MINISTRY OF TRANSPORT

RAILWAY ACCIDENT

REPORT ON THE DERAILMENT

which occurred on

18th April 1961

between

LAINDON and PITSEA

in the

EASTERN REGION

BRITISH RAILWAYS

LONDON: HER MAJESTY'S STATIONERY OFFICE

1961

PRICE 1s. 9d. NET

MINISTRY OF TRANSPORT,
ST. CHRISTOPHER HOUSE,
SOUTHWARK STREET,
LONDON, S.E.1.
14*th July* 1961.

SIR,

I have the honour to report for the information of the Minister of Transport, in accordance with the Order dated 20th April, 1961, the result of my Inquiry into the derailment that occurred at about 1.34 p.m. on 18th April, 1961, on the Up line between Laindon and Pitsea on the London, Tilbury and Southend line in the Eastern Region of British Railways.

On a clear sunny afternoon the steam locomotive and first four coaches of the eleven-coach 12.25 p.m. Class 'B' Down passenger train from Fenchurch Street to Shoeburyness, which was travelling over the Up line in the Down direction in the course of planned single line working between Laindon and Pitsea, were derailed at a speed of 15-20 m.p.h. at a runaway catch point situated about 1,000 yards on the London side of Pitsea station. The train was on this line, under the single line working arrangement, to allow work to proceed on the overhead wire for the Down line and the 12.25 p.m. train was the first to pass over the Up line in the Down direction. An experienced and properly equipped man had been appointed to close and secure the catch point and to hand signal trains over it; in a moment of aberration he clipped the switches in the position for derailing the train and, failing to check thereafter that he had clipped them correctly, he hand-signalled the train into derailment.

The engine ran forward for some 60 yards and turned over on to its side presenting a solid obstruction against which the two leading coaches, which had wood framed bodies, were telescoped by the weight of the train behind them: the steel underframe of the second coach over-rode that of the first throughout its length, both bodies being torn off their frames, thrust away at an angle and largely destroyed. The train was screw-coupled throughout and the third coach did not remain in line, but was forced up off its bogie and swung round almost at right angles to the track, while the leading end of the fourth reared up and, remaining roughly in line, came to rest on a tangle of bogies that had become detached from the coaches ahead; the bodies of these two coaches remained fairly intact. The fifth coach was just entering the catch point when the train stopped, and it and the six coaches behind it stayed on the rails and were practically undamaged. Fortunately, about two-thirds of some 150 passengers were travelling in the rear seven coaches, but I regret to report that two passengers, one of them a railway servant returning home after work, lost their lives, and 46 passengers, including three railway servants, were injured, 26 of them being detained in hospital. Eight of these passengers were injured seriously and five of them are still detained in hospital.

Emergency arrangements were prompt and ambulances arrived at 1.48 p.m., the injured being removed to Southend, Billericay, and Orsett Hospitals, the last one leaving the scene of the accident at about 3 p.m.

The use of cranes on the site was initially hampered by the overhead wire on the Down line but this was removed and the clearance of the wreckage started by about 5 p.m. With both lines blocked the heavy evening peak rush-hour traffic was handled satisfactorily by a regular and frequent service of trains to Shoeburyness on the alternative route via Tilbury and by a shuttle train service to Laindon. The lines were cleared and the necessary track and signalling repairs completed by 5 a.m. and a normal morning peak rush-hour service was provided on 19th April.

DESCRIPTION

The site

1. The lay-out of the line between Laindon and Pitsea, the location of the signals and catch points, and the position in which the train came to rest after derailment are shown on the diagram no p.10 opposite. The Up line on which the derailment occurred is described below from the point of view of a driver travelling over it in the Down direction from Laindon to Pitsea, a distance of 3¾ miles.

2. Four-aspect colour light automatic and semi-automatic signalling is in operation for normal running over the line and the Up signals are fairly closely spaced. The gradient is generally falling towards Pitsea and is fairly steep, and there are three catch points in the Up line between the two stations. The purpose of these catch points is to derail any wagons that may break loose from an unfitted freight train running from Pitsea to Laindon and which would otherwise run back into Pitsea and perhaps into collision with a passenger train standing in the platform or at a signal ahead of it. The catch points are therefore sited in conjunction with the Up line signals and are facing to a train running in the Down direction: they are self acting (spring) double-switched catch points without crossings, and their normal position, in which they are held by the spring, is such as to derail to the cess side, away from the Down line. The first two catch points are located close to Laindon and less than half a mile apart: they lie on either side of the site of the old Basildon West signal box and are commonly called respectively the Basildon West and Basildon catch points. The

third catch point is located nearly two miles beyond the Basildon catch point and just short of Underbridge No. 96 carrying the line over the London Road: it is commonly called the Vange or London Road catch point and it was at this point that the train was derailed.

