THE REPORT OF THE COURT OF INQUIRY

HELD IN PURSUANCE OF AN ORDER OF THE BOARD OF TRADE,
DATED THE 22ND JANUARY 1876, INTO THE CIRCUMSTANCES ATTENDING THE
DOUBLE COLLISION ON THE **GREAT NORTHERN RAILWAY** WHICH OCCURRED AT
ABBOTTS RIPTON ON THE 21ST JANUARY 1876**.**

Board of Trade,
(Railway Department,)
Whitehall, 23rd February 1876.

Sir,

IN compliance with the instructions contained in the Order of the 22nd January, l have now the honour to report, for the information of the Board of Trade, the result of the public inquiry into the circumstances which attended the double collision that occurred on the 21st January, at Abbotts-Ripton, on the Great-Northern Railway.

This inquiry was held at Peterborough, under the Railways Regulation Act of 1871, 34 & 35 Vict. c. 78. ss. 7 and 8, with the assistance of Mr. C. S. L. Bowen, barrister-at-law, and extended from the 24th January to the 17th February, during which time four sittings were held, and 46 witnesses were examined. The Town-Hall and New-Courts-Hall were kindly placed at our disposal, and we are indebted to the courtesy of Mr. Gaches, the town-clerk of Peterborough.

In this case the Scotch-express passenger-train, due to leave Peterborough for London at 6.18 p.m., and consisting of an engine and tender and 10 vehicles, came into collision, whilst approaching the Abbotts-Ripton signal-cabin at full speed, and with the steam still on, with a coal-train due to leave Peterborough in front of it at 5.35 p.m., which, having left Peterborough at 5.53, was being shunted out of its way into the Abbotts-Ripton siding. The down-main-line having become obstructed by the débris from this first collision, the Leeds-and-York express passenger-train, 5.30 p.m. from London, after passing Huntingdon at 6.59 p.m., came into collision; first with the tender and afterwards with certain damaged carriages of the Scotch-express-train.

Thirteen passengers have unfortunately lost their lives in consequence of these collisions, and up to the present time 53 additional passengers have been ascertained to be more or less injured. The engine-driver, fireman, and head-guard of the Scotch-express-train, and the engine-driver and fireman and front-guard of the Leeds-express-train, were also injured.

The accompanying plan and section of the line, which Mr. Johnson, the engineer of the Railway Company, has been good enough to furnish, will give an excellent idea, not only of the positions of the stations and cabins principally referred to, with their signals, and the gradients on which they are situated, but also of the results of the collisions; and a further description of the localities will be found in the evidence of Mr. Johnson, which with the other evidence was taken during the inquiry as follows: –

Evidence.

Richard Johnson (sworn).

I am the Engineer of the Great Northern Railway, and have been so for 14½ years.

The ruling gradient between Peterboro' and Huntingdon is 1 in 200, Commencing from Huntingdon there is first a gradient of 1 in 200 for three miles, then the line is level for three-quarters of a mile, and then for one mile south of Abbotts Ripton signal-station the line falls 1 in 200 towards the north as far as four miles beyond the signal-cabin. From the foot of that gradient the line is level for 4½ miles through Holme Fen; it then rises up to Yaxley signal station for a mile 1 in 200, and thence to Peterboro', 3½ miles, the line is nearly level. The Abbotts Ripton signal-cabin is at a point 63 miles 35 chains from London; the-north distant-signal is 950 yards, and the south distant-signal 1,057 yards from the cabin; the north home-signal is 140 yards and the south home-signal 145 yards, from the cabin. (There are also starting-signals in each direction, the starting-signal at one end being in each case on the post applying to the home-signal at the other end.) They are semaphore-signals of the ordinary construction. At Abbotts Ripton signal-station there are up and down shunting-sidings, and the points leading to and from those sidings are worked by signalman by means of levers in his cabin. Those point-levers are interlocked with the signal-levers. The levers are so interlocked that the points cannot be opened to communicate between the siding and the main-line unless the signals are at "danger." There is a cross-over road between the two main-lines opposite to the cabin, the points of which are similarly interlocked with the signals. (There are also block-telegraph-instruments for each direction, and a double-needle speaking-instrument.) On the north of Abbotts Ripton there is a cabin called Wood Walton, at a distance of 1 mile 1,375 yards; it is provided with up and down distant-signals, 950 yards from the cabin in each direction, and with a, double home-signal, which acts for both lines, 20 yards north of the cabin. The Conington signal-cabin is 2 miles 132 yards north of Wood Walton, at the foot of the above 1 in 200 gradient. It is similar to the Wood Walton cabin as regards the age arrangements, and they are both provided with telegraph-block-instruments and bells. At the Holme station, 1 mile 1,667 yards on the north of the Conington cabin, there is a signal-cabin with a locking-frame of 30 levers, and the whole of the paints and signals in the neighbourhood of Holme station are worked from this cabin. With the exception of the signals on the north of the Holme signal-cabin, which can only be seen when the man opens the window and puts his head out for the purpose, they are all visible from the cabin in clear weather. The next signal-cabin south of Abbotts Ripton.is Stukeley, 2 miles 737 yards from it. There are home and distant-signals in both directions. The up distant-signal is 910 yards from the cabin, and the down distant-signal 850 yards from it. The home-signal post is 27 yards south of the signal-cabin. These signals are visible from the cabin in both directions. There are block-telegraph-instruments and bells in this cabin similar to those in the Wood Walton and Conington signal-cabins.

Last Friday evening, the 21st of January, I left Peterboro' about half-past eight, and reached the scene of the collision at Abbotts Ripton about 11 o'clock. We were much delayed by the signals being against us at Holme. I found a coal-train partly shunted in the up shunting-siding, with 26 loaded coal-waggons in the siding, the 27th waggon having one pair of wheels off the road, the 28th waggon, second from the engine, being smashed to atoms, the 29th, a good deal smashed, the 30th waggon with its trailing-axle very much bent, and the engine of the coal train had been taken away. The engine of the Scotch express was lying on its side, with its head towards London, on the west of the down-line; its tender appeared to have been lying on the down-line, and the down-train appeared to have run through it and cut it to pieces. The engine of the down-train lay on the down side of the, line, on its near side, with its tender lying partly above and on the south of it. The carriages of the down-train were much off the line, and one North-Eastern third-class carriage was on the top of a Great Northern six-wheeled break-van belonging to the down-train. The break-van and the two first carriages of the up-train were off the line, but not much injured; but the third and fourth carriages from the break-van of the up-train were very much injured, and were lying under the break-van of the down-train. From what I could see, the engine of the down-train had run

quite through those carriages; it was there that the greatest loss of life and injury had resulted. Soon after I reached the scene of the accident, I met Mr. Cockshott, the traffic-superintendent of the Great Northern Railway, who had come down from London on hearing of the accident. I also found Mr. Rouse, locomotive superintendent at Peterboro', and Mr. Warr, the locomotive foreman from Hitchin, had arrived, and had commenced to remove the carriages so as to extricate the sufferers. I went-up into the signal-cabin with Mr. Cockshott, and we saw the signalman who was on duty. I saw that the lever for admitting the coal-train into the siding was over in the forward position, and the levers for working the home and distant-signals were locked fast. in the position of "danger." I tried the home and distant-signal levers, and they wore all locked. I asked the signalman to move the siding points; they were, however, immoveable, owing, I believe, to the coal trucks and carriages having fallen on to the connecting rods and wires. I did not notice the signals themselves, nor did I notice the positions of the telegraph-instruments. I then devoted myself to assisting the sufferers and clearing the line.

Francis P. Cockshott (sworn).

I am Superintendent of the Great Northern Railway, and have been so for 11 years.

This, as well as the whole of the main line of the Great Northern Railway, is worked under the absolute block, and under regulations which I now put in. I put in also the working time tables, containing regulations as to the loads and break power to be provided. I also put in instructions for signalling the fast trains by electric telegraph; also special regulations for working during fogs and snowstorms. With reference to the block working, the coal train, as well as other trains, is telegraphed from block-cabin to block cabin; and after its departure from the first block-cabin: no other train should be allowed to follow on the same line of rails until it has reached the next block-cabin ahead, and telegraphic information to that effect has been transmitted back to the block-cabin in the rear. This system of working is in force for all trains, whether passenger, goods, mineral, or otherwise. The coal train leaving Wood Walton and reach Abbotts Ripton would be protected by block working until it was on the south side of the home-signal at Abbotts Ripton, and was under the protection of that signal. In addition to the general mode of working, during foggy or snowy weather line-clear must not be given until a train or engine stopping at a station has either proceeded on its journey or been shunted into a siding; but in weather neither foggy nor snowy line-clear might be given to Wood Walton, so long as the train was covered by the home-signal, and while, therefore, it was being shunted into the siding. Also, under regulations, Holme station is required to telegraph to the signalman at Abbotts Ripton the passing of any up goods or mineral train, the object being that the signalman at Abbotts Ripton may know whether it is necessary to shunt any slower train to admit of its being passed by a faster train. The distance from the up home-signal at Abbotts Ripton to the points of the up shunting-siding is 100 yards, and the fouling point would therefore be about 68 yards south of the home-signal. It would have been the duty of the signalman at Abbotts Ripton to abstain from giving line clear to Wood Walton until the coal train was shunted into the siding, and clear of the main line. If that duty had been properly done, the coal train while shunting ought to have been protected by the home and distant signals at Wood Walton, as well as the home and distant signals at Abbotts Ripton.

After hearing of the accident at 8.10, I left London at 8.30 p.m. by the Scotch express train, and reached Huntingdon about 9.45. I ascertained there that the passengers who were injured had already been removed from Abbotts Ripton, and that others who were able to continue their journey were at that time being placed in special trains to leave Abbotts Ripton in each direction. Having ascertained further that both lines were so much blocked at Abbotts Ripton that it was unlikely any train could be run through for several hours, I had an engine and carriages got ready at Huntingdon to take on from that station to London any passengers who had come down by the 8.30 express, and who might wish to return, as well as any passengers who had been in the trains which had come into collision. About 20 minutes later an engine came with a number of carriages from Abbotts Ripton bringing passengers who were uninjured, and others who were able and who wished to travel to London. I also sent a message to the hotels in Huntingdon to see if any who had arrived there by road or otherwise were wishful

to go south. About half-past 10 a train came from Abbotts Ripton; other carriages were attached, and it was then sent on to London. As soon as I saw it ready to start, I took an engine, and went to Abbotts Ripton, and arrived there a few minutes before 11. I first looked round to see to what extent the lines were blocked, and what chances there were of either being opened soon for traffic, and inquired of those already on the spot whether there was reason to believe that any who were passengers in the train were still under the wrecked carriages. About that time I met Mr. Johnson, who has given evidence; we looked very carefully at the spot where it was evident that at least two carriages had been broken in the collision. We were told that very soon after the collision took place three bodies had been removed, and we felt, each remarking to the other, that there must be other passengers there. We had at that time closed the line against traffic and the large staff of men who had arrived from Peterboro', Hitchin, and elsewhere, and who had already removed several broken vehicles, were concentrated on that spot. After that, Mr. Johnson and I went together to the signal-box, and found the locking-frame in the state described by Mr. Johnson. The only statement made by Mr. Johnson which is not quite correct is as to the number of the waggons in the coal train. There were 33 in all, and either two or three which were uninjured had by my instructions been moved south of the signal-box, and, in the darkness, these would not be observed by Mr. Johnson. Except as to that, the evidence I heard given is correct. Seven more passengers were taken from under the carriages, and this prevented me from examining the state of the signals.

The night of Friday, the 21st January, was one of the wildest I have known, with sleet and snow and frost, and I believe the snow to have been at least four inches deep at the time.

Joseph Bray (sworn).

I am an engine driver in the service of the Great Northern Railway Company, and have been 30 for seven or eight years.

I left New England on the 2lst January at 5.53 pm. with an engine and tender, 33 wagons of coal, and a break-van. I was due to leave at 5.35, My engine was a little late out of the shed after washing out, and I was also turned the wrong way in starting in the first instance, and was so late in getting away. I ran at my usual speed from New England to Peterboro', and so on to Abbotts Ripton. I found the signals all showing white lights up to and including the distant-signal from Abbots Ripton. I did not see the home-signal from Abbotts Ripton; owing, I suppose, to the snow and smoke in the cutting. It was snowing very hard as I reached Abbotts Ripton. I expected that my train would be shunted at Abbotts Ripton for the expresses to pass, so I looked out for the signal cabin. I saw the signalman waving me on with his hand-lamp, and he gave me to understand that I was to shunt into the siding. I said to him, "What is it, Bobby?" and he said "Siding." Whilst I was sitting back into the siding he said to me, "Come on back; look sharp; you are stopping the express." As soon as he had said those words the express ran into me. The express-engine struck the fourth, fifth, or sixth wagon; my engine was knocked forward, and the injector stopped working. I did not recover myself for five or six minutes, but I remained all that time on the engine, and then Mr. Usher, a relief clerk in the traffic department, came to my engine and said, "Let us be off to Huntingdon to get assistance!" I told him to go to the signalman to ask permission; he went, and returned and said, "All right for us to go;" and then a gentleman and the coal-train guard got on the engine to go to Huntingdon, and the guard stood on the offside of the engine with his hand-lamp ready to show a red light to any train coming in the opposite direction. I had previously sent my fireman with two fog-signals towards Huntingdon. We proceeded towards Huntingdon. I heard my fireman shout out, and we picked him up; that was somewhere between the bridge over the line and the distant-signal from Abbotts Ripton (about 500 yards from Abbotts Ripton). We had hardly started again when I saw the-down express coming. I opened my whistle, and kept sounding it to attract the attention of the driver of the down express, while the guard showed him a red light. He appeared to see me. I don't know if anybody else saw me in that train. We had not then reached the distant-signal. We then went to Huntingdon.

I saw a red-light at the advanced signal at Abbotts Ripton, which was the only red light that I saw on a signal-post between Peterboro' and Huntingdon. I believe I reached Abbotts Ripton at 6.47 p.m. The weather was very bad when I left New England. I had no orders for shunting at Holme. If the Scotch train had been punctual the signalman at Holme would have shunted me there, as I was 18 minutes late. I noticed that the Holme signals showed white lights at the home, distant, and starting posts.

I sent my fireman away with fog-signals before Mr. Usher came to my engine; and as soon as I had recovered myself after the shock of the first collision, I asked him, when I picked him up, whether he bad put down the fog-signals, and he said "Yes."

I saw the driver of the down-express shut off his steam, and I thought he did so in answer to my alarm.

Edward Faulkner (sworn).

I am a fireman Great Northern Company's service, and have been so for five years.

I left New England on the 21st January, with Bray as engine-driver. I did not, notice the time of starting or of reaching Abbotts Ripton. I saw a white light at the Holme distant-signal in passing. I saw white signals at all the posts at Conington and at Wood Walton. The distant-signal from Abbotts Ripton showed a white light; I did not look for the home-signal there. Bray called to the signalman to ask whether the signals were off, and the signalman said, "Draw up and shunt." We drew up to the starting-signal, which showed a little speck of red light when we got up to it. The glass was covered with snow. The signalman came to the window, and said to Bray and me, "Come on back, you are stopping the train at the other box;" and as soon as he had said the words the express pitched into us directly. The engine was knocked forward a few yards, and I remained on it. I recovered myself in three or-four minutes, and then went to the tender-box, and took out two fog-signals, and went on with them towards Huntingdon at the request of my driver. I ran forward to the distant-signal, and put down the two fog-signals about 50 yards inside of it, and retuned to meet my engine which I saw coming towards me. I got on the engine, and we had just got into motion again, when I saw the express coming and pass over the fog-signals I had put down. I did not hear them explode, but I saw fire from them as the engine passed over them. I saw the driver of the express shut off steam just before he passed our engine. I don't know exactly where our engine was on the line at that time. The signals all the way to Huntingdon, except the home-signal near the bridge at Huntingdon, were off.

William Hunt (sworn).

I am a goods-guard in the Great Northern Company's service, and will have been so for six years next July.

I left New England at 5.53 p.m., and reached Abbotts Ripton at 6.40. My watch was not two minutes out that day, I am certain. I heard the signalman there order us to shunt, and saw the points opened for us to do so, and saw a man examining them to see they were clear of snow, and in proper order for us to pass back through them. I rode back in my break-van, at the rear of the train, and whilst doing so heard a train coming. I thought at first it was a down train, but on looking out of the van I saw the up Scotch train pass at full speed with its steam on, and immediately afterwards the engine of that train struck the fourth or fifth wagon from my engine. I took up some fog-signals, jumped out of my van, and met Charles Day, the passenger guard of the Scotch train. My idea was to protect the wreck from the direction of Peterboro' but finding Day was going towards Peterboro' went towards the wreck. There I met a gentleman, who offered assistance, and I went to the signal-cabin to see if both lines were blocked. I understood from the signalman that they were blacked, and that he was trying to attract attention to telegraph an account of the accident. I went to my driver (Bray), and said to him, "We had better go to Huntingdon for medical and other assistance." We proceeded forward with permission from the signalman, and picked up the fireman. I stood on the off side of the engine, and showed a red light to warn a driver of any coming train. After passing under the bridge over the line, and before we got to the distant-signal, I saw a train which was

then the other side of the distant-signal. I said to the driver, "For God's sake, Joe, blow up, for here's a train coming up." He did so, while I hallooed and showed a red light. I think we were seen and heard, for I saw the driver had shut off steam, and the speed of his train was reduced. We afterwards stopped the Manchester goods train near the Huntingdon prison. I told the engine-driver of that train not to go forward. Between Peterboro' and Abbotts Ripton cabin all the signals showed a white light, but I did not see the home nor the advance signal at Abbotts Ripton. At Stukeley the signals were off. We saw a red light in approaching Huntingdon, which turned out to be on a break-van in a siding there.

At four o'clock in the afternoon it began to snow heavily at Peterboro', and the flakes grew bigger, as big as a two-shilling piece, and they seemed to stick to everything they touched.

When leaving the signal-box at Abbotts Ripton, I heard that some one had been sent to protect the down road. The express was just at the distant-signal when the driver of the coal train gave the alarm whistle.

Charles Day (sworn).

I am a guard in the Great Northern Company's service, and will have been so 14 years next Whit Monday.

I was the under-guard with the Scotch train leaving York at 3.45 p.m. on the 2lst instant. I was not booking the time; but I know we left Peterboro' at 6.24, six minutes late. My train consisted of an engine and tender, a break-van, two composite, a second-class, four first-class, then a second-class carriage, and my break-van.

The snow was falling very fast after we left Peterboro', and I could see no signals. I was not aware of anything being wrong until I was thrown down in the van. I was hurt in the head and shoulder, and have not yet been able to go to work again. I got up, and relighted my hand-lamp, and put my fog-signals under my left arm, which was somewhat disabled; and after turning on the red glass took my hand-lamp in my right hand, and proceeded towards Peterboro.' I met the coal-guard, who said, "You ran into us full steam on." When I got past the distant-signal from Abbotts Ripton, I saw it was showing a white light. I did not see the home-signal at that time. I put fog-signals on the rails, and stopped the Manchester and Leeds express due from Peterboro' at 6.28 p.m. The guard of that train then went back towards Peterboro,' and I returned to the wreck. I found the home-signal at Abbotts Ripton showing a white light, and the distant-signal continued to show a white light. I did not tell the signalman that his signals were showing white lights. I got into my van, and felt ill, I imagine for half an hour. I did not go into the signal-cabin at all.

I felt no checking of the speed whatever until the collision occurred. I had my pencil in one hand, and the way bill in the other.

William Wilson (sworn).

I am an engine-driver in the Great Northern Company's service, and have been so nearly five years.

I left London at 5.30 p.m. with an express train for Peterboro'. I stopped in due course at Finsbury Park, and was not due to stop again until. I reached Peterboro'. The wind was blowing strongly from the north-east all the way down, and it began to snow between Tempsford and St. Neots.

I found nothing but white lights on the signal posts right through, up to the time of the collision. I found a white light at the distant-signal at Abbotts Ripton. After passing that signal-post, I was alarmed by passing over two fog-signals which exploded; I at once shut off steam, and told my mate to put on the tender break. I was then going at 40 or 50 miles an hour. In another instant I met an engine on the up road giving sharp whistles, and I saw a red lamp from it, which I took to mean that there was something out of the usual way. I reversed my engine, and reapplied my steam, and as soon as that was done the collision occurred. I did not see the home-signal from Abbotts Ripton. I cannot whether I was thrown on the bank or on the line; I found myself against the ruins of the break. When I had regained my strength I looked to my fire, and then attended to the fire of the up

Scotch express, as the driver told me he could not do it himself, nor his fireman. I then assisted the passengers I did not say anything to the signalman, nor go to the signal-cabin. I remained until my superintendent, Mr. Rouse arrived, who gave me leave to go home. I was not much hurt except the scald on my leg, but I have not recovered my nerve. It was 6.50 when I passed through Huntingdon. I whistled for the breaks when I passed over the fog-signals. When the fog-signals exploded about 60 yards on the north of the Abbotts Ripton distant-signal, I was travelling at a speed of about 40 or 50 miles an hour. I had an engine with eight wheels under it, and a bogie truck under its leading end (36 tons engine, 25 tons tender). I had a tender-break and a means of reversing in the ordinary way. I did my best to pull up after passing over the fog-signals, and I think I had reduced my speed to 15 miles an hour before the collision occurred. The engine in all respects and the tender-break were in good order. Supposing the distance to have been about 1,000 yards from the point where the fog-signals exploded under my engine to the point at which my train came into collision with the other train, I was not able to do more in that distance than reduce my speed to 15 miles an hour. The rails were in a very greasy state. As I approached the distant-signal worked from Abbotts Ripton, I could see it well for about 500 yards. It showed a distinct white light. The snow would be blowing against the back of that signal-lamp. I did not hear the whistle of the coal engine before I went over the fog-signals. I saw the red light and heard the whistle from the coal engine at the same time, a few seconds after passing over the fog-signals.

