MINISTRY OF TRANSPORT & CIVIL AVIATION

RAILWAY ACCIDENTS

REPORT ON THE COLLISION

which occurred on

9th August 1957

at

STAINES CENTRAL STATION

in the

SOUTHERN REGION

BRITISH RAILWAYS

LONDON: HER MAJESTY'S STATIONERY OFFICE

1958

ONE SHILLING NET

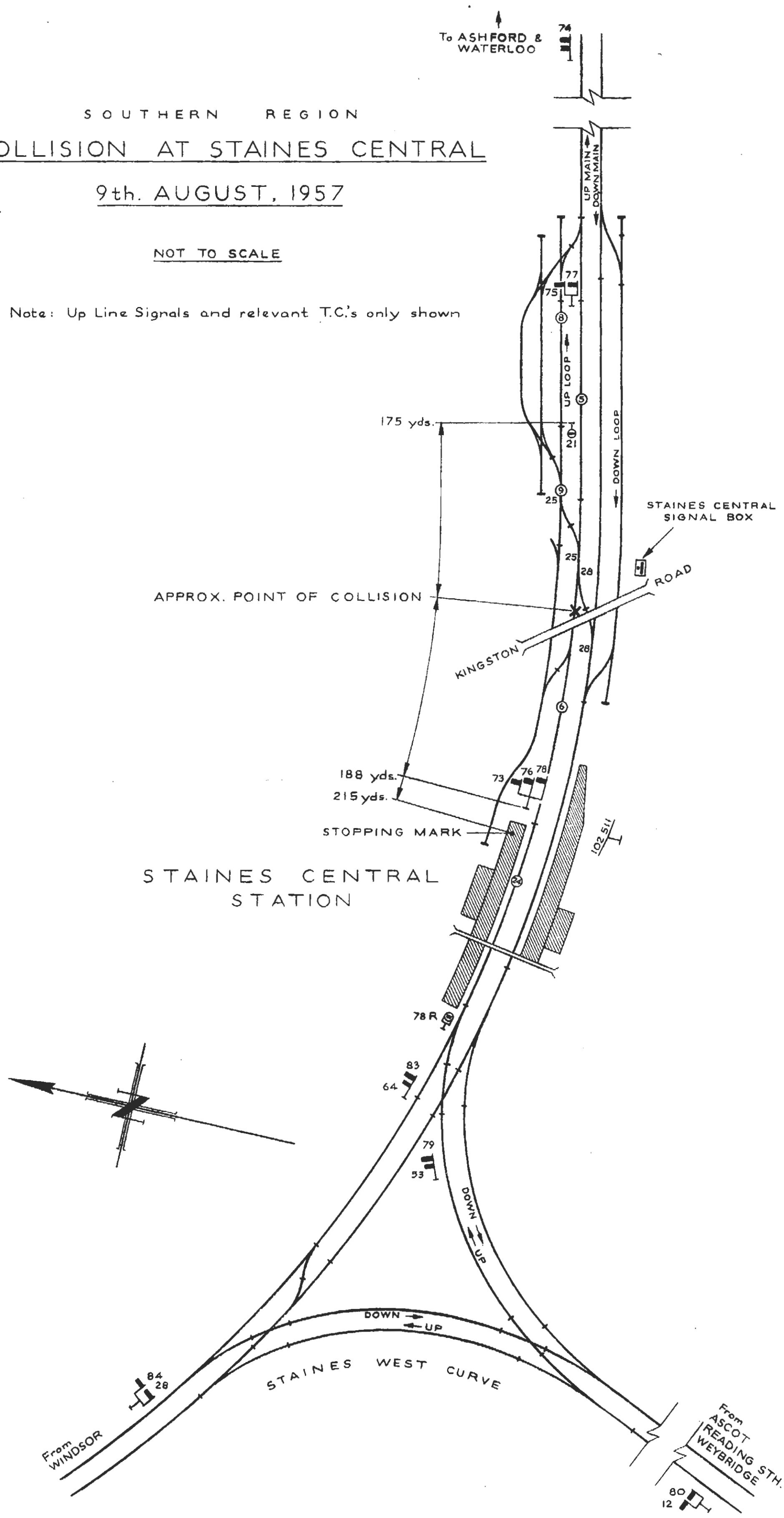
SOUTHERN REGION

COLLISION AT STAINES CENTRAL

9th. AUGUST, 1957

NOT TO SCALE

Note: Up Line Signals and relevant T.C.'s only shown



J.W.W.