3. The line curves gently left-handed from Laindon to a point about a quarter of a mile beyond it, and then runs straight through the Basildon West and Basildon catch points to a point nearly 1¼ miles short of the Vange catch point, and then curves right-handed on a radius of 80 chains before passing under Timberlog Lane Bridge whence it runs straight to Pitsea. A man standing at the Vange catch point comes into view from a train running in the Down direction as it passes under Timberlog Lane Bridge and at a range of half a mile. The gradient from Laindon to within a quarter of a mile of the Vange catch point is generally 1 in 132 falling, but then steepens to 1 in 110.

4. In the area of the Vange catch point the line is heavily embanked on the left (Down line) side, but on the right, to which the train was derailed, the ground is only slightly below the level of the track, has not been built over, and is covered with bushes.

Single line working

5. The single line working over the Up line between Laindon and Pitsea was part of a programme to enable work to be done to the overhead wiring from a wiring train on the Down line. It was to be in operation from 12.30 p.m. to 3.30 p.m. and followed similar working over the Up line between West Horndon and Laindon from 10.30 a.m. to 12.30 p.m., the arrangements having been published the previous week in the printed notice for the week 15th to 21st April, which had been issued to all the staff concerned.

The work on the wire was part of the preparation for the forthcoming electrification of the London—Tilbury—Southend line, and similar work necessitating single line working had frequently been undertaken on this stretch of line before. To facilitate such working the off-peak passenger service of two trains in each direction per hour had been reduced to one per hour. There is practically no freight train operation over this particular section of the line during the day.

6. Working of the traffic of a double line over a single line during repairs or obstruction is governed by Rules 189–208 of the British Railways Rule Book. The relevant extracts from these Rules are:—

Rule 191: A competent person must be appointed as Pilotman.

Rule 192: No train must be allowed to enter upon or foul any portion of the single line without the Pilotman being present and riding upon the engine.

Rule 195 (a) All points, including spring points and unworked trailing points which become facing points to trains running over the single line, must be secured so as to ensure trains passing safely over them. In the case of spring points and unworked trailing points, the person instituting the single line working must arrange for a competent man to be appointed to handsignal trains over them.

Rule 195 (b) The person instituting the single line working must arrange for all catch points in the single line, except those worked from a signal box and required to be operated for the protection of another line, to be closed and firmly secured before single line working is commenced; he must also arrange for a man, provided with hand signals and detonators, to be placed at such points with instructions to see they are continuously kept closed and secured during the whole of the time that single line work is in operation and until he is withdrawn by the Pilotman.

Rule 204: Trains must be run over the single line cautiously and at reduced speed. The speed of trains travelling over single lines in the wrong direction must not exceed 10 m.p.h. when passing over any points which become facing points, and drivers must be prepared to act on hand signals which may be given them.

7. For securing the points as required by Rule 195 switch clamps or clips are provided. The General Appendix to the Working Time Tables, British Railways, lays down that the clipping of points is normally to be carried out by members of the permanent way staff.

The train

8. The train, which was screw-coupled throughout, comprised eleven non-corridor passenger coaches hauled by steam tank locomotive No. 80075 which had a 2-6-4 wheel arrangement and weighed 86½ tons. The total length of the train was 677 feet and the coaches weighed a total of 302 tons. The engine was equipped with steam and vacuum, and the coaches with vacuum, brakes and the brake power available was 74% of the train's total weight. The engine was driven from the left-hand side and on this occasion was travelling chimney first.

9. All the coaches had steel underframes. The leading coach which was built in 1935, had a wood frame body with metal panels, and the next three, which were built between 1924 and 1927, had all wood bodies. Of the other seven coaches, only one of which was built before 1948, four had wood framed bodies with metal panels and three were of all steel construction.

