



MINISTRY OF TRANSPORT

RAILWAY ACCIDENT
REPORT ON THE COLLISION

which occurred on

25th August 1962

at

TORQUAY

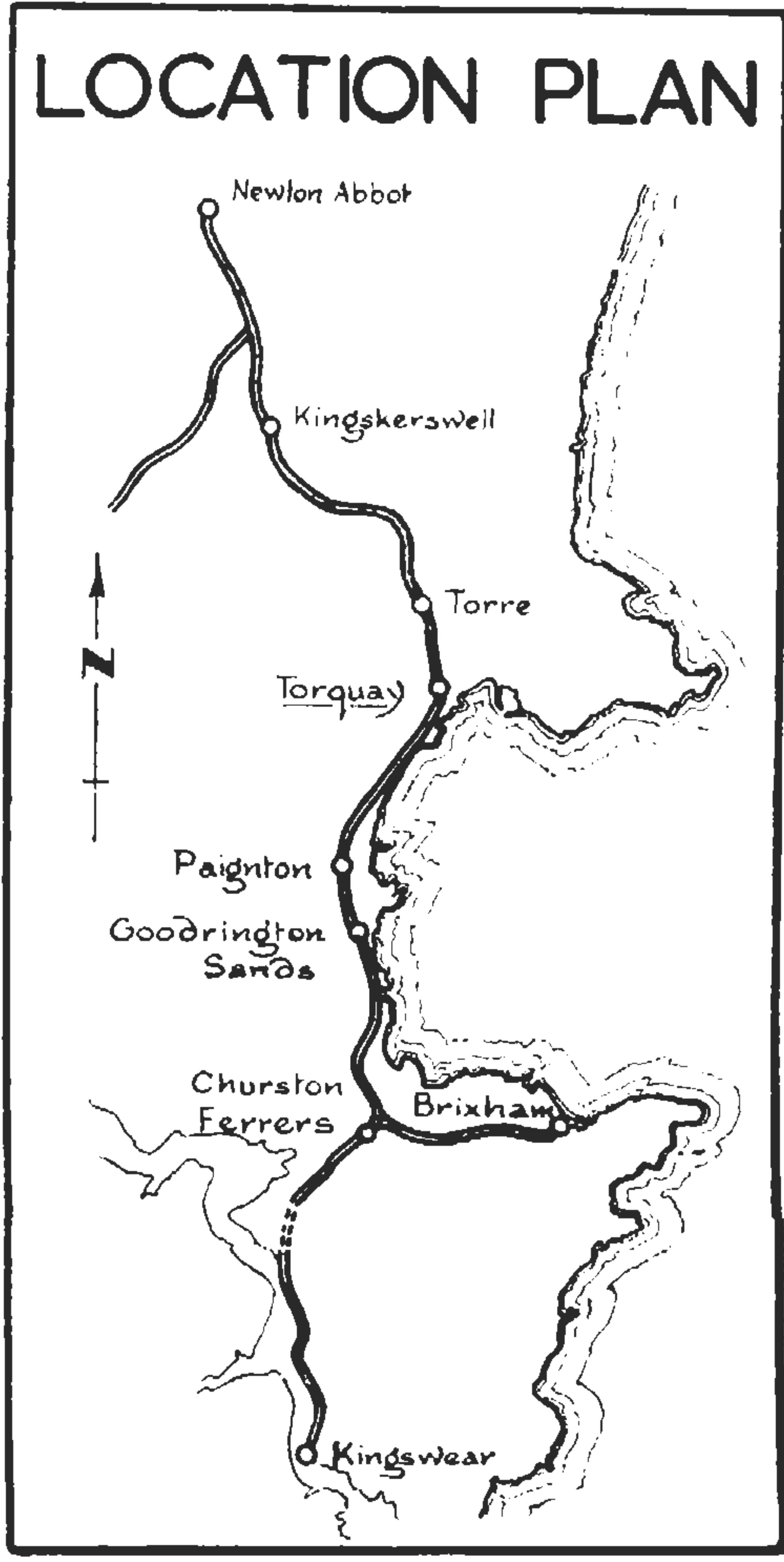
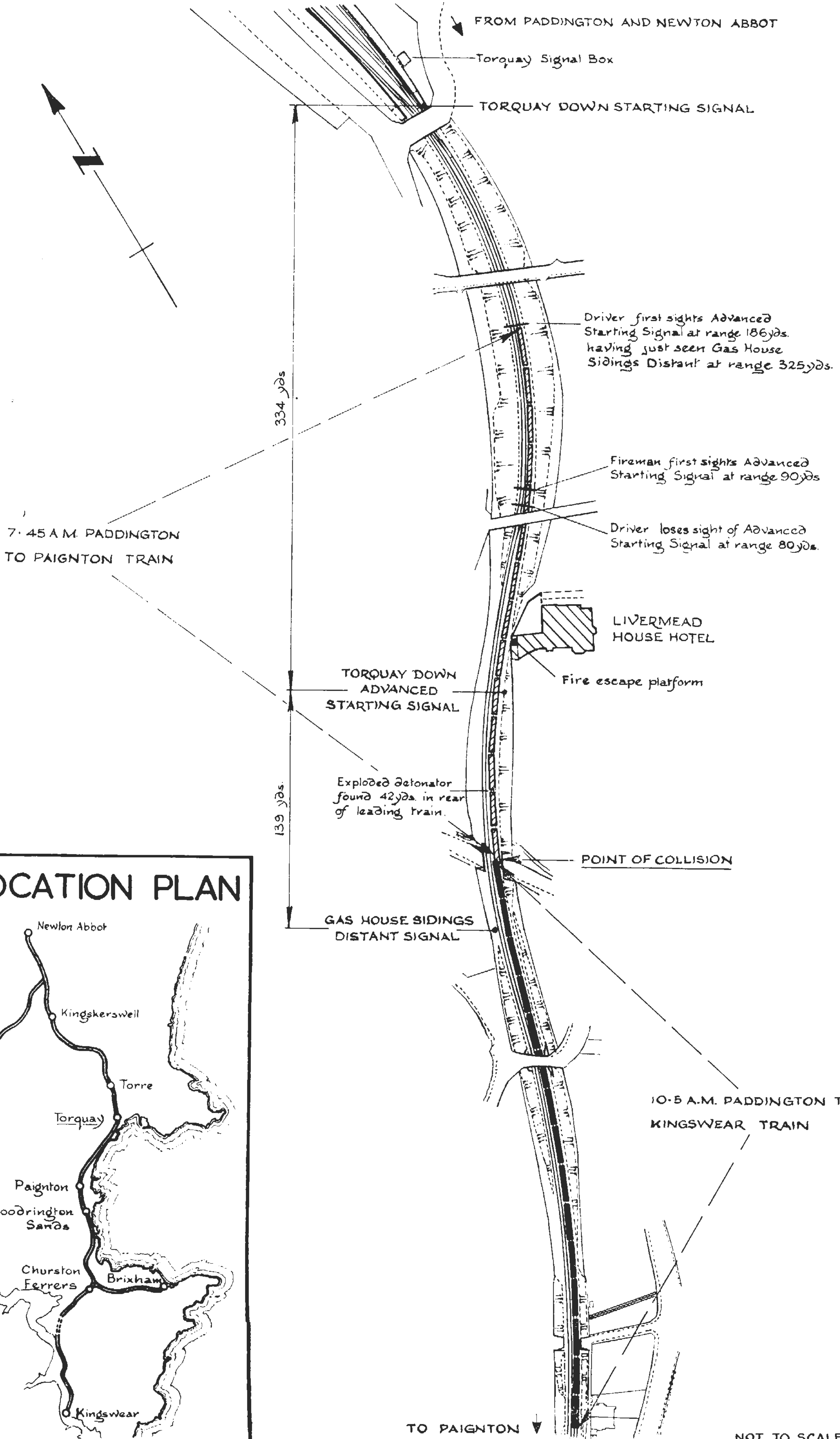
in the