MINISTRY OF TRANSPORT AND CIVIL AVIATION,

Berkeley Square House,

London, W.1.

6th January 1958.

SIR,

I have the honour to report for the information of the Minister of Transport and Civil Aviation, in accordance with the Order dated 9th August 1957, the result of my Inquiry into the collision which occurred at 12.25 p.m. on the same day at Staines Central Station on the Waterloo to Reading line in the Southern Region, British Railways.

The 12.24 p.m. 8-coach Up electric passenger train from Staines Central to Waterloo, which was made up of the 12.7 p.m. train from Windsor and the 12.2 p.m. train from Weybridge, started from the platform against the signal at danger, and after travelling for 215 yards, collided almost head-on at about 20 m.p.h. with a light engine which was crossing from the Up loop to the Down main line under the authority of a shunting signal. The light engine, which had reached a speed of about 10 m.p.h., was overturned on to its near side, and the tender, which remained upright, was derailed all wheels. Both running lines were blocked but there was only minor damage to the permanent way and signalling.

The leading bogie of the electric train was derailed all wheels, and the offside of the front coach was demolished, the damage extending through the motorman's cab and the guard's compartment to the front of the open type passenger compartment. The headstock and both the sole bars were badly twisted, and the motor bogie was crippled. A number of window lights were broken and there was other superficial damage throughout the train. The front of the light engine was severely damaged; the buffer beam was buckled, both main frames were distorted and the cab was almost torn from the frame.

Fortunately the casualties were slight with only minor injuries or shock to 12 of the 70 passengers. The motorman of the electric train escaped with some cuts and bruises, but the driver of the light engine had his leg broken and the fireman also was injured.

Prompt steps were taken to protect the obstruction from both directions. The traction current on the running line was automatically cut off when the circuit breakers were opened by a short circuit, and the control operator at Raynes Park was informed of the accident within a minute. An emergency telephone call was made by the staff of a local firm whose premises adjoin the line, and police, fire and ambulance services arrived shortly afterwards. Nine of the injured persons were taken to hospital within half an hour, but only the driver of the light engine was detained.

Breakdown trains were ordered from Feltham and Nine Elms, and re-railing operations began at 2.0 p.m. These were completed shortly after 7.0 p.m. and the normal traffic was resumed at 8.16 p.m. after an interruption of less than 8 hours. During this period the services between Waterloo and Reading South, and between Waterloo and Guildford, via Ascot and Aldershot, were diverted to the main line and ran via Weybridge and Virginia Water. The Waterloo to Windsor, and Weybridge via Staines, services were terminated at and started back from Ashford (Middlesex), and a special service was run between Weybridge and Windsor via Staines West Curve, with a motorbus service, operated by the London Transport Executive, to fill the gap between Ashford, Staines Central and Egham. The arrangements worked very smoothly and there was remarkably little delay to traffic on the Reading lines. Delays to other trains from Waterloo which were affected by the diversions were also slight, and out of the 143 suburban and outer suburban trains departing from Waterloo during the evening peak period, 113 arrived at their destinations either on time or not more than five minutes late.

The weather was fine and clear, and the rails were dry.

DESCRIPTION

Train and Light Engine

1. The train consisted of two 4-coach units which were coupled together at Staines; its length was 513 ft. and its weight was 270 tons. The front unit arrived from Windsor at 12.19 p.m. and it was followed by the rear unit from Weybridge directly afterwards. Each unit was made up of two trailing second-class coaches in the centre with motor second brakes at each end. The combined Westinghouse automatic and electro-pneumatic brake operated throughout the train to give a brake force of 212 tons, equivalent to 78% of the total tare weight. The light engine which was driven from the left hand side was one of the "700" class with 0-6-0 wheel arrangement. It weighed 86 tons in working order, and its total length was 54 ft. The automatic vacuum brake operated on all wheels and gave a brake force of 43 tons, equivalent to 50% of the total weight.