Effects of the derailment

10. The overturning and stopping of the heavy engine within 60 yards of the point of derailment resulted in the train behind it running at some speed into the equivalent of a fixed obstruction. Being screw-coupled and off the rails the coaches were free to telescope or to zigzag and this and the fact that their body frames were of wood made telescoping easy. The underframe of the second coach was lifted off its bogies, which were found under the third coach, and over-rode the underframe of the first from end to end, coming to rest almost exactly superimposed upon it. The bodies of these coaches were sheared off from the underframes, that of the first coach being thrust forward and to the right and that of the second being thrust forward and swung round through the best part of a right angle by the coach behind it, and both were destroyed. The third coach was lifted off its bogies and its leading end jack-knifed with the body of the second, to come to rest nearly at right angles to the track, with its leading end on the ground and its trailing end reared high on its own upended bogies. Its underframe and its body ends were badly damaged. The fourth coach was lifted off its bogies at the leading end and, continuing roughly forward, was thrust to the left and nearly overturned by the reaction of the third coach, to come to rest fouling the Down line. Its trailing bogie still supported its rear end and was only just derailed: its trailing wheels were almost touching the heels of the catch point switches.

11. The telescoping and derangement of the first four coaches absorbed most of the energy of the train's rapid retardation when its engine overturned and very little of it was transmitted back to the seven coaches in the rear, all of which remained on the rails and none of which was seriously damaged. The engine also suffered very little damage except to its panelling and canopy.

12. The track within the area of the derailment was damaged and the cable laid in the Up cess alongside it was destroyed. One cantilever overhead mast was destroyed and over 200 yards of the overhead wire for the Up line was brought down.

Evidence

13. Inspector E. E. J. Williams, acting District Traffic Inspector in the Fenchurch Street district, was in general charge of the single line working. He said that he did not select the pilotman on this occasion but he knew the man who was selected very well, had worked with him on many occasions and was fully satisfied that he was competent for the job. He had himself frequently acted as a pilotman and knew what had to be done. He described how he had met the pilotman at Laindon and how, after checking with the signalman there and at Pitsea that men had been sent out to clip the various catch points, he had sent him on a convenient train to Pitsea to institute single line working. He himself did not know the men who had been sent to clip the catch points, but he assumed that they were competent, since they had been selected and trained for the job by the permanent way staff. Both he and the pilotman had made out single line working forms in advance and he decided to use those made out and signed by the pilotman: he agreed that this did not absolve him from responsibility for ensuring that Rule 195 was obeyed, but said that he was fully satisfied that the pilotman would ensure that it was. Inspector Williams said that his own chief concern was with the pantograph train on the Down line, ensuring that nothing was allowed to foul the other track. As this train was worked slowly towards Pitsea, he took the opportunity of checking that the two Basildon catch points were correctly clipped and manned, but the train did not get as far as the Vange catch point and he did not check it in the same way. He saw the pilotman on the first Up train putting single line working into operation but did not speak to him and saw him again on the footplate of the 12.25 p.m. train as it went past him at a speed that he estimated at about 20 m.p.h. He was standing near the Basildon catch points and he said that the train slowed to about 15 m.p.h. when passing over them.

14. Signalman C. L. A. Lawrence, who was in charge of Pitsea signal box, confirmed that Inspector Williams had asked him whether the Vange catch point had been clipped, and that he had replied that a man was then on his way out to it: he had not himself seen the man, but the ganger had told him that Lengthman Ashton had been appointed and was going out. Lawrence spoke highly of Ashton's competence and reliability: he had known him for about four years during which time he had clipped catch points frequently, including the Vange catch point, and had hand signalled trains over them. Lawrence, who has been a signalman for 20 years, said of Ashton: "I liked that fellow clipping. When you told him what had to be done, you knew that it would be done. He was a good, competent, reliable chap".