WESTERN REGION
BRITISH RAILWAYS

LONDON: HER MAJESTY'S STATIONERY OFFICE
1963

ONE SHILLING NET

COLLISION AT TORQUAY 25th AUGUST 1962



NOT TO SCALE.

MINISTRY OF TRANSPORT,

ST. CHRISTOPHER HOUSE,

SOUTHWARK STREET,

LONDON, S.E.1.

15th March 1963.

SIR,

I have the honour to report for the information of the Minister of Transport, in accordance with the Order dated 27th August 1962, the result of my Inquiry into the collision that occurred, at about 2.40 p.m. on Saturday 25th August 1962, between one passenger train and another at a stand ahead of it on the Down line between Torquay Station and Gas House Siding signalbox, on the Newton Abbot—Kingswear Branch line in the Western Region, British Railways.

The stationary train was the 14-coach 10.5 a.m. Paddington to Kingswear passenger train. Its diesel engine had failed on the steeply rising Down line between Torquay and Gas House Siding and the train had stopped in the section with the rear of its last coach some 114 yards past the Torquay Down Advanced Starting signal. Before the train guard had had time to protect the train fully on his way back to Torquay signalbox to get assistance the steam-hauled 13-coach 7.45 a.m. Paddington to Paignton passenger train, which had been sent forward to the Torquay Down Advanced Starting signal to await acceptance from the box ahead, ran into its rear end.

The original diesel engine of the 7.45 a.m. train had failed at Taunton and a steam engine had been substituted for it. Although the train load slightly exceeded the steam engine's rated capacity the driver who was to take the train forward from Newton Abbot had agreed to do so to avoid a delay. With his engine labouring, his attention as he left Torquay was more on getting up speed in preparation for the 1 in 56 rising gradient than on the Advanced Starting signal and, letting himself be distracted, he drove past that signal at Danger. When he became aware of the train ahead he braked immediately, but it was then too late for him to stop short, though his braking reduced the speed of the train from 15-20 m.p.h. to about 10 m.p.h. at the moment of impact.

The rear coach of the train ahead was forced up off its bogies and its rear end came to rest on the front of the colliding engine, with its vestibule touching but undamaged by the smoke box door. The front of this coach was buffer-locked with the coach ahead and both coaches were damaged, 18 of the passengers in them being slightly injured.

The two leading coaches of the colliding train were also forced up off their bogies and buffer-locked and the front end of the second coach drove in under the rear of the first, the two coaches being telescoped together to a depth of about 3 feet. The front end of the second coach was extensively damaged and the first and third coaches slightly damaged, 5 passengers in them receiving minor injuries. None of the train staff was injured.

A passing doctor had seen the collision and went to it at once and gave first aid to the injured. Other emergency services were quickly summoned and arrived with commendable promptness: fire appliances and ambulances arrived within 12 minutes of the collision. Of the 23 injured passengers 7 were taken to hospital, but all were discharged later in the afternoon.

The Up line was fouled by a door from one of the damaged coaches but prompt protective action by the train crew stopped an Up train well short of it. There was no damage to the permanent way or signalling equipment and, as soon as the door had been removed, single line working was introduced over the Up line until 7.55 p.m., when it had to be stopped to enable the steam crane to work from that line on the removal of the damaged coaches: from then until midnight, when both lines were completely cleared, a shuttle bus service was operated between Torquay and Paignton.

It was a clear afternoon with intermittent sun.

DESCRIPTION

Layout and Signals

1. Torquay station is on the double track portion of the Branch line from Newton Abbot to Kingswear, which leaves the Western Region Main line to the West of England at Newton Abbot. The signalbox beyond it in the Down direction is Gas House Siding box some 1500 yards away.

2. The diagram shows the layout at the scene of the collision, the Down line signals and the points at which they come into and pass out of the view of the men on the footplate of a Hall class engine, the approximate point of impact, and the positions of the trains after the accident. The Torquay Starting and Advanced Starting signals and the Gas House Siding Distant signal are all lower quadrant semaphores. The arm and light of the Advanced Starting signal are both repeated in the Torquay signalbox.

3. The Down line approaches Torquay on a falling gradient of 1 in 55 but levels off just short of the station and is on a slightly rising gradient past the Starting signal and for some 440 yards beyond it. It then levels off for a short distance, after which it is on a steeply rising gradient of 1 in 56 for about 440 yards: this steep upgrade starts some 90 yards beyond the Advanced Starting signal.

