

## MIDLAND RAILWAY.

Board of Trade (Railway Department),  
8, Richmond Terrace, Whitehall, London, S.W.

27th January, 1913.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in compliance with the Order of the 13th January, the result of my inquiry into the causes of the collision, which occurred on that date about 11.33 a.m. at Bromford Bridge, near Birmingham, on the Midland Railway.

A slow passenger train—9.55 a.m. from Wolverhampton to Birmingham—was leaving the down platform loop line at this station, when the 10.10 a.m. express passenger train from Leicester to Birmingham, travelling at speed on the down through line, struck it. The blow was severe, and I regret that the list of casualties is long. Three passengers were killed, or fatally injured, six were seriously injured, and 85 others complained of cuts or bruises, or of the effects of shock. The driver and fireman of the express train, and the guard of the slow train, also suffered from shock and contusions.

The slow train comprised tank engine No. 2033 with six coupled wheels and a bogie under the foot-plate, and the undermentioned coaching stock:—

- No. 537—bogie third class brake.
- No. 424—bogie third class coach.
- No. 2517—bogie first class coach.
- No. 553—bogie third class brake.
- No. 6—four-wheeled horse-box (Somerset & Dorset Jt. Ry.).

The express train was drawn by engine No. 507 (2—4—0 type), with six-wheeled tender, and included the following:—

- No. 3037—bogie composite brake.
- No. 2073—bogie third class coach.
- No. 3020—bogie composite coach.
- No. 576—six-wheeled passenger van.

Both engines were fitted with the steam brake, and all the coaching stock with the automatic vacuum brake; both brakes were applicable by one lever from the foot-plate, or from any of the brake vehicles. The only wheels unequipped with blocks were those of the (trailing) bogie under the tank engine (No. 2033). The continuous brake equipment was in good order, and no difficulty had been experienced in maintaining a vacuum of 20 inches.

The express engine struck the third vehicle (No. 2517) of the slow train at the fouling point of the crossing, and was afterwards found lying on its right side on the up line about 80 yards beyond the point of collision. The tender kept its wheels, though derailed.

The engine and first coach (No. 537) of the slow train did not leave the rails and suffered little injury. The second (No. 424) and third vehicles were completely wrecked. The fourth (No. 553) was derailed and the body extensively damaged, whilst the horse-box was also thrust off the road and badly injured.

The two first vehicles of the express (Nos. 3037 and 2073) were derailed and much damaged, the leading bogie of No. 3020 was also derailed, but the last two vehicles were only slightly injured.

A list of damage to permanent way, &c., and to engine No. 507, is given in Appendix II.

*Description.*

Bromford Bridge (Racecourse) Station is situated between Castle Bromwich and Saltley Stations, on the Company's main road between Derby and Birmingham.

There are four lines of way on this section, and the general direction of the railway is from north-east (Castle Bromwich) to south-west (Saltley). The outside lines are used only for goods trains, except as described below, and the centre pair for both goods and passenger trains. The two southern tracks are allocated to down, and the two northern to up traffic.

At Bromford Bridge, the two goods lines are trapped at each end of the station yard, and between these trap points are common lines, and serve as platform roads to the two (single) platforms which are placed outside all four tracks. There are crossings at both ends of the station from the through to the platform lines, and *vice versa*.

North-east of the down platform and on the same side of the railway, there is a horse-dock platform and siding, to which access is provided from the down platform line.

The yard is worked by two signal-boxes. Bromford Bridge north box is placed on the north of the railway, and the approximate distances to the undermentioned places, signals, &c., are as follows:—

Castle Bromwich Junction signal-box	... ..	1 $\frac{3}{4}$ miles north-east.
Bromford Bridge north down distant signals	... ..	955 yards "
Bromford Bridge north down home signals	}	... 90 " "
Bromford Bridge south down distant signals		
Junction points, from passenger to platform lines	}	... 22 " "
South-west end of dock platform		
North-east end of passenger platforms	}	... 80 " south-west.
Trailing points to dock platform line		
Bromford Bridge south down home signals	... ..	380 " "
Point of collision	... ..	458 " "
Bromford Bridge south signal-box	}	495 " "
Junction trailing points, on passenger line from platform line.		

The gradient in the down direction, between Castle Bromwich and the site of the collision, rises at an inclination of 1 in 486, and the track is straight.

### *Evidence.*

*Edward James Aldridge*, relief stationmaster, states:—I have had 21 years' service with the Company, have been relief stationmaster four years, and have been in charge of Bromford Bridge Station on many occasions during race meetings. The two signal-boxes (north and south) at the station had been closed from November 30th till January 11th. I did duty at the station on the last-named date, and returned to Derby in the evening. The boxes were switched out from the night of the 11th until the morning of the 13th instant. I arrived at the station from Derby on the 13th, about 9.30 a.m. I had heard before leaving Derby that the race meeting fixed for the 13th was postponed, but had to proceed there in connection with the removal of horse-boxes. Between 9.30 a.m. and 10 a.m., I went to the north box, and found the signalman had arrived. The box had not then been switched in. The signalman informed me that the fogman for the north end had proceeded to his post. About 10.30 a.m. I went to the box a second time, and instructed the signalman to turn the 9.55 a.m. train from Wolverhampton into the platform line to pick up a horse-box. I made inquiries, and satisfied myself that everything was in order. The morning was foggy, but I could see the down home signal arms from the north signal-box. I asked the ganger between 9.30 a.m. and 10.30 a.m., when I met him just beyond the down home signals, whether the fogman was at his post at the down distant signal, and whether the signals were satisfactory. He replied in the affirmative. The 9.55 a.m. train arrived about 20 minutes late, and after attaching the horse-box, left about 11.30 a.m. After despatching the train, I was crossing the rails to the north box, and heard a train approaching from Castle Bromwich. From the noise it made I thought that it was travelling at too high a speed to stop at the home signals for the north box. I saw the platform line home signal dropped and replaced at danger after the 9.55 a.m. train passed it. I saw at the moment I heard the noise referred to that the down main line home signal was at danger. I took my whistle from my pocket, and ran towards the approaching train on the up side, blowing the whistle, shouting at intervals, and holding up my arms. As I was running towards the train I saw the engine pass the home signals, which were all three standing at danger. I do not know whether I attracted

the attention of the enginemen or not, but when I turned round as the engine passed me I saw the signalman waving a red flag from the north box. I followed the train and when I got to the south signal-box, I found that the engine had collided with the Wolverhampton train. As far as I could judge the engine struck the second carriage from the front. I heard no sound of the collision. When I saw the down home signals—after the collision had taken place, they were at danger. The engine of the second (Leicester) train was then lying on its side, the tender and a number of the vehicles of this train were off the rails, but standing upright. The engine and the first carriage of the Wolverhampton train were standing on the rails, the second carriage was broken up, the third and fourth carriages were off the rails and badly damaged, and the horse-box that had been attached in the rear was almost on its side, and badly damaged. When the Leicester train passed me near the north box, horse loader Baker was somewhere near the dock platform, and relief clerk Hardy was also on the ground near me. Lampman Parker was also in the yard. I instructed the signalman at the south box to block all lines. I had telegrams despatched to New Street Station, Birmingham, for doctors and nurses to be sent, this telegram being forwarded at 11.38, and I also sent the usual telegraphic advices to head-quarters, and for the break-down vans and for assistance. Most of the passengers had left the carriages and were on the ballast when I arrived. The wrecked carriages were searched, and the bodies of a woman and child were found in the wreckage, and a number of passengers were in the wreckage injured. These were extricated as quickly as possible, and between 20 and 25 injured persons were placed in the leading vehicle of the Walsall train to be sent to New Street and conveyed to the hospital, and subsequently two other injured persons were sent to New Street in the van of the break-down train. Doctor Green, of Aldridge, who, I believe, was a passenger in the Walsall train, rendered valuable assistance, and several doctors and nurses from Birmingham were soon on the scene of the accident, and attended to the injured. The men in charge of the trains and the staff in charge of the Bromford Bridge Station rendered all the assistance possible. There are no ambulance stores kept at Bromford Bridge.