15. Relief Signalman L. A. Flack was the man appointed as pilotman for the single line working between West Horndon and Laindon, and then between Laindon and Pitsea. He had been a relief signalman for seven years, had much experience of piloting work and was fully familiar with the duties and responsibilities involved. In his view the person responsible for the arrangements under Rule 195 was the person who signed the single line working forms and he said that he had

accepted full responsibility for them in this case and had not expected Inspector Williams to do any form of checking. As regards the competence of the three men appointed as hand signalmen to clip the catch points, he emphasised that he had worked with them for about four years and was quite satisfied that all three were thoroughly competent. As regards checking that the Vange catch point was properly secured and that the hand signalman knew what to do, he said that when the Up train, on which he was instituting single line working, was some 150 to 200 yards short of the Vange catch point, it passed Lengthman Ashton walking towards the catch point with a clip in his hand. He said that Ashton gave a "thumbs up" signal and waved the train forward: knowing Ashton as he did he assumed that all would be well, but when he reached Laindon he at once asked the signalman whether he had heard anything from the man at the Vange catch point and was told that the latter had telephoned from U.27 signal to report that the catch point was clipped. Flack went on to say that the two Basildon catch points were both already clipped when he reached them and that he stopped the train at each, spoke to the hand signalman, and looked at the catch point. When asked why he had made a visual check at these two catch points but had been satisfied by a report only that the Vange catch point was clipped, he replied that, although the rules did not require that he should do so, his usual practice was to stop and check each catch point, but that in this case he had felt absolutely satisfied in accepting Ashton's report because of his confidence in the man.

16. Signalman Flack said that the 12.25 p.m. train left Laindon on the Up line at 1.27 p.m., by his watch, which he was sure was right. He explained to the footplate men what was to be done and told them the exact locations of the catch points. He said that the train's speed on approaching the Basildon West catch point was 20-25 m.p.h., and that it was reduced to about 15 m.p.h. over it: this reduced speed was maintained in travelling up to and through the Basildon catch point. As the engine passed under Timberlog Lane Bridge and the electrical engineer's men stood clear of the track in response to its whistle, he saw at a range of about 800 yards the hand signalman at the Vange catch point exhibiting a green hand signal: he was standing in the six-foot way with the flag held out over the Up line. When the engine was 40-50 yards from the catch point the hand signalman stood clear and Flack saw that the switches, which had hitherto been obscured by the flag, stood open. He had at once shouted to the fireman, who was driving, to stop but he did not know whether or not the latter braked. The speed was then, in his opinion, about 15-20 m.p.h. Flack said that part of Ashton's duty would have been to clip in the normal position the Pitsea West crossover, which is worked from a ground frame and does not need to be hand signalled when clipped, on his way out to the Vange catch point.

17. Driver A. G. R. Reeves of Shoeburyness, was in charge of the engine of the 12.25 p.m. train. He had started duty at 6.13 a.m., after a good night's rest and had worked various trips without incident before taking over this train at Fenchurch Street. For the Down journey he very properly allowed his fireman, who was shortly to take his "passed fireman" examination and in whom he had complete confidence, to drive. He said that over the Basildon catch point the speed was about 15 m.p.h., and that it was about 20 m.p.h. when, as the train approached the Vange catch point about 30-40 yards away, the pilotman shouted that the points were wrong. The fireman, who had checked the train's speed when near Timberlog Lane Bridge, at once made a full brake application but it failed to check the train in the short distance available. Reeves was not firing at the time, having so arranged his fire that he could keep a good lookout when running over the single line, but he did not see the catch point standing open. He was fully aware of the speed limits in force for single line working. The speedometer on the engine was not working.

18. Fireman A. J. Lewis of Shoeburyness, was actually driving the train under the instruction of Driver Reeves: he hoped to take his "passed fireman" examination in a few weeks' time. His engine and its brakes were in good fettle. He confirmed that the speed over the two Basildon catch points was about 15 m.p.h., and was fully aware of the speed limits in force during single line working. He did not himself see the Vange catch point standing open as he approached it at about 15-20 m.p.h. with his train under control, but said that he heard the pilotman shout when the engine was some 20-30 yards from it: he immediately applied the brake and tried to reverse, and thought that this had had some effect before the derailment.

19. Passenger Guard A. R. T. Harris, who was in charge of the 12.25 p.m. train, said that it left Laindon at 1.26 p.m. and that when he looked at his watch again after the derailment it read 1.34 p.m. Between Laindon and the point of derailment he was keeping a good lookout towards the Down line and he estimated the train's speed at between 15 and 20 m.p.h.: he knew the location of the catch points and thought that the speed was reduced over them.