4. The Starting signal is at the platform end and from just beyond it the line runs on a right-handed curve of 14 chains radius through a cutting and under three overbridges to the Advanced Starting signal, which is on the left of the line and 334 yards beyond the Starting signal. Just short of the Advanced Starting signal the line starts to curve to the left on a radius of 20 chains and this curve continues past the Gas House Siding Distant signal, which is on the right of the line and 139 yards beyond the Advanced Starting signal.

5. The Advanced Starting signal first comes into the view of the driver of a Hall class steam engine, which is driven from the right of the footplate, at a range of 186 yards, the Gas House Siding Distant signal having come into his view beyond and to the left of it a fraction of a second earlier. As the train approaches the Advanced Starting signal round the curve the engine boiler cuts off the driver's view of the two signals, the Distant going out of view first and the Advanced Starting signal second at a range of 80 yards. The Fireman of such an engine, on the left of the footplate, can first see the Advanced Starting signal, at a range of 90 yards, a second or so before the driver loses sight of it and it then remains in his view till the engine passes it. A coach standing in the position occupied by the last coach of the stationary train would not obscure a following driver's view of the Gas House Siding Distant signal past the Advanced Starting signal.

6. On the left of and close to the line between the third overbridge and the Advanced Starting signal stands the Livermead House Hotel, which has a fire escape the intermediate landings of which project towards the line at a point some 19 yards on the Torquay side of the Advanced Starting signal.

7. The Western Region type of Automatic Warning System equipment is installed on this line and the ramp for the Gas House Siding Down Distant signal is situated 40 yards on the Gas House side of the Torquay Advanced Starting signal.

Signal Controls

8. The line is worked on the Absolute Block system, with three-position block instruments. The Torquay Advanced Starting signal is controlled by the position of the block and cannot be cleared until the signalman in the next open box ahead has accepted the train and has released the signal lever by pegging the Down line block instrument to "Line Clear"; the release is not for one pull only but the signal lever is locked again when the signalman in the box ahead pegs to "Train on Line". The Gas House Siding Distant signal is interlocked with the block so that a train cannot be accepted and the Torquay Advanced Starting signal released unless the Distant signal arm is at Caution.

9. There is sequential locking between the Torquay Down Advanced Starting and Starting signals so that the Starting signal cannot be pulled unless the Advanced Starting signal is at Danger.

10. The line between the Down Starting and Down Advanced Starting signals is track circuited and occupation of the track circuit locks the Starting signal, but the track circuit has no block control function. There are no track circuits at Gas House Siding.

The Trains

11. The 10.5 a.m. train (the leading train) comprised 14 coaches and was hauled by the B-B Warship class Diesel Hydraulic engine No. D833 "Panther". The engine weighed 79 tons and the coaches 476 tons unladen, and the total length of the train including the engine was 329 yards. The train was buck-eye coupled throughout and was fitted with standard vacuum brakes. The train was well within the rated capacity of its engine which was 525 tons over this route.

12. The 7.45 a.m. train (the second train) comprised 13 coaches and was hauled by the 4-6-0 Hall class steam engine No. 4932 "Hatherton Hall". The engine weighed 122 tons and the coaches 441 tons unladen, and the total length of the train including the engine was 306 yards. Screw couplings were in use between the first three coaches and the train was fitted with standard vacuum brakes; all wheels were braked and the available brake power was 427 tons or 76 $\frac{2}{3}$ % of the unladen weight. The rated capacity over this route of the engine, which has been substituted as an emergency measure for the original diesel engine which had failed at Taunton was 420 tons, 24 tons less than its load on this occasion.

13. The coaches in both trains had steel bodies on steel underframes.

EVIDENCE

14. *Signal Sub-Inspector F. T. H. James* said that he tested the interlocking in the Torquay signalbox, the block controls on the Down Advanced Starting signal, and the position of that signal's arm shortly after the accident and found that everything was in good order. The Down line block instrument was at "Train on Line" and the Advanced Starting signal lever was normal in the frame and its arm in the correct "On" position.

