily in the premises), in the discretion of such justice, be imprisoned, for any term not exceeding two calendar months, or, in the like discretion of such justice, shall for every such offence forfeit to her Majesty any sum not exceeding ten pounds.

NOTE The original penalty of £10 was raised first to £25 and then to £200 for British Railways by Section 35 of the BR Act of 1965 and Section 13 of the BR Act of 1977. The same increases were authorised on LRT under Section 34 of the LRT Act 1965 and Section 12 of the LRT Act 1977. The £200 penalty was translated into a Reference to 'Level 3' on the standard scale by virtue of Section 46 of the Criminal Justice Act 1982 and under the Criminal Penalties etc. (Increase) Order 1984. Level 3 is now £400 which is now the penalty in relation to BRB and LRT staff.

OFFENCES AGAINST THE PERSON ACT—1861

34. Whosoever, by any unlawful act, or by any wilful omission or neglect, shall endanger or cause to be endangered the safety of any person conveyed or being in or upon a railway, or shall aid or assist therein, shall be guilty of a misdemeanor, and being convicted thereof shall be liable, at the discretion of the court, to be imprisoned for any term not exceeding two years, with or without hard labour.

MERCHANT SHIPPING ACT—1970

27. —(1) If the master or any seaman employed in a ship registered in the United Kingdom:

- (a) does any act which causes or is likely to cause the loss or destruction of or serious damage to the ship or its machinery, navigational equipment or safety equipment, or the death of or serious injury to a person on board the ship; or
- (b) omits to do anything required to preserve the ship, or its machinery, navigational equipment or safety equipment from loss, destruction or serious damage or to preserve any person on board the ship from death or serious injury;

and the act or omission is deliberate, or amounts to a breach or neglect of duty, or he is under the influence of drink or a drug at the time of the act or omission, he shall be liable, on conviction on indictment, to imprisonment for a term not exceeding two years and a fine, and, on summary conviction to a fine not exceeding Level 5 of the Standard Scale. (a).

28. If a seaman employed in a fishing vessel registered in the United Kingdom is, while on board the vessel, under the influence of drink or a drug to such an extent that his capacity to carry out the duties of his employment is impaired, he shall be liable on summary conviction to a fine not exceeding Level 5 on the Standard Scale. (a).

Note (a). Level 5 has a maximum of £2,000 (Criminal Penalties (Increase) Order 1982).

THE AIR NAVIGATIONAL ORDER 1980—SI 1980 No. 1965

Drunkness in Aircraft

47. —(1) A person shall not enter any aircraft when drunk, or be drunk in any aircraft.

(2) A person shall not, when acting as a member of the crew of any aircraft or being carried in any aircraft for the purpose of so acting, be under the influence of drink, or a drug to such an extent as to impair his capacity so to act.

ROAD TRAFFIC ACT 1972

(as amended by S.25 the Transport Act 1981)

5. —(1) A person who, when driving or attempting to drive a motor vehicle on a road or other public place, is unfit to drive through drink or drugs shall be guilty of an offence, but in determining whether there was such a likelihood the court may disregard any injury to him and any damage to the vehicle.

6. —(1) If a person:

(a) drives or attempts to drive a motor vehicle on a road or other public place; or

(b) is in charge of a motor vehicle on a road or other public place after consuming so much alcohol that the proportion of it in his breath, blood or urine exceeds the prescribed limit he shall be guilty of an offence.

COMPANY RULES

British Railways—Rule Book

Section A. Employment and Discipline

1.2. Employees must not:

1.2.2 Report for duty under the influence of intoxicating liquor or of any drug that might impair the proper performance of their duties. They must not consume intoxicating liquor or any such drug whilst on duty.

2. *Discipline*

2.1 The British Railways Board may at any time:

(i) suspend an employee from duty whilst investigations are proceeding prior to the employee being given a hearing at which he can state his case,

(ii) after giving the employee the opportunity to state his case, dismiss without notice, suspend from duty as a disciplinary measure, reduce in grade, transfer to another post or station which may or may not involve a reduction in grade, or suspend or curtail travel facilities for any of the following offences:

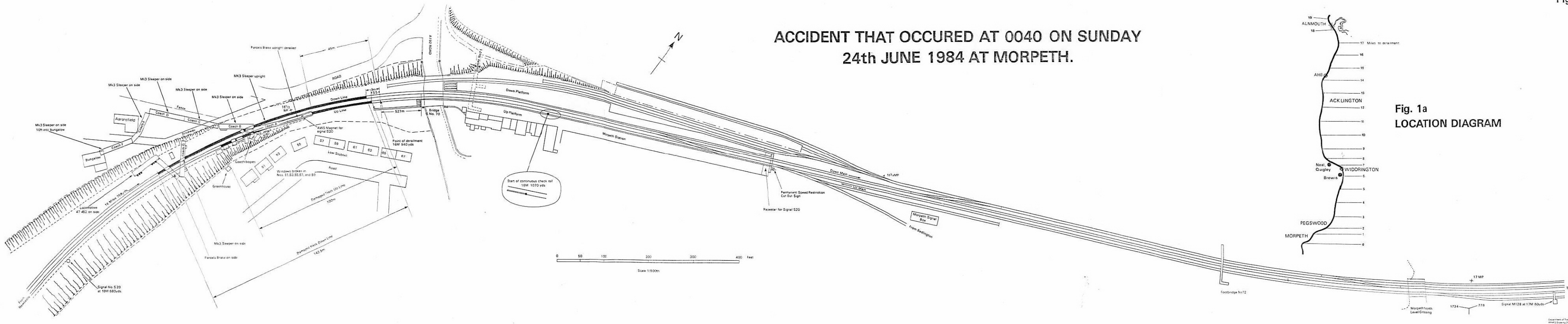
(a) being found under the influence of drink or drugs.