Site and Signalling

2. Staines Central is the junction of the Windsor and Eton (Riverside) line with the Ascot and Reading South line, which is joined at Virginia Water by a branch from Weybridge. A double track link at the west end of the station, known as Staines West Curve, connects the Reading and Windsor lines. From Staines a double line runs eastwards to Waterloo.

It will be seen from the accompanying drawing that the Up line through the station is on a left handed curve which continues for about 300 yards beyond the end of the platform, after which it runs straight towards Ashford (Middlesex). The gradient falls in the Up direction at 1 in 102 through the station, easing to 1 in 511 at the Waterloo end of the platform.

The Kingston Road overbridge is about 200 yards from the station and the signal box is just beyond the bridge on the Down side of the line. The entrance to the Up loop is directly opposite the box and the Down loop exit is on the Staines side of the bridge. There is a group of sidings on the Up side, and one of these runs into the station yard in prolongation of the Up loop.

3. The curvature, which varies from 25 to 66 chains radius, and the overbridge restrict the view of the Up loop entrance from the cab of an approaching Up train, and at the time of the accident wagons on the siding in the station yard added a further obstruction. Consequently, the motorman could not see the light engine until his train was about 70 yards from the point of collision. The view of the station from the signal box is also restricted and the signalman cannot see the Up Inner Home (platform starter) signal nor does the Up train come into full view until it is close to the underbridge.

The Up Inner Home is on a bracket with signals leading to the loop and siding, and it is 27 yards beyond the end of the platform. Owing to the curvature of the line it cannot be seen by the driver of a train approaching from Windsor and a repeater has been placed at the foot of the ramp at that end of the station. The platform is covered by a canopy which prevents the station staff from seeing the Inner Home signal until they are about 60 yards from the end of the platform, i.e. at a point opposite the rear compartment of the third coach of an 8-coach train. Nor can the guard at the rear of the train see either the signal or the motorman, and the "right away" signal has to be relayed by the station staff.

4. The running signals are upper quadrant semaphores, and the position of those relevant to the accident are shown on the drawing. The Up lines are fully track circuited between the Outer Homes Nos. 80 and 84 and the Advanced Starter No. 74. Points and signals are interlocked mechanically in the usual way, and the electrical controls include sequential locking of the running signals and the release of the respective starting or advanced starting signals by line clear acceptance; sequential locking is also applied to the Up calling-on signals from the Reading and Windsor lines (Nos. 53 and 64). Operation of the running lines is controlled by 3-position closed block instruments.

Rules and Regulations

5. The relevant extracts from the Rules regarding starting trains and observing signals are as follows: —

"Rule 141. *Starting of Passenger Trains:*

* * * * * *

(b) The signal for starting a passenger train must be given by the Guard, where provided, after obtaining an intimation from the person in charge of the platform that all is right for the train to proceed . . . . . .

* * * * * *

When it is impossible for the Guard's signal to start the train to be seen by the Driver, the person in charge of the platform must, after satisfying himself that the signal to start has been given by the Guard, signal to the Driver accordingly.

Rule 143. *Driver not to leave station . . . without proper signals:*

When a train is about to leave a station, siding, or ticket platform, the signal to start given by the Guard only indicates that the station duty or the collection of tickets is completed; and, before starting the train, the Driver must satisfy himself by observation that the line is clear, and the necessary fixed signal, where provided is lowered . . . . . .

Rule 148. *Passenger trains approaching important junctions, terminal stations, etc.*

(a) When passenger trains are approaching important junctions, terminal stations, and stations at which they are booked to stop, the Guards must carefully watch the running of the trains and take any action that may be necessary. They must also keep a good look-out when leaving stations, and, as far as practicable, on other parts of the journey.

Guard of a train to keep a good look-out.

(b) The Guard of a train must keep a good look-out and should he see any reason to apprehend danger, he must make every effort to attract the attention of the Driver or Signalman."

6. The Rules regarding passengers travelling in guards' compartments are contained in the Southern Region General Appendix, of which the following extracts are relevant: —

Page 66.