15. *Signalman C. A. Pearce*, who took over the Torquay signalbox about 1 $\frac{1}{2}$ hours before the accident, said that the leading train left Torquay under clear signals at 2.30 p.m. and that he at once sent forward the "Train Entering Section" signal for it and saw the block indicator go to "Train on Line". The train went forward rather slowly but he was not disquieted by this, since slow departures were common with heavy week-end summer trains. As soon as he had sent the "Train Out of Section" signal to the box in rear he was offered and accepted the second train. He received the "Train Entering Section" signal for this at 2.32 p.m. but he waited until the train had occupied the berth track circuit approaching his Down Home signal before he pulled off the latter to allow the train into the platform.

where it arrived at 2.34 p.m. some 46 minutes behind its booked time. After station duties had been completed he pulled off the Starting signal, at about 2.39 p.m., to allow the train to draw forward to the Advanced Starting signal which enabled him to give the "Train Out of Section" signal for it, and to accept the next train, which was at once offered by the box in rear. He said that his habit was only to send a train forward to wait at the Advanced Starting signal, until the line was clear for it ahead, when a following train was waiting but that this was a common occurrence at Torquay on summer Saturdays; when he sent a train forward in this way he was often able to pull off the Advanced Starting signal before the train reached it.

16. Signaller Pearce said that he telephoned the Gas House Siding signaller at about this time to ask whether the leading train had yet arrived and was told that it had not done so: he was unsure of the time of this call and thought it was about 2.39 but the Gas House Siding signaller thought it was rather earlier. The Section timing for such a train was only 3 minutes but he had not asked about the train's arrival before because on summer Saturdays the "Train Out of Section" signals from Gas House Siding were often delayed because trains had to be held there uncleared pending their acceptance by Paignton. At this time the track circuit approaching the Advanced Starting signal was showing "Occupied" and everything seemed to be normal. His first knowledge of the accident was when the fireman and guard of the first train came to his box and told him about it. He had not experienced any trouble with his instruments or signals.

17. *District Inspector S. C. Tregeddeon*, who had had four years' experience of the handling of trains at Torquay, explained that in the summer it was the usual practice there to send trains forward to the Advanced Starting signal to enable following trains to run into the platform and discharge their passengers without delay. He said that no distinction in this matter was made between steam and diesel-hauled trains or between light and heavy trains. In anticipation of being asked questions on this point Mr. Tregeddeon had made an analysis of train movements on the six Saturdays preceding the accident and he was able to show that of the 258 Down trains that were handled, 153 trains had a clear run, the Advanced Starting signal being pulled off for them immediately after the Starting signal, and 105 trains were sent forward to the Advanced Starting signal to wait clearance, 65 of them (59%) having that signal lowered for them before they sighted it and 40 of them being held at the signal.

18. *Porter-Signaller H. S. Lewis*, who had been on duty in Gas House Siding signalbox since 6.0 a.m., said that when he received the "Train Entering Section" signal for the leading train he at once gained acceptance for it from Paignton North and pulled off all his Down Main line signals. It did not occur to him that the train was overdue until Signaller Pearce telephoned him, at or a little after 2.35 p.m. to ask if it had arrived. A few minutes later, and on the assumption that the train had failed in section, he telephoned Pearce and asked if the guard had come back to his box, but when Pearce said that he knew nothing he still took no action under Regulation 16 to stop and warn trains on the Up line. (An Up train which passed his box at 2.45 p.m. was stopped short of the obstruction by the protective measures taken by the fireman of the leading train). Lewis said that he maintained all his Down line signals in the "Off" position until he received the "Obstruction Danger" signal from Pearce at 2.55 p.m.

19. *Driver F. J. Bowden*, who was the driver of the leading train, said that he had a good run to Taunton but that on departing thence his train seemed so sluggish that he suspected that the engine brakes were dragging but when he sent his second man back to check them he found them properly off. Using sand he got the train under way at the second attempt and his engine then ran satisfactorily to Exeter, the next stop, whence it started away without difficulty though it again seemed sluggish, and on to Torquay which it reached 18 minutes late, though as a result of signal checks and not of engine trouble. When leaving Torquay he applied sand and maximum power but the train again got under way very sluggishly and he was unable to increase speed above 15 m.p.h. when approaching the foot of the steeply rising gradient and his train quickly came to a stand after he started its ascent. He knew that there was a banking engine at Torquay and he at once despatched his second man to send the guard back for its assistance. His train was standing astride the catchpoints and its brakes were fully on when the collision occurred.