20. Relief Signalman J. W. Hogan was in charge of the Laindon signal box which he had specially opened for the single line working. He confirmed that Signalman Flack, on his return to the signal box after instituting single line working, said that he had seen a man walking towards the Vange catch point and asked if it had been clipped: he had replied that he had received a telephone message that it "had been clipped up". He gave the time of departure of the 12.25 p.m. train from Laindon as 1.27 p.m.

21. Permanent Way Inspector T. C. Fryer said that for a job of this kind the appointment of hand signalmen was made out by the gangers concerned: he had, however, himself originally passed Lengthman Ashton for hand signalling duties in 1952 and, having seen him at work many

times since and knowing him personally, he was more than satisfied with his competence. He said that as soon as he heard of the derailment he went to the site and found the switch clip lying between the rails with its screw pointing away from the cess. He said that Ashton admitted to him at once that he had clipped the switches the wrong way, saying: " It is my fault – I am sorry – I have clipped it on the wrong side ", and that he saw a mark on the outside of the six-foot rail which had clearly been made a short time before by the screw of the clip and which was consistent with the clip's having been put on the wrong switch, so that the catch point was secured in the derailing position. Mr. Fryer could think of no reason for Ashton's having clipped the switches the wrong way.

22. Ganger G. T. Trimm, in charge of the one mile long Pitsea length which includes the Vange catch point, said that besides himself his gang included two trained hand signalmen, Lengthman Zagorac and Lengthman Ashton. Because of his supervisory duties he was not allowed himself to hand signal during the week so on this occasion he appointed Zagorac to clip the main crossover at Pitsea and Ashton to clip the Vange catch point with the additional task of clipping the Pitsea West crossover in the normal position on his way out to the Vange catch point. He spoke very highly of Ashton's reliability and competence and said that he had had plenty of hand signalling experience and had clipped the Vange catch point, which had only recently been installed, at least once before. The clip for the Vange catch point was in the plate-layer's hut by the London Road Bridge, having been left there deliberately after the last clipping on 16th April, and that for the Pitsea West crossover in a room under the signal box. He was working on the Tilbury line part of his length when the derailment occurred and, going to it by a short cut, he met Ashton walking towards the cabin in a very distressed condition. He said that when he asked him what was wrong, Ashton replied: " It is my fault. I put the clip on the wrong side ". When he got to the catch point he observed the clip lying between the rails and the mark on the six-foot rail and saw nothing to make him doubt what Ashton had said. Ganger Trimm said that he had last seen Ashton soon after mid-day and he had seemed quite normal and in no way preoccupied: the gang was a happy one and Ashton a placid man with no particular worries or absorbing interests. As far as Trimm knew, Ashton had taken with him to the catch point the necessary equipment for reversing the switches before clipping them. The only unusual thing about Ashton that Trimm could think of was that he had recently been off duty and on reduced pay with a broken bone in his leg: he was, however, fairly sure that Ashton had no serious financial worries.

23. Lengthman R. F. Ashton, aged 58 years and a lengthman for ten years, first in the Laindon and then in the Pitsea gang, admitted frankly and in considerable distress that he had, in a moment of aberration, clipped the switches of the Vange catch point the wrong way and had thereafter, with complete confidence in his own reliability, failed to check that he had done it correctly and had signalled the train over it without a second look. He said that he had already had his dinner when the time came for him to go out to the Vange catch point, which he had clipped before, and that, after clipping the Pitsea West crossover in the normal position, he walked up the line to the plate-layers cabin by the London Road Bridge and collected the clip and his equipment, which included a long bar for moving the switches and two keys. He confirmed that, while walking towards the catch point carrying the clip, he was passed by the Up train, that he gave a " thumbs up " sign to show that all was well and that, after clipping the switches, he telephoned the Laindon box from U.27 signal, saying " Pitsea man here. All clips are on. O.K. to travel ".