*David Willoughby*, relief signalman, states: I have had 24 years' service with the Company, nearly five years relief signalman, and have frequently during this time worked the north and south signal-boxes at Bromford Bridge. I finished duty on Saturday, 11th January, at 5.0 p.m., was off duty on Sunday, and came on duty on the 13th at 8.30 a.m. to take charge of the north box, expecting to finish duty at 6.30 p.m. I walked from Saltley, and arrived at Bromford Bridge about 9.10 a.m. The boxes had been switched out on the evening of the 11th, and all the through line running signal levers were pulled over in the frame. Ganger Brooks was waiting for me. I told him to post my fogman at the down distant, and gave him a supply of detonators, etc. I then enquired on the telephone from Washwood Heath Junction whether the fogman for the up distant south box (Bromford Bridge) was at his post. About 9.45 a.m. I heard in reply that he was. I had asked Brooks to tell my fogman to shake the wire of the signal, so that I could know when he was at his post. This was done about 9.30 a.m., and I recorded the time in the train book. Aldridge and Hardy were in the signal-box at the time, I believe. At 9.45 a.m. I opened the north box by switching in the block telegraph instruments, and found there was a train in block indicated on the down passenger line. This train passed me at 9.52 a.m., and I then placed my distant and home signal levers at danger, and gave "Out of section" the same time. I received "Out of section" from the south box for this train at 9.55 a.m. The weather was foggy and frosty, but I could see about 100 yards at this time. The density of the fog varied during the morning; sometimes I could see as much as three-quarters of a mile, but when the collision occurred I could only just see my down home signals—distant about 90 yards. Passenger trains passed me on the down passenger line at 9.57, 10.1, 10.12, and 10.31 a.m. I cannot be certain whether I pulled my distant signal lever for all these trains. But I believe I did so, and I replaced it at danger on each occasion. At 10.35 a.m. I gave "Line clear" for a through goods train to approach on the down passenger line, and received "Entering section" from Castle Bromwich at 10.42 a.m. I lowered my distant signal for this train, and it passed at 10.46. I received "Out of section" for this train at 10.47 a.m. I had received instructions from stationmaster Aldridge to stop the 9.55 a.m. ex Wolverhampton to attach a horse-box. At 11.2 I gave "Line clear" for a passenger train to approach on the down passenger line, received "Train entering section" signal at 11.10, and at once forwarded the "Is line clear" signal to the south box on the down platform line, and it was accepted. I have not any distant signal applicable to trains running from the down passenger to the down platform line, but I lowered my home signal, and this train passed my post at 11.14, at which time I gave "Train out of section" signal, and received "Train out of section" signal for it at 11.15. I gave "Line clear" for the 9.55 a.m. Wolverhampton passenger train to approach on the down passenger line at 11.19. I received "Train entering section" at 11.25, and at the same time obtained "Line clear" for it to proceed to the south box on the down platform line. The train passed my box at 11.29, when I gave the "Train out of section" signal to Castle Bromwich, but I did not receive the "Train out of section" signal from the south box for this train. When I gave the "Train out of section" signal at 11.29 for the Wolverhampton train to Castle Bromwich, I received the "Is line clear" signal for the Leicester train and accepted it, and then received the "Train entering section" signal

at 11.30. I did not offer the "Is line clear" signal for the Leicester train to the south box, as I knew the signalman could not accept it until he had given me the "Train out of section" signal for the Walsall train on the down platform line. I was unable to see my distant signal owing to the fog, and the signal is not repeated in the signal-box. My distant signal lever was placed or was left in the danger position for each of the five trains that passed on the down passenger line, and I did not notice anything unusual in the working of it when placing it to danger after the through goods train had passed at 10.46, which was the last time it was lowered, or in connection with any of the other trains. When the Wolverhampton train passed, and the Leicester train approached, the distant signal lever was certainly in the danger position. I heard the Leicester train approaching, although I could not see it, and was satisfied that it was travelling at such a speed, from the noise it made, that the driver would not stop at my home signal. I took a red flag out on to the landing of my box and waved it towards the engine and shouted, but when the engine passed me I saw the driver and fireman looking out on the down platform side with their backs towards me, and they did not see me. I immediately went into the signal-box and sent the "Vehicles running away on right line" signal to the south box at 11.33. I saw relief stationmaster Aldridge on the up passenger line whistling and shouting and holding up his arms as the train approached, and I also heard some one call from the horse-dock side of the train. I received the "Obstruction danger" signal from the south box at 11.35. I arrived at the north box at about 9.10 a.m., but I arranged with relief signalman Padmore, who was in charge of the south box, that we would not switch open until we had the fog-signalmen at the distant signals. A bolt in connection with my down passenger line distant signal lever is released by Bromford Bridge south box distant signal, so that I cannot lower my distant signal until the Bromford Bridge south distant signal is lowered. Shortly after the accident, the signalman at Castle Bromwich called me up on the telephone and told me that a driver of an up light engine had reported to him that my down passenger line distant signal was standing off. Signal-fitter Aston was working at the south box, and I at once telephoned for him to go to attend to my distant signal, and he did so. He came back to my box shortly after 12 o'clock, and I understood him to say that the distant signal had been standing "off" when the Leicester train passed, that it had subsequently been put to danger, and that the reason for its standing "off" was that it had been frozen up. He also stated that the fog-signalman said that it had been off for some time, and that the trains were being given a clear run through. When I heard this, I asked the signalman at the south box to see if another platelayer could be sent in the place of Rainbow, as I was afraid Rainbow was not carrying out his duties, and a man named Hart was sent to my box, and he left my box to relieve Rainbow at 12.30 p.m. I am well aware of the instructions to signalmen contained in Rule 86, but I did not consider it necessary to take any special action, as up to 10.46 the trains were frequent, and I had constantly to use my distant signal lever. Sometime, I think between 10.0 and 10.30, signal-fitter Murden, who was at the south box, asked me on the telephone if my signals were working satisfactorily, and I told him that to the best of my knowledge they were. If a signal fails to go to danger from any cause when we attempt to pull the lever over, we find it out because the lever comes over very freely;

but on the morning of the 13th each time I pulled over my distant signal lever I appeared to be pulling the average weight, and it went back to danger in the ordinary manner. In placing a distant signal lever in the danger position, if the wire is broken or the signal is sticking off, much more force has to be exerted than usual to get it back, but I did not experience this on the morning in question. I do not think there should have been any difficulty in a driver seeing signal arms at a distance of 50 yards. If signals had been working properly, a clear signal at the down distant would indicate to him that he had a clear run through the yard, but this would not do away with the obligation to observe other signals. The continuous brake was not applied on the express train as it passed my box. I should say its speed was about 45 miles an hour, which is a common enough speed with a clear road.