British Caledonian Airways—Operations Manual

1. A. No alcoholic drink is to be consumed by any aircrew whilst in uniform.

B. No alcoholic drink is to be consumed by aircrew for a period of at least 9 hours before the scheduled, rescheduled or estimated time of departure of a flight or during that duty period.

ACCIDENT THAT OCCURED AT 0040 ON SUNDAY
24th JUNE 1984 AT MORPETH.



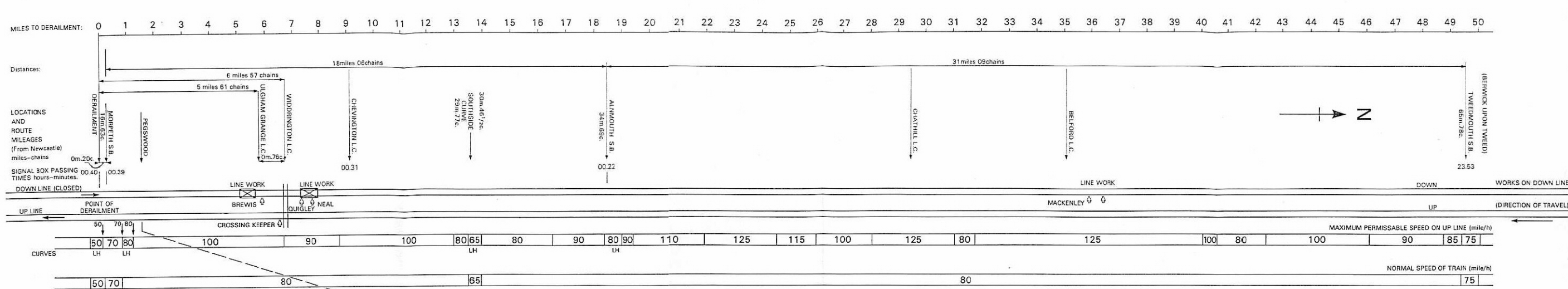


Fig. 2 THE UP LINE – TWEEDMOUTH-MORPETH
SUNDAY 24th JUNE 1984

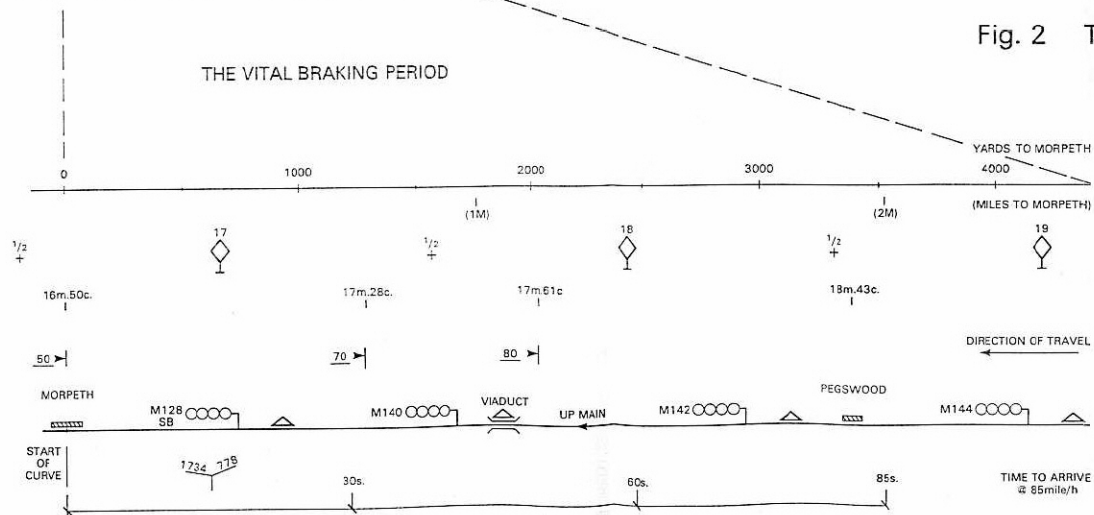


Fig. 2b UP LINE ENLARGEMENT

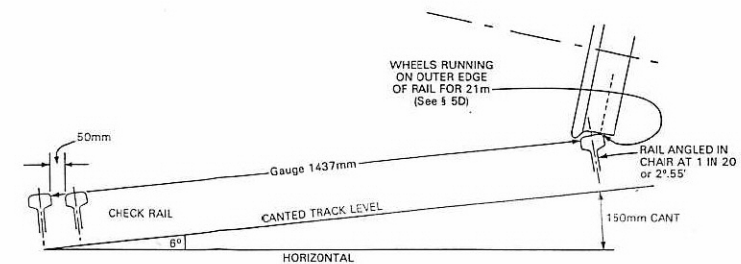


Fig. 2a

EDINBURGH WAVERLEY STATION