James Falkinder (sworn).

I have been an occasional fireman in the service of the Great Northern Company since August 1868, and a regular fireman for over five years.

I left London with the 5.30 p.m. Leeds express from King's Cross, stopped at Finsbury Park in the usual way, and noticed nothing out of the usual course until we approached Abbotts Ripton. I then saw the lamp of the distant-signal there showing a beautiful white light, and commenced firing. Getting near to the bridge over the line, and after passing the distant-signal, we ran over two fog-signals, which exploded under the engine. I at once applied the tender-break, pulled the sand-box open, and sanded the rails. The sand-box and the break were in good order. We were going at the usual full speed when we went over the fog-signals. As soon as we ran over the fog-signals my driver whistled for the breaks, and I held on to the tender-break. We were passing under the bridge when I heard the whistling from, the coal-engine. I did not see a red light from that engine, I was on the left side of my engine. Everything was done, as far as I am aware, to check the speed of our train, and we were going about 15 or 20 miles an hour when the collision occurred. I recollect striking something, I did not know what. I did not know what became of me at the moment. I found myself crawling up the bank on the west side and behind the engine when I recovered. I found the hedge, and caught hold of a woman who was sitting there, and who I thought was my mute. I did not go to the signal-cabin, nor see anything of the signals. I have not yet resumed work, but I am getting well again. I heard no communication from the guard of our train, but I know the communication-cord was attached, and had been acting.

George Scott (sworn).

I have been five years a fireman, and 11 years next July in the Company's service.

I left Peterboro' at 6.25 p.m. with the Scotch express for London on the 2let January. Nothing unusual occurred up to Abbotts Ripton. The glass of the weather-board of my engine was covered with snow, and I opened it to see the home-signal at Wood Walton. That signal showed a white light. I could not see it further than 200 yards away. I did not notice the distant-signal at Wood Walton. I first caught sight of the distant-signal from Abbotts Ripton when I was about 200 yards from it, and I kept my eye on it until I was within a few yards of it. It showed a clear white light; the naked lamp was visible. After being certain that the signal was at all right I put coals on the fire. When I had regained the upright position after firing I saw some waggons close to the side of the engine.

They were in the siding, and I thought they were coming out of it. I said to Catley (my driver), "Wo! here's some wagons!" and the collision occurred immediately. If the steam was shut off it must have been at the last moment; I did not see it shut off. I heard nothing from my driver after passing Holme signal-cabin until the collision occurred. We had no warning after leaving Peterboro' until the collision occurred. Although not able to see the distant-signal at Abbotts Ripton so far as usual I did not notice that the driver reduced his speed at all. In ordinary clear weather that distant-signal is visible in passing the Wood Walton cabin.

Robert Wills (sworn).

I am a passenger-guard in the Great Northern Company's service, and have been so for five years.

I left King's Cross at 5.30 p.m. on the 21st of this month with. the York and Leeds express. An engine and tender, a six-wheeled break-van, a third-class, two composite carriages, a break-van, a bogie composite, a third-class, a carriage-van (a second-class break-carriage), a third-class, three six-wheeled composites, and a break-van, these formed the train at the time of collision. We had also in leaving King's Cross four carriages which were slipped at Hatfield as usual. There were three break-vans to 13 carriages, and each break-vehicle of the three had guard in it. We ran in the ordinary way and at the usual speed until we got inside the distant-signal from Abbotts Ripton. I did not see that signal, although I was looking out for the signals. The first thing I heard after passing that distant-signal was an alarm-whistle from the coal engine. I heard several sharp short whistles. I applied my break at once as tightly aa possible, I was riding in the van next behind the tender. The next thing I heard was that we struck something; that is all I remember, because I was stunned. I should think we passed the distant-signal at 50 miles an hour, and from 30 to 40 when the collision occurred. I heard a break-whistle from my own engine after the whistling from the coal-engine. After the whistling of the coal-engine, and before the whistling my own engine, I heard fog-signals explode. They seemed to be near that bridge, between the distant and the home-signals. I believe that I recovered myself about five minutes after the collision, and went back to see if my train was protected; and I came to the conclusion, from the fact that his lamp and signals were not there, that the rear-guard had gone back to protect the train. I then assisted the injured passengers as much as I could, but I was so badly injured myself that I could do little. After the accident I only noticed that the advance-signal at Abbotts Ripton cabin was at "all right." I did not notion that signal until after the collision. When travelling through fog or snow it is our practice to run very cautiously until the distant-signals are seen, when we conclude it is clear for us through the stations or past the cabins. On this occasion it was snowing very hard, large flakes; it was the roughest night I was ever out in, snowing, freezing, and blowing, hard. On the night in question, the speed in approaching Abbotts Ripton distant-signal was reduced about 10 miles an hour. Ordinarily we should run at 60 miles an hour at this point, and on this occasion we might have approached the signal at 50 miles an hour. I saw nothing of the signalman after the collision. We were one minute late in leaving King's Cross and Finsbury Park, and slacked at St. Neots for relaying. I happened to look at my watch and noticed we passed Huntingdon north box at 6.51, two minutes late. The collision occurred about five minutes to 7 o'clock. My van was smashed to atoms. I found myself in the ditch at the bottom of the cutting after the collision. I heard the communication with the driver tested at King's Cross. It was not half a minute between the explosion of the fog-signals and the whistling of the coal engine. I could not tell the difference between 50 and 60 miles an hour in my van. We were about two minutes late at Abbotts Ripton, not having lost any time between Huntingdon and Abbotts Ripton. We had not lost time, and could not therefore have reduced speed in approaching the Abbotts Ripton distant-signal.

Wilson recalled.

We were running at the usual speed in approaching the Abbotts Ripton. distant-signal. I had run that engine for a fortnight, and have been running fast trains between London and Peterboro' for two years on and off. I work my engine in all weathers so as to keep time. I was never out in a worse night than that of the 21st. It was freezing, blowing, and snowing. It was bad for seeing signals, and I have frequently known signals to stick on such

nights. I was four minutes late at Abbotts Ripton. I judged that, because I had been four minutes late at Huntingdon. I tried all I could to keep time, but through stress of weather I lost a little. When a lad porter I was in the habit of lighting the signals, and have found them to have stuck in such weather as that of the 21st. I did that duty for about three years, and have very frequently known the signals to stick under such circumstances. It was at Claypole that I have known them to stick. I should think I have known them stick about three or four times. I can't say that I have known them stick at Grantham. As an engine driver, I have observed the signals not working properly from frost or snow, but have never had occasion to report them. I was astonished to run into the train after finding the signals exhibiting white lights. I remarked on the night of the accident to guard Wills and my fireman that I found the signals all right, and I recorded the fact in a book for the purpose. I was not asked on that night by any one connected with the Company why I ran past the signals. I saw Mr. Rouse and Mr. Parks, the superintendent at New England. I also saw Company's officers from London, but they did not ask me about the signals.

Copy of letter by Wilson reporting the accident.

"Sir, January 22nd, 1876.

"I beg to report I was working No, 203 down Passenger train on the 21st. On approaching Abbotts Ripton distant-signal it was at all right. After passing the distant-signal I passed over a fog-signal. I shut off steam, and whistled for the breaks. As soon us this was done, an engine on the up line passed me, giving me signals of distress. I reversed my engine, and instantly a collision occurred.

"I am, &c.

"W. Wilson, 48 engine."

Joseph Simpson (sworn).

I am a passenger-guard in the Great Northern Company's service, and have been so for more than 20 years.

I have been in the habit of running with fast trains about 10 years. We left King's Cross as nearly as possible at 5.30, and slipped carriages at Hatfield. My break-van was in the middle of the train. It was a second-class Great Northern break-carriage. I think it was the seventh vehicle from the tender. I first noticed it snowing at St. Neots. I saw the signal up to that place, but then the snow got worse and worse, and blocked up the windows. After leaving Huntingdon the first thing I heard was, on approaching Abbotts Ripton, a whistle from a passing engine. 'The whistles were three in number, and very sharp. I am almost sure we had passed the distant-signal when I heard that whistle. I heard no fog-signals explode, nor any break-whistle from my own engine. I opened my side window, and looked out, but could see nothing. We seemed to run into them momentarily, and my head went through the glass of the top corner window of the raised part of the break-carriage. As soon as I heard the whistle of the coal-engine I applied my break. If it had not been for the whistle of the coal- engine I should have done nothing. I am almost certain we were a good distance inside the distant- signal when I heard the whistle and-applied the break. I noticed after the accident that the signals were loaded with snow. I did not note the time when the collision occurred. My carriage did not appear to be damaged. I first re-lighted my lamp, which had been knocked out by the collision, and then ran across to the signalman, and asked him whether he had blocked both lines, as I had observed the carriages had blocked both lines. I went up into the signal-cabin. The signalman, in answer to my inquiry whether the lines were blocked by the signals, replied, "Yes;" and I noticed that two levers which he pointed out to me were thrown back. A number of levers were thrown forward, but these were thrown. back. I do not understand the working of signals. I told the signalman that my mate had gone to Huntingdon, and that I was going towards Peterboro' at once. No more passed, and I left, and went about half a mile towards Peterboro'. I found a train coming slowly which had been warned by somebody whose footprints I saw in the snow. I jumped on the step of the engine of this train, which was the Leeds and Manchester up express; and when

we approached the distant-signal worked from the Abbotts Ripton signal-cabin, the driver said, "Joe, look at that signal: what do you call it. showing red or white?" I said, "Well, it shows white from here." We were then going very slow, and about a dozen yards from it. We could see that signal at 40 yards. It was snowing fast at that time. The spectacle-glass of the lamp was covered with snow. The red-glass was before the light, but the snow which covered the spectacle made it show a white light. The arm I noticed was up at "danger." I did not notice the home or advance-signal at Abbotts Ripton. The driver (Edis), on whose engine I was riding, said, "Go into the signal-cabin, and see if the "signalman has got his lever over, and tell him his "signal shows a white light." I went to the cabin, and said to the signalman, "Are you sure your signal is at danger, because it shows a white light?" He replied, "It must be the snow which is on it," and he also said he had just sent one of the men to look after the distant-signal. I then went down and assisted to light a fire for the passengers, and to deliver people from the wreck. When I went into the cabin the signalman was busy with his telegraph instruments. He said nothing as to how the accident happened. The communication in the train is only between the rear-guard and the driver, but an intermediate guard can pull the cord by putting his hand out. The signalman seemed to be clear when I spoke to him. When speaking to the driver, Edis, on his engine at the Abbotts Ripton signal, he said, "Joe, what light do you call that; it shows a white light?" When we got opposite the post he said, "It. must be the snow in front of the glass spectacle."

John Robinson (sworn).

I have been a passenger guard in the Great Northern Company's service for 10 years, and have run with fast trains for five years.

I left King's Cross with the Leeds and York express about a minute late, and rode in the rear van of the main-line portion of the train. Some carriages were slipped at Hatfield, and then my break was the last vehicle of the train. I did not notice the time in passing through Huntingdon. Nothing unusual occurred until after leaving Stukeley. I saw the distant-signal at Abbotts Ripton, which showed a good white light, and then I heard an engine give three sharp whistles. It was coming in the opposite direction. I saw it pass, but could not tell what was. I had passed the distant-signal 100 yards or more when I heard this engine whistle, and. was getting near the bridge over the line. As soon.as I heard the engine whistle I put my break tight on, and left it on till the collision occurred. I heard no whistle from my own engine, nor any fog-signals. We were going about 40 miles an hour in passing the Abbotts Ripton distant-signal, and had reduced it to 30 when the collision occurred. I was not much injured, but was stunned. I think I came to myself in about a minute and-a half. After that I took my lamp and fog-signals, and went back to protect my train. I noticed the Abbotts Ripton distant-signal: but not the home-signal. The distant-signal still showed a white light. I had said nothing to the signalman before going back. I did not notice the arm of the Abbotts Ripton distant-signal. I put a man named George Wright at the distant-signal, and: gave him three fog-signals. I told him to put the red spectacle over the white light. The arm and the spectacle move together, I know. I did not notice as I went back whether the platelayer had put the signal to red. I next went towards the Stukeley cabin, and noticed that its distant-signal showed a little white light, but more red. The home-signal was about the same. I went into the Stukeley cabin, and asked the signalman why he did not put up his signals properly, and he replied that he had done so. He worked the levers to show me that the signals were up. I did not notice the back lights of the signals. I asked him what time-our train bad passed the cabin and I think he said 6.57. I also asked him what had gone up, and he said it was an engine, and had gone some time. I then asked him whether he had fog-signals on the line; and he said he had, both above and below the bridge. I asked him for a drink of tea, and some fog-signals, and I proceeded to Huntingdon. I met on engine with a goods-train, and rode on-the engine to Stukeley. I asked the signalman if. it-was right for us to go, and he said we were to go on cautiously, which we did to the wreck. I rode on the side of the Bradford carriage on returning, and-saw the Stukeley signals still at "danger." On my return at first to Abbotts Ripton I did not notice the distant-signal. I

tested my communication-cord at King's: Cross; it was perfect. I saw a red light from the coal-engine at the same time that I heard the whistle.

Albert Usher (sworn).

I am a relief-clerk in the Great Northern Company's service, and have been so for 3 years, and 11 years in the service.

My duties are to relieve station-masters, and to assist in the accounts at stations when they are behind with them. I left Peterboro' about 6.25 in the Scotch express, on the 2lst of this month. I noticed nothing until the collision occurred, being asleep on the seat of a second-class carriage into which I had got because all the: first-class carriages were full. The carriage I rode. was the last carriage in the train, there being a van behind it. I was pitched off the seat without being hurt by the collision. I got out of the carriage on the near side, and went round the engines of the Scotch and coal trains running to the signal-cabin. I asked; the signalman whether he had blocked the down line, meaning to ask whether he had turned his signals for that line to danger. He said "Yes." I got on a stool, took down fog-signals from a box, gave them to, the Abbotts Ripton porter, and said to him, "Take these; and put them on the down-line as fast as you can;" and he ran out immediately. I then ran out of the cabin, down to the coal-engine, and saw o man in guard' uniform (I believe Hunt), and I said to him, "We must get to Huntingdon as quickly as ever we can;" and called out for some one to uncouple the engine. I went to look at the coupling, but before I could.do so I was told that the coupling was broken and the engine therefore released from the train. I then got on the engine, and found the driver was there, and said to him, "Now wo must get to Huntingdon;" and he said to me, "Have you seen the signalman;" I said "It is all right with the signalman;" and almost directly we made a start. The engine had just moved when a gentleman from the ballast called out, and I think he said he wanted to come with us, and he came. My impression is that just before we got to the distant-signal we met the down express. I cannot say for certain whether that train had passed the distant-signal or not when we met it. Just before the express passed us I saw two flashes, and heard two slight reports, which I took to be the explosion of two fog-signals. As soon as we saw the express, the driver of the coal-engine blew several whistles; I am not sure whether that was before or after we heard the fog-signals. I saw Hunt waving his red light. We were whistling, and shouting and waving the red light all at once, but I cannot say that we attracted any attention. The express passed us at a high speed. We went forward to Stukeley, where we stopped, and I went up into the signal-cabin, and told the-signalman we were going on to Huntingdon for assistance. I left him immediately, and returned to the engine. I did not notice any of the down-signals, but I did notice some up-signals, two or three, which were showing half-red and half-white lights. I do not know exactly what signals they were. I cannot say whether it was before I got to Stukeley. I did not say anything to the signalman there about it. In returning from Huntingdon to Abbotts Ripton I was stopped by guard Robinson, and that was the first time I heard that the down express had run into the wreck of the first collision. We ran over several fog-signals on the way back to Ripton.

William Edis (sworn).

I have been an engine-driver in the Great Northern Company's service between 14 and 15 years, and 11 years running fast trains.

My practice in working trains is, when the weather is bad, to slacken speed, if I do not see the signals at the proper distance, until I do see them. This I always do in snow or fog, and I would rather lose time than infringe that practice. I started from London with No. 99 down train for Grantham, where I arrived at 12.44, and I left Grantham at 5.45 or 5.46. I next arrived at Peterboro' about 6.18 p.m., delivered up that train, and took another train, the Manchester express. I left Peterboro" at 6.39, 11 minutes late. I found all signals at all-right, until I reached Wood Walton. It was snowing hard at the time, and I could not see the distant-signal at more than 20 or

30 yards, or it might be 50 yards. The distant and home signals worked from the Wood Walton cabin were at all-right, and I shut off my steam on approaching the distant-signal until-I saw it. I passed Wood Walton at a speed of about 40 miles an hour, and the signalman showed a red light by a hand-lamp from the window of his cabin. I then shut off steam, opened the sand-box, whistled for the guard's-breaks, and reversed and brought my train to a stand near the down distant-signal of the Wood Walton cabin. I got off the engine there, and spoke to my rear guard, Bradley, telling him that the signalman had given, me a red hand-light, although he had showed a white light on the signal. The guard then said that it was no use stopping there, as the Abbotts Ripton distant-signal was showing a perfect white light. We could see it from a distance of 300 or 500 yards. I whistled and started again, until I met guard Day, who had his red hand-lamp exhibited, and I stopped again. He gave me orders to draw up cautiously, which I did within in 20 or 30 yards of the rear of the Scotch express train. I notice the Abbotts Ripton home-signal, and it showed a perfect white light, and continued to do so until I left the spot about 9.40 to go back to Peterboro'. I went to the cabin but, it was full of passengers, and I did not speak to the signalman. I told a platelayer to put the up distant-signal at danger. I don't know the platelayer's name. He stood at the signal at the time. I told him to cut the wire, and shove it up to danger. I assisted the passengers, but did not examine the signals. I said to guard, Day, "Look Charlie, the signals are off now;" and he said "We had a collision, Bill, and a second one has occurred." I did not and could not see either the spectacle or the signal-arm of the distant-signal north of Abbotts Ripton. Coming to the home-signal I met guard Simpson between the home and distant-signals. He got on the step, and asked me if anybody had gone back to protect the train; to which I replies "Yes, Charlie Day." I looked at the home-signal; it showed a perfect white light; and I called the attention of several to it. There did not appear to be any snow on the spectacle to obscure it. Simpson rode with me until I brought my engine to a stand nearly opposite the home-signal of Abbotts Ripton. The people whose attention I called to the state of the home-signal were guard Bradley, my fireman, Catley the driver of the Scotch express, and Simpson the guard. I said to guard Simpson that it must be, the snow which was in front of the glass spectacle, He said so to me, or I might have said so to him; I can't recollect. I passed over a fog-signal near the Abbotts Ripton distant-signal. I went back on the wrong road to Holme, and looked at the signals on the way, and they showed white lights. The snow was large, thick, and moist, tending to rest on an object on which it fell. It was at the distant-signal that I asked the platelayer to cut the wire. I observed the signal for 300 or 400 yards. I told guard Simpson to go into the signal-box at Abbotts Ripton, and tell the signalman that his signals were at all right, and to turn them to danger. I never bad seen snow in such large pieces in my life before.

Reuben Murfitt (sworn).

I am a fireman in the service of the Great Northern Company, and have been so for 4½ years.

I accompanied Edis from Peterboro' by the 6.28 p.m.; I think we were a bit late. I noticed all the signals showed white lights until we reached Wood Walton cabin, whore the signalman showed a red light from his hand-lamp out of his window. We ran past that cabin about 40 miles an hour. The steam had not been shut of until the red light was seen from the cabin at Wood Walton. The steam was not shut off on approaching Wood Walton distant-signal, because it showed a perfect white light. The engine came to a stand some distance past the cabin; I could not tell how far. My mate then got off the engine, and spoke to the guard, and they decided to proceed cautiously to Abbotts Ripton, which we did. We met guard Charles Day, with a red light, and stopped again. He told us what had happened, and then we drew up to Abbotts Ripton. I saw the distant-signal there, which showed a perfect, white light. We then met a platelayer, and stopped to his red light, and did not meet any one else until we came to a standstill at the back of the Scotch express, and outside the home-signal. Lord Colville came on to the engine, and after him came guard Simpson. I observed that Edis and he were talking, but I did not hear what they said, because as soon as Simpson came up they both got down and spoke on the ballast. I noticed that the arm of the home-signal at Abbotts Ripton was loaded with snow, and it appeared to be half down and half up. I could see the arm distinctly. I could not see the lamp-glass or spectacle. It showed a perfect white light, not as if the snow

were in the way to prevent it showing properly. I went back to Holme, and saw that the signals were showing perfect white lights. I do not think I have ever seen a lamp-glass covered with snow. I never saw anything like that now before. I have been out in snowy weather, but never know it make any difference in the signals before, but I have known the signals stick through the snow.