"EMPLOYEES AND OTHER PERSONS TRAVELLING IN BRAKE VANS

Employees when travelling as passengers must ride in the passenger compartments, provided there is room for them. In exceptional circumstances, such as Bank Holidays, race meetings, or foggy weather, employees may be permitted by the Guard to ride in the brake van in which he himself is travelling. . . . . ."

Supplement No. 9.

"EMPLOYEES AND OTHER PERSONS TRAVELLING IN BRAKE VANS

The instructions under the above heading on page 66 are amended to permit of passengers being allowed to travel in certain brake compartments of trains during the business periods, or at other times as circumstances warrant, under the following conditions: --

The use of the compartments must be at the discretion of the Station Masters and Guards.

The permission only applies to the compartment in which the Guard rides and in no circumstances must other brake compartments be used."

EVIDENCE

7. Signalman N. F. G. Strickland, who was in charge of Staines Central signal box, said that the 12.7 p.m. train from Windsor arrived at the Up platform at 12.19 p.m. and that it was followed by the 12.2 p.m. section from Weybridge at 12.21 p.m. He checked these arrivals by noting the occupation of the track circuits on the illuminated diagram. Meanwhile Shunter Clark had arrived in the box and had told Strickland that the shunting engine had finished its work in the Up sidings and that it was ready to leave for Weybridge.

Strickland decided that he had sufficient time to cross this engine to the Down main line before the Up electric train was due to leave at 12.24½ p.m., and he accordingly reversed crossovers 25 and 28 and cleared ground signal 21 as soon as a Down train left at 12.22 p.m. The engine moved off at once, and Strickland, who was standing by the levers at the Waterloo end of the box, watched it passing in order to re-set the route for the Up train as soon as it had cleared the second crossover. The engine had reached the Up line when Signal Lad Harragan called out that the passenger train had left the platform, and the collision occurred almost immediately afterwards. Strickland said that he sent the "Obstruction Danger" signal to Ashford, Thorpe Lane and Datchet signal boxes, and then telephoned to the Woking Control to advise them of the accident and to ask for the current to be cut off. He also arranged for the obstruction to be protected, and he ascertained that a call for ambulances and assistance had been sent by one of the employees of Messrs. Simmons whose premises adjoin the Up line.

Strickland explained that the light engine was booked to leave at 1.25 p.m. but that it was the usual practice to despatch it as soon as the work was finished so as to facilitate traffic working. He estimated that it could cross to the Down line in under 1½ minutes, and therefore he felt justified in making this movement before the departure of the electric train.

8. Signal Lad M. J. Harragan said that he was working at the Staines end of the box when he heard Shunter Clark tell the signalman that the light engine was ready to move. He saw the signalman set the route and he heard the engine start. A few moments later he saw the Up electric train coming round the curve towards the overbridge and the collision occurred about three seconds afterwards.

9. Driver A. Tandy, who took charge of the light engine on his arrival at Staines at about 12.16 p.m., said that since the shunting work had been completed he backed the engine from the siding near the station to the Up loop. He stopped just clear of the points and as soon as the shunting signal came off he opened the regulator and proceeded ahead. He was standing on the left hand side of the footplate and was travelling at about 8 to 10 m.p.h. when he saw the electric train. He had no time to apply the brake before the collision, which pushed the engine back some yards and turned it over on its side.

10. Fireman R. H. Rainsbury said that he did not notice the electric train until it was very close and he had no time even to shout a warning to the driver. He thought that the speed of the engine was about 10 m.p.h.