24. I am quite sure that Ashton did his best to help me to try to find out why he had clipped the switches the wrong way. The nearest he could get to an explanation of it, and he emphasised once or twice that he was not advancing this as any kind of excuse, was that there were 40-50 electrical engineer's men working on the wire in the vicinity of the catch point and that this " commotion of people ", his being used to junction clipping, and the fact that he had just clipped a crossover in the normal position, might have made him forget what he was supposed to be doing and have led him to clip the catch point normal also: he said more than once that he might " have taken it for a junction ", and " treated it as a main crossover ". I cross-questioned him closely as to what could have caused the preoccupation with things other than his job that could alone make such an explanation feasible, but the only points of much significance that I could elicit were that his leg was " aching a bit " (he thought that he had returned to work too soon after breaking the bone), that he was interested in what the men were doing to the wire (he agreed that he might have had his mind too much on it), and that he considered the task of clipping catch points to be " so simple you do not need experience " and easy to do physically. I questioned him closely about his health and domestic affairs and am satisfied that none of these caused his preoccupation. He could remember little of what he had done immediately after the derailment and could not remember removing the clip.

25. After my Inquiry, Mr. F. C. Carter, a Chartered Electrical Engineer living at Leigh-on-Sea, wrote to me challenging the train crew's evidence as reported in the Press, that the train's speed down the Laindon bank was about 15 m.p.h. On 18th April he was a passenger in the third coach on the derailed train and he was paying enough attention to its running to have noted where it was checked more than usual during its journey. Of the train's speed after Laindon he wrote: " When passing Basildon I was writing but became aware that the train was not doing its usual speed down the Laindon bank, especially as it was late, and then noticed that it was travelling on the Up track. I estimate with considerable confidence that it was then travelling at rather more than half the usual

speed, i.e. about 28-32 m.p.h. It did not slow down until derailment commenced." He said that he had been a regular traveller on this line for some 35 years and had often beguiled the journey by calculating the train's speed, either by counting the number of rail lengths traversed in a given time or by checking the time taken between one quarter-mile post and the next.

Tests

26. At my request the Regional Officers arranged for braking tests to be made, on the Down line between Laindon and Pitsea, with a train of 11 empty coaches weighing 300 tons and hauled by a steam locomotive similar to No. 80075. The weather was fine and clear, and in each test a full brake application was made 40 yards short of a point opposite the Vange catch point in the Up line. In one test the train was travelling at 10 m.p.h. when the brakes were applied, and it came to a stand in 82 feet, some 58 feet short of the catch point. In another test the train, having been brought under control, was travelling at 20 m.p.h. when the brakes were applied, and it was still travelling at about 12 m.p.h. when it passed the catch point and it ran on for a further 117 feet before coming to a stand.

Conclusions and Remarks

27. This train was derailed because Lengthman Ashton clipped the Vange catch point in the normal instead of the reverse position, so that it was set for derailment, and then hand signalled the train over it. Why he did this must remain a matter for speculation, but he clearly did it in a moment of aberration when his mind was not on his duty. It may well be that his attention was diverted on his arrival at the catch point by the activities of the electrical engineer's men working on the Down line and that, with his mind on what they were doing instead of what he was about to do himself, he clipped the switch of the catch point in the same position as he had just clipped that of the Pitsea West crossover, and as he had often clipped other switches when clipping at the junction. That the job of clipping was a very simple one, for which little knowledge or skill was required, may have contributed to his inattention to it, but I think it likely that the main part played by this factor was that it led later to his thinking it unnecessary to check that he had clipped the catch point correctly before signalling the train over it. Whatever the reason for Lengthman Ashton's aberration there can be no excuse for it: his duty was a very simple one, and he failed to do it.

28. The Rules do not require a driver to satisfy himself that facing catch points are properly secured in single line working. The train crew obeyed a proper hand signal given by the proper man, and they were in no way to blame for the train's being derailed.

29. Ashton was an experienced hand signalman who had been properly appointed to close and secure the catch point. He had the right tools for the job and knew exactly what he had to do. Signalman Flack knew Ashton and his capabilities very well, saw him on his way to the catch point with the clip in his hand, and made a point of ascertaining from Signalman Hogan that Ashton had reported that the catch point was clipped: I consider that Flack was fully justified in this case in assuming that the catch point had been clipped correctly. Lengthman Ashton alone was responsible for this derailment.