George Wright (sworn).

I am an under platelayer in the service of the Great Northern Company, and have been so for 3½ years.

I remember, the 21st of this month. I was doing duty at the Abbots Ripton gate-house. John Hall, the foreman platelayer, called me out, and said there was a "pitch-in" at Abbotts Ripton. He wanted me to leave the gates, but I would not leave them, thinking it would be a neglect of duty. I laid two fog-signals on the down-line at the level crossing, and showed a red light from my hand-lamp. I did not and could not see anything of the Abbotts Ripton signals. A guard spoke to me, but I forget what he said. I then stopped a goods-train, which drew gently forward. Guard Robinson did not put me at the distant-signal, but he gave me three fog-signals, which another man took away from me, and went on with them towards Stukeley.

George Thomas Gregory (sworn).

I am the station-master at Holme, and have been so for 12 years.

I remember the 2lst of this month, when the collision occurred. I was in the office when the coal-train passed my station, but I saw the Scotch express pass, without anything remarkable, at its usual speed. After the Scotch express passed I saw some. plate-layers, for whom I had sent, working the signals, and they then worked properly. The signalman came to me after the coal-train passed, and told me that that train had run past the signals. I went into the signal-cabin, and saw that the levers were over in the position of danger, and I then ran down and looked at the up starting-signal and the up home-signal, and found them at danger. But previously to going to them I sent a lad porter for the platelayers. I did not then look at any other signals. I watched the platelayers working the balance weights at the foot of the signal-posts and saw large quantities of snow fall off the arm. I noticed that the down home-signal, when it should have been at danger, stood at caution, the arm being half-up and half-down. I then told the platelayers to go to all the signals, and to work the balance weights so as to knock the snow off the arms. They did so. I saw it done at the home-signals, but I did- not go to the distant-signals. I stood on the platform while the 5 p.m. express from King's Cross passed. I-afterwards noticed that the down starting-signal. did not go to danger, appearing as if the signal was not worked from the cabin. I went to the lampman, and told him to go and examine the lamp to see if it were properly wound up. He went, and said it was, and that the arm would not go up, to let the spectacle go up to cover the lamp, because of the snow. I went several times to the scene of the accident, but do not know at what time. I noticed the signals on the way to Abbotts Ripton. Conington distant-signal showed a white light, but the home-signal a red light, though you could not discern it until you got close 'to it, from snow, as I supposed, on the spectacle. The Wood Walton signals were in similar positions. I did not notice the Abbotts Ripton signals. The snow began to fall in the afternoon, and began to lie about 6 o'clock. When the Scotch express passed, I think it was freezing. I never saw such an accumulation of snow before on the spectacles and arms of the signals. I can't say that I have seen the signals fail to work because of snow, but I think I have. The signalman came to me as soon as he could after the coal-train passed, to say that train had run past the signals. I did not think it was necessary to have fog-signals laid to protect the coming up express. The signals were showing a dim red light when the coal-train passed. The signals had been put up against the coal-train to shunt it for the express. I sent Marriott to the up distant-signal to clear. it. It was my duty, having received line clear from Conington not to stop the express. I knew they had had line clear after the coal-train from Conington. As soon as the signalman reported to me that the coal-train had run by his signals, I went to him, and he said, "There are my signals; they are all standing at danger." I asked him how he could account for it, and he told me

he could not account for it in any way. I immediately ran down, and examined the up starting-signal, and found it showed a dim red light. I stood by while Marriott wiped the spectacle of the up starting-signal, and saw him do it, and I then instructed them to go and see-that all. the signals were working properly. Then I went again into the signal-cabin before the Scotch express passed, and saw the block instrument showing that the line was clear after the coal-train. I have no recollection of noticing that while I was in the signal-cabin the first time, but I am sure it was-before the Scotch express passed pi that I went into the cabin the second-time. It was 15 or 16 minutes after the coal-train that the Scotch express passed. I depended on the Conington and Wood Walton signals to stop the express while the coal-train was being shunted. I knew there was an irregularity in the coal-train passing the signals, but did -not consider at the time that any further precautions were necessary.

John Collins Osborne (sworn).

I am a signalman in the service of the Great Northern Company, and, will have been a signalman at Holme station for 13 years next April.

On the 21st instant, the coal-train, as shown in the record book, passed my cabin at 6.21 p.m. I gave train on line to Conington at 6.21, had it acknowledged from Conington at 6.21, and had it cleared from Conington at 6.25 in four minutes, which was its usual time of running. I made the entry in the book produced; the figures immediately, after the train had passed, and the remark "Ran past, signals," a few minutes afterwards, I at once. called. for Mr. Gregory, and he came immediately into the cabin, and I told him the coal-train had run past my signals, and asked him to go down and see if anything was the matter. He went down at once, and returned about 10 minutes or quarter of an-hour afterwards. He told me that the starting arm on the post south of the cabin was up at danger, but that the home signal north of the box did not work properly. That, I believe, was before the Scotch express passed. I cannot tell whether he knew that I had received line clear for the coal-train. I think his first, visit to the cabin was about the time that I received line clear for the coal-train. A down stopping-train afterwards arrived at the station at 6.25, and started at 6.26. My home and distant signals were off for that train to come into the station. The next train was a down express, which passed at 6.26, being; cleared from Yaxley at 6.29. An empty coal-train -passed at 6.47, and was cleared from Yaxley at 6.58. The up Scotch express passed me at 6.37, and my signals were at "All right" for it. I pulled the levers over. I had had no complaint about the signals, except what transpired about the coal-train. I had intended to shunt the coal-train, because I thought there was not time for it to go to Abbotts Ripton without delaying the express, and my intention was frustrated by its running past the signals. Having had line clear from Conington, I left the station-master to take what steps he thought fit. I received from Grantham, transmitted through Peterboro', notice of the Scotch express having passed Grantham at 5.46, which would make it about 10 minutes late there. I told the station master that the express was too near for the coal-train to go on to Abbotts Ripton, but we did not communicate with Peterboro' that the coal-train had run past to Abbotts Ripton. I felt that the coal-train might detain the express, but I was not anxious about the safety of the trains. The snow was very thick.

George Gammons (sworn).

I am foreman platelayer at Holme, and have been so since last March. I was previously an under platelayer for upwards of 10 years.

I was at Holme on the 21st of this month when the collision occurred. I came out between six and seven, after having gone home after my day's works to see how the weather was, and I found.it snowing and. raining very fast, but I don't think it was freezing. I then went in again. I saw an: up-train, called the Manchester train, pass, I don't: know at what time, and noticed that the up Holme distant signal remained with a white light after that train, had passed, when I thought it ought to have gone up to red. I watched an up stopping train which followed the Manchester express, and looked to see whether the distant-signal lamp was turned to red whilst it was at the

station, but the lamp continued to show a white light. I put on my clothes, and came out to the signal, and found that the arm was more off than on, instead of standing out at danger. The snow had settled on the arm, and weighted it down, which prevented it rising to danger. I took hold of the balance weight, and shook the snow off the arm by working it up and down. I walked back a little distance to see how the signal worked, and saw it exhibited a red light. I then went to the station, and met a man, and told him to remain at thot signal till further orders. When I had cleared the snow off the, arm it worked properly, I then went to the yard to attend to the points, and attended to that duty all night. I had found both home-signals also affected by the snow, and cleared them in a similar manner. I did not go to the other Holme distant-signal, as another man had gone there. We repeated the clearing three or four times during the night. I have known the snow to weight the arms of signals previously, but not so badly us at this time. It happened once before this winter. It was from my knowledge that snow might weight down the signal-arms, and from my previous experience in that respect, that I watched the signal as above described.

John Clark (sworn).

I am a platelayer at Holme, in the service of the Great Norther Company, and have been so a little over 12 months.

I live on the down side of the line about quarter of a mile from Holme towards Huntingdon. I came out a little before seven, because I was suspicious of the weather, and thought I might be required. I met Mr. Gregory, and he told me to take my hand-lamp, and go out fogging. I went to the up-distant-signal from the Holme station, and stopped there all night. I shook the snow off the signal-arm by lifting the balance weight up and down. I saw the snow loading the arm, and had to clear the arm many times in the course of the night up to 12 o'clock, when the snow abated. I have never had to shake the snow off the signal arms before, having never been out in the snow with signals before. I met Gammons on his way from the distant-signal, and I found on reaching it that the snow had accumulated on the arm, and the signal was showing a white light. I shook off the snow, and turned to red again.

William Marriott (sworn).

I am s platelayer in the service of the Great Northern Company, and had been so for three-years last July.

I was sent for by Mr. Gregory between six and seven o'clock on the 21st instant, and came up to the Holme station, and found the starting and home signals there were not in working order, because the snow had gathered on the arm and weighted it down. It kept the arm down at caution instead of allowing it to go to danger; and as the arm and glass worked together, so the glass was kept down, and showed part red and part white, instead of a wholly red light. I took hold of the balance-weight and moved it up and down to shake off the snow. I went up the ladder once, and wiped the snow off the spectacle red glass; but I found it accumulated very quickly again, and knowing I could not keep it clear I used my hand-lamp instead. My work during the night was varied between the points and the signals, keeping them clear of snow. The white light was the brighter of the two when I first went to the home-signal; the lad that fetched me told me that a train had run past the signals, which showed white lights. It was snowing very fast when I went out.

Timothy Jakes (sworn).

I am signalman in the Great Northern Company's service, and have been so about six months, of which four months at Conington.

I produce my record-book showing a coal train passed my cabin on the 21st instant. I received Be ready from Holme at 6.14; Train on line at 6.21. It passed my cabin at 6.25, and was cleared from Wood Walton at 6.32. My signals were off for it to pass, and nothing particular occurred in regard to it. I was not aware that it had run past

the signals at Holme without being intended to pass them. At 6.32 I received from Holme, Be ready for the express; Train on line at 6.36. It passed my cabin at 6.38, and was cleared from Wood Walton at 6.41. I saw it pass at its usual speed. The first time I found any difficulty with my signals was when I tried to stop a slow passenger-train at 7.10. I stopped the train with a hand-lamp, because I had not got line clear from Wood Walton, when I heard it approaching at too great a speed. The engine-driver then asked me why I had stopped him with a hand-lamp when my signals were off. I told him that my levers were over in the proper place, and I supposed my signals to be at danger. When he informed me that the signals did not work I blocked the line back to Holme by five beats on my telegraph bell. I went outside my cabin to ascertain whether my signals were as the driver reported, and found that he was correct. I found a railway chair, broke it in two with a hammer, and fastened half of it to the balance weight of each home-signal. I had no means of doing anything to my distant-signals, and there was nobody whom I could send out to look after them. After that the road was blocked, and nothing was running.

Charles Rose (sworn).

I have been signalman at Wood Walton in the Great Northern Company's service since last May.

I produce my record-book, showing that a coal-train was signalled, Bo ready from Conington at 6.20; Train on line at 6.24. It passed my cabin at 6.31, and was not cleared from Abbotts Ripton. At 6.35 I received from Conington Be ready for the Scotch express; at 6.37 Train on line for it. It passed. me at 6.40, whilst line clear had not been received for the coal-train. My home and distant-signals were, as far as my levers were concerned, fixed at danger. I could not see how the signals were standing, for the snow which covered the windows of my cabin. I thought when the Scotch express passed that the coal-train would not be clear, because I expected it would be shunted at Abbotts Ripton. I did not show any hand-lamp to the express-train, because I believed my fixed signals to be at "danger." I aid not hear the train approaching, on account of the wind, until it passed my cabin. Once in December my signals would not work on account of snow, but that was in the daytime. On the evening in question I came on duty at 6 p.m., after having been away for a week. There is no record of a train being stopped that evening at my cabin. If our signals go wrong we have no means of sending any one to correct them. I had told signal-fitter Pallinder of the signals not working properly. Referring to the regulations about fog-signalling I did nothing towards obeying the rule referred to. If I believed my signals were working properly I could not leave the box. I heard the Manchester express approach as if the signals were not obeyed, and I exhibited a hand-signal. I made a note in my book at 6.40, when the Scotch express passed, "Ran by signals," and I made the same note with regard to the Manchester express at 6.53. The Manchester express did stop, though it was outside my signals. A train slacked to my down-distant signal at 6.35, and the signal would, therefore, appear to have been working properly at that time. The last message I sent, or could send, to Abbotts Ripton was at 6.31.

Charles William Johnson (sworn).

I am a signalman at Abbotts Ripton in the service of the Great Northern Company, and will have been so two years next Match. I was previously at Wrenthorpe about three months as signalman.

I produce my record book showing that I received the Be ready signal from Wood Walton for a coal-train at 6.25 on the 21st instant, and Train on line at 6:32. It reached my cabin at 6.41, and I signalled, by waving my hand-lamp to the engine-driver, to shunt the train into the siding on the up-side. He drew forward clear of the siding points without any delay, and I at once gave him the signal to set back. He did so, and just as the engine was passing my cabin I called out to him, "Shove them back, the Scotchman is standing at Wood Walton." I turned round then to attend to some of the instruments, when I heard the shunting lever shake. I fancied that the coal-train was off the road. I turned round to look, and noticed the engine of the coal-train shoot forward, and then for the first time it crossed my mind that the Scotch express had run into the coal-train. I had received Be ready for the Scotch express from Wood Walton at 6.39, and acknowledged it. After that I made no signal to Wood

Walton of any sort or kind. I had not cleared the coal-train, and therefore supposed the Scotch train would be standing at Wood Walton, as it would have been if the signals were working properly. So long as I did not clear the coal-train it would be the duty of the signalman at Wood Walton to keep his home-signal at danger in clear weather, and in such weather as the 21st. I myself would have kept home and distant at danger. My own signals should have been at danger, as my levers were in the position of danger. I could not see the signals through the window for the snow. I did not go to look at them after the accident. The first thing I remember doing after the first collision was placing the levers of my down-signals at danger. I had received notice of No. 203 passenger-train, the Leeds down-express, leaving Tempsford at 6.35. I do not remember when I got Be ready for it. I hardly know what I did after the first collision; it never entered my mind about the down-express being so close, as I was so much excited by the first collision. I recollect seeing Mr. Usher come into the cabin, and the guards of the coal-train, together with some passengers. The down-distant-signal from Abbotts Ripton must have worked perfectly at 6.4 for a down-train, because it pulled up a train for shunting. The exact time of the first collision, according to the time at which I received Be ready for the Scotch express would have been 6.44. The south distant-signal must have been working till within 20 minutes of the second collision, because a train had been slacked by it at 6.36. I am not sure that I blocked the line to Stukeley after the first collision. If I had not been so confused I might have stopped the Leeds express at Stukeley. The points at Abbotts Ripton are interlocked, and the points could not have been open for the coal-train to have been shunted without putting the down home and distant signals to "danger." The passengers were all bothering me after the first collision to telegraph to their friends.

William Trowell (sworn).

I am a signalman at the Stukeley cabin, where I have been for two months, and before that I had been for about six months at Creeton.

I produce my record hook, which shows I received a signal, Be ready for 206 passenger-train, the down Leeds express, at 6.47, Train on line at 6.50. It passed my cabin at 6.52, and at 6.52, as that train was passing my cabin, I received five beats on my telegraph bell, which meant line blocked from the Abbotts Ripton cabin. I then ran to my bell and gave one beat and unpegged my needle, and the needle was then pegged over from Abbotts Ripton, which meant that the line was blocked between me and that place. By that time the express had passed. If I had received the five beats a few seconds sooner, I could have thrown my signal up to "danger" and shown a red light from my hand-lamp to the engine-driver. I knew nothing of any collision having happened previously to my receiving five beats from Abbotts Ripton. I had no occasion to stop any trains before 6.52, and therefore did not find any defect in the working of my signals. To ascertain whether my down-distant-signal was at danger, being suspicious because of the weather, I sent a man to it to see, as I had previously had trouble for that reason. On the 8th or 9th of December last, at Creeton, I could not work my distant-signal properly, in consequence of the snow and frost in the morning. When the man, Charles Warren, whom I had sent to my distant-signal, came back, I called out, asking him whether my distant-signal was at danger, and he said "Yes, it is at danger." He did not tell me whether he had done anything to it. I could not see my up-distant-signal on that night as I usually could, because of the snow. I did not report the case of. the snow impeding the signal at Creeton to any officer of the company, a platelayer having gone and shaken off the snow.

Joshua Pallinder (sworn).

I am a signal-fitter in the service of the Great Northern Company, and had been so five years last November. Previously I had been a signal-fitter's labourer.

My attention was called at Huntingdon to this collision, and I went with. the break-down-train, because I thought I should be required. I reached Abbotts Ripton about 9.30, and disconnected the down-home and up-starting signals which showed a white light, because some vehicles were on the wires. I then had to go up the

ladder and knock the snow off the arms before they would go to "danger." 'There was much snow on the signal arms. I then went to the up-home and the down-starting signals and I had to do the same thing to the, disconnecting the levers and knocking the snow off the arms. I then went to the up-distant-signal and found John Hall, a platelayer, there, and the whole of a chair tied to the balance weight, and by means of this extra weight of 34 or 36 lbs., he had got the arm up to "danger." I disconnected it, for an engine was on the wires, and then went to the down-distant-signal, where there was a platelayer who had forced it to "danger." I did the same to that signal as to the others and went on to Wood Walton. I there found the down-distant-signal showing a white light. I forced the signal to "danger," and it flew to "all right" again when I let it go. I thought the signalman. must have his lever to "all right," but I found when I got to the cabin that the lever was in position of "danger." It was the weight of the snow on the wires which kept the signal down at "all right." I had to go along and knock 'it off before I could get the signal to work properly. After getting rid of the snow the signal worked: well. I knocked the snow off the wires on my way to the other distant-signal. I found the home-signals at "danger" as I passed. I don't know how they had got them to work. I found the up-distant at "all right," but when the snow was knocked off it went to "danger." I sent a-man to Conington and Holme while I went back to Abbotts Ripton. The signals were in the same condition at Huntingdon, and I suppose they would have been the same all over the line, wherever the snow was falling in the same manner. Last December I had to clear the snow off the signals at Huntingdon, Holme, Yaxley, and Fletton, because they were all more or less obstructed by snow. It frequently is so during snowstorms, more or less; and when a snowstorm comes on, I go out for the purpose of clearing the signals. On the 2st I was out on that duty before the accident. I have had orders from Mr. Scales, my superior, to do so during snowstorms. I never had to do with an accident in a snowstorm before. I reported to Mr. Harrison at Hitchin, accounting for my time being out in the evening working the snow off the signals, but I had no occasion to do so last December, because the work was done during: the day. I never remembered such a night as the 21st for snow. The snow-stuck to everything it touched, and in Huntingdon yard the signalman called my attention to the signals at 6 o'clock, and it took me all my time to keep the signals to "danger." On previous occasions the snow has accumulated more gradually. I could not get the snow off by working the balance: weights on the 21st instant, and had to go-up the ladder and kick it off the arms. I have very often found that signals would not work in snowy weather, but have been able to free them by moving the balance levers on previous occasions.

Amos Piggott (sworn).

I am chief signal inspector on the Great Northern Railway, and have been so for nearly 18 years. My duties are to report to the superintendent in reference to the construction or working of signals, and I also superintend the signalmen and their working.

On the 21st instant I was waiting at Retford for the down Leeds express, to see it in before I left the station; I like to see it safe in before I leave. It is due at Retford at 8.40. I joined the general manager's special train at Retford, and reached the spot where the accident occurred about 3 a.m. At Grantham I left the carriage in which I had been riding, and went on the engine, so as to be able to see the state of the signals and telegraph along the line. I found the signals working satisfactorily all the way to Peterboro'; it was not snowing at that time. The telegraph wires were broken down in many places. I saw no snow falling. On approaching Wood Walton I found the up distant-signal at "all right." I presumed that it¢ ought to have been at "danger," and I stopped the engine at the cabin. The home-signal was at "danger," and I asked the signalman why the distant-signal was not at "danger." His lever was, he said, in the position for "danger," and he did not appear to know but what his signal was at "danger." There was a signal-fitter present, named Owen, whom I told to go and put the distant-signal to "danger." After reporting the slate of this signal to the general manager, I went to the scene of the accident, and found the down starting-signal at "all right." As the lines were all blocked, I did not trouble about it. I never knew, during 30 years, a single instance of the snow preventing a signal from showing the proper indication. Some. years ago, when parts of the railway were snowed-up, I did not see any signal impeded to that degree by the snow. A

very deep snow only would bury the wires. On the night of the 21st I noticed that the snow had adhered to the wires. I do not recollect a case of accident on the Great Northern Railway through the snow, nor on any other railway. The weighting of the wires or arms would equally affect the signals. I never had a report of signals being effected by snow. I have not been the person to whom such reports would be made; they would go to the superintendent's office, who would deal with the matter. The last witness, Pallinder, attends to the machinery for working the signals. The snow would be more likely to be shaken off the arm than off the: wires, but if the signals were not worked from "all right," then the arm might be fixed by the snow.