20. *Fireman D. W. A. Porter*, who was second man to Driver Bowden, confirmed the latter's evidence and said that, after meeting the guard half-way along the train and sending him back to the signalbox, he returned to the engine. When he felt the impact of the collision he went back to see what had happened and then protected the Up line, which he did in time to stop the approaching Up train referred to in para. 18.

21. *Goods Guard G. T. Weston*, who was guard on the leading train, said that he noticed how slowly the train got under way at Torquay and that he was not surprised when it stopped. After meeting Fireman Porter and getting his instructions he was walking back to protect his train before going on to the signalbox when he heard the second train approaching. Realising from the sound of its steaming that the train might not stop at the Advanced Starting signal he began to run towards it and, when it came into sight round the bend, put one detonator on the line and ran on, waving his arms to attract the driver's attention. While walking back he had observed the Advanced Starting signal at Danger and he said that the engine had passed this signal when he heard the brakes applied.

22. *Fireman H. L. Gregory* said that he was attending to the fire on the second train as it started from Torquay and did not look out for the Advanced Starting signal, not having been asked by his driver to do so. When he had finished firing he put the shovel down and looked out and then saw the rear of the leading train about three coach-lengths ahead and the guard running towards him and waving. He

shouted to the driver who at once applied the brakes and he thought the speed had been reduced to 10 m.p.h. when his train collided with the train ahead. He heard a detonator explode under the train just after he shouted to the driver.

23. *Driver R. C. Willott*, who was the driver of the second train and who had kept his record clear throughout his 27 years of railway service, 12 of them as a driver, admitted frankly that he could not remember having observed the Torquay Advanced Starting signal on this occasion. He said that he had accepted the task of hauling a train that was over his engine's rated capacity from Newton Abbot to Kingswear because the excess weight was only about 20 tons and he knew the engine to be in good fettle, and so as to avoid a delay to the train which was already running 40 minutes late. From Newton Abbot to Torquay the signals were mostly against him and when he ran into the platform at Torquay the Starting signal was at Danger. He had had some difficulty in hauling the train up a long bank during this part of the run and he was expecting further difficulty on the steeply rising gradient close ahead. As soon as he started away from Torquay his engine began to slip, although the rails were dry, and he was fully engaged in driving the train and sanding as he tried to increase his speed. He had not asked his fireman, who was busy with the fire, to look out for the Advanced Starting signal but he heard him suddenly give a shout to stop: as he applied the brakes he heard a detonator explode and then saw the train ahead. He remembered checking the aspect of the Torquay Starting signal, crossing the footplate to do so when his fireman advised him that it was "Off", but he had no recollection at all of seeing the Advanced Starting signal. He thought that his speed just before he braked was something less than 20 m.p.h. and that on impact it was 5-10 m.p.h.

24. Driver Willott was a very good witness and I am quite sure that he did his best to help me to find out the reason for his failure. He firmly rejected my suggestions that he might have read through the Advanced Starting signal to the Gas House Siding Distant signal which was "Off" throughout his approach and the AWS bell for which he remembered hearing, or that he might have assumed that the Advanced Starting signal was "Off" because, in his considerable experience of the line, it was usually so when he reached it, even if the Starting signal had been at Danger when he ran into the platform. His evidence on these points was such as to convince me that he was a good and careful driver and most unlikely to assume a signal's aspect without having seen it. His knowledge of the signals was excellent and he was in good health and had nothing on his mind: he had been on duty for less than 7 hours after a good night's rest. With some diffidence, however, and without in any way claiming it as an excuse, he suggested that he might have been distracted from observing the signal by "a man from the Livermead Hotel": he remembered seeing a man "standing up high near the Hotel by the signal" and that the engine then started to slip again and he was distracted. Apart from this the only reason that Driver Willott could suggest for his failure to observe the Advanced Starting signal was that his mind had been more on working up speed for the steep ascent ahead than on keeping a good look-out.