11. Motorman H. S. Bridger reported for duty at 6.0 a.m., and after making several other journeys he drove the 12.7 p.m. train from Windsor to Staines where it was joined by the 12.2 p.m. train from Weybridge. He said that the Intermediate Home signal (No. 83) was "off", and that the Inner Home (platform starter) No. 78 and its repeater were "on" when he arrived from Windsor, and he stopped the train with the cab opposite to the 8-car mark which was a few feet from the Waterloo end of the platform. He watched the Weybridge portion of the train arrive and saw it attached, after which he tested the automatic and electro-pneumatic brakes in conjunction with the guard. Bridger said that the platform starter was still at danger, but unfortunately, instead of waiting for it to clear as was his usual custom, he looked back to see whether the station work was completed. Shortly afterwards the porter, who was standing near the middle of the train, gave the "right away" and this was repeated by the foreman who was standing near the office. Bridger frankly admitted that he started the train without looking at the starting signal and accelerated quickly. By the time he looked forward again he had passed this signal and was rounding

the curve towards the overbridge. The train had nearly reached the bridge and was travelling at about 30 m.p.h. when he saw the engine coming towards him. He promptly released the "dead man's handle" which cut off the power and applied the emergency brake, and he also "threw over" the brake valve handle. By that time, however, the train was only about a coach length from the engine with which it collided almost head-on.

12. Guard E. G. Paget, who had also travelled on the 12.7 p.m. train from Windsor, said that it arrived at Staines at 12.20 p.m. He got out of the brake compartment and watched the attachment of the Weybridge portion, after which he went to the rear brake compartment at the end of the last coach and carried out a brake test with satisfactory results. At this time a lady passenger came to the van with a pram in which there were two children, and since they were travelling only a short distance to Ashford, the next station, he told her that she could leave the children in the pram and travel in his compartment. Having placed the pram in the train, he waited on the platform until the porter gave him the signal that the station duties were completed, whereupon he gave the green hand signal which the porter relayed to the motorman.

Paget said that he entered the brake compartment just as the train was starting but he could not close the door immediately owing to the position of the pram. By the time he had moved the pram and closed the door, the train had passed the platform starting signal which he did not observe. Shortly afterwards he was thrown forward by the application of the emergency brake, and a moment or two afterwards he felt the shock of the collision.

13. District Relief Porter R. Doggrell was on the platform when the 12.7 p.m. train came in from Windsor, and, on the arrival of the Weybridge portion, he coupled the two trains together. When all the passengers had boarded the train, he gave a hand signal to the guard who immediately acknowledged this by waving his green flag. Doggrell then turned round and gave the "all right" signal to the motorman by holding up his left arm and this signal was repeated by the foreman who was standing by the Parcels Office.

Doggrell added that he had never previously signalled to the guard without first checking that the platform starter was "off", but to do so he had to walk forward one or two coach lengths until the signal came into view and then walk back along the platform until he could see the guard again.

14. Station Foreman G. C. Turvil said that he was in the booking office when the 12.7 p.m. Windsor train arrived. He came on to the platform just as the train was ready to start, and, on seeing the porter relay the guard's signal to the motorman, he also repeated it. He could not see the platform starter and he assumed the porter had checked that it was "off" before giving the "right away". Turvil also confirmed that it was the invariable practice of the station staff at Staines to see that the starter was "off" before giving the signal that the train was ready to start.

15. Relief Clerk J. G. Clear stated that he was travelling in the 12.2 p.m. train from Weybridge to Ashford, and on arrival at Staines he decided to call on the relief station master whilst the trains were being attached. He made a point of observing the aspect of the starting signal to see how much time he would have and he noticed it was at danger when he entered the office, but as the station master was out he returned to the train and boarded the third coach. The signal was still "on" and he was very surprised when the train started almost immediately, so he promptly looked out and saw the signal still at danger. The train gathered speed quickly, and before he had decided what to do he saw the light engine in front, and he felt a sudden brake application followed by the collision.

16. Sub-Inspector J. W. D. Burden of the Signal Department, said that he arrived at the scene of the accident at 2.25 p.m., and after checking the position of the relevant points on the ground, he tested the locking and the controls in the signal box. Crossovers 25 and 28 were set for the movement from the Up loop to the Down main and levers 21, 25 and 28 were reversed in the frame; Inner Home signal lever No. 78 was normal and the repeater indicator was showing "on". Lever 21, which controlled the ground signal, was free to move but lever 25 was locked electrically because track circuit 6 was short-circuited by the derailment, and lever 28 could not be replaced because the engine was overturned on the points. As soon as it was possible to do so, he checked all the relevant mechanical and electrical interlocking and found it correct.