(Mr. Cockshott here stated he had had reports of imperfect signals during snowstorms, but never cases of erroneous ones. The cases are very rare of imperfect signals.)

James Radcliffe (sworn).

I am telegraph engineer and superintendent on the Great Northern Railway, nod have been so for 5½ years. Prior to that I was engineer: to the Magnetic Telegraph Company for 11 years.

I have had great experience in the maintenance of telegraph wires, and the effect of snow upon them. On the night of the 21st I was roused up and told that an accident had occurred on the line, arid that all the telegraph-wires south of Ponton had fallen down. Ponton is 25 miles north of Peterboro'. I came up to Peterboro' and found the wires coated more with ice than with snow; this was from Ponton to Peterboro'. The snow or ice round the wires was in some cases 3 inches in diameter. I did not go further south, for the communication was maintained. I never knew but one occasion, in 1866, where the damage done to the wires was anything like so extensive; then it was greater. The damage was not done by the wind, but by the snow only in this case; on the previous occasion it was done by the wind.

William Henry Preece (sworn):

I om divisional engineer to the Post Office Telegraph Department.

On the evening of the 21st a storm, accompanied with snow, commenced at the Bristol Channel, and proceeded in a north-easterly direction, embracing a tract of country of about 40 miles in breadth, leaving the English coast about The Wash. It vented its chief fury in the tract of country between Birmingham and Huntingdon. Its characteristic was this, that the temperature of the wires was below the temperature of the air and the snow, so that when the snow fell upon the wires it froze and adhered to the wires in the form of a pipe of ice. In some places this pipe attained a diameter of about 3 inches. Its weight was measured in two instances. In one case, between two poles, the weight of ice was estimated to be a ton and a half, but I do not know the number of wires; in the other case, the weight upon a single wire was about 260 lbs., in a length of about 80 yards. The storm was accompanied by a gale of wind, which shattered the poles in hundreds. The effect upon the wires was to break them in thousands of places. That covers the district between Huntingdon and Peterboro'. The Great Western, the Midland, and the London and North-Western Railways were affected by the stoppage of telegraphic communication by the storm.

Charles Edmund Oldman (sworn).

I reside in Church Street, Spalding, and am surgeon to the Great Northern Company for that district.

I left Peterboro' at 6.20 p.m. on the 21st January, in the up Scotch express. It was snowing very heavily indeed. I has previously started from Spalding, and had changed trains at Peterboro', I noticed nothing between Peterboro' and Abbotts Ripton. I rode in a second-class carriage about the middle of the train and in the end compartment. There were two passengers with me, one of whom was the valet of the Russian Ambassador. The first thing I experienced was being thrown from the seat upon which I was lying into the arms of M. Lelich. I afterwards found myself on the ground, and when the crash had ceased I crawled out on my hands and knees. Finding then that I

was not much hurt, I attended to my fellow passengers. Having placed the valet at the foot of the signal-box, I observed the down express approaching, and rushed up into the signal-box and said to the signalman, "Why on earth have you not blocked the line and stopped that train?" This was just as the second collision occurred; and the signalman replied "I have, sir; look they have come against their signals," He pointed at the same time to the dials to show that he had blocked the line, but I did not notice what condition they were in. I went down again on the line to render further assistance, and a quarter of an hour or 20 minutes later I went again to the signal-box, and noticed only one lever down, pulled over from the forward to the backward position; the rest were all in the forward position. The only signal-post I noticed was the home-signal towards London, and I saw a white light from the back of the lamp.

John McDiarmid (sworn).

I am a guard in the Great Northern Company's service and have been so 14 years and for the whole time I have been running as head guard with the fast trains from Edinburgh to London.

On the 21st January I left Edinburgh at 10.31 a.m., one minute late; got to York at 3.29 p.m. and left at 3.48, three minutes late. We were checked two or three times by signals between York and Peterboro', and reached the latter place at 6.19, and left again at 6.24, six minutes late. I found a little snow first in coming to Grantham. On leaving Peterboro' my train consisted of an engine and tender, a break-van, a second-class carriage, a first-class carriage, two composite, three first-class, a second-class, and a break-carriage - ten vehicles. I rode in the front break-van next behind the tender. I looked out after leaving Peterboro'. I cleared the window from time to time, but as fast ae I cleared it the snow came on again. I saw one or two signals after leaving Peterboro', but no others until the collision occurred. I am not sure that I did not see Holme signals, but I did not see the signals at Conington, Wood Walton, or Abbotts Ripton. It is my impression that we went into the coal train full speed on, the usual speed of the train. It did not occur to me at the time that there was any necessity for slackening speed. The weather decidedly does affect oar running. I never saw a heavier snow than that which fell between Peterboro' and Abbotts Ripton on that night. I have heard that signals are liable not to act well in snowstorms. It is our practice to run more cautiously in bad weather, and we have sometimes to ascribe time lost to snow or fog. I should have expected the engine-driver to exercise more caution in keeping a keen look-out and slackening speed on such a night as the 21st, and everybody should be ready for an emergency. The snow was beating against the front of the van, and would be in the driver's face. I knew nothing until I was thrown down by the collision and buried amongst the luggage. I then. got up and out of my break and proceeded to the front, and they were at that moment despatching an engine to stop the down train. I then went to the back of my train and saw that the second-guard was out of his van, and that the side-lamps were right; I also heard that the rear-guard had gone back to protect the train. Afterwards I went forward again; and saw the position of the carriages. I have an impression that I was in the signal-cabin between the two collisions. There were people in the cabin, and I cried out "Block both roads." The signalman did not reply, but some one said the blocking had been done. The signalman was watching one of the telegraph-instruments: I noticed the up home-signal, and saw it showed a white light; there was snow on it, and I saw snow on the wires of the distant-signal. I did not notice whether there was any of the wreck of the collisions on the wires. I was shaken and a good deal bruised by the accident. I went home to Edinburgh some time after the accident. I knew nothing of the coal-train when leaving Peterboro' on that night. I have not noticed the coal-train on previous occasions, neither have I had any difficulty with it before. We did not. pass over. any fog-signals that night. I did not notice any of the passengers interfere with the signalman at Abbotts Ripton.

(Mr. Gaches, solicitor, quotes a rule, saying that when signals were not visible, speed should. be immediately reduced, so that trains could be stopped at the signals)

The obedience to those rules is to our discretion as to the reduction of the speed. The engine-driver should reduce his speed so as to have his train-under control. Slackening because of the weather -might make a difference of 3, 4, or 5 minutes between Peterboro' and Abbotts Ripton. I never heard of any "brushing" of my train at Abbotts Ripton. I could not tell at what speed we were going within a mile or two on such a night. I do not know at what time the collision occurred. It is the engine-driver's duty to regulate the speed of the train, and I cannot tell what he saw in regard to signals on the night of the 21st.

William Elijah Mason (sworn).

I am a platelayer in the service of the Great Northern Company, at Holme, and have been so since 1869.

I live about three minutes walk from the Holme station. On the night of the 21st January I was at home, when somebody came to fetch me; it was William Marriott. He told me to go to the signal, and I went to the down distant-signal, as I usually do when called out in that way. I left Holme between 6 and 7 o'clock and it would take about a quarter of an hour to walk to the signal. When I reached it I found the signal standing below "caution," that is to say the arm was less than half way up; it was very nearly into the post. The snow kept it in that position, owing to the weight of snow sticking on the arm. I worked the balance weight up and down, and a great quantity of snow fell off the arm. When I first reached the signal it showed a white light, and when I knocked the snow off the arm it would go up to red. I stopped at the signal all night and until about 9 o'clock in the morning. It left off snowing about 12-o'clock. I had to free the signal of snow about every half hour up till 12 o'clock. The Scotch express train had passed. before I left my house, and the up stopping train was in the yard. I have been out in fog, but not in snow before that night. I have only been acquainted with the signals since November. I expected to find snow on the signals, because it had been snowing so heavily. The snow seemed to cling to the signals, and I had difficulty to shako it off. It was a very rough night; rougher than I had ever witnessed. I did not, go out to the signals earlier because I had only just got home and had my supper. Clark and I have never spoken about signals getting clogged by snow.

Joseph Wills (sworn).

I am 14 years old to-day. I am employed as lad porter at Holme station. I open and shut the gates, and go on messages.

On this evening of the 21st January I was sent by Mr. Gregory, the station-master, for William Marriott and Elijah Mason. It was just after the Scotch express had gone by that I was sent for Marriott and Mason. I had to tell them to go and see to the signals. I saw them both, and they came at once to the station. The men were sent for because it was coming on foggy, and there was snow. The train which followed the Scotch express had not passed when I left for the pletelayers; as I was returning I saw the Manchester train go by. I was on the up-platform when the coal train passed, but did not notice the signals. I heard some of them say the coal train had run past signals. I have sometimes been with the signalman in the cabin. I remained at the station until the Scotch express had passed, and before then I saw Mr. Gregory come out to meet the down-train. I did not see the signalman, nor hear him call out or make complaints. Marriott and Mason live close to one another. I cannot tell who it was said the coal train had run past signals. Mr. Gregory came into the porters' room to send me for the platelayers. I saw Mr. Gregory on the platform when the down-train arrived as he had been there some time before, between the time of the coal train and the "down" train. He was about there most part of the time. I cannot tell whether it was before I went into the porters' room or while I was there that I heard that the coal-train had run past signals. No one has said anything to me about my evidence at the inquest.

(This witness showed great reticence under examination, and it was impossible to get a complete statement from him.)

Gregory (re-called).

I was in the office when the coal-train passed, and when the signalman came tome. He said the coal-train had run past the signals. That, I think, was before the down-train came to the station; I cannot say distinctly, I went to the signal-cabin at once, and saw that the signal-levers were in the position of "danger." I then went to look at the up-starting-signal, and saw it was at "danger," but a very dim light. Then I went to the up-home-signal and saw it was at "danger." I then called the lad, Wills, to fetch the platelayers. It was from. the level-crossing I spoke to the boy, who came from the lamp room. It would be about 20 or 30 yards from where I stood to the boy. He came to me at the crossing, and I told him to fetch Marriott and Mason, the platelayers. It was immediately after that that I wont to the up-home-signal, and saw it showing a red light. I then went back to the station, and the down main line train left, and the down branch train to Ramsey. The Scotch express had not yet passed. I was satisfied that the up signals were working properly. According to the book the coal-train ran past signals at 6.21; next a stopping train arrived at Holme station at 6.25, leaving: at 6.26; next a fast through train passed on the down line at 6.35; next he Scotch express at 6.37; and next a through up-passenger-train at 6.50. I saw the boy leave on his errand rather reluctantly; he went in the direction of the platelayers' houses. It is my impression that I sent the boy away before the Scotch express passed but I won't swear it. I was on the. platform when the down-stopping-train left, and also when the down-fast-train passed; and between them I started the down-branch-train. I might have spoken to the boy between the down-fast and the up Scotch express. I am positive I was on the crossing when I sent the boy away, and I am under the impression that it was on my way from the up starting-signal I went to the signal-cabin a second time after being to the up-home-signal. The porters at the station are named Marshall, Cleave, and a supernumerary, Leighton, who had been there about six months. Of the other two, Marshall has been at Holme a month or five weeks. The boy Wills principally attends to the gates and assists me. I call the porters by their surnames. I never heard the boy calling these men. Marshall's christian name is Thomas. I went a second time to the signal-cabin to ask the signalman how his signals were working. If a train were late I should know it, as I should be expecting the train. When I went into the signal-cabin first I asked him how he accounted for the coal train running past signals. He said he could not tell, and point out that his lovers wore in the position for "danger." I did not hear from him that he had conversed with anyone on the instruments that the coal train had ran past signals. I have been neatly 13 years at Holme. I have had occasion to pull up the expresses. A coal-train has broken down; I don't know that trains have run-past signals. I cannot say what punishment I night have had if I had stopped the express. I did not think of being fined. Our instructions are to. work the trains properly, avoiding delays. I have never been censured for stopping the expresses; but they were very different occasions to this. It is not the duty of myself or the signalman, when the train has run past our signal to telegraph the fact to the station at the immediate rear. I have heard that signalmen fight for the possession of the telegraph circuit. I may have heard the Holme signalman speak of that, but he has not made a report. I do not know that I have made a report on the subject. I think I should have been censured if I had stopped the express after having received line clear from Conington. I do not think that would have been justified in stopping the express that night. The platelayers came on duty as soon as they could have been expected. My impression is that Marriott was at his signal before the Scotch express passed. Marriott and mason should certainly have seen the Manchester express pass. My idea is that I should have been censured if I had unnecessarily stopped the express; and I did not think it necessary on that night. I have had complaints verbally to me by Osborne as regards the difficulty of sending trains by the instruments, but have never taken notice of those complaints.

Osborne (recalled).

The coal train ran past my cabin at 6.21, the levers of my home and starting-signals being at danger. I then called myself for Mr. Gregory. He came immediately, and stayed a minute or two. I told him about the coal train, and he went away at once. I sent on the speaking instrument to Abbotts Ripton, "He has run past signals" at 6.26, referring to the coal train. "The message might have been seen at Peterboro', St. Neots, Huntingdon, Abbotts

Ripton, and three boxes at New England yard, if they had been looking at the instruments. I cannot recollect that the station-master expressed his intention of sending for the platelayers. My intention in telegraphing to Abbotts Ripton as I did was to inform the signalman that I had intended shunting the coal train at Holme. It was before the down trains passed through that Mr. Gregory came into my cabin. When Mr. Gregory came up the second time he said that the up home-signal was not working properly. I don't think he said anything else, and he stayed only a very little while. We did not discuss stopping the express at Peterboro'. I think that Mr. Gregory was not in the cabin when I received line clear from Conington for the coal train. I should not telegraph to a station in the rear when a train ran past signals. I received notice at 5:50 that the express had left Grantham at 5.46, and might have known therefore that the express bad not left Peterboro' when the coal train ran past my signals. The Scotch express was late at Holme. Mr. Gregory gave me no instructions when he came into the box. I have complained of fighting on the wires to Mr. Gregory many times. The men are not playing tricks, but each wishing to send his message first. An S.P. ought to stop all that; we should give up the instrument at once. I should have received from Peterboro' a message in regard to the Scotch express, and I might have received it, but it is not booked. I could stop fighting on the wires. It did not occur to me when the station-master informed me about the state of the Holme signals that other signals might been the same condition. There wore 16 minutes between the express and the coal trains, and two block stations, and I thought the express ought to go forward. I complained to the station-master of fighting on the wires, with a view to showing that I could not get through what I had to do, because there were too many on the circuit. I made no written report.

John Thomas Marshall (sworn).

I am a porter in the Great Northern Company's service and have 'been so for a month to-day at Holme station.

I know the lad porter at Holme; his name is Wills. He has called me by different names. I heard Osborne tell Mr. Gregory that the signals would not work, Mr, Gregory watched the signals, and seeing they did not work properly he sent for the men. I saw there was a white light instead of a red one, and I knew it was because of the snow. After that I was attending to other trains and things in the yard. The boy Wills I saw in the porters' room after all the down trains had gone away. I saw the Scotch express pass, but I don't know where the boy Wills was then. About a few minutes before 7 I saw Wills taking the tickets of a train. I did not hear or see the station-master send Wills on a message.

Silas Bradshaw (sworn).

I am a signalman, in the employ of the Great Northern Company at Abbotts Ripton, and have been there a twelvemonth.

I was on day duty on the 21st January, and left at 6.7 p.m., and went to my cottage, about 200 yards from the cabin. I heard the first collision, but I did not know at first what it was. I was told there had been a collision by Pantling, a porter. I at once went to the box, and reached it about 6.57 or 6.58, just after the, second collision. I saw at the cabin that all the levers except No. 10 were in the forward position, and I also saw that the telegraph instruments were at "Train on line" both for the up and down lines. I saw Johnson, and he asked me whether I would send the messages about the accident. I asked him what messages he had sent, and he said none, but he had been frying to do so. I told him I would try to send the messages. I only thought of working on the talking instruments. I sent messages to Huntingdon and Peterboro', to the effect that 156 had run into 175 coal, and that they should send doctors and help, at 7.5 to Huntingdon and 7.9 to Peterboro'; and I was under the impression those were the first messages that left the cabin. It was about two minutes before I got the instrument, which was engaged. As soon as I got the others stopped, I broke in with S.P., a special message, and then informed those on the circuit that they were to keep off for Abbotts Ripton, where there had been a serious collision. Johnson wrote the message which I sent previously to my going into the cabin I got no replies from Huntingdon or Peterboro'

beyond the acknowledgments from both. places. It was snowing hardest about 6 o'clock, when I went off duty. I had had no trouble with the signals. I have never found any difficulty in sending my messages because of there being too many persons on the circuit. The message sent at 7.5 was headed F.J., meaning 6.45. I was able to send the message almost immediately. Johnson was confused at the time, and I felt I was more able to transmit the message than he. F.J. was in Johnson's handwriting. At 6.58, when I entered the cabin, Johnson appeared to be doing his best to send the message. It is usual to write down a message before sending it.

Johnson, signalman (recalled).

I have some recollection of having rung five bells to give the block to Stukeley. I remember Bradshaw coming into the cabin and trying to send a message. I first tried to send the message without writing it. That would be two or three minutes after the first collision, and before I sent the five bells to Stukeley. I put the code time at the head of the message at which I first tried to send it. I used the sign S.P, and if I could have gained attention it would have been visible to everybody on the circuit from Peterboro' to St, Neots. I kept trying now and then to send the message; the passengers wished me to telegraph to their friends and one thing and another. I asked Bradshaw to send the message — he was cool. I have previously found difficulty in sending messages, but I have not complained, for we can't all use the instrument at once. I have never complained to my superiors about it. We don't have much conversation. I had been advised of the Scotch express from Essendine and Peterboro'. It left Essendine at 6.1, and I was informed at 6.17. I cannot say why I did not hear of it before. It left Peterboro' at 6.24, and I was informed of it at 6.31. The delay would be because other people were using the circuits. We would never put S.P. to a train message. I did not think it wrong to receive information that the express and coal trains were so near each other, because of the block and signals. The levers of the signals could not be altered after the collision occurred. I remember Mr. Usher coming into the cabin. He might have asked me whether I had blocked the lines. Holme told me that the coal train had run past his signals, with train on line. I did not recollect that message when last examined. The platelayers had just gone out fogging at that time. I did nothing in consequence of receiving the message that the coal-train had run by signals. It is not an ordinary thing for trains to run past signals. I did not send to Huntington that the coal-train had run past. My first duty would be to block the line to Stukeley, and the reason I did not do so was that I had never dreamed of the down train I did not know until the Stukeley man told me at what time I bed blocked the line. I immediately put the signals to danger. I did not get train on line for the express. I could not because the instrument was pinned over for the coal-train to shunt. It is a common thing when telegraphing a train to add some observation as "heavy," "light," and so forth. When I heard the message about the coal-train I knew that the Conington and Wood Walton, as well as my own signals, would be against the express. I had not the least notion that there was danger of a collision between the express and coal trains. The Essendine signalman would have to telegraph to six stations before Abbotts Ripton of the approach of the express, a separate message to each place, through two circuits, and that would account for the time between the leaving of the express and my receipt of the information. I did not know that the first collision had obstructed the down line; I supposed it might be obstructed, though I could not see. I did not give line clear to Wood Walton because the coal-train was not in the siding. In fine weather I would have done so.

Rose (recalled).

The reason I did not show a red light from my hand-lamp to the express when I had not received line clear for the coal-train was because I was using the lamp for drawing down a train of empties. I have never experienced difficulty in sending messages owing to fighting on the wires. The Scotch express passed my cabin at 6.40, and at that time there was a train of empties on the down line. There was a train preceding the train of empties which had not been cleared from Conington, and I was drawing the former train within the signals. If I had been at liberty I would have shown a red light from my hand-lamp to the Scotch express. It would be better if I had a

speaking instrument at Wood Walton; we should know the whereabouts of trains earlier. It would facilitate the working. The train of empties was stopped by my fixed signals.

Walter Blatch (sworn).

I am a telegraph clerk in the service of the Great Northern Company stationed at Peterboro'. I have been there seven years.