*Robert Padmore*, relief signalman, stationed at Saltley, states: I have had about 20 years' service with the Company, have been a relief signalman four years, and have worked the Bromford Bridge north and south signal boxes on many occasions. I was engaged on special duty in connection with engineering work on Sunday, January 12th, from 6.30 a.m. and went off duty at 5 p.m. On Monday, January 13th, I came on duty at 8.30 a.m. to take charge of Bromford Bridge south signal-box with instructions to open it at about 9 a.m., but in consequence of the fog I arranged with relief signalman Willoughby, who was in charge of the north box, that we would not open the boxes until we had the fog-signalmen on duty at the distant signals. I was advised by Washwood Heath Junction that a fog-signalman was at my distant signal about 9.30 a.m. and we opened the boxes at 9.45 a.m. When we did so there was a train in block on the down passenger line. It passed my post at 9.52 and I gave "Train out of section" signal for it, and received the "Train out of section" signal from Washwood Heath Junction at 9.54. Passenger trains passed my post on the down passenger line at 9.56, 10.2, 10.15 and 10.32 a.m. My distant, home and starting signals were lowered for each of these trains so far as I can remember. I gave "Line clear" for a through goods to approach on the down passenger line at 10.12, and received "Train entering section" signal at the same time. I at once forwarded the "Is line clear" signal to Washwood Heath Junction and it was accepted. The train passed me at 10.16. I gave "Train out of section" signal at that time, and received the "Train out of section" signal at 10.55. The whole of my down passenger line signals were lowered for this train. At 11.11 I received the "Is line clear" signal for a passenger train to approach on the down platform line and I accepted it and received the "Train entering section" signal at the same time. I forwarded the "Is line clear" signal to Washwood Heath Junction at 11.11 and it was accepted. The train crossed to the down passenger line at my post at 11.14, at which time I gave the "Train out of section," and I received the "Train out of section" signal from Washwood Heath Junction at 11.15. At 11.26 I received the "Is line clear" for another passenger train on the down platform line and accepted it, and received the "Train entering section" signal at the same time. I forwarded the "Is line clear" signal for this train at 11.26, and sent the "Train entering section" signal to Washwood Heath Junction as the train was passing my box at 11.31. This train stopped at the platform to pick up a horse-box. When this train was crossing from the down platform line to the down passenger line, I received the "Vehicles running away on right

line" signal, and simultaneously with the receipt of this signal the engine of the Leicester train came in contact with the carriages of the Walsall train, and I at once sent the "Obstruction danger" signal in both directions. I saw the collision take place. At the time of the accident a very thick fog prevailed, and I was unable to see any of the signals worked from my signal-box. I think I could see about 30 yards at the time. I placed the home signal applicable to trains from the down platform line to the down passenger line at danger as the Walsall train was passing through the connection. The only levers over in my frame at the time of the accident were 8 and 9 working the connection from the platform line to the passenger line, and 7 the down passenger line starting signal. A signal-fitter was at my box at the time, and I was informed that the whole of the signals had been examined prior to the accident and found to be working properly. After the accident I asked relief stationmaster Aldridge whether my home signals were properly at danger and he told me that they were. I think it is possible to detect a failure of a distant signal arm to go to danger by the heavier push required to replace the lever at danger.

*William Aldridge*, engine driver, stationed at Walsall, states: I have had 35 years' service with the Company, have been an engine driver 22 years, and have been accustomed to working past Bromford Bridge all the time I have been a driver. On January 11th I came on duty at 2.23 p.m., and booked off duty at 12.30 a.m. on January 12th. On Monday, January 13th, I came on duty at 5.22 a.m. and worked the 6.27 a.m. passenger train Walsall to King's Norton, the 8.31 a.m. train King's Norton to Walsall, and the 10.27 a.m. Walsall to Birmingham. This is the 9.55 a.m. train from Wolverhampton. We left Walsall at 10.52 a.m., 25 minutes late, and left Castle Bromwich 24 minutes late. At Castle Bromwich I received a written order to stop at Bromford Bridge to attach vehicles. It was very foggy in places. On passing Bromford Bridge north down distant signal, which has a single arm, I saw that the signal was "off." I therefore thought the order to go into Bromford Bridge had been cancelled, and that I was going to pass on the down passenger line, and not on the down platform line. However, as I had the order to stop, I reduced the speed of my train and was prepared to stop at the home signal which I could not sight until I was within 50 yards of it owing to the fog. I found that the middle signal of the three, leading from the down passenger line to the down platform line was lowered, and I therefore proceeded on to the down platform line. Someone on the platform stopped us by signalling to the fireman after we had cleared the points on to the dock line. We attached a horse-box from the horse dock to the rear of the train, and on leaving Bromford Bridge my train consisted of engine No. 2033, a six-wheels-coupled tank engine with a four-wheeled bogie under the footplate, running chimney first, four eight-wheeled bogie vehicles and a four-wheeled horse box. The six coupled wheels of the engine were fitted with the steam brake, and all the wheels on the train were fitted with the automatic vacuum brake, both brakes being applied by one lever from the footplate. The brake had been in good working order and acted satisfactorily between Walsall and Bromford Bridge, and I had no difficulty in creating the proper amount of vacuum (20 inches) after it was destroyed by attaching the horse-box. When we started, after getting a right-away signal from the guard, I drew towards the south box home signal and found it at danger. I sounded

my engine whistle, and the signalman then lowered the signal for us to proceed from the down platform line on to the down passenger line, and while the train was passing through the connection, the engine of the 10.10 a.m. express from Leicester came in contact with the third vehicle from the engine on my train, derailing all the vehicles on my train except the engine and the one next to the engine, and doing considerable damage to them. When I arrived at the down platform line at Bromford Bridge they were in such a hurry to get the horse-box attached and my train away that it did not occur to me to say anything to them about the unusual occurrence of the distant signal being "off" with the home signal leading to the down platform line also "off" at Bromford Bridge North. The fog was thicker considerably at the south end of the yard than at the north.

*Thomas William Napper*, fireman, stationed at Walsall, states: I have had 13 years' service with the Company. I was passed as a fireman about 8 years ago, but have been reduced owing to slackness in trade, and have again been a regular fireman for about 11 months, working past Bromford Bridge the whole of that time. On January 11th, 12th and 13th, I was fireman to driver Aldridge, and worked the same hours that he did. I have heard the evidence given by my driver read, and it is correct. When I passed the Bromford Bridge North down passenger line distant signal, I am quite certain that it was exhibiting an "All right" signal, and I did not see any sign of a fogman at it. I am sure that the speed of my train did not exceed 10 miles an hour when we were nearing the Bromford Bridge North down home signals, and I was unable to see those signals until I was about 30 yards from them, when I saw that the signal was lowered for us to run from the down passenger line to the down platform line. It did not seem to me to be strange that the down distant signal was off when I found the platform line home signal lowered. I thought the distant signal might apply to both the passenger and platform roads. I saw several men on the dock platform. I thought they were in a hurry to get us away.

*Alexander Lane*, passenger guard, stationed at Walsall, states: I have had 13 years' service with the Company. I have been a passenger guard 5½ years, and have been accustomed to working past Bromford Bridge Station all the time I have been a passenger guard. On January 11th I came on duty at 1.15 p.m. and finished duty at 11.30 p.m. On January 12th I was off duty, and on Monday, January 13th, I came on duty at 6.15 a.m., expecting to finish duty at 5.5 p.m. I worked the 6.27 a.m. passenger train Walsall to Birmingham, the 7.38 a.m. train Birmingham to Wolverhampton, and the 9.55 a.m. Wolverhampton to Birmingham. On leaving Walsall with the latter train, my train consisted of engine No. 2,033, a six-wheels-coupled bogie tank engine, and the following vehicles in the order given from the engine:—

Bogie third brake.  
Bogie third.  
Bogie first.  
Bogie third brake.