25. When viewing the signals from the cab of an engine before my Inquiry I had observed that the Hotel's fire escape landing was close to the line of sight from the footplate to the Advanced Starting signal as the engine approached. As a result of Driver Willott's suggestion that he had seen someone "up high near the signal", inquiries were made at the Hotel and a statement taken from *Mr. R. J. Sandford* who was employed there as a gardener. Mr. Sandford said that at about 2.30 p.m. on the day of the collision he climbed to the landing of the Hotel's fire escape to observe a lineside fire, the smoke of which he had seen from the Hotel garden. While standing there he saw the stationary train and, on hearing another train leaving Torquay station, he stayed to watch it. From this viewpoint he saw the second train pass him at about 15 m.p.h. and a railwayman put something on the line and then run waving his arms towards the train. He then heard the detonator explode and witnessed the collision.

TESTS

26. After my Inquiry tests were carried out in which Mr. Sandford, dressed as on the day of the collision and standing on the fire escape's landing was viewed from the driver's side of the footplate of a Hall class engine approaching the Advanced Starting signal. At the point where the signal first came into view the landing was clearly visible with Mr. Sandford's silhouette apparent just below and to the left of the outer edge of the signal arm. As the engine rounded the curve the silhouette moved to the right under the signal arm and disappeared from view behind the boiler just before the signal itself disappeared.

27. The failure of diesel engine No. D833 was found to be the result of a fault in the Voith LT 306r transmission which consisted of three hydraulic convertors geared to the output shaft. Selection of the appropriate convertor and gearing for the relative speed of the diesel engine and of the locomotive is obtained by filling the former with oil, and the change from one convertor to the other is controlled by a centrifugal governor. Examination of the transmission showed that the governor was sticking, causing the convertor that was geared for high speed running to be permanently engaged, so that the diesel engine at that end of the locomotive was driving through too high a gear for surmounting a gradient as steep as 1 in 56.

CONCLUSIONS AND REMARKS

28. The cause of this collision was that Driver Willott failed to observe the Advanced Starting signal and, driving past it at Danger, was not aware of anything amiss until it was too late to stop short of the train ahead. Fireman Gregory was fully engaged on his firing duties and had not been asked by

Willott to look out for the signal, which in any case should have been seen by Willott before it came into view from the fireman's side of the footplate. Gregory is in no way to blame: he was indeed the first to see the train ahead and had it not been for his warning shout the effects of the collision might have been worse than they were.

29. The train crew of the leading train acted properly and promptly to protect their train when it came to a stand, and Guard Weston did what was possible to stop the second train as soon as he could reasonably have realised that emergency action was necessary. Signalman Pearce knew when he sent the second train forward to the Advanced Starting signal that the train ahead had been an unusually long time in section but there is no rule preventing his sending a train forward in these circumstances and the track circuit showed that the line was clear to the signal: with the traffic running late and another train in rear Pearce was, in my view, right to do as he did. Driver Willott alone must bear the responsibility for this accident.

30. Why Driver Willott failed to observe the Advanced Starting signal and so drove past it at Danger must be a matter for conjecture, but I think that he was preoccupied with getting the most out of his overloaded engine in preparation for the steeply rising gradient ahead and so failed to keep a proper lookout. His association of a man with the signal and the fact that Mr. Sandford was on the fire escape at the time show, I think, that he did look ahead as if by instinct for the signal, but his pre-occupation with his engine was such that Mr. Sandford's unexpected appearance was enough to distract him from observing it. I do not think that Willott read through the Advanced Starting signal at Danger to the lowered Distant signal beyond it.

31. The siting of signals on a line with sharp reverse curves presents considerable difficulties but in my view it is undesirable for a driver to be able to read through the last stop signal of one box to the Distant signal of the box ahead, as he could at Torquay. Secondly, I think that it would have been better if the Advanced Starting signal had not been so directly in line with the hotel fire escape. Both the Advanced Starting and Distant signals concerned are due for renewal but this has been held in abeyance because, at the time of this accident, preliminary consideration was being given to a scheme whereby the Gas House Siding signalbox would be replaced by a ground frame released from Torquay and the Torquay Advanced Starting signal would be combined with the Paignton North Distant as a single colour light signal. Under such a scheme both difficulties could be simply resolved, and I hope that it will be put into effect in the near future. In the meantime the Advanced Starting signal is soon to be replaced with a two-aspect colour light signal.

I have the honour to be,

Sir,

Your obedient Servant,

J. R. H. ROBERTSON,

Colonel.

The Secretary,
Ministry of Transport.