I was on duty on the night of the 21st January. My duty was to send messages and forward statements about the times of trains. With regard to the Scotch express it was first reported to us as leaving Newark at 5.14, received by us at 5.19; next left Grantham at 5.46, received' at 5.47. We forward the information to each station is far as Huntingdon by separate messages. At this time there would be three clerks in the office. We next heard of the express leaving Essendine at 6.1, received at 6.9, and transmitted the train then to Abbotts Ripton and Offord. Next is the time of leaving Peterboro' 6.24, forwarded to Holme at 6.26, Abbotts Ripton at 6.27, Huntingdon (North) 6.28. The first unusual thing that occurred was that I was waiting to send on a train at 6.45, watching the instrument and found it engaged; somebody, I could not tell who, was calling Huntingdon. Then I saw (6.47) him offer Huntingdon a message with the prefix S.P. Huntingdon did not acknowledge it. Abbotts Ripton repeated the message but it was not acknowledged. Abbotts Ripton then left the instrument. There was nothing at that moment to prevent the message, if Huntingdon had attended. Huntingdon only acknowledged the Abbotts. Ripton code and then ceased. Huntingdon should have given either "understand" or "not understand," which he did not do. When Abbotts Ripton left the instrument I took it, as he could have stopped me again in a moment. At 6.50 then I sent the train to Holme, 6.51 to Huntingdon north and south, and 6.52 to Offord. When I had transmitted my train I saw some one calling Huntingdon at 6.52. He called some little. time, gained his attention, and sent S.P. message again, to which Huntingdon gave M.Q. which means that he was engaged. A telegraph clerk would not think of giving M.Q, which means wait, in answer to S.P. Abbotts Ripton went on calling Huntingdon again and got attention, and again offered his message S.P. Huntingdon gave BQ, and Abbotts Ripton then told Huntingdon he must take the message; that it was important. I thought the second calling, which began at 6.52, was better than the first. I saw the contents of the Abbotts Ripton message, which was that the Scotch express had run into 175 coal train, and for them to send assistance at once. We only send on passenger trains. I should leave any other work to attend to an S.P. Abbotts Ripton was calling Huntingdon south, the code being H.G., Huntingdon north being H.K., at 6.51. He gave S.P. three or four times.

Richard Maddison (worn)

I am a signalman in the service of the Great Northern Company, and was in the Huntingdon south cabin on the night of the 21st January.

After 6.45. I noticed some one calling Huntingdon at 6.57, the Leeds express having passed at 6.49. I found it was Abbotts Ripton. He gave me Abbotts Ripton S.P. and then "To"; I replied "Send code time," and then some one interrupted. I asked him to do so because the other was unbusinesslike. After watching for half a minute I attended to my levers and shook them, in order to shake the snow off the arms. I noticed no calling. I called Abbotts Ripton at 7.2. I then got A.R., — Abbotts Ripton. At 7.4 Abbotts Ripton called me again and I gave M.Q., because I thought I had a train, but it was only an engine; I heard it whistling, and I went to my signals to protect it. At 7.5 I went to the instrument and took the message, "Code time F.J., No. of words 16. From Abbotts Ripton to Huntingdon. Send doctors and help 156 into 175 coal. I did not get a call from Abbotts Ripton at 6.47. Between 6.50 and 6.49 I had no trains in, nor between 6.49 and 6.57. I did not get a call from Abbotts Ripton before 6.57. I did not give M.Q, before 6.57. I was in charge at the time; there was no one else in the cabin. I found the levers were not working properly at 6.34, the levers went back too hard and came forward too easy. The up and down levers were obstructed. I noticed that the up home and distant signals wore clogged at 6.8. My

reason for sending M.Q. was that the engine came in at 7.4, and had to be protected. There is no noise made to indicate an S.P. Everything should give way to an S.P., but if the signals have to be put up the instrument must be left. At 6.49 I telegraphed the Leeds express on to the north box, which occupied about a minute. I did not hear or see any calling between 6.47 and 6.57. I did not see the letters A.R., nor S.P. nor H.G. Abbotts Ripton has communication with the north box. The south box would be the proper box for any one wishing to communicate with the station-master to address; it is the order. 6.57 was the first time I heard Abbotts Ripton calling me. North Huntingdon was working his instrument at 6.49, and I know it because of his book, which he showed me. I got Train on line for the express from Offord at 6.46, then I would give Be ready to north box; I would then make the entries in the book, Be ready 644, On line 6.46; then I gave On line to the north box at 6.46, and would make the entry time it passed me 6.49, line clear to Offord 6.49, and clear from Huntingdon north at 6.49 also. There were no entries made by me between 6.46 and 6.49, and again between 6.49 and 6.57. After 6.49 I received On Line from Offord at 6.49 for the down Manchester goods. I gave north box Attention and the Be ready at 6.49. I had also to attend to my semaphore signals. The Manchester goods arrived at 6.57. I put my signals up for an up train, and went to my instruments again. To get a train through there must be 18 operations, besides booking the time of passing. Besides I have to work two signals, dropping them and raising them. My attention is called to the express at 6.44; I get line clear at 6.49, and during the time I am either giving messages or waiting for them. Between giving M.Q. and receiving the message would be about six moments. I did not give M.Q. at 6.57, but asked for the code time.

Harry Gurney (sworn).

I am a signalman in the employ of the Great Northern Company, at the St. Neots station. I have been there about three months. I have been a signalman two years and three months.

I was on duty on the 21st January. At 6.24 I received an express from Peterboro' and at 6.37 I received it from Holme. Again at 6.41 I received an express from Peterboro'. Next at 6.47 I got 84 goods from Huntingdon. About 6.47 I noticed Abbotts Ripton calling Huntindon. He gave him S.P.; it was to the south cabin. After Abbotts Ripton gave his S.P., he added "From;" Huntingdon stopped him and said, "Code." I was then called to attend to the Scotch express. I saw nothing more until 7 o'clock, when I saw the message "Send doctors and help, &c." I happened to be looking at the clock at 6.47. I should think it was about 6.50 when I was called about the Scotch express. The word code would mean the time on the clock.

John Jolley (sworn).

I am a platelayer on the Great Northern Railway at Abbotts Ripton.

I was on duty on the 21st January, and went home to get tea about ¼ past 5, and about 20 minutes to 6 came out again. I did not hear any down train coming, so I went in again. It was snowing very hard. I saw the coal-train coming, and I cleared the points of snow to enable it to shunt. I was in the signal cabin when the first collision occurred. I went into the cabin to get my fog signals. I saw the signalman calling on the driver of the coal-train to make haste and get into the siding, that the Scotchman was waiting at Wood Walton. While I was reaching the fog-signals the collision occurred. After the collision I went to the Abbotts Ripton porter to ask him to assist. As soon as the collision occurred I saw the signalman go to the talking instrument, and take hold of it. I did not see him write anything down. I then went away. Johnson only said the Scotchman was into the coal train. I went up the line to stop the Manchester train, and saw the distant-signals showed a white light. John Hall could be sent fogging by the Abbotts Ripton, signalman. Johnson asked me to go fogging when I spoke to him about the points being clear for the coat train.

John Hall (sworn).

I am a platelayer in the Great Northern Company's service at Abbots Ripton and have been so for 20 years.

I never saw such a night as that of the 21st January. The coal train was shunting as I came up. I went into the cabin and got my fog signals, and saw the collision as I was leaving the cabin. I had intended to go to the up distant-signal to attend to it. If the snow impeded the working I should have shaken it off, if I could, or put down fox-signals. It snowed a little before I went to tea, over half-past 5, and when I came out the coal-train was shunting. I would not go out fogging unless the snow was very severe. If I am wanted I am sent for after going home from my day's work. I remained in the house without knowing what was the weather until I was fetched out.

Frederick Rouse (sworn).

I am district locomotive superintendent at Peterboro'.

I heard the engine-driver of the coal-train say that he lost some time owing to washing out. The engine had been undergoing repairs and the steam could not be got up until four or five minutes late. When he got into the coal yard his line was obstructed, and he had to be turned into another line, and had then to go back to his train. In doing this owing to the point being clogged by snow, the engine was turned down the wrong road. I believe Bray, the driver, made some report about losing the time. I have known coal trains start late. There is sure to be inquiry in such cases. If in the particular case, I found the best had been done, I should caution the people concerned. I think the storm of the 21st January was the worst I recollect. I have had experience of running in fogs and snowstorms. If the signals are not distinct, greater care should be taken, and speed reduced; but if they could be seen a driver might be justified in not doing so, simply because they might be giving wrong indications.

Thomas Colbert (sworn).

I have been 21 years in the Great Northern Company's service, and at Peterboro' eight years.

I communicate with all stations down to St. Neots by telegraph speaking instruments. I produce my record book, which shows that the coal-train passed me (in the Crescent junction cabin) at 6.5 p.m. on the 21st January. The express, 156 up, followed at 6.26; the next was 139 express, which passed at 6.39; then a slow passenger at 6.45. A lad who was with me, told me about 6.50 that Abbotts Ripton was calling Huntingdon; he was looking out for another message. I would expect that message from 6.47 to 6.53. The lad told me about 7 o'clock he thought something was the matter as Abbotts Ripton was sending an S.P. I had no time to attend to it myself. I believe the S.P. message was "Send doctors and assistance, &c." The coal-train would travel about 20 and the express 45 miles an hour. The former would get to Holme in 21 minutes, and could be shunted in four minutes. I said nothing about shunting the coal-train at Holme; I thought it unnecessary. We regularly let coal trains start in that way. It would be for the signalman at Holme to decide if the coal-train should be shunted there. There was ample time and to spare for the coal-train to get to Holme, and be shunted before the express came up. It was perfectly safe under those circumstances to work the coal-train in that way.

Usher (recalled).

When I went into the cabin on the night of the accident I saw the signalman working the instruments. I asked him whether he had blocked the down road. Stukeley was not mentioned. When heard that he had blocked the lines thought it was safe.

James Osborn (sworn).

I am a telegraph lad in the Great Northern Company's service, and have been so about 15 months.

I have been doing duty in the Crescent box, on the south of Peterboro', with witness Colbert, who is the signalman. I was on duty there on the 21st January, and watching the telegraph instruments, I: saw Abbotts Ripton (A.R.) trying to call H.G., Huntingdon; it was about 6.52, and told the signalman A.R. could not get H.G.'s attention for two or three minutes. I saw nothing but HG, given by A.R. until I interfered with C.R., when Abbotts Ripton gave S.P. I then left off, and Abbotts Ripton began to call H.G. again, and P.E., meaning Peterboro' office. I did not notice anything else on the instruments until the message, "Send for doctors and assistance." The S.P.'s are very special and rare at our cabin. We do not take S.P.'s in our cabin, but I should see one passing through.

Mr. Piggott (recalled).

I have examined the books at the various telegraph boxes on the circuit with reference to the calling and messages connected with the accident, and made the following report to the superintendent of the line. I have questioned the signalmen on the circuit as to Abbotts Ripton having called Huntingdon at 6.47, and can get no more evidence than what has been already received. S.P. is regarded as something urgent, and a signalman should take it at once. If there were fast trains passing they must have attention. A signalman's common sense ought to have induced him to take an S.P. from Abbotts Ripton instanter. I should think the way in which Maddison accounted for his time between 6.46 and 6.49 was sufficient, though I consider an S.P. message might and ought to have been received at that time. The train in question having been three minutes passing between Offord and Huntingdon, and only half a minute required for recording, at about 6.47 he would be watching for the train passing the distant-signal, but S.P. being so unusual from Abbotts Ripton, he ought to have been anxious to know what it was. The signals are the signalman's first consideration. He in on duty 12 hours, but there are slack times in the day. I am not sure that Huntingdon could have received the S.P. message before 6.49., even if he had prepared himself at once to take it The message, "Express ran into the coal-train," the particular message which was sent, could be taken in one minute.

Report referred to in Mr. Piggott's Evidence.

GREAT NORTHERN RAILWAY.

Signal Department,
Retford, February 12th, 1876.

Telegraph Circuit, St. Neots to Peterboro'.

Sir,

I have to-day visited St. Neots, Offord, Huntingdon, Yaxley, and the Crescent, Spital, and Westwood junctions. [These are all comprised in the circuit; New England north is not.]

I am unable to trace anything in the circuit that should have hindered the S.P. message being promptly despatched from Abbotts Ripton, except Crescent junction interfering while Huntingdon was being called, and Poterboro' transmitting the trains as late as 6.53.

No. 203, down express, passed St, Neots at 6.41, and was telegraphed to Westwood at 6.44.

No. 150, express, left Peterboro' at 6.45, and was signalled to Holme at 6.52, and to Huntingdon at 6.53.

The only interruption I can discover, in addition to that referred to by Mr. Blatch in his evidence, is that telegraph lad Osborn in the Crescent junction box states he noticed someone calling Huntingdon at about 6.50; he stopped them and began to call Abbotts Ripton, at the same time giving the Crescent junction code call "C.L." Abbotts Ripton replied by giving S.P. Osborn then gave up the circuit, and someone recommenced calling Huntingdon, and continued calling for some time.

Osborn did not see any further interference, but observed that whoever was calling did not readily gain Huntingdon's attention.

I am under the impression it was Osborn's interposing that has been referred to as "the interruption."

167, down goods, left Offord at 6.49, but Offord was unable to telegraph this train, owing to the instrument being engaged.

Signalman Leaman of Offord states he observed at about 7 p.m. some one gave SP, but he neither interrupted nor noticed what followed, He was engaged with the block instruments.

The Huntingdon south box was also engaged with the block instruments at 6.44, 6.46, 6.49, 6.62, 6.57, 6.59, 7.4, in addition to signalling and making entries in his books.

No one on the circuit appears to have observed any interference, except the Yaxley signalman, who states he noticed an interruption between 6.45 and 6.50; this is doubtless the time when lad Osborn of the Crescent junction took possession of the circuit as hereinbefore mentioned.

I cannot trace another case of anyone interfering with the instruments, except the instance quoted by Mr. Blatch, when he transmitted the trains,

Yours obediently, AMOS PIGOTT

F. P. Cockshott, Esq.,
King's Cross.

John Corble (sworn).

I am inspector at Peterboro' station in the service of the Great Northern Company, and have been inspector for 11 years, 8 years at Peterboro'.

I was on duty on the evening of the 21st January, and sent forward the Scotch express at 6.25 at the station. I gave the guard the signal to start. I did not know what trains wore preceding it; that would rest with the Crescent signalman. There was nothing unusual about the leaving of the Scotch express; it was seven minutes late. I saw the telegraph clerk, but made no inquiry about trains in front, nor was it my duty to do so, He did not tell me of any message. I did not see the coal-train pass. I see a semaphore arm lowered, and then start a train; it is my duty to act on the Crescent signal.

Henry Oakley (sworn).

I am General Manager of the Great Northern Railway and have been so for many years; 25 years in the service of the company.

The Scotch express was stopped at Doncaster. I was there. The train is ordered never to go through that. station at more than ten miles an hour. It stopped to -take up Lord Colville, and the detention was not more 'than half a minute. We stop trains two or three times a week to accommodate the public, but I state positively that the officers never stop trains for their own convenience. There were directors the Corporation at Doncaster; we thought it only right to stop and take them up.

I have never heard of any single instance of a signal being so affected by snow as to give a wrong indication to a driver. Like all mechanical arrangements, signals are liable to failure, and an imperfect signal might be given. A formal report signed by every signalman is sent to the superintendent, stating if a signal has failed, and why, and accompanied by a report from the signal-fitter explaining the defect. In December the defect was that the arm when moved for danger did not go quite to a right angle, but there was nothing to lead us to suspect that a signal might give a wrong indication. The great aim of railway companies is to keep time, and our efforts are exerted to

preserve punctuality and safety, and the former should always give way to the latter. There is no doubt that in fog and snowstorms drivers keep their trains under control. The danger of signals showing wrong indications was quite unapprehended. We had confidence in the block system in preserving an interval of space, and thought the signals might be relied upon. The signals which failed were those which would be used under other systems of working than the block. I never heard from anyone in our service that a signal had given a wrong indication; we know they worked stiffly. It would undoubtedly be prudent when signals may be affected to reduce speed; but this was a novel danger, and we are already considering how such dangers can be avoided under all circumstances. Certainly punctuality should give way to safety, but when you begin to justify unpunctuality you disarrange the traffic, and the relative positions of trains ought to be, if possible, maintained. In cases of fog we take off trains (goods trains), and it might be equally desirable in snowstorms, but I hesitate to think of disarranging the traffic. We are already required by our directors to report what are the best means of preventing such dangers. The directors have never received reports of erroneous signals being exhibited.

With regard to continuous breaks, we have, with other companies, experimented with all the known kinds in use at home and abroad. The result of those trials have not been communicated yet to the company. We have two trains running with contiguous breaks under different conditions or gradients. We have not had sufficient experience to rely on the vacuum break under all circumstances, owing to the attaching and detaching of carriages. Any break that can be used must afford great facility for interchange, and the attachment must be perfect, else we should place in the hands of drivers power which might fail at the greatest need. Then we have to arrange with companies with whom we interchange stock, and consequently to that extent the breaks must be universal. I think no company has quite made up its mind that any known system of continuous breaks could be universally applied, and it would, I think, be unwise for any company to furnish itself with a particular break without considering interchanging companies. I quite approve of continuous breaks, fully recognising the necessity for them. We are in the condition of waiting and trying to find a break worthy of our adoption. The train which, in reference to the Abbotts Ripton case, we have made up for experiment, is as nearly as possible similar to the original down express train. Frequently the guards at the tail of the train cannot hear the engine's whistle for the breaks. The front guard is the head guard. The guards would generally be able to sort the luggage in five miles; there may be sometimes 100 parcels to sort. I have not heard of guards being hindered by luggage from getting to their breaks.

The order for men to go out in fogs and snowstorms was simply an additional precaution. The men should have stopped to work the signals if the snow had begun before they went home to tea; the meals should be sent to them, as provision is made. The clerk in charge of each station and permanent-way inspectors are ordered to do this. On the day in question it is only said that snow was falling lightly when they went to tea, and on that night food was sent out to the men. If they had not gone home to tea before 8.30 they would have had something to eat.

The driver was not bound to reduce his speed unless he could not see the signals at a distance of 150 yards. He could bring his train to a stand in 700 or 800 yards, perhaps 900 yards on the gradient. Presuming the driver of the down express heard the fog-signals 1,000 yards from the fouling-point, he might have pulled up. I might say that we have never heard of a train running past the home-signal after the warning of the distant-signal. A speed of 15 miles might have produced the same effects in regard to the position of the wreck. It is possible that a man may be engaged with a down train when he wished to show a red hand-light to an up express, but he ought to attend to the more urgent. On that occasion it was not urgent, because he might have thought he could rely on his signals.

There was no undertaking in the Great Northern Company's Act of Parliament that they should ley down a separate line of rails for mineral traffic, Wo do not think the time has yet come for a third line of rails between London and Peterboro'. 'We have 35 miles of third line in operation, and 13 in construction. The third line is used for any down slow trains. We have lately been considering the advisability of putting a third line up this particular

bank at Wood Walton, so as to prevent the delay to fast trains. It would be from the Conington cabin no doubt to Huntingdon.

I do not think it reasonable to expect that the platelayers at Abbotts Ripton, after a hard day's work, should have kept a look-out for the weather. Every irregularity of every description, and neglect on the part of fogmen, would be reported. The station-master at Holme might justly have thought the express could go forward on the occasion. If signals fail, the block system is perhaps worse than the time system. Certain cabins have no conversing wire, and on occasions of accident one would be useful, but under ordinary circumstances they would be unnecessary where now absent. A conversing instrument would be of assistance.

Lord Colville was at Doncaster on the Company's business. In regard to the question of continuous breaks, the practice of slipping carriages would have to be considered. The driver must obey signals, whatever they are, and then his responsibility ceases.

Enoch Catley (sworn).

I am an engine-driver in the Great Northern Company's service; it is 21 years to-day since I entered the service; and I have been driving fast trains about 15 years.

I remember the 21st January, when I left Peterboro' at 6.25 p.m., without particular instructions or warning. The first thing that happened out of the ordinary course was pitching into the coal train. The signals were at "all right." I saw nothing but white lights all the way from Peterboro'. I noticed the Wool Walton signals particularly, all white, distant and home. The distant-signal at Abbotts Ripton was a bright white light, not an imperfect signal, and visible at 600 or 700 yards. It was snowing very heavily as I passed Wood Walton and approached Abbotts Ripton. We were going from 40 to 45 miles an hour, the usual speed at that point, the same speed that I go with that train whatever the weather. I did not think it necessary to slacken on account of the weather. I saw no light from the van of the coal-train, nor the coal-train itself, before striking it, which we did with full steam on. I was stunned, but I recollect the engine turning over, and then my getting off it. I was too much injured to make any observations after that. I got the fire out of the engine as soon as I could, with the assistance of my mate. I did not go into the signal-cabin nor across the line, neither did I notice the signals. I have driven that train in my turn sometimes once and sometimes twice a week. I have noticed a train shunt, sometimes at Yaxley, sometimes at Holme, sometimes at Abbotts Ripton, but without knowing what train it was in regard to its number. I have never had a narrow escape of running into a coal train at Abbotts Ripton, and have not had conversations here (Huntingdon Infirmary) about such escapes. I have never said that near Abbotts Ripton or Holme, I have "brushed" that train. I have not mentioned it to anyone. I never notice what trains go up the Wood Walton bank in front of me. I did not know on the night of the accident that there was a coal-train in front of me which would have to shunt to let me pass. I reduced my speed once at Yaxley until I could see the signal. I could see the Holme distant-signal 500 or 600 yards, perhaps as far as usual on the night of the 21st January, but not so clearly as if there had been no snow. On an ordinary night I can see the Wood Walton distant-signal for three-quarters of a milo in passing Conington. On the night in question, I caught sight of it at about the same distance; the snow did not interfere with my view. It was snowing very fast, with big flakes.