These were all eight-wheeled vehicles, weighing altogether 86 tons, with blocks on all wheels. We left Castle Bromwich, the last booked stop, at 11.27, 28 minutes late, caused by train late to platform at Wolverhampton, signal delays on the journey, and waiting engine at Walsall. At Castle Bromwich I was instructed that my train was to stop at Bromford Bridge to attach a horse-box, and my driver was given a written order to do so.

I did not see the Bromford Bridge North distant signal, as I was sorting letters which had been put into my van at Castle Bromwich. As we approached the Bromford Bridge North home signal my driver nearly came to a stand, and I saw the proper signal was lowered for us to enter the down platform line. Relief clerk Hardy was on the platform and signalled us to move back, and the stationmaster, Aldridge, was also on the dock line. We attached a four-wheeled horse-box to the rear of the train at Bromford Bridge, so that on leaving there my train consisted of five, equal to seven, vehicles, all fitted, and in use, with the automatic vacuum brake. I did not notice the exact time that we left Bromford Bridge Station, but I saw that the Bromford Bridge South home signal was lowered for us to run from the down platform to the down passenger line. While crossing through the connection, the engine of a train on the down passenger line came in contact with the third vehicle from the engine on my train. There was no warning of this whatever, by whistle or otherwise. I saw the engine pass my brake, and before I could do anything the vehicle in which I was riding was turned partly over on its side. I was thrown down and severely shaken, and my left side was slightly bruised. I climbed through the window next to the ground and found that the engine and leading carriage were on the rails and practically undamaged. The second vehicle from the engine was completely smashed up, and the bogie first class was thrown down the embankment and was lying on its roof. The vehicle in which I was riding was thrown partly on its side, and the horse-box was off the rails, but standing upright. I went to the signal-box and told the signalman to block all roads, and he informed me that he had already done so. I returned to my train and rendered what assistance I could to the passengers. I think there were between fifty and sixty passengers in the train. A number of passengers in my train, but I could not say how many, were injured, and I was informed that two dead bodies were found. I was not present when they were discovered. Doctor Green, of Aldridge, who was travelling in my train, rendered assistance to the injured passengers, and some little time after several doctors arrived, and after the injured passengers had been attended to, they were placed in the leading vehicle of my train and sent to Birmingham to be taken to the hospital. If I had seen or been aware that the down distant signal was off when we passed it, I should have reported the fact to the relief stationmaster. There was nothing to prevent my doing so.

*Conyers Kirby*, engine driver, stationed at Saltley, states: I have had 42 years' service with the Company and have been an engine driver about 24 years. I have been used to working past Bromford Bridge all the time I have been a driver. On January 11th I came on duty at 9.35 a.m., and finished duty at 7.35 p.m. I next signed on duty on January 13th at 7.1 a.m., expecting to finish at 6.20. I worked the 8.6 a.m. passenger train Birmingham to Leicester, and the 10.10 a.m. passenger train Leicester to Birmingham. My train consisted of engine No. 507, a four-wheels-coupled engine with leading bogie, and a six-wheeled tender, and four vehicles equal to five and a half weighing 79 tons. The whole of the wheels on my engine including the leading bogie, and all wheels on the tender were fitted with the steam brake, and all the wheels on the train were fitted with the automatic vacuum brake, both brakes being applied by one lever from the footplate. The brake was in good condition and I had no difficulty in maintaining

20 inches of vacuum. We left Leicester 21 minutes late, and were checked by signals between Leicester and Wigston. I had no booked stop on my train between Arley and Saltley, and was nowhere checked up to Castle Bromwich. Approaching Castle Bromwich all the signals were lowered for me to proceed on the down passenger line. I could sight Bromford Bridge North down passenger line distant signal about a quarter-of-a-mile before reaching it, and it was in the "All right" position. The fog just at that place was thinner than elsewhere. I did not see anything of the fogman at that signal. Fogmen were out all the way. This signal gave me a clear road right through to Washwood Heath Junction. Between Bromford Bridge North down distant and home signals the fog became much more dense, and I could only see a very short distance ahead of the engine. I crossed the footplate to my fireman's side to try and get a view of the Bromford Bridge North down home signals, but I could not see them, and the first thing I saw was someone either on the horse-dock platform or near the north end of the passenger platform waving their arms for me to stop. I did not hear any shouting. I at once recrossed to my side of the engine, closed the regulator, and applied the brake full force. The brake acted well, but we were running at about 40 miles an hour, or perhaps somewhat faster, when I applied the brake, and I think at that time my engine would be about half-way along the platform. I did not attempt to cross the footplate to look for the south box signals, but when passing under the bridge at the south end of the station I commenced to reverse my engine, and immediately after it came in contact with the carriages of the Walsall train. My engine turned over on to its side, and I rolled out of the cab on to the ballast, and my fireman rolled on the top of me. At the time I did not think I was in any way injured, but I am feeling a pain in my left side, and think my ribs are bruised, but not seriously. My fireman was cut about the head and legs, but the exact extent of his injuries I do not know. He helped me to attend to the engine fire, &c., but subsequently had to go to the hospital. I had seen the instructions in the Weekly Notice of signal alterations and other arrangements that the Bromford Bridge North and South signal-boxes were to be opened on January 13th, and I was approaching that place fully alive to the fact that the boxes were open.

*Ernest Alfred Wooster*, passenger guard, stationed at Peterboro', states: I have had nearly 27 years' service with the Company, and have been a passenger guard about 16 years, and used to working past Bromford Bridge Station about four months. On January 11th I came on duty at 11.40 a.m. expecting to finish duty at 10.55 p.m., but in consequence of the trains running late owing to the bad weather, I did not finish until 12.36 a.m. on the 12th. I next came on duty at 7.30 a.m. on January 13th to work the 7.45 a.m. Peterboro' to Leicester, and 10.10 a.m. Leicester to Birmingham. In ordinary circumstances I book off duty about 6.30 p.m. On leaving Leicester, my train consisted of engine No. 507, and the following vehicles in the order given from the engine:—

	Wheels.
Bogie composite brake 3037 ...	8
Bogie third 2073 ...	8
Bogie composite 3020 ...	8
Van 576 ...	6

In all four vehicles equal to five and a half, with a total weight of 79 tons. All the wheels on the train were fitted with the automatic vacuum

brake, which was in use. We left Leicester at 10.32, 21 minutes late, caused by 15 minutes late arrival from Peterboro', and waiting connections with other trains. We left Arley, the last stopping place before reaching Bromford Bridge, 23 minutes late, having been delayed by signals on the journey. I saw all the signals at Water Orton Junction were off for us to proceed, but when passing Castle Bromwich and Bromford Bridge North signals I was engaged placing parcels and luggage ready to be put out at Saltley, so that I did not see any of those signals. The first I knew of anything wrong was a very sudden application of the continuous brake, which threw me down on the floor of my van, and before I could get up a tremendous noise occurred from the collision. There was an interval of a few seconds between the two shocks. I was badly shaken, and my back is slightly bruised, but I was not otherwise injured. As soon as I got up, I got out of my van with the object of protecting my train. I overtook a platelayer who had flags and detonators, and asked him if he was going to protect the down passenger line. I told him that I should rely on him doing so, and I then went to Bromford Bridge south signal-box and told the signalman there to block all roads, and he informed me that he had already done so. I then returned to my train. I found the engine had come into collision with, I believe, the third vehicle of the train from Wolverhampton which was crossing from the down platform line to the down passenger line. My own engine was turned on its side, the tender was off the rails but upright, the first two vehicles on my train were off the rails but upright, and the last two vehicles were on the rails. I believe my train was conveying from 70 to 80 passengers, and when I got back to it some of the passengers had already left the carriages, and I assisted others to leave. No complaint was made to me of injury by any of the passengers in my train, but I know that a number of passengers in the Walsall train were injured. These I assisted to extricate, and I assisted to bandage some of these passengers, as I have passed two examinations of the St. John Ambulance Association.