17. Calculations of the rate of acceleration of the electric train showed that it would have been travelling at about 28 m.p.h. when the brakes were applied and that the speed at the moment of collision would have dropped to about 20 m.p.h. It was estimated that the time taken for the train to travel the 215 yards from the 8-car mark at Staines station to the point of collision would have been about 28 seconds, and that the brake was probably applied 3 seconds earlier. The time taken for the light engine to travel 175 yards from No. 21 ground signal to the point of collision was about 40 seconds based on the assumption that it accelerated normally and did not exceed a speed of 10 m.p.h. If it had maintained the same speed, it would have cleared No. 28 points in under a minute.

Conclusion

18. There is no doubt that the 12.24 p.m. electric train from Staines to Waterloo left Staines Central Station against the platform starting signal at danger, and I am satisfied that the light engine was properly authorised to proceed under the authority of No. 21 ground signal from the Up siding across the Up main to the Down main line. No blame, therefore, rested with Signalman Strickland.

Relief Clerk Clear, who was a reliable and unbiased witness, saw the platform starting signal (Inner Home No. 78) at danger both before and directly after the train started, and its lever was locked in the normal position by the reversal of No. 28 crossover which also locked Nos. 76 and 73 signals leading respectively to the Up loop and Up goods line. Since the time taken by the engine to reach the point of collision was greater than that taken by the train, the route for the shunting movement must have been set before the train started, and there was no question of the signalman having made any last minute alterations.

19. Motorman Bridger must accept full responsibility for this accident and he admitted frankly that he did not observe the signal before he started the train on receiving a hand signal from the station staff. He stated that he made the mistake of looking back after testing the brakes without first observing the aspect of the signal, and that he started the train without further thought. Owing to the curvature and the wagons standing on the siding, he was close to the light engine before he saw it but by lifting the "dead man's handle" he was able to shut off power and apply the emergency brake sufficiently to reduce the speed of the train from about 30 to 20 m.p.h. and thus to reduce materially the shock of the inevitable collision. Motorman Bridger is 59 years old with 43 years' railway service, and he has been driver or motorman for the last 20 years. Hitherto he has had an unblemished record.

20. The rules make it clear that the signal to start the train, whether given by the station staff or the guard, indicates only that the station duties are completed and it is the driver's responsibility to satisfy himself that the line is clear. Consequently the station staff cannot be criticised for giving the signal to the driver.

21. Guard Paget should have kept a good look-out as the train was leaving the station, but on this occasion, he allowed a lady passenger with a pram to travel in his compartment—an action which I consider justified in the circumstances—and this delayed him in attending to his other duties.

22. Relief Clerk Clear was placed in a difficult position when he saw the train pass the starter at danger. He was unable to know whether or not the driver had made a mistake, and I do not blame him for not pulling the communication cord.

Remarks

23. A number of accidents have been caused by trains starting from stations against signals at danger after the driver has accepted a guard's "right away". From time to time consideration has been given to altering the rules so as to require the guard to satisfy himself that the fixed signal is clear before giving his signal that the train is ready to start, but this would imply a measure of dual responsibility for the observation of signals which might cut across the long-established rule that this is the fundamental responsibility of the driver.

Rules 141 and 143 are clear, concise and well understood and I do not recommend any change, but the psychological effect of the guard's "right away" is great, and drivers have on occasions allowed themselves to be misled by it. It is desirable, therefore, that guards and station staff should, wherever practicable, wait until the fixed signal has been cleared before giving the "right away". I am sure that this procedure is normally adopted, but it cannot be made universal because there are many stations where the starting signals cannot be seen by the guard and a number where station staff also have difficulty. I recommend, therefore, that conditions at these stations should be reviewed to see whether they can be improved, especially at busy junctions.

24. Staines is one of those places where the present difficulty can be overcome by placing an aspect indicator of the Up Inner Home signal near the centre of the platform. Since there is already an electrically worked repeater at the Windsor end, it should not be difficult to add an indicator to the same circuit, and I recommend that this work be done.

I have the honour to be,

Sir,

Your obedient Servant,

C. A. LANGLEY,
Brigadier.

The Secretary,
Ministry of Transport and Civil Aviation.