Conclusion.

The circumstances connected with these two collisions have, in the course of the above evidence, been clearly brought out; but, in order that they may-be better understood. It is necessary to select the principal facts, and arrange them in their proper order. It will then be more easy, in discussing the various questions involved, to deduce the lessons to be learnt from so terrible an experience; bearing in mind that the paramount objects of such an inquiry are, not merely to ascertain what individuals amongst the officers and servants of a railway Company may be considered to be more or less implicated under the system of working in force, but also, and more especially, to determine the causes which have, directly or indirectly, and in a greater or less degree led to the disaster, and, with the aid of all previous experience, the remedies by which, in practical railway working, such accidents may most surely be averted, and the public safety may best be secured.

The weather on the night of the 21st January was, between Peterborough and Huntingdon, and for some distance north and south of those places respectively, exceptionally severe. Between Ponton and Peterborough the telegraph-wires, coated with snow and ice to a thickness in some cases of three inches, fell down. The snow fell heavily, in large flakes, and in a condition to adhere to the substances on which it alighted. The storm, accompanied by a gale of wind, embracing a tract of country about 40 miles in breadth, and travelling generally in a north-easterly direction, after doing considerable damage on the Great-Western, the Midland, and the London-and-North-Western Railways, struck the Great-Northern Railway, perhaps, about 4.30 or 5 pm., but at all events before 6 p.m., and lasted till midnight.

The first of these collisions occurred, as has been plainly seen, about 6.44 pm., between an express-train, on its way from Edinburgh to London, and a coal-train which, having preceded it from Peterborough, was being shunted into a siding at Abbotts-Ripton to allow it to pass. The coal-train, consisting of an engine and tender, 33 loaded wagons, and a break-van, left, New-England, on the north of Peterborough, at 5.53 p.m., 18 minutes late. The engine was late out of the shed, after being repaired and having its boiler washed out; and there was some further delay in starting the train, from the lines in the coal-yard being obstructed, from the points being clogged by snow, and in consequence of the weather. The coal-train, therefore, passed the Crescent-junction, on the south of Peterborough, where it joined the main-line, at 6.5 p.m., 21 minutes before the Scotch-express-train, and Holme at 6.21, 16 minutes before the Scotch-express-train. The Holme signalman, intending to shunt the coal-train at Holme, to avoid the risk of its delaying the express-train, kept his signals at danger, as he thought, against the coal-train; but he found that the engine-driver of that train, in running past his cabin, paid no attention to his signals, and he reported the circumstance to the station-master. The evidence as to what then happened at the Holme station was unsatisfactorily given, and is not clear; but it is certain that the Holme station-master, who knew from the report of his signalman that the signals at his station were prevented by the snow from working properly, and that the coal-train had run past them, and who might easily have inferred that other signals of vital importance to the safety of the traffic were likely to be similarly affected, saw and allowed the Scotch-express-train to pass at its usual speed through his station without taking any precautions in the way of warning the engine-driver; whilst the Holme signalman, not having the means of communicating by speaking-telegraph-instruments with the intermediate cabins at Conington-and Wood-Walton, simply informed the Abbotts-Ripton signalman of the coal-train having run past his signals. The coal-train, after leaving Holme, passed the Conington cabin at 6.25, 13 minutes in advance of the Scotch-express-train, and the Wood-Walton cabin at 6.31, nine minutes in advance of the Scotch-express-train, and was stopped at 6.41 at Abbotts-Ripton, where it was timed, and the engine-driver expected to shunt, by a hand-lamp from the signal-cabin; and the signalman, keeping his own signals at danger, and not giving line-clear to Wood-Walton, instructed the engine-driver to set back into the up-siding. The coal-train, protected, as the Abbotts-Ripton signalman believed, by his own signals, and also by the Wood-Walton signals, was being pushed back, and had, excepting the engine, tender, and four or five waggons, got into the siding, when the signalman, knowing, from the information he had received by telegraph, what ought to be the

position of the Scotch-express-train, told the engine-driver to make haste, in order to prevent the detention of that train at Wood-Walton. As he was thus endeavouring to hurry the engine-driver of the coal-train, the Scotch-express-train dashed, at 6.44, into the coal-train at full speed, and with the steam on; the engine-driver of the express-train having seen nothing but white lights at the Abbotts-Ripton and Wood-Walton signals, and having seen nothing of the coal-train before his engine came into collision with it. It was thus, in the first place, the failure to act of the fixed-signals at Holme, which caused the coal-train to pass that station, where there was 16 minutes to spare, and therefore time to shunt it without any risk of delay to the express-train; and, in the second place, the failure to act of the fixed-signals at Wood-Walton and Abbotts-Ripton, which deprived the coal-train of the protection which it would otherwise, whilst being shunted at Abbotts-Ripton, have received from those signals.

As might naturally be expected, it took some little time for those who were concerned in this first collision to collect their ideas. I he down-line as well as the up-line was hopelessly obstructed, communication from the north to the south of the débris was difficult, and the storm was very severe. The Abbotts-Ripton signalman is unable to give a clear account of his subsequent proceedings, but he appears to have at once placed the levers of his down-signals in the position of danger; and there can be no doubt, from the evidence of others on the same telegraph-circuit, that, commencing at 6.45, one minute after the collision, he vainly endeavoured from time to time to send a special message to Huntingdon, to report what had happened, and to ask for assistance. He did not, however, until eight minutes after this collision, or about 6.52, do what he ought to have done immediately after pulling over the levers of his down-signals, give five beats on his telegraph-bell, to indicate line-blocked, to the Stukeley cabin, 2 miles and 737 yards on the south of him; and as he was doing so — just too late — the down Leeds-express-train was passing that cabin, Meanwhile, a foreman-platelayer ran southward with fog-signals, two of which, according to his statement on the ground, he placed and saw explode, 98 yards south of the down-distant-signal, or 1,136 yards from the Abbotts-Ripton cabin, or rather more from the point of collision; and the fireman of the coal-train, in following him, placed two fog-signals, as he stated in his evidence 50 yards inside of the same signal, but as he pointed out on the ground 148 yards inside that signal — say 900 yards from the point of collision. A relief-clerk, also, who had been a passenger in the Scotch-express-train, after making his way to the south of the wreck, proceeded southward with the engine which had been detached by the force of the collision from the coal-train, in company with the guard of that train and others, to give warning and obtain assistance from Huntingdon. In nearing the down-distant-signal they met the Leeds-express-train, and they did their best, by opening the engine-whistle and exhibiting a red-light from a hand-lamp, to warn the engine-driver of that train. They saw some fog-signals explode before they reached the engine of that train, but it was of course impossible for them, under such circumstances, to point out their precise position when they did so.

Turning now to the Leeds-express-train, and the signal-cabins south of Abbotts-Ripton, it would appear that at 6.49, five minutes after the first collision, that train passed the Huntingdon south-cabin; and that the signalman in that cabin, who knew at 6.8 that his up home- and distant-signals were clogged, and at 6.34 that his levers were not working properly, was aware, at 6,47, (though he denies having noticed anyone calling until 6.57,) that the Abbotts-Ripton signalman was trying to send him a special message, which he did not accept until 7.5. At 6.52, also, eight minutes after the first collision, the Leeds-express-train passed the Stukeley cabin, 2 miles 737 yards from the Abbotts-Ripton cabin, still at full speed, at the moment when the obstruction-signal of five beats on the telegraph-bell was being forwarded along the wires from Abbotts-Ripton to Stukeley. Having seen nothing but white lights at the signals up to that point, and still believing all to be clear for him, the engine-driver of that train, who was doing his best to keep time, approached the Abbotts-Ripton distant-signal, which also showed a bright white light, at a speed of 40 or 50 miles an hour. He was driving a powerful engine, with a tender and 13 vehicles, of which three were break-vehicles, each containing a guard, behind it. He heard some fog-signals explode, about 60 yards, as he thought, after he passed the distant-signal. He saw the coal-engine travelling in the opposite direction, on the up-line, and the red light displayed from it. He did his best to bring his train to a stand, but he: failed: to do so until his engine came into collision with the débris of the first collision, at a speed believed by him

and bis fireman to be 15 or 20 miles an hour, but stated by other witnesses, including the guards of the train, to have been very much greater. And thus the second collision, with all its distressing consequences, occurred between 6.55 and 6.56, more than 11 minutes after the first collision; the special message above referred to, intended to report the first collision, and attempted, after a calling which began at 6.45, to be sent at 6.47, not having been accepted at the Huntingdon south-cabin until 7.5; the obstruction-signal having been forwarded from Abbotts-Ripton und received at Stukeley, as stated, at 6.52; and the Abbotts-Ripton down-distant-signal having still shown at 6.55 a bright white light, as if all were clear for the Leeds-express-train to run at full speed past the Abbotts-Ripton cabin.

Such being, generally, the circumstances which preceded and led to these two collisions, it will be desirable next to discuss the causes by which they were produced.

The more obvious and immediate causes were, as will have been seen, the successive failures to act of the fixed-signals. The coal-train would not have run past Holme, would not have been in the way of the Scotch-express-train, if the signals at that station had not failed to respond to the levers in the cabin. The up home- and distant-signals worked from the Wood-Walton cabin, and the up-distant-signal worked from the Abbotts-Ripton cabin, which would, under ordinary circumstances, have afforded ample protection to the shunting coal-train, were prevented by the snow from going to danger in answer to the working of the levers in those cabins; and, by exhibiting white when they ought to have exhibited red lights to the engine-driver of the Scotch-express-train, were the means of alluring him forward to come into collision at full speed with the coal-train. And the down-distant-signal worked from the Abbotts-Ripton cabin, by exhibiting a white instead of a red light, was similarly the means, 11 minutes later, of misleading the engine-driver of the Leeds-express-train, as he approached to within little more than 1,000 yards of the wreck of the first collision. But there was a great difference, as is at once observable, in one respect, in the immediate causes of the two collisions. In the first case, the engine-driver of the Scotch-express-train, who was travelling on a rising gradient of 1 in 200, ran at full speed into the coal-train, because the fixed-signals, by which he ought to have been amply warned, failed to work from frost and snow. In the second. case, the engine-driver of the Leeds-express-train, whilst travelling on a falling gradient of 1 in 200, was unable, 11 minutes later, to stop his train short of the débris of the first collision, (after passing the Huntingdon and Stukeley cabins without warning and being misled by the Abbotts-Ripton distant-signal,) in spite of the warnings which he received from detonating-signals near that distant-signal, and from the engine of the coal-train as it travelled towards Huntingdon for assistance.

But these collisions, so brought about, have been attributed to a failure in the block system, which is stated (in the verdict of the coroner's jury) to have " proved ineffective in a case of emergency;" and it is therefore necessary, before discussing further the causes which led to them, to explain how such a conclusion, natural enough on a superficial view to those who are not thoroughly versed in the subject, really results from a confusion of ideas. The block-system, the fixed-signals, and the means of telegraph-communication, are three distinct things, which may be employed irrespectively, and be entirely independent of one another. Fixed-signals, for instance, are used, and have been used for very many years, on lines on which the block-system is not in force, and they continue to be used similarly after its introduction. They may fail with the block-system or without the block system, which has nothing to do with their failure or otherwise. Then, again, notice may be sent, by the use of the telegraph, of-the running of trains, or of an obstruction on the line, with or without the block-system. Further, as regards the use of the block-system itself, there may be after its introduction; and there are different regulations in force on different lines, by means of which the public safety is protected in a greater or less degree; and men and machinery are still liable to err or to fail; so that absolute immunity from collisions on railways must not in any event be expected. But the principle of block-working, which has been found by experience to afford important assistance in providing against such disasters, cannot fail. The plain intention of that principle, and the aim and object of the system, are. to provide that an actual interval of space shall be maintained in all cases between trains, so as to

render collisions between them impossible; and those who are interested in the safety of railway traffic will therefore be wise, when collisions occur, in not hastily accusing the block-system of inefficiency, but in carefully scrutinizing the defects which may have led to any break-down in the means of applying it. Those defects will always be found, either in the regulations adopted, or in the apparatus supplied, or in the men employed, for carrying out the principle, which is itself unassailable, and of which the utility has now been amply proved, in practical railway working.

In the present instance, the defects, above described, which led to the disaster, are only too painfully evident. During a severe snowstorm, the fixed-signals, which form the means of communication between the signalmen and the engine-drivers, which speak, in the working of "arms" by day, and "spectacles" by night, to the engine-drivers in the simple language of "go-on," or "stop,"—"all-right," or "danger,"—ceased to act. These signals, such as are employed on all our railways, whether the block-system is in force or whether it is not in force, exhibited white lights when they ought to have exhibited red lights, because the snow and the frost, by causing the arms and the wires to be loaded, prevented the arms and the spectacles after being pulled off by means of the levers from the cabins, from going again to the positions of danger. The signalmen, therefore, at Holme, at Abbotts-Ripton, and at Wood-Walton, securing safety, as they thought, from their cabins, with their signal-levers in the positions of danger, were unwittingly displaying white lights in place of red lights at their signal-posts to the engine-drivers; and such misleading signals were, in fact, far worse than no signals at all. If the lamps had gone out altogether, or had shown half white and half red, or had been visible for shorter distances, then it would have been the duty of the engine-drivers to treat them as danger-signals, or to approach them with caution; but, inasmuch as these lamps were showing bright white lights, they were the fatal means of saying all-right to the engine-drivers when there was imminent danger, and of inducing them, in the up and down express-trains, to keep on their steam, and maintain to the utmost of their power the high speed at which they were timed to travel, under the adverse conditions of weather to which they were subjected. The most subtle ingenuity could hardly devise means more misleading, or ore certain of success, for luring the engine-drivers, with their trains loaded with precious human freight, forward to inevitable destruction: These signals, plainly indicating safety where there was so much danger, enticed, first, the engine-driver of the Scotch-express-train to pass the Wood-Walton cabin and to approach the Abbotts-Ripton cabin from the north at full speed, and to dash into the coal-train with his steam on; and, secondly, the engine-driver of the down-express-train to pass the Abbotts-Ripton distant-signal, on his way from the south, at such speed that he was unable, with the means at his disposal, on receiving warnings from fog-signals and from the men on the engine of the coal-train, in travelling, say 1,000 yards, to avoid the second collision and its terrible results.

These collisions thus occurred, then, not from any failure in the principle of block-working, but because the signals, as ordinarily used, with or without it, afforded misleading indications; and it is necessary to represent plainly and forcibly, and to dwell upon, these facts of the case, in order, not merely to assign to the collisions their true causes, but still more in order that the remedies and other considerations with a view to safe-working may be clearly understood. The questions which naturally arise out of them are, (1) in what respects the officers and servants of the company did or did not do their duty properly; (2), how far the apparatus of signalling or the mode of working may be improved; (3), whether it be wise under any circumstances to maintain so high a speed through such a storm; and (4), what additional means of precaution might under such circumstances be adopted.

As regards: the servants of the Company with the trains, no blame whatever can be attached to them. The engine-driver of the coal-train ran forward properly to Abbotts-Ripton, on finding the signals at all-right for him to pass Holme, and he was doing his best to shunt into the siding at Abbotts-Ripton when the first collision occurred. The engine-driver of the Scotch-express-train, who was himself seriously injured, is much to be pitied, but certainly cannot be blamed, considering his instructions, his practice of working, and the obligations imposed on him as regards punctuality, for maintaining his speed when he found white lights at all the fixed signals, and

received no warning of danger. The engine-driver of the Leeds-express-train, who was but slightly injured, was similarly misled by the down-distant-signal at Abbotts-Ripton, which showed a white light at 1,038 yards from the cabin; and was doing his best to keep time with his train under very disadvantageous circumstances, when he was suddenly warmed, by exploding-signals, and by the men on the coal-engine, of impending danger. The rails were no doubt in a slippery condition. It is a question how far the middle and rear guards of the train afforded assistance to him in pulling up. He, no doubt, did what he could in the position in which he was placed, and no blame can properly be attached to him in regard to the second collision. But the station-master at Holme, who was informed by his signalman of the coal-train having run past the Holme signals when they were supposed to be at danger, and who found that the signals were affected by frost and snow, might, if he had displayed greater activity and a moderate amount of forethought and caution, have been the means of averting the first collision. He knew that, this first irregularity having been unwittingly committed, the coal-train could not then be shunted short of Abbotts-Ripton, and that it, would have to precede the express-train up an incline of 1 in 200 before it reached the siding at that cabin. He could see what the weather was. He might easily have inferred that other signals along the line would be similarly affected. It is impossible to believe that he would have been found fault with, under such circumstances, by the superior officers of the Company for so obvious a measure of precaution. And he might fairly have been expected, as he could not communicate by telegraph with the Conington and Wood-Walton cabins, to exceed what he seems to have considered the rigid bounds of his duty, and the strict letter of his instructions, by stopping the Scotch-express-train, and warning its engine-driver of the condition of the signals, and of the coal-train having gone forward to Abbotts-Ripton.

The signalman at Abbotts-Ripton was clearly in no way to blame for the first collision. It was not his fault that the coal-train, after running through Holme, came to shunt at his cabin so short a time before the Scotch-express-train reached him. He did his best to protect the shunting coal-train, by abstaining from giving line-clear to Wood-Walton, and by keeping his own signals at danger. But he evidently lost presence of mind to some extent after the first collision, partly from the stunning effect of that collision itself, and partly, perhaps, from the difficulty he experienced when he tried, on his speaking-instrument, to report it to Huntingdon. He ought, undoubtedly to have given the obstruction-signal, by five beats on his telegraph-bell, to the Stukeley cabin, at once after pushing over the levers of his down-signals to the position of danger. But he was seen to be calling Huntingdon south-cabin at 6.45, only one minute after the first collision, and if the message he then tried to send had been taken during the following three minutes, the second collision would not, probably, have occurred.

The evidence that this man, Johnson, the Abbotts-Ripton signalman, was endeavouring to telegraph to Huntingdon as soon as possible after the first collision, may be summed up as follows: –

The guard of the coal-train, Hunt, on going into the cabin to see if both lines were blocked, understood that such was the case, and that Johnson "was trying to attract attention, to telegraph an account of the accident." Simpson, a guard of the Scotch-express-train, re-lighted his lamp, went up to the signal-cabin, and found Johnson "busy with his telegraph-instruments." Blatch, a telegraph-clerk at Peterborough, who was waiting to telegraph a train at 6.45, then saw some one calling Huntingdon, and saw Abbotts-Ripton, having gained attention, offer an S.P. (special) message to Huntingdon at 6.47. And it was only on Huntingdon not accepting the S.P. message, and Abbotts-Ripton apparently ceasing in the attempt, that he then telegraphed a train at 6.50 to Holme, at 6.51 to Huntingdon (north and south cabins), and at 6.52 to Offord; so that Maddison, the signalman in the south-cabin, Huntingdon, who did not accept the S.P. message at 6.47, did, at 6.51, accept and receive a train-message. The signalman at the Crescent-junction-cabin near Peterborough, heard, about 6.50, from the telegraph-lad in the cabin, that Abbotts-Ripton was calling Huntingdon, and at 7 o'clock that "something must be the matter," as Abbotts-Ripton was sending an S.P. And the lad, Osborn saw, about 6.52, that Abbotts-Ripton could not get Huntingdon's attention for two or three minutes. He attempted to use the instrument himself, but was stopped by Abbotts-Ripton with an S.P., and Abbotts-Ripton began again to call both Huntingdon and Peterborough. It

cannot, therefore, be doubted that Johnson, though he ought sooner to have given the obstruction-signal of five beats on the telegraph-bell to Stukeley, did commence almost immediately after the first collision, and did persevere from time to time in his attempts to telegraph the accident to Huntingdon, and was mainly prevented by the signalman, Maddison, in the south-cabin, Huntingdon, from doing so till 7.5, 20 minutes after he began to call Huntingdon; and the same special message was finally dispatched by Bradshaw at 7.5, as it had been written by Johnson before Bradshaw reached the cabin at 6.58, when he found Johnson was still' doing his best to send it.