*William Middleton*, engine driver, stationed at Saltley, states: I have about 33 years' service with the Company, and have been an engine driver for 25 years. On January 12th I signed on duty at York at 7.55 a.m., expecting to sign off duty at 6.15 p.m., but owing to the bad weather and the block telegraph being broken down in many places, I did not get relieved until 7.55 p.m., and signed off duty at 8.30 p.m. On January 13th I signed on duty at 10.40 a.m. to work a light engine from Saltley to Water Orton, and subsequently to work a train to Burton and back, and I expected to finish duty at about 8.30 p.m., but in consequence of the accident at Bromford Bridge I did not sign off duty until 10 p.m. I passed the Bromford Bridge south box at about 11.30, and when a short distance on the north side of the overbridge I saw the Walsall train starting from the down platform line and immediately after the Leicester train passed me on the down passenger line. I realised that something was wrong, but had not time to take any action, and was unable to see the position of the down home signals owing to the fog. I do not think I could see the Bromford Bridge North up passenger line home signals until I was within two engines' length of them. My engine was brought to a stand at the north box owing to the starting signal being at danger, and after standing one to two minutes the signalman called, "Right away," and I proceeded and found the up passenger line

starting signal lowered. I saw that the Bromford Bridge North down home signals were all at danger. This would be probably about three minutes after the Leicester train had passed. After passing the starting signal the fog was not so dense, the sun was breaking through, and I could see the Bromford Bridge North down distant signals about 200 yards before reaching them. I told my mate to see if there was a fogman at them, and I also myself looked and found a fogman there, but both the passenger and goods line distant signals were standing off. The fogman was standing up with his flags in his hand. My engine was brought to a stand at Castle Bromwich Station Junction up passenger line home signal, and let forward to the directing signal, where it was again brought to a stand, and I immediately sent my fireman to the signal-box to advise the signalman of the position of the Bromford Bridge North down distant signal.

*John Baker*, porter-guard, stationed at Derby, states: I have had about 42 years' service with the Company, have been a porter guard 38 years, and have been temporarily employed at Bromford Bridge Station from time to time for about 14 years. The station is opened seven or eight times a year for two or three days at a time. On Monday, January 13th, I came on duty at Derby at 6.10 a.m., and travelled as a passenger to Bromford Bridge to assist in loading horses, expecting to finish duty at 4 p.m. I had previously finished duty at 10.55 p.m. on January 11th. The 9.55 a.m. passenger train Wolverhampton to Birmingham was stopped specially at Bromford Bridge to attach a horse-box. I coupled the horse-box to the train. This train left at about 11.30 a.m. and I was standing at the south end of the horse-dock when I saw the stationmaster run out of the North signal-box and run towards the down home signals. He was whistling and holding up his arms. I looked towards the signals and saw that they were all at danger and the engine of the Leicester train was just passing them. As the engine approached me I saw both the driver and fireman looking out on the side of the engine that I was upon, and I held up my arms and shouted at the top of my voice. I saw that the driver had noticed me and he crossed to the opposite side of the engine. The driver after the accident spoke to me. He said I was the first person he saw who gave him a signal to stop.

*Thomas Brooks*, permanent-way ganger, states: I have had 22 years' service with the Company. I have been a ganger four-and-a-half years, and have been on the Castle Bromwich and Bromford length (1 mile 6 chains) all the time I have been a ganger. I was not on duty on January 12th. On January 13th I came on duty at 7.45 a.m., expecting to finish duty at 5.0 p.m. I have three men under me. My length ends towards the north end of the Bromford Bridge platforms, and the whole of the connections at the north box are under my supervision. After coming on duty I remained near the north box and cleaned all the connections and oiled the points, waiting to see whether the box would be opened, as I had heard on Sunday night that the Races would be abandoned. About 9 a.m. the signalman arrived at the north box, and shortly after he asked me for a fog-signalman for his down distant signals. This was the first that I knew of the box being open. I took the flags, detonators, and hand lamp from the signal box, and told him that I would send Rainbow, one of my men, who was then at work near the distant signals, to act as fogman, and I proceeded towards Castle Bromwich examining my length

as I went, until I found Albert Rainbow, about 200 or 300 yards south of the distant signal, and I handed the fogman's articles over to him, and told him that the boxes were going to be opened, and that he was to go to the distant signals and fog-signal for them. I saw Rainbow go on his way to the distant signals, and I returned to Bromford Bridge north box with another labourer to attend to the points, so that at this time I did not go within some distance of the distant signals, and I did not see them owing to the fog. I told the signalman that the fogman was at his post. I did not go to examine the distant signal wires. I was engaged in cleaning the snow away from the points leading from the down platform to the horse dock sidings when we had to stand aside to allow the Walsall train to pick up a horse box. We resumed our work after the Walsall train had left, and were so engaged when the Leicester train passed on the down passenger line. I saw some people, porter Baker and Mr. Aldridge, wave their arms to stop the Leicester train, and remarked to the labourer with me, "I wonder if he will stop?" and directly after relief clerk Hardy told me that an accident had happened, and asked me to go and assist. I ran towards the south box, but did not get quite as far as the overbridge when I met platelayer Teager, who told me I was required to protect the down passenger line. I therefore returned to the north signal box, and told signalman Willoughby what my instructions were, and he told me to go on to the distant signals and tell the fogman to put three detonators down on each line, and to keep the danger signal exhibited until he got further instructions, and I did so. When I got within about 50 to 100 yards of the distant signals, I could see that both the down passenger and down goods line distant signals were standing off. I spoke to fog-signalman Rainbow, whom I found sitting in the fogman's box, that there had been an accident, and asked him about the signals being off. He told me they had both been off all the morning, and that he had tried to put one of them to danger, but that it had come off again. I don't know what he did to try to put the signal to danger, nor which signal he tried to replace. I tried to place the signals to danger, but could not do so at first. I found the chain and wire between the weight bar arm and the side pulley at the foot of the post quite tight. The wire was also tight on the other side of that pulley when I first caught hold of it, but little by little it slackened off towards me as I shook it. The wires crossing the railway were probably held fast by frozen snow before I caught hold of them. I succeeded in this way in putting the signal arms into the danger position. I instructed Rainbow to place the detonators on the rails, and to keep a danger signal exhibited against all trains. I then returned towards the signal box, and on my way met signal-department-fitter's labourer Aston, and afterwards signal-fitter Murden, and walked past them. I can't say whether I told them that I had found the distant signals off. When I reached the signal-box signalman Willoughby told me to place three detonators on the down passenger and down goods lines outside the home signals, and I did so. I do not think I told Willoughby that I had found the distant signals off, or had any conversation with him about it, as he was busy at the time. When I was at work at the points leading to the horse-dock, I could see the signal box, but I could not see the down home signals owing to the fog.