30. The extent of the damage sustained by the leading coaches of the train was due partly to the speed of derailment, but much more to the fact that they had wooden bodies. After derailment the engine ran on derailed for some 155 feet before coming to rest on its side, but a better clue to the train's speed is provided by the position in which the fifth coach came to a stand: it had just reached the catch point, and the fact that it was so little damaged suggests that it was stopped there much more by its brakes than by the back-thrust of the coach ahead. As the total length of the engine and first four coaches was some 270 feet it thus seems likely that, if the train had remained on the rails, it would have run on to at least that distance beyond the catch point before coming to a stand; c.f. the distance of 117 feet run by the 20 m.p.h. test train (para. 26). This suggests that the speed of approach was a good deal faster than the 20 m.p.h. to which the driver admitted, and that the speed when derailment started, after the emergency brake application, was some 15 to 20 m.p.h. That the speed of approach exceeded 20 m.p.h. is borne out by Mr. Carter's evidence. Driver Reeves and Fireman Lewis both admitted to a speed of 15 m.p.h. over each of the first two catch points, and it seems likely that if all had gone well they would have exceeded this speed over the third. They both knew that the speed over catch points in single line working should not be faster than 10 m.p.h., and both of them were at fault in exceeding that limit, Lewis because he was driving and Reeves because he was in charge, and both must bear some responsibility for the extent of the damage. Speed limits are laid down for good reasons and it is a driver's duty scrupulously to observe them.

31. Wooden-bodied coaches are a relic of the past which the British Transport Commission is trying to eliminate as quickly as possible: such coaches will not run on the London, Tilbury and Southend line after the completion of its electrification, which will be shortly. The Commission has, however, to balance the need to replace these coaches against other needs for coaching stock, and to balance the coaching stock programme as a whole against the other needs of British Rail-

ways. In 1956 there were 14,000 wooden-bodied coaches in service, and by the end of 1962 this figure will, under present plans, have been reduced to less than 2,000, including 344 vehicles that will have been retained for special reasons.

I have the honour to be,

Sir,

Your obedient Servant,

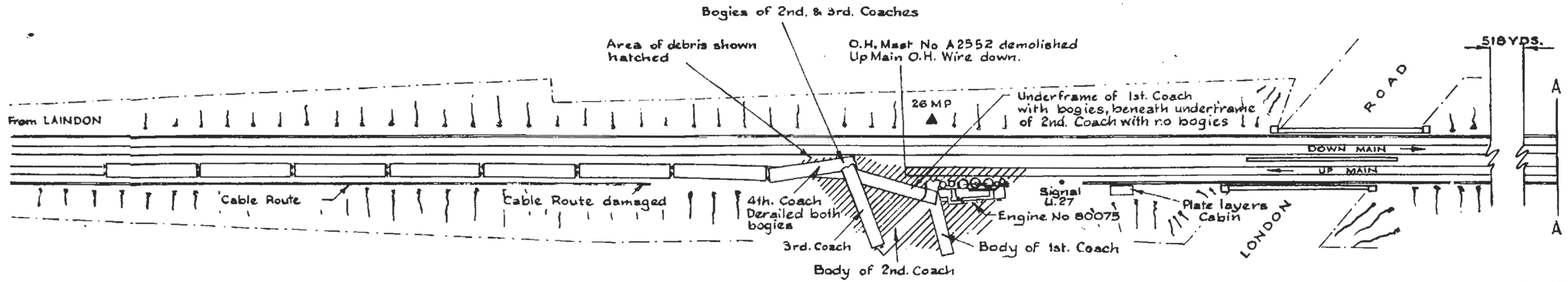
J. R. H. ROBERTSON,

Colonel.

The Secretary,

Ministry of Transport

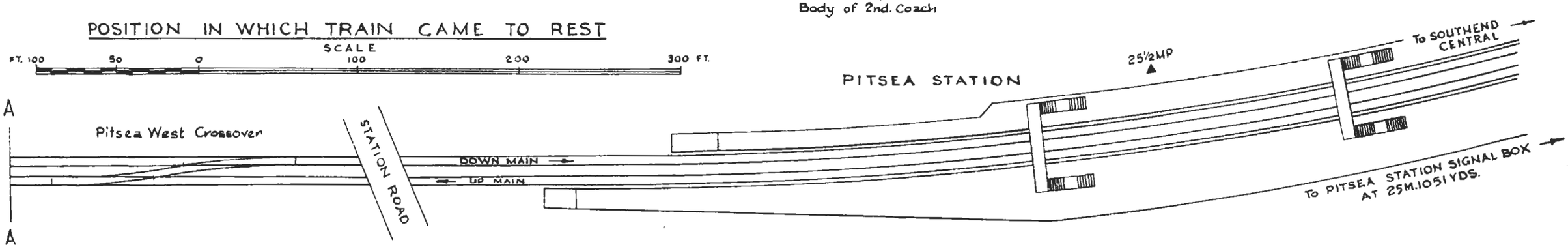
DERAILMENT AT PITSEA — 18th. APRIL, 1961