The signalman at the Huntingdon south-cabin appears to be more deserving of censure than any other servant of the Company. He denies having been "called" from Abbotts-Ripton until 6.57. But the evidence of others on the same telegraph-circuit is clear. He must have known at 6.47 that the Abbotts-Ripton signalman, who began to call him at 6.45, was trying to send him a special message, with the prefix S.P., which would indicate something unusual and important, and which might be very urgent. He contented himself with delaying the transmission of this message more than once, by asking in reply for the code-time, and by returning M.Q., for "wait." He allowed the Leeds-express-train to pass him at 6.49, at full speed; the instruments were employed meanwhile for other messages; and it was only at 7.5 that he accepted from Abbotts-Ripton this special message, with its code-time of 6.45, reporting the collision, and asking for assistance. His own excuse for not accepting it when it was first offered was because it did not commence with the code-time and the number of words, and was thus "unbusinesslike." If he had at once taken it, after seeing the important prefix S.P., as he ought to have done, he might, apparently, have been able to use his hand-lamp for stopping the Leeds-express-train near his cabin, – five minutes after the first, and six minutes before the second collision.

There were other precautions, also, by the use of which these collisions might have been avoided, and to which it is important to refer. The signalman at Wood-Walton, not having received line-clear for the coal-train, which passed him at 6.31, and not knowing, even, whether it had reached Abbotts-Ripton, when he received be-ready at 6.35 for the Scotch-express-train, when he received train-on-line for it at 6.37, or when it passed him at 6.40, gave no warning, even with his hand-lamp, to: the engine-driver. He could not see the condition of his signals, because the snow covered the windows of his cabin. He "thought, when the Scotch-express-train passed, that the coal-train would not be clear, because he expected it would be shunted at Abbotts-Ripton." He stated, first, that he "did not hear" the Scotch-express-train approaching, "on account of the wind," until it passed his cabin'; and afterwards, when re-called, that he did not show a red light from his hand-lamp to the engine-driver, because he was "using the hand-lamp for drawing down a train of empties." But as he had received from the Conington cabin, the be-ready signal for it at 6.35, and the train-on-line signal at 6.37, he knew precisely when it-ought to be approaching his own cabin. Under his instructions, he, ought to have placed fog-signals on the rails, to supplement his fixed-signals on such a night. This would, of course, have necessitated his leaving his cabin; but if he could not do so he might at least have been expected in such circumstances to use his hand-lamp in addition to his fixed-signals to warn the engine-driver, especially as he had experienced similar difficulties in regard to the working of his fixed-signals, and in daylight, on account of snow, in the previous December. He subsequently used, his hand-lamp to stop the Manchester-express-train, when that train was running past his signals. The subject of the use of hand-lamps under such circumstances will be again referred to in a separate paragraph.

The platelayers, also, might have averted these collisions, if they had, in accordance with the printed instructions quoted in the appendix, attended to the signals, and ensured their working properly. But there were no platelayers in attendance at any one of these signals at the critical moment. Two platelayers went, indeed, to the Abbotts-Ripton cabin; and they were engaged, the one in reaching down fog-signals, previously to starting, at the signalman's request, for the down-distant-signal, – and the other in leaving the cabin, after having provided himself with fog-signals, for the up-distant-signal, when the first collision occurred. The storm came on, no doubt, at an awkward time as regards the duties of these men. They were finishing their day's work, and going home for their

tea, about the time that it commenced; and when they left-their tea, and were preparing, if necessary, for a night in the snow at the signals, it was too late. But the lesson to be learnt from such a state of things is a striking one. It is, on the one hand, difficult to blame men who, after a long and hard day's work, do not, on the commencement of a snowstorm, at once start, without their tea, in heavy-snow, strong wind; and hard frost, for a night. at the signals. But it is, on the other hand, sufficiently apparent, how great the risk that must be incurred, in attempting.to conduct such traffic in the ordinary way, and to run express-trains at full speed, especially at the commencement of such a storm, and before the platelayers have had time to get to the signals, to knock the snow and ice from the arms and wires, and thus to keep them in working order.

In regard to the liability of fixed-signals to "stick" in such weather, there is the evidence of several of the servants of the company concerned in these collisions: –

Wilson, the engine-driver of the Leeds-express-train, who had at one time been a lad-porter, employed to light the signal-lamps, had frequently known the signals to stick in such weather. Murfitt, his fireman, has 'known the signals to stick through the snow."

Gammons, a platelayer, noticed, as the up Manchester-express-train passed Holme, that the distant-signal which ought then to have been turned to red, continued to show a white light; and, knowing that the snow might weigh down the arms, he watched the signal, to see whether it remained in the same condition after the passage of a stopping train which followed. He had seen the same result from snow previously, but not so badly, and "once before this winter." Rose, the signalman at Wood-Walton, found in December last, in the day-time, that his signals "would not work on account of snow." Trowell, the signalman at Stukeley, having before had trouble of the same sort, and being "suspicious because of the weather," sent a man to see whether his down-distant-signal was working properly. Pallinder, the signal-fitter at Huntingdon, had "very often found that signals would not work in snowy weather," but had on previous occasions been able to free them by working the balance-weights. Last December he had to clear the snow off the signals at Huntingdon, Holme, Yaxley, and Fletton, because "they were all more or less obstructed by snow."

And these considerations lead to the subject of the signals themselves.

These fixed-signals, as commonly employed, are constructed, with some varieties as regards the details, so as to be worked from a greater or less distance, by means of levers or wheels in or near the cabins, wire-connections running over metal-pulleys, balance-weights on the signal-posts, and rods running up the posts. When a lever is pulled forward, the wire is strained, the balance-weight is lifted, and the semaphore is drawn down to a vertical position in the post, at the same time that the red glass or spectacle is withdrawn from the front of the signal lamp. When the lever is pushed back again, the balance-weight at the post is depended upon, in falling, to draw the slack-wire through the pulleys, and to cause the semaphore-arm to return to the horizontal position, at the same time as the red glass or spectacle covers the white light of the lamp. The present arrangements for fixed-signals have come into general employment, mainly on the semaphore system, on account of their simplicity and general efficiency; and the balance-weight at the post has been preferred as a means of causing the signal to return to danger, because there is not, in the event of a wire stretching or breaking, the risk of the signal remaining at all-right, and giving a wrong indication. On the other hand, when there is undue friction through the pulleys, round curves, or against intermediate objects, the balance-weight is sometimes insufficient for its duty; and it will readily be understood that when ice or snow overloads the semaphore-arms, coats the wires, already contracted by cold, and interferes with the action of the pulleys, the signals, and especially those worked at great distances from the cabins, may too easily be rendered inefficient. The signals are, as far as possible, kept within sight of the cabins, or, if they are not visible from the cabins, electric or other repeaters are supplied to record their working, and to inform the signalman whether the arms and glasses are working by day or by night, and also, in many cases, whether the lamps are burning by night. But it is obvious that during fogs and heavy snowstorms the signalmen cannot observe the working of their signals as they are expected to do in clear weather.

Such being the ordinary conditions of signal-working, the experience of the accident naturally leads to many reflections as to how they might be improved. For instance, the wires might be covered for the whole of their lengths, and protected from extreme changes. of temperature, and from snow; the home-signals might be worked, as is already done in many cases, by rods in place of wires, which would enable signalmen to shake the snow from them; and the distant-signals might be worked by double (endless) wires, as they have been, especially on the broad-gauge of railways, in addition to balance-weights; and all signals might be furnished with repeaters in the cabins. Then, again, they might be kept, as a rule, at danger, and only lowered to all-right when trains are telegraphed or expected, in which case they would be less easily, and less dangerously, affected by snow than when they are kept more constantly at all-right. And on this point it may be observed that a signal in the position of danger would only cause delay, whilst a signal stuck in the position of all-right may, as is too clearly evident from the present case, become a source of frightful danger. It is well that these and other proposals for improvement, which are constantly invented or advocated, such as combining sight with sound at the signals, and the use of detonators, mechanically applied, to supersede the use of fogmen, should receive full consideration and discussion, after the experience of so terrible an accident, caused mainly by the failure of existing signal-arrangements. But, in the course of such deliberations, the facts must not be lost sight of, that men are still liable to make mistakes, machinery is still liable to fail, and further complication is by no means certain in all cases to produce greater safety. Great progress has been made of late years in perfecting the apparatus employed, and further progress may be made. But it must be done cautiously, and, as heretofore, by the light of experience, as to what is really found in practice to conduce to safe and convenient working. It is not wise to prove too much from a single case, but the lessons of this must be taken in combination with those of other accidents, in indicating the directions .in which further improvement may be effected.

As regards the regulations for block-working, it will have been observed that the Abbotts-Ripton signalman did not give line-clear to the Wood-Walton signalman before the first collision occurred, and that if the fixed-signals had not failed to act, the shunting coal-train would thus have been protected by the Wood-Walton as well as by the Abbotts-Ripton signals. But in ordinary weather line-clear would, in accordance with the printed regulations, have been given from Abbotts-Ripton to Wood-Walton, whilst the coal-train was still shunting on the north of he Abbotts-Ripton cabin. Under such a method of block-working, the interval of space between trains becomes reduced to the short distance (68 yards in this instance) between the shunting train and the home-signal-post; and sometimes, as I have had occasion to point only, recently. in the case of two collisions on the Midland Railway, to the thickness, so to speak, of the signal-post. It is obvious that the advantages supposed to be derived from the block-system, by insuring intervals of space between trains, must, under such circumstances, be more or less nullified, and that the block-system so worked becomes only a delusion and a snare, leading to the belief that absolute safety is provided when there is constant risk. And inasmuch as collisions are very much more frequent between running trains and shunting trains than between running trains following one another, the system thus becomes weak where it most requires to be strengthened.

The printed regulations issued for the guidance of the Company's servants during "fogs and snowstorms," Appendix A, will properly receive special attention with reference to these collisions. In those regulations 'it is provided (par. 2), that when *"fixed signals cannot be seen at a distance of 150 yards, a platelayer to act as fog-man must be placed at each distant-signal, and one must also be placed near the signal-box of each junction to assist the signalman;"* (par. 3), that *"it is not necessary to place fog-men at the home or distant-signals of any block-signal-box which is not at a station or junction;"* and (par. 13), that *"signalmen at intermediate boxes must be provided with detonators, and in foggy weather or a snowstorm must, as far as practicable, keep two detonators on the rails when the home-signal is at danger."*

It will be seen that the platelayers were not required by these regulations to attend under any circumstances (par. 3) at the signals of the Conington or Wood-Walton cabins, nor (par. 2) at the Holme or Abbotts-Ripton cabins so long as the signal-lamps were for 150 yards; and that in these regulations the contingency, of the signals

requiring attention from the platelayers during a snowstorm, in order to provide against their ceasing to act, or acting imperfectly, is not contemplated. But the regulations did require (par. 13) that the signalmen at the Conington and Wood-Walton cabins should, as far as practicable, keep two detonators on the rails when their home-signals were at danger. In order, however, to carry out this last provision, it would be necessary for the signalmen to leave their levers, their instruments, and their cabins, and to go down upon the line during such a storm, whenever their home-signals were at danger; and this is one of a class of rules that is hardly likely, from the difficulty of the case, always to be obeyed. If, on the other hand, the signalmen were enjoined to exhibit during snowstorms their flags by day, and their hand-lamps by night, from their cabins, to confirm the indications of their fixed-signals, there would not be the same excuse for disobedience; and the indications thus afforded would be most useful to the Company's servants with the trains. The raised signal-cabins, as now constructed, with glazed fronts and sides, are conspicuous objects, especially when lighted up during the hours of darkness; and they are the objects to which the engine-drivers and guards naturally look in passing for guidance, especially whilst travelling at high speed. Although hand-signals employed at the cabins to wave the engine-drivers past fixed-signals at danger are for many reasons objectionable, hand-signals exhibited in confirmation of the fixed-signals would be always valuable, as a guarantee to the engine-drivers, both of the proper working of the fixed-signals, and of the care and attention of the signalmen. It would, of course, be impossible, when the traffic is constant, and trains are liable frequently to pass at the same time in both directions, for the signalmen in all cases to employ their hand-signals in addition to their fixed signals, and it is not necessary that they should do so; but the practice might with advantage be adopted more frequently, and especially when the signalmen are unable to see, as in a heavy snow-storm, whether their fixed signals, unfurnished with repeaters, are working properly. It is impossible, at all events, to avoid the reflection, with reference to the present case, that if the Holme signalman had, as the Abbotts-Ripton signalman did, shown a red-light from his hand-lamp to the engine-driver of the coal-train, (who knew that he would in the event of the Scotch-express-train running punctually have been stopped there), the coal-train might thus have stopped and shunted safely out of the way at Holme; and if the Wood-Walton signalman had employed his hand-lamp, in confirmation of his fixed-signals, to warn the engine-driver of the Scotch-express-train, the fist collision would in all probability have been avoided, and the second would not then have occurred.. The Manchester-express-train following the Scotch-express-train was, in fact, as already referred to, stopped, as the Scotch-express-train might have been stopped, by a red-light from the hand-lamp of the signalman at Wood-Walton; in obedience to which the engine-driver, after finding white lights at the distant-signals, and passing the Wood-Walton cabin at a speed of 40 miles an hour, brought his train to a stand at the down-distant-signal beyond that cabin; and the Conington signalman employed the same means to stop a slow-passenger-train at 7.10, when, not having got line-clear from Wood-Walton, he observed it approaching him, after passing white lights at the signals, at too high a speed.

It would not. therefore, be unreasonable, and it is important, to require, especially in such weather, if detonating signals cannot be put down in compliance with the above regulations, that this simple precaution, of employing hand-signals, should at all events be adopted.

But whatever may be done in these respects, and however perfect signal-arrangements may be made, the further question must remain as to whether it is reasonably safe or justifiable to attempt to conduct the traffic as usual, and to run at high speed through heavy snow-storms and thick fogs. This is a question to which I have necessarily referred in regard to previous accidents in reports to the Board of Trade, and which has received much illustration in the evidence on the present case. The engine-drivers with the express-trains in this country, running through for long distances, have no time to spare in average weather and ordinary conditions, if, even, they are not at times compelled to run some risks in order to maintain punctuality. An insight may be obtained by a careful perusal of the above evidence of the dangers that are encountered in endeavouring to keep up the same rate of speed in a snowstorm. The platelayers, after their day's work, go home to their tea, and sally forth for a night, to be spent in clearing the points of snow, or doing duty at the fixed-signals, which they reach too late, unfortunately, to prevent

them from misleading the engine-drivers; and which they find it. impossible in some cases, after they reach them, to keep in working order. The signalmen, with the windows of their cabins frozen, and the glass covered with snow, are unable to look out, or to see far, and discover only by trains running past their cabins that the fixed-signals on which they rely for stopping them must be giving false indications. The engine-drivers, with the glasses in their weather-boards coveted with snow, but keeping the best look-out they can, see only bright white lights, encouraging them to keep up their speed, when they ought to see red lights to warn them of danger ahead. The guards in attempting to clear the snow from the windows provided in their vans to enable them to keep watch along their trains and look ahead; find, it accumulating faster than they can get rid of it. A station-master to whom it is reported that a train has run past his station whilst the signals are supposed to be at danger, who finds that the signals are prevented by the snow and frost from working properly, and who might have known at once that other signals on the line would be similarly affected, allows the Scotch-express-train to run through his station at its usual speed, and either cares not or dares not, by interfering with its onward course, to give the much needed warning to its engine-driver. The down-express-train, in spite of warning at 1,000 yards from the site of a previous collision, cannot be stopped, but is still running at high speed at the end of that distance. The bare enumeration consecutively of conditions is sufficient to give some idea of the dangers that are and must be encountered in attempting to keep up the full speed of express-trains in such a storm, – dangers that were not previously unknown, and that no degree of perfection in system, apparatus, or discipline can be expected altogether to obviate. Taking a practical view of human nature, and remembering that railway-servants are as other men, and are without too many suits of clothes, or a superabundance of waterproof materials, an idea may. also be obtained of the difficulties under which they are expected to perform out-door duties in a storm which may cause them to be wet through in a few minutes. And itis next to impossible to provide that the many extra precautions which may under such conditions be required shall always be supplied with absolute certainty, at every cabin and every signal, in readiness for a sudden emergency on a long line of railway.

There is, however, one improvement which may with advantage be introduced, as to the desirability of which there can be no doubt, which has formed a frequent subject of recommendation-to the railway Companies, and the application of which would no doubt have prevented the second collision, with all its terrible consequences, from occurring. Continuous-breaks in the hands of the engine-driver of the Leeds-express-train would have enabled him easily, after the warnings that were given to him, to bring his train to a stand within the distance allowed. And this appeared so important a feature in this case, that it became desirable to request the Company to allow of some experiments being made on the subject. 'The Company were good enough, accordingly, to provide two trains, one fitted with continuous-breaks, such as they had previously prepared for experiment before the Royal Commission on Railway Accidents, and the other as nearly as could be arranged in the same way as the Leeds-express-train. The results of those experiments will be found in the Appendix, from which it which it will be observed that the first three trials were made with the vacuum-break-train, which was stopped by the aid of continuous-breaks, on a falling gradient of 1 in 200, when travelling at 45 miles an hour, in one case in 410 yards of space and 26 seconds of time, and in another case in 451 yards and 30 seconds; whereas the same train, with three hand-breaks and. the tender-break applied, at a speed of rather less than 41 miles an hour, was only pulled up in 631 yards and 44 seconds. It appeared possible, with: reference to the last-mentioned but first-tried experiments, that some of the break-blocks might not be quite free of the wheels; and the three next trials, with hand-breaks only, were made with a train differently composed, as shown in the Appendix. The object of these trials was to give an idea, as far as could be obtained under a totally different condition of the rails as to what might have been done proportionately on the night of the accident, – (1), if the engine-driver of the Leeds-express-train had been assisted by all the guards in the train, and (2), if he had, from the first warning he received, done his best to pull up, wholly or partially unassisted by the middle and rear guards. These three trials were all on a falling gradient of 1 in 200, and the distance of pulling up varied, under the conditions stated in the Appendix, from 795 to 1,125 yards of distance, and from 55 to 70 seconds in time. On the night of the accident, the rails

having been much more slippery, all of the distances above mentioned would, of course, have been materially increased.

The proportion of break-power employed on the Leeds-express-train on the 21st of January – three break-vehicles (besides the tender-break) to 13 vehicles, – was, perhaps, as much as can in practice be expected without a system of continuous-breaks, and was more than is frequently employed. But the defect of the system of hand-breaks worked by separate guards in different parts of the train is well known, and has often been stated. The guards near the middle or end of a train are frequently unable to hear the break-whistle, and the engine-driver is thus unable to obtain their assistance when he most needs it. It appears from the evidence of two of the guards of the Leeds-express-train that they did not on this fatal night hear any fog-signal explode or the break-whistle from their own engine, though they state that they heard and saw the engine of the coal-train; but it is by no means certain how much assistance they gave towards stopping their train before the second collision occurred, as they thought, at a speed of 30 or 40 miles an hour. If, on-the other hand, the power of readily applying break-blocks to every wheel of the train, by means of the vacuum or any other good system of. continuous-breaks, had been in the hands of the engine-driver, he would have been able, after going over the fog-signals and seeing the coal-engine, without doubt or difficulty, to have brought his train to a stand far short of the débris of the first collision.

On a general review of the case, the causes, direct or indirect, of the first collision may thus be summed up :–

1. The late departure of the coal-train from Peterborough, which prevented it from reaching and being shunted at Abbotts-Ripton before the approach of the Scotch-express-train.

2. The failure to work, during a heavy snow-storm, of the signals at Holme, which prevented the coal-train, running late, from being stopped and shunted at Holme, as intended by the signalman, out of the way of the Scotch-express-train, and without the risk of danger or delay to that train,

3. The want of judgment and precaution exhibited by the station-master at Holme, who might otherwise, after. the report made to him by the signalman, and on finding the effect produced by the snow upon his own signals, have inferred that other signals were similarly affected, and have taken measures to warn the engine-driver of the Scotch-express-train, and to prevent him from being deceived by them.

4. The absence of telegraph-speaking instruments in the signal-cabins at Conington and Wood-Walton, by means of which the signalmen in those cabins might have been informed of the coal-train having run past Holme contrary to the intention of the Holme signalman, and have been warned of the probable condition of their signals.

5. The action of the snow and ice upon the signals at Wood-Walton and Abbotts-Ripton, in preventing them from responding to the action of the levers in the signal-cabins, and in thus causing them to be, not only useless for warning by red-lights the engine-driver of the Scotch-express-train, but also a means by the exhibition of white-lights of luring him forward at full speed to the collision.

6. The neglect of the Wood-Walton signalman, who did not either obey par. 13 of the printed regulations applying to "fogs and snow-storms," requiring him, in such weather, to put detonators on the rails, as far as practicable, when his home-signal was at danger, or even employ his hand-lamp to give warning to the engine-driver of the Scotch-express-train.

7. The absence of the platelayers or "fog-men" from the signals at the critical moments, when they were so much required, either to clear the signals of snow and to cause them to work properly, or else, if they could not ensure their efficient working, by means of detonating-signals, to warn the engine-drivers of the trains.