*Samuel Murden*, signal fitter, states: I have

had 20 years' service with the Company. I was an assistant signal-fitter for about 14 years, and have been a signal-fitter stationed at Saltley for 12 months. On January 13th I came on duty at 6 a.m., expecting to finish at 5.30 p.m., with 1½ hours for meals. My instructions are to go and examine the apparatus at the Bromford Bridge north and south signal boxes whenever they are opened in connection with Race traffic, and I proceeded to Bromford Bridge south box and reached there shortly after 10 a.m., having been delayed at Saltley Junction and Washwood Heath Junction in clearing some of the signal wires of snow to ensure their working properly. I found a quantity of snow in front of Bromford Bridge south box, and as I thought it might interfere with the working of the apparatus, I cleared it away, and then went into the box and asked the signalman at the north box by means of the telephone if all was in working order, and he said that everything was in working order so far as he knew, and I think this would be about 11 a.m. I did not say anything to the signalman at the south box about his apparatus, because I took it for granted that he would immediately have told me had anything been wrong. I know there are no indicators for the distant signals at these boxes. Immediately after the accident the signalman at the south box told me that the signalman at the north box wanted me there at once, and I and my mate Aston proceeded to the north box. When we got there the signalman informed me that the down passenger line distant signal was not at danger, and I think he said it was "off" for the express. Aston and I at once went to the signals and found both the down passenger and down goods line distant signals at danger. We reached the signals about 20 minutes after the accident occurred. I saw the fog-signalman in the fogman's hut, and I asked him if the signal was "off," meaning for the Leicester train, and he said "Yes," but I did not ask him how they came to be at danger when I saw them. When I returned to the north box I told the signalman that the distant signals were on when we arrived there, and I did not say anything further to him, and I did not hear Aston say anything to the signalman. I am satisfied that Aston had not put the signals to danger before I saw them in that position, and I do not know of any other person that could have done so except the fogman or ganger. I met the ganger near the north box as I was going to the signals, but I do not know whether he had been to them or not. I oiled the working parts of the north down distant signal on Saturday, the 11th, *i.e.*, the weight bar and the rodding and the pulleys.

*Albert Edward Aston*, signal-fitter's labourer, stationed at Saltley, states: I have nearly 11 years' service with the Company, have been a signal-fitter's labourer all the time, and have been stationed on the Saltley district five years. On January 13th I came on duty at 6 a.m. to remain until 5.30 p.m., with 1½ hours for meals. I am fitter's labourer to signal-fitter Samuel Murden. I accompanied Murden to Bromford Bridge signal-boxes in accordance with the usual practice when those boxes are open, and on the way we attended to some signal-wires at Saltley Junction and Washwood Heath Junction which were not working well owing to the frost and snow. On arrival at the Bromford Bridge south box, we cleared frozen snow away from the pulleys to prevent it interfering with the working of the signals. Prior to the accident I had not had any conversation with the signalman at the Bromford Bridge south box, and we were still engaged in clearing snow when the accident occurred. There

was a thaw on Sunday afternoon and a hard frost at night. Shortly after the accident I heard the driver of the Leicester train say that the Bromford Bridge North down distant signal was off for him, and I at once proceeded to the signal without waiting for instructions from anyone. Murden followed me, and on my way to the signal I met ganger Brooks about a quarter-of-a-mile before reaching the signal. I do not think that at this time I had any conversation with Brooks, but went towards the signal, and when about 50 yards from it found it at danger and the down goods line distant also at danger. I found fogman Rainbow on duty at the distant signals. I asked Rainbow if the signal had been working, and he told me that it had not been working the whole time while he had been there. On my way to the signal I examined the passenger distant signal-wire all the way through, and found it quite free, and the two pulleys in connection with it were also apparently free. I went up the signal-ladder and examined all the fittings, and they appeared to be in good order, and I lifted the weight-bar, which is fixed about halfway up the signal-post, and let the weight-bar go, and the signal again went to danger. I did not examine the goods line distant signal, as it was at danger at the time, and nothing had been said to me about it. I then returned to the Bromford Bridge North signal-box, and told the signalman that his distant signal was at danger, and that the fogman had stated that the distant signal had not worked at all while he had been there. I then went to render assistance at the scene of the accident. When I was returning from the signal to the north box, I met Murden about half-way between the distant and home signals and told him that I found the signal at danger, and that I had examined it and found it all right. I went on to the signal-box, and Murden went towards the signal.

*Albert Rainbow*, second ganger, on the Castle Bromwich and Bromford length under ganger Brooks, states: I have had about 14 years' service with the Company, and have been a second ganger about 4½ years, and on the Castle Bromwich and Bromford length all the time I have held that position. On Sunday, January 12th, I was on duty from about 11.20 a.m. until about 1.15 p.m. overlooking the length. On January 13th, I came on duty at 7.45 a.m. until 5 p.m. and proceeded with one other man repairing fences about 300 yards on the Bromford side of the Bromford Bridge North box down distant signals, and I was so engaged when my ganger came to me and told me to go fogging at Bromford Bridge North down distant signals. The morning was foggy and it was freezing. He gave me the flags, detonators, and hand-lamp, and I at once proceeded to the signals, and found them both off. This would be about 9.30 a.m. I thought it strange that the distant signals should be standing off with the box open, and I pulled the wires and pressed down the weight bars to place the arms to danger, but as soon as I loosed the weight bars the signals went off again. As the signals remained off I did not place any detonators down, as I concluded that the signal-box had not been opened. The ganger told me when handing me the flags and detonators, that when I got to the signals I was to shake the wire to let the signalman know that I was there, and I did so before I tried to place the signals to danger. I held the wire outside the up goods line a few yards from the pulley. I thought that the signalman would know when I shook the wire, and would then place the distant signal to danger, but he did not do so, and it was after this that I tried to place the arms to danger, but they would not stop on. I tried the goods line distant

signal first, as I was nearest to it, and the weight bar was near the ground, and when that would not stop at danger I tried the passenger line signal, but I did not try them again. I did not know when the signalman had switched in, I assumed he never did as the signals remained off. A number of trains passed me, and the last one was the Leicester express. Some little time after this train had gone by, my ganger came back to me and he said "You will hear more about this," and I said "What?" and he replied that there had been an accident at Bromford Bridge. I was upset at hearing this, and did not say much to my ganger at the time. I am the regular fog-signalman for the Bromford Bridge North down distant signals, but as these signal-boxes are only open in connection with the Races, it is seldom that fog-signalling duties have to be performed, and in the  $4\frac{1}{2}$  years that I have been on the length I have only acted as fog-signalman half-a-dozen times. I do not think I have acted as many as a dozen times. The last occasion I was out fogging was in November last. After trying to place the

distant signal arms to danger by moving the balance weight arm and failing to do so, I felt satisfied that the signalman was keeping the distant signals off, and I exhibited a green flag to the drivers as they passed.

*William Henry Rolls*, shunter, stationed at Washwood Heath Junction, states: I was informed by the clerk that an accident had taken place at Bromford Bridge, and instructed to proceed there. I got the ambulance box from the West end, and gave it to another man Harrison, and then went to the North box for the other ambulance box. I then proceeded to Bromford Bridge. I ran all the way and arrived at the scene of the accident as near as I can tell at 11.45 a.m. I was the first to arrive. I am qualified as first-aid assistant and hold a medallion (St. John Ambulance Association) and two bars—the latter for yearly examinations. I also hold a nursing certificate. Harrison arrived some minutes afterwards, and a number of other men, a dozen or more, were soon on the spot, who all held ambulance certificates.