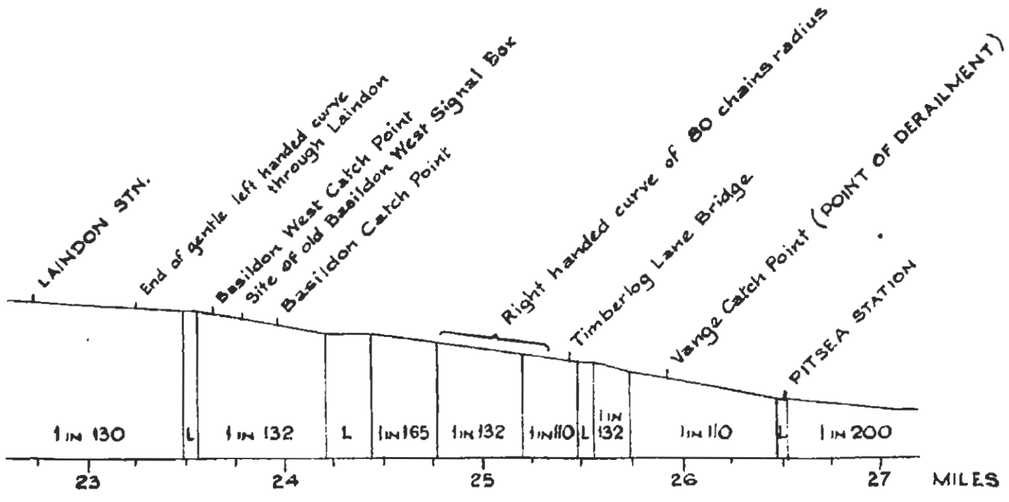


POSITION IN WHICH TRAIN CAME TO REST

SCALE

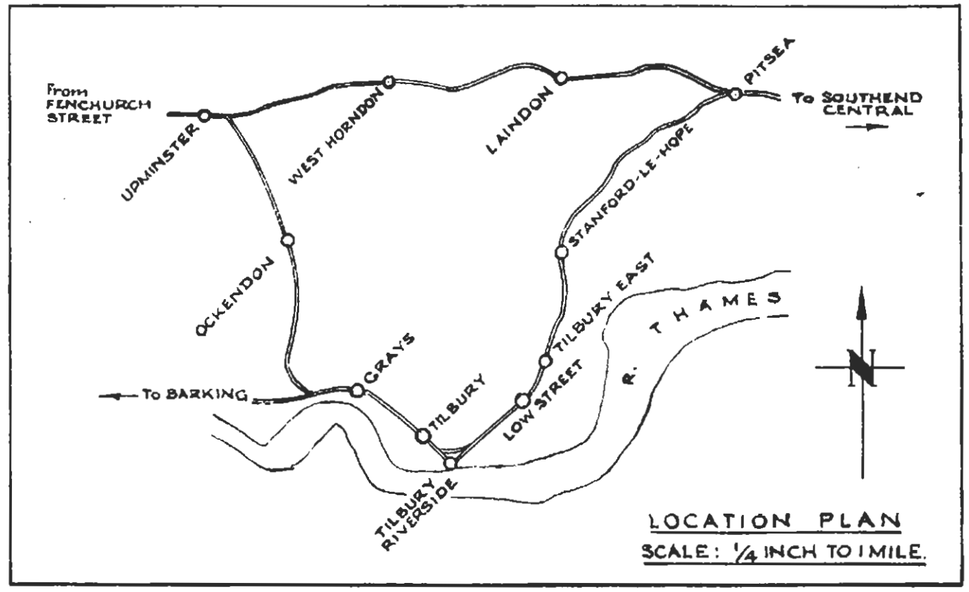
FT. 100 50 0 100 200 300 FT.





GRADIENTS AND CURVATURE — LONGITUDINAL SCALE: 1 INCH TO 1 MILE

Showing position of catch points



LOCATION PLAN

SCALE: ¼ INCH TO 1 MILE.

JWW/US.