### Conclusion.

The circumstances attending this collision were altogether exceptional, and are unlikely to recur. The evidence is very clear, and there is no conflict upon any material point.

The traffic at Bromford Bridge is entirely connected with race meetings, which are held on the adjoining racecourse. The station is therefore closed throughout the year, except on seven or eight occasions, when it is opened for two or three days at a time. The signal-boxes are also switched out, and the usual position of the running line signals is "clear." The last occasion upon which the station had been opened was on the 30th November.

A race meeting had been fixed for the 13th January, and it was necessary to open the station, and the signal-boxes, on Saturday, 11th January, in order to deal with horse traffic. All the signalling arrangements worked satisfactorily on that day, and the boxes were again switched out at 5 p.m., and remained closed during Sunday, 12th January. Snow was lying on the ground, but a thaw, accompanied by bright sunshine, set in during Sunday. In the night there was a sharp frost, which turned the half-melted snow into ice. The race meeting was therefore postponed. But it was necessary to re-open the station on the 13th January, to arrange for the removal of horse-boxes.

Relief stationmaster Aldridge, signalmen and others arrived at Bromford Bridge between 9 and 9.30 a.m. The morning was frosty and foggy, and it was not possible to see a greater distance than 100 yards. Signalmen Willoughby (North box) and Padmore (South box) therefore decided not to switch open their signal-boxes, until a fog-signalman had been posted in each direction at the down and up distant signals. There are two distant signals in the down direction, applicable to the down goods and down passenger lines respectively, and the levers working these signals in the North box cannot be drawn over until they have been released by the corresponding levers for the distant signals for the South box.

Willoughby therefore instructed ganger Brooks to post a fog-signalman at the down distant signals for the North box. Brooks accordingly took the necessary flags, detonators, &c., and told one of his men (Rainbow), whom he found working on the line, to go and act as fog-signalman. Rainbow reached the signals at 9.30 a.m., and notified his arrival to Willoughby by shaking the signal wires, thus causing the levers in the signal-box to rattle. Eventually, Willoughby and Padmore switched open at 9.45 a.m., and the former finding his block instrument indicated a train on line on the down passenger road, waited until the train passed at 9.52 a.m. before placing his signal levers in the danger position.

Passenger trains were duly signalled and passed Willoughby on the down passenger line at 9.57, 10.1, 10.12 and 10.31 a.m. A through goods train also passed at 10.46 a.m. On all these occasions the down distant signal lever was drawn and replaced at danger, to the best of the signalman's recollection.

About 10.30 a.m. stationmaster Aldridge instructed Willoughby to turn the 9.55 a.m. train from Wolverhampton into the down platform line, and stop it in order to attach a horse-box. This train is due to pass Bromford Bridge about 11.4 a.m. The next passenger train offered from Castle Bromwich at 11.2 a.m. was therefore signalled from the North to the South box on the down platform line, and Willoughby reversed the junction points.

The down passenger distant signal is not applicable to the down platform line, and it was therefore impossible for Willoughby to draw the distant signal lever. The train on arrival at 11.14 a.m. proved not to be the 9.55 a.m., for the driver, having no instructions to stop at Bromford Bridge, and finding the signals at the South box had been lowered, ran through the station on the down platform line without stopping.

The 9.55 a.m. train was eventually offered to and accepted by Willoughby at 11.19 a.m. He signalled it to Padmore on the platform line, and perforce kept his distant signal lever at danger. Padmore also kept his signals in the danger position. Driver Aldridge noticed that the down distant signal arm was lowered when he passed, but having received orders to stop at Bromford Bridge to attach, he proceeded cautiously and stopped at the platform about 11.29. The horse-box was attached, and the train drew forward to the home signals for the South box. Padmore lowered the signal applicable to the crossing from the platform to the down passenger line, and as the train was moving over this crossing, the collision occurred.

Willoughby states that the 10.10 a.m. train from Leicester was offered to him from Castle Bromwich at 11.29 a.m., and that he accepted it immediately. He did not offer it to Padmore, as he knew the latter would not accept it until the Wolverhampton train was "cleared." He therefore kept all his down passenger line signals at danger, and expected the Leicester train to stop at his down home signals. He heard the sound of the train approaching, and from the noise made was certain that it was travelling too fast to stop. So he endeavoured to attract the attention of the driver or fireman, as they passed the North box, by waving his red flag and shouting. Stationmaster Aldridge and porter-guard Baker also did all in their power to the same end.

Driver Kirby, of the Leicester train, sighted and passed the down distant for Bromford Bridge North in the "clear" position. This signal indicated to him that he had a clear road through Bromford Bridge Station to the next block post—Washwood Heath Junction. Near Bromford Bridge the fog was much more dense, and Kirby states he failed to see the home signals for the North box. He observed someone (probably Baker) near the north end of the passenger platform waving his arms, and he applied the continuous brake full force when the engine was half-way along the platform, running at a speed of 40 to 45 miles an hour. The brake acted well, but the interval was not sufficient to stop the train from passing the home signals for Bromford Bridge South box and colliding with the train on the crossing 78 yards in front of them.

By Kirby's account, the brake was fully applied for a distance of about 225 yards before the collision took place. But judging from guard Wooster's evidence, it is probable that the interval of time between the application of the brake and the collision was a good deal less than ten seconds, the time which it would take to travel that distance at 45 miles an hour.

Kirby's statement with regard to the position of the distant signal is proved to be correct by all the evidence. The signal was in the clear position, and he was, therefore, justified in assuming that the home signals for both the North and South boxes would be in the same position. Of course, the fact that the distant signal indicated a clear road did not absolve him from the obligation of observing the home signals in advance of it. But having regard to the condition of the atmosphere at Bromford Bridge, and to the misleading indication Kirby received at the distant signal, I am not prepared to lay any responsibility for the collision upon him.

Second ganger Rainbow explains that, from 9.30 a.m. until after the collision had taken place, the distant signal was continuously in the clear position. He was told by ganger Brooks that the North box was to be opened on his arrival at the signal-post, and thought it strange that the distant signals should be standing "off." He tried to place the signal-arms at danger by working the weight bars, but failed to do so, and then, to account for the clear position of the signals, concluded that the signal-box had not been opened. He therefore did no more than exhibit a green flag to all the trains that passed him.

The evidence of ganger Brooks clears up the mystery. After the collision he went out to the down distant signals, and found them both in the "clear" position. The chain and wire between the weight bar and the side pulley at the foot of each of the signal-posts was quite tight. From this pulley the signal wires run across the permanent way, under the rails of the three tracks, to a second side pulley outside the up goods line. From this second pulley the run of the signal wires is straight all the way to the signal-box. It was this straight run of wire that Rainbow shook to warn the signalman of his arrival. Brooks caught hold of the wire near the first pulley, and, by dint of frequent shaking, he found the wire gradually slacken off towards him, until the signal-arm went to danger. Obviously, therefore, the wire lying on the ballast and under the rails, being covered with frozen snow, was seized between the two pulleys, and the pull exerted by the balance-

weight lever was not sufficient to free it when the signalman placed the lever in the danger position.

It has been suggested that signalman Willoughby ought perhaps to have recognised by the difficulty he would have in moving the lever back, and the easy way in which it would spring towards him when he drew it over, that the balance weight on the signal post was not exerting a pull on the wire. But I think it is possible, since the wire (950 yards in length) had probably contracted considerably from the severe cold during the night and early morning, that it was in a much higher state of tension than usual. This tensional pull would assist in counteracting the weight on the back-tail of the lever, when it was moved from the safety to the danger position, and would have to be overcome in reversing the movement. The signal, which in clear weather is in plain view of the signal-box, was obscured of course by the fog, and there is no repeater provided in the signal-box to indicate the position of the semaphore arm.

There is more than a quarter of a mile (470 yards) between the down home signals for the North and South boxes. It was therefore quite legitimate for Willoughby to accept the Leicester train with the full "line clear" signal, with the levers working his distant and home signals in the danger position.

Consequently, I see no grounds for holding Willoughby or Padmore responsible for the accident by reason of any default or neglect of rules.

As regards the fog-signalman Rainbow, he had specific instructions that the signalmen were awaiting his arrival at the distant signals before opening the boxes. Willoughby, however, did not place his levers in the danger position until 9.52 a.m. No doubt, therefore, when Rainbow made his attempt to put the signal arm to danger shortly after 9.30 a.m., it was not possible to do this, as the arm had not been released from the signal-box. But when the distant signal did not go to danger behind the first train that passed him, *i.e.*, at 9.52 a.m., Rainbow ought to have acted in accordance with Rule 81 (c) (*vide* Appendix I). He should have stopped the second train and told the engine driver to inform the signalman that the distant signal had not gone to danger behind the first train. Had he accepted his instructions and carried out this rule, no fault could have been found with him in any circumstances. In the conditions that existed, such action on his part would no doubt have prevented the collision. I cannot, therefore, hold that he is free from blame in the matter. But his position was difficult, and I regard his inaction rather as an error of judgment than as a serious default.

The engine drivers of the two trains who passed the distant signal in a clear position, and afterwards travelled on to the down platform line, have to explain why they did not comply with Rule 191 (a) and report at Bromford Bridge the irregularity in signalling. Had the Rule been obeyed, action could have been taken, and probably would have been taken, to prevent the collision.

Driver Aldridge, of the 9.55 a.m., admits that he noticed this "unusual occurrence," but that in the hurry of attaching the horse-box and getting away, it did not occur to him to say anything about it. I am informed by the Company that the train which passed at 11.14 a.m. was the 9.31 a.m. slow train from Burton to Birmingham. Driver Meek, who has 20 years' service as engine-driver, was on the footplate. Meek states that he thought it "somewhat strange" that the distant signal should be cleared together with the home signal for the platform line. But he thought it possible that the distant signal was applicable to both roads, and therefore did not report it. He admits that he is not aware of any other place on the system where the distant signal is lowered for more than one road.

It is lamentable to find two drivers of long service, on an express road and in bad atmospheric conditions, failing to recognize such an irregularity in signalling as being of a sufficiently serious character to warrant delaying their trains, in order to report it immediately. Such inaction argues either lack of common knowledge, or thoughtlessness, by which the interests of public safety have suffered.

I think it would be well to draw the attention of signal-fitters and others concerned, to the necessity for making it a practice to commence their work of examination at any block post, where indicators are not provided, by first of all clearing the wires and pulleys and ensuring the proper working of all the distant signals. Where two men are available, as in this case, it would appear possible for them to begin their work at opposite ends of the yard.

With regard to the provision of indicators for distant signals, it is but fair to say that only when signals are hidden from sight of a signalman by the configuration of the ground or by buildings, &c., do the requirements of the Board of Trade call for the provision of these adjuncts to signalling. The Company, however, has long adopted the practice—and it is a most laudable practice—of providing indicators, not only to show

the position of the arms, but also the condition of the lights, of all distant signals. In the case of Bromford Bridge, they did not follow their usual practice, because the signal-boxes are seldom open. It is certainly a peculiar irony of fate that the absence of an indicator should, at this particular place, in combination with difficulties arising from snow, frost and fog, lead to such tragic results.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
J. W. PRINGLE.

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## APPENDIX I.

### EXTRACTS FROM THE RULES AND REGULATIONS.

35. Distant signals must be placed at danger immediately they are passed by a train . . .

#### *Working of Points and Signals.*

58. The signalman must frequently examine and try his fixed signals to see that they work well, are kept clean, and show properly. Care must be used in putting a signal to danger; it is not sufficient merely to move the lever, but the signalman must at the same time watch the signal so as to ascertain that it obeys the lever and goes fully to danger. Where a fixed signal is out of the signalman's sight, and its working is indicated by a repeater in the signal-box, he must satisfy himself by observation of the repeater that the fixed signal is working properly. He must take care that the signal wires are kept properly adjusted by means of the regulating screws or links, so as to compensate for the expansion and contraction caused by variations of temperature.

61. (b) When a signal other than a distant signal has been lowered for the passing of a train, it must not (except in the case of accident or as provided for in Rule 64) be again placed at danger until the last vehicle of the train has passed it, or the train has been brought to a stand . . .

#### *Signalling in Foggy Weather or during Falling Snow.*

81. (c) The fog-signalman must see that the distant signal which has been taken off for a train to pass is placed at danger after the passing of such train. If, after a reasonable time has elapsed, the signal is not placed at danger, the fog-signalman must go back to protect the train as directed. The next following train must be stopped, and the engine driver instructed to proceed cautiously, and to inform the signalman at the box in advance of the circumstances.

86. During the prevalence of severe frost or falls of snow, the signals . . . must be frequently worked by the signalman . . . in order to prevent the frost or snow impeding their free working. Fog-signalmen also must see that nothing interferes with the true working of the arms or discs . . . and that the wires work freely over the pulleys. The fog-signalmen must at once report to the signalman any defect in the signals or impediment to their proper working.

#### *Working of Trains.*

191. (a) Should an engine driver or guard observe any irregularity in the working of signals, . . . or any defect in the signals . . . he must report the same at the first station at which the train stops, but if the circumstance be of a serious character he must stop the train at the first signal-box, and give information.

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## APPENDIX II.

### I.

*List of Damaged Permanent Way Materials, etc.*—200 lin. yards of rails; 208 common chairs; 42 point and crossing chairs; 28 fishplates; 60 bolts; 420 spikes; 420 trenails; 200 keys; 81 10-ft. by 5-in. sleepers; 20 12-ft. by 6-in. sleepers; 239 cubic ft. cross timber; 2 sets of points.

*Damage done to Bridge No. 137.*—56 cubic ft. bridge timber; 1 tee iron tie and packings; 25 lin. ft. of 9-in. stone.

*Damage done to Signalling.*—6 3-ft. 6-in. wire posts; 2 qrs. of 7-strand wire; 2 12-in. single flat wheels; 1 1-arm ground signal; 1 lantern for ditto; 2 1½-in. swan-neck rods; 12 single thimbles.

### II.

*Damage to Engine No. 507.*—Front buffer plank broken, left-hand side; framing bent both sides by bogie wheels; top foot-plate badly damaged both sides and stays, left-hand side, broken away; both leading buffers broken and draw-bar hook bent; vacuum pipe broken away; driving and trailing splashers and cab badly damaged; right-hand piston tail rod bush broken; life guards and steam sand pipes badly bent; bogie stay under centre badly bent; all draw-bars between engine and tender broken, and intermediate buffers broken; engine and tender hand-rail uprights bent; cylinder by-pass valve casting broken, left-hand side; injectors and pipes both sides damaged; engine and tender foot steps badly damaged; right-hand tender buffer pad broken and top foot-plate bent; oil cups broken off tender axle-box keeps, left-hand side.