8. The running of fast-through-trains at full speed throng such a storm, described as having been the most severe ever known in that part of the country, without the adoption of extra precautions, such as the

detention of slower trains, the use of hand-lamps in the signal-cabins, and the employment of platelayers at the signals.

And the causes which operated more particularly in producing the second collision were :–

9. The want of notice, until eight minutes after the first collision, from the Abbotts-Ripton cabin to the Stukeley cabin, by five beats on the telegraph-bell, of the obstruction on the down-line caused by the first collision.

10. The delay of the signalman at the Huntingdon south-cabin in accepting the special message which the Abbotts-Ripton signalman, who: commenced to call at 6:45 p.m., endeavoured, after obtaining his attention at 6.47 p.m., to send him, to report the collision and ask for assistance; which special message the Huntingdon signalman might otherwise have received in time to admit of his stopping the Leeds-express-train, and preventing the second collision.

11. The failure to act of the down-distant-signal worked from the Abbotts-Ripton cabin, which continued to show a white light when the engine-driver of the Leeds-express-train passed it, nearly eleven minutes after the first collision,

12. The want of continuous-breaks in the hands of the engine-driver of the Leeds-express-train, to enable him to avoid the second collision, which was the occasion of so much loss of life; after receiving notice from detonating-signals, say 1,000 yards from the site of it, and immediately afterwards from the men on the engine of the coal-train, of something being wrong.

The most important remedies to be considered with a view to the avoidance of such collisions are: –

1. Improvement in the apparatus of fixed-signals, to prevent them as: far as possible from becoming inefficient during frost and snow, and to cause them to afford indications to the signalmen when they cease working, or are not working properly.

2. Improvement in the working of fixed-signals, by keeping them habitually at danger instead of at all-right, so as to render them less liable to stick in the more dangerous position of all-right.

3. Improvement in the printed regulations for the guidance of station-masters, inspectors, engine-drivers, signalmen, and platelayers, as to, their duties during "fogs and snow-storms."

4. Careful supervision in regard to the working of fixed-signals at intermediate, as well as at the principal block-cabins, during snow-storms.

5. The employment' by the signalmen of hand-lamps, especially in severe weather, in confirmation of the indications of their fixed-signals.

6. The provision and employment of speaking-telegraph-instruments in all the cabins.

7. The temporary stoppage of less important traffic, and the reduction of the speed of fast trains during severe snow-storms, when it is more difficult for engine-drivers and guards to keep a good look out, for signalmen to see out of their cabins, for platelayers to keep the fixed-signals in efficient working order, and for all the out-door officers and servants of railway companies to perform their duties satisfactorily.

8. The employment of continuous-breaks, by means of which the trains can be brought to a stand, on warnings of danger being received, within more moderate distances, by the action of the engine-drivers, without trusting to the guards, who are frequently unable in cases of emergency to hear the break-whistle from the engine, and who cannot therefore be relied on to co-operate with the engine-drivers when their assistance is most required.

9. The construction of an additional line of rails, already in contemplation, for slow traffic up the Conington Bank.

It is no more than an act of justice to acknowledge, in concluding this report, that the Great-Northern Railway Company has always borne a deservedly high character for the labour, care, and expense which have been bestowed on its signal-arrangements, and in regard to other means which have been provided with a view to the safe and punctual running of fast-through-trains. It might reasonably have been supposed, before the occurrence of these collisions, that if the fixed-signals of any Company were unlikely to fail so completely it would be those on the Great-Northern Railway. But the example of failure becomes thus the more striking, and it serves the more strongly to inculcate the lesson mainly to be derived from these sad events, namely, that the attempt to conduct heavy railway-traffic as usual, and to run express-trains at full speed, through heavy snowstorms, must be attended with very serious risk, even though the best known means of safety in common use be provided. There can be no doubt of the advantages of punctuality in ordinary railway working. It is a good test, in one sense, of efficient management, and habitual unpunctuality is inexcusable. But occasional unpunctuality, which is in practice unavoidable, ought not to be the excuse for an accident, and even punctuality may be purchased at too dear a price. It would be far better to submit to the temporary stoppage of certain trains, and a reduction of speed of other trains, during such exceptional weather, than, in attempting to maintain punctuality with very fast trains, to incur serious risk of such collisions,

I have, &c.
H.W. TYLER

The Secretary,
(Railway Department,)
Board of Trade.

I concur in the above report.
CHARLES BOWEN.

Appendix A.

Re-issue of Circular No. 617A.

THE GREAT NORTHERN RAILWAY

Fogs and Snowstorms.

In foggy weather, when the arms or the semaphore signals cannot be seen plainly, the signal-lamps must be kept burning by day ns well as by night.

When, from fog or snowstorm, fixed signals at stations and junctions cannot be seen at a distance of 150 yards, a platelayer to net as fogman must be placed at each distant-signal, and one must also be placed near the signal-box of each. junction to assist the signalman.

It is not necessary to place fogmen at the home or distant-signals of any block signal-box which is not at a station or· junction.

Each fogman must be provided with a hand-lamp, a set of flags, and with 24 detonating or fog-signals.

The fogman stationed at the distant-signal is required to keep two detonators on the rails whenever the fixed ·signal is at danger, but the detonators must be removed from the rails when the fixed signal is at "all right."

The fogman at the junction will act under the instructions of the signalman, and will assist in bringing trains in as may be ordered by the signalman. He will take care to have three detonators on each line of rails when the home-signal for such line of rails is at danger.

At a junction with a foreign line the Great Northern Company's fogmen must be placed on the lines which are maintained by the Great Northern Company; thus, at Marsh Gate, Doncaster, where lines from London, Leeds, York, and Thorne form the junction, the Great Northern Company's fogmen must be placed at the. junction to assist the signalman and protect the traffic at the fouling-points of the lines, because the junction is maintained and worked by the Great Northern Company. Great Northern fogmen must also be placed at the distant-signals on the London, Leeds and York lines of this junction, these being maintained by the Great Northern Company; but on the Thorne line, which is maintained by the Manchester, Sheffield, and Lincolnshire Company, that company must provide fogmen for the distant-signal and repeater.

In ease of fog or snowstorm·. the clerk in charge of the station, or the signalman in charge of the junction, must require the attendance of platelayers to act as fogmen.

The inspectors of permanent-way of the respective districts are instructed to select men to act as fogmen, and these men will go to the signals in ease of fog or snowstorm, even if not summoned by the clerk in charge or signalman. This will not relieve the clerk in charge or signalman from the responsibility of sending for the platelayers. The inspectors of permanent-way will arrange for relief men should the fog or snowstorm continue.

The clerks in charge are required to agree with the inspectors of permanent-way upon the platelayers to be sent for to act as fogmen, and the address of these men must be kept posted at the respective stations and signal-boxes.

A supply of hand-lamps and detonators must be kept at the several stations and junctions for the fogmen.

Referring to the regulations for block working, trains must not during foggy weather, nor in a snowstorm, be considered as "out" until the last vehicle has passed the home-signal post, and is continuing its journey, and has passed out of sight of the signalman.

Signalmen at intermediate boxes must be provided with detonators, and in foggy weather or a snowstorm must, as far as practicable, keep two detonators on the rails when the home-signal is in danger.

Enginemen and firemen must keep a good look-out ·for signals, and in case of fog or snowstorm, or when from any cause the fixed signals are not visible as soon as usual, the speed must immediately be reduced, so that the enginemen may be able to stop the train before reaching the fixed signals.

When a. detonator is run over at a distant-signal, the engineman must immediately bring his train under perfect control, as provided by Section 68 of the Rules and Regulations for enginemen and firemen.

When a detonator is run over at a home-signal or near a junction, the train must be stopped with the least possible delay.

Attention is called to the following general regulations :-

"The absence of a signal at a place where a signal is ordinarily shown, or a signal imperfectly exhibited is to be considered as a danger-signal, and treated accordingly."

P. STIRLING, Locomotive Engineer.
R. JOHNSON, Engineer.
FRANCIS P. COCKSHOTT, Superintendent of the Line.
London, King's Cross Station, December 1872.

Circular 456A, dated 23rd January 1871, is hereby cancelled.

Appendix B.

1. The needle of the instrument must always indicate the state of the line it represents, and be pegged over to train on line or to line clear, as the case may be.

2. Bell signals.

To call attention	One beat of the bell.
Be ready	Two beats of the bell.
Line blocked	Five beats of the bell.
Stop and examine train	Six beats of the bell.

Upon hearing the bell the signalman must immediately look at the instruments on the section ringing, and be prepared to receive the dial signals.

3. Dial signals.

Passenger train on line	Two beats of needle to the left.
Goods or cattle train on line	Three beats of needle to the left.
Mineral or ballast train on line	Four beats of needle to the left.
Light engine on line	Four beats of needle to the left.
Line blocked	Five beats of needle to the left.
Line clear of passenger train	Two beats of needle to the right.
Line clear of goods or cattle train	Three beats of needle to the right.
Line clear of mineral or ballast train	Four beats of needle to the right.
Line clear of light engine	Four beats of needle to the right.
Line cleared	Five beats of needle to the right.

4. The process of signalling a train is as follows :-

Ott the approach of a passenger-train to station A., the signalman will call the attention of Station B., and give two beats of the needle to the left hand. Station B. will repeat this signal, peg the needle over to “train on line," and give the be ready signal (as in clause 2) to station C. When the train approaches B., it must be similarly signalled to C., where the signalman will, in like manner, forward the be ready signal to station D. When the train has passed B., the signalman at B. must call the attention of station A., give two beats of the needle to the right hand, which A. will repeat, and peg the needle over to “line clear." Until the signal "line clear" has been received from station B., no train or engine must be allowed to depart from station A. (except as ordered in clauses 17 and 21 of these Regulations), nor must he the line at B. be obstructed after the signal “train on line” has been received.

5. Trains are to be considered "out" and the signal "line clear" must be given to the station in the rear immediately the last vehicle has passed the station home signal post, except as provided for· by clauses 6 and 7.

6. Where the line is on a “falling gradient,” the “line clear” signal must not, in the case of a train or engine that has stopped, be given to the station in the rear until such train or engine is again in motion and proceeding on its journey.

7. During foggy or snowy weather the signal “line clear” must not be sent to the station in the rear until the train or engine that has stopped at the station passed the home-signal and is proceeding on its journey, or has been shunted into a siding clear of the main-line.

8. Should an unusual time elapse after the signal "train on line" has been received, without the train so signalled coming in sight, the signalman must place at "danger" the signals controlling, trains approaching in

the opposite direction, and having stopped the first engine or train he must verbally inform the engineman and guard the reason, directing them to proceed cautiously, and to be prepared for emergency.

9. No dial signal is under any circumstances, to be considered as understood until it has been repeated back to the station from which it was received.

10. Before the line is blocked for shunting or other purposes, protection must be secured as follows :-

- If the up-line be required, five beats of the bell must be given to the station next below. If the down-line, the bell must be similarly rung to the station next above. When the needle has been unpegged, five distinct ticks of the needle to the left hand must be given to the forwarding station; the same number of ticks must be repeated by the receiving station. The needle must then be fixed to "train on line."
- As soon as the obstruction is removed the bell must be rung again, and five ticks of the needle to the right given and repeated, and the needle fastened over to "line clear."
- If it be required to obstruct both up down-lines, notice must be similarly sent to the stations in each direction.

11. The signal "stop and examine train" is only to be used in the event of a signalman observing anything unusual during the passage of a train past his station, such as a broken axle, vehicle on fire, hot box, &c., &c. Any signalman receiving such signal must immediately place at danger the signals controlling the line on which the train is approaching. Having done so, he must repeat the signal back to the station from whence it was received.

12. When a train has become divided, and is running on a falling gradient, the front portion must not, when the line is clear for it to proceed beyond the signals, be stopped, so as to risk its being overtaken by the second part, but when such train is running on n rising gradient, or where the line is perfectly level, the first portion must be stopped, and shunted into a siding as expeditiously as circumstances will permit.

13. Signalmen must in all cases carefully watch each train as it passes, and satisfy themselves that the whole of the train has passed, and that the line is free from obstruction before giving the signal "line clear" to the station in the rear. They must also be particular to observe whether the last vehicle carries a red notice board by day or an additional tail lamp by night, as an indication that a "special train" is following.

14. In the event of a second engine or train arriving at a signal station before the preceding train or engine has been telegraphed as having passed the station in advance, it must he brought to a stand by the signals being kept at danger; the engineman must then be told to draw the tail of his train within the signals, and there await, further orders. Such train must not again be started until the guard or engineman receives verbal instructions from the signalman to that effect.

15. Should an engine or train pass a signal station after dark without tail lamps on the last vehicle, the signalman must, immediately he has forwarded the signal "train on line," if such train be travelling on a level line or rising gradient, at once give the signal "stop and examine train." If, however, the train be running on a falling gradient, the signal "stop and examine train" must not be used. He must not telegraph "line clear" to the station in the rear, but must call such station in the usual manner, and on gaining attention, must give seven ticks of the needle to the left hand. This signal having been acknowledged, he will again block the needle over to the words "train on line," the signalman at the rear station will thereupon stop any train or engine following, and verbally instruct the engineman to proceed cautiously towards the station in advance, informing him why it is necessary that he should do so. As soon as such train or engine has passed the signal station from whence the caution signal was received, the signalman there will recommence signalling in the ordinary manner.

16. No obstruction must, under any circumstances, be allowed on the down main line after "train on line" has been received from the down station in rear, nor must the up main line be obstructed after "train on line" has been received from the up station in rear.

17. If a needle suddenly becomes vertical, and no action takes place on moving the handle of the instrument either to the right or the left, it is an indication that the telegraph is broken down. Under such circumstances no other train or engine is to be allowed to proceed on that section of the line until it has been stopped, and the engineman and guard cautioned to go forward at reduced speed, so as to be prepared to stop at any moment, should it be necessary to do so.

18. The signalmen on giving a signal must see that their needles are firmly and completely blocked over; and when the needles are blocked over at the opposite end of the section, they must keep the pins out of the handles of their instruments and see that the handles are perfectly perpendicular.

19. The needles and bells must not be worked quickly, but each movement must be made slowly and distinctly.

20. The block instruments must not under any circumstances be used for conversing.

21. Guards must not rely upon the telegraph, but must, in case of stoppage, go back with signals and protect their trains (this duty being performed by the rear guard when there are two or more guards with the train) as required by the general regulations of the Company, and such guard must in all cases go to the next signal station in the rear, and, with the least possible delay, inform the signalman on duty of the stoppage. If a train or engine is afterwards allowed by the signalman to follow on the same line, the guard of the train which is blocking the line must ride on the engine and point out to the engineman where he left his train. The train or engine thus following must run at reduced speed, and great caution must be observed by all concerned.

These instructions will be in force from and after 1.0 a.m. on the 1st February 1872.

The general block signalling regulations, dated 22nd May 1867, are hereby cancelled.

Superintendent's Office,
King's Cross,
January 1872.

FRANCIS P. COCKSHOTT,
Superintendent of the Line.

Appendix C.

GREAT NORTHERN RAILWAY.

INSTRUCTIONS FOR SIGNALLING TRAINS BY ELECTRIC TELEGRAPH.

[Circular 949a.]

From and after 6.0 a.m. on Monday, 7th July 1873, the circular dated November 1872, will be cancelled, and the following system will come into operation at all telegraph stations between King's Cross and York.

Special passenger and horse-box trains (those not in the monthly time table) are to be signalled in the same manner as fast passenger trains.

Each station is to signal ballast trains and light engines to the next telegraph station to which the trains or engines are proceeding.

All other trains are to be signalled in the following manner: –

DOWN TRAINS.

P C Tempsford	Fast passenger trains to Abbotts Ripton and Holme. Goods and mineral trains to St. Neots.
N X St. Neots	Fast passenger trains to Huntingdon, Peterboro', Westwood, New England North, Tallington, and Essendine. All trains to Huntingdon and Abbotts Ripton. Goods and mineral trains to Offord.
O D Offord	Goods and mineral trains to Huntingdon.
H G Huntingdon	All trains to Holme. Slow passenger and goods trains to Peterboro, Spital, Westwood, and New England North.
A R Abbotts Ripton	Mineral trains to Holme. Passenger and goods trains to Crescent junction.
H O Holme	Passenger trains to Peterboro'. Goods and mineral trains to Spital, Westwood; and New England North.
Y X Yaxley C I Crescent Junction.	
P E Peterboro'	Passenger trains to Werrington, Tallington, Essendine, Bytham, Corby, and Grantham.
E I Essendine	Slow passenger and goods trains to Bytham, Corby, and Grantham. Mineral trains to Bytham.

UP TRAINS.

Essendine	Fast passenger trains to Werrington junction, New England North, Westwood, Spital, Peterboro', Crescent junction, Abbotts Ripton, and Offord. Slow passenger and goods trains to Tallington and Peterboro'. Mineral trains to Tallington.
Peterboro'	Fast passenger trains to Holme, Abbotts Ripton, Huntingdon, Offord, St. Neots, Sandy, Biggleswade, Hitchin, and Box B, King's Cross. Slow passenger trains to Holme, Abbotts Ripton. Huntingdon, and Offord.
Crescent Junction	Goods trains to Yaxley, Holme, and Huntingdon.
Yaxley	Goods and mineral trains to Holme and Abbotts Ripton.
Holme	Fast passenger trains to Tempsford and Sandy. Goods and mineral trains to Abbotts Ripton and Huntingdon.
Abbotts Ripton	Goods trains to Offord. Goods and mineral trains to Huntingdon.
Huntingdon	Fast passenger trains to Biggleswade and Arlesey siding.

	Slow passenger and goods trains to St. Neots.
	Goods and mineral trains to Offord.
Offord.	Goods and mineral trains to St. Neots.
St. Neots	Fast passenger trains to Arlesey, Hitchin yard box, and Hitchin.
	Slow passenger trains to Tempsford and Sandy. Other trains to Tempsford and Sandy.
Tempsford	Slow passenger and goods trains to Biggleswade. Mineral trains to Sandy.

Whenever a train signalling station requires special information respecting the whereabouts of a particular train, the clerk, or signalman in charge of the instrument, must ask for it, and the station called must refer to the book, or to the clerk in charge, for the correct information, and reply with the, least possible delay.

The wires between London and York are divided into eleven circuits, as follows: – London to Southgate, Southgate to Welwyn, Welwyn to Hitchin, Hitchin to St. Neots, St. Neots to Peterboro', Peterboro' to Essendine, Essendine to Grantham, Grantham to Newark, Newark to Retford, Retford to Doncaster, Doncaster to York; thus, Kings Cross will communicate with Holloway, Edgware Branch Junction, Hornsey, Wood Green, and Southgate; Southgate with stations as far as: Welwyn; Welwyn with stations as far as Hitchin, and soon. It will, therefore, be the duty of terminal stations to transmit the information signalled to them to the stations as ordered above.

In signalling fast trains to stations beyond the terminus of the circuit the through wires should be always used.

Signals must, if possible, be forwarded immediately after the entry of the departure of the train has been made in the time book; and should the instrument be engaged with other services, the station having a train to signal will, after two minutes of such entry, interrupt with the prefix M.T., which takes precedence next after S.P., but where the through wires are used, five minutes must be allowed to elapse before any interruption takes place.

In signalling, it is necessary to give the number of all trains, as shown in the railway company's ordinary time or working excursion bills, together with the time of their departure, – thus: number seven, ten fifty-three. Cattle, goods, and mineral, and also special trains, are to be distinguished by spelling name before signalling the time – thus: No. four goods, eight ten; number eight special, six four, and so on.

In transmitting trains, the following form must be carried out; for example, No. 55 passenger train leaving Tuxford 9.45, having to be transmitted by Retford to Bawtry, Retford will signal it thus – Number fifty-five left T.X. nine forty-five, and so on.

Train signals received must be immediately entered on the slate (where one is kept) and in the train book with the time such signals were received; and when a special train is signalled, the telegraph clerk or signalman must, in addition, immediately enter it on a message form for delivery either to the clerk in charge, inspector, or foreman, and obtain his signature for it in his railway message delivery book.

If from any cause trains have not been signalled in accordance with these rules at stations where clerks are employed, a report of the circumstance must at once be forwarded to the telegraph superintendent at Retford. At stations where the telegraph is worked by signalmen, the report must be sent to the clerk in charge.

At stations where there are telegraph clerks the time of the departure of the trains must be entered in the telegraph train book by the platform policeman or porter, as may be arranged on the duty sheet, and the telegraph clerk must enter the time when the message is: transmitted. Where the instruments are in charge of and are worked by signalmen, they must themselves make the entries.

London, King's Cross,
3rd July 1873.

FRANCIS P. COCKSHOTT,
Superintendent of the Line.

Appendix D.

FORMATION OF 5.30. P.M, DOWN EXPRESS.

January 21st, 1876.

Engine 48.	
York –	Break, G.N.
Newcastle –	Third, N.E.;
Newcastle –	composite, N.E.
Newcastle –	Composite, N.E,
Newcastle –	break, N.E.
Leeds –	Composite, Bogie.
Leeds –	Third, GN.
Leeds –	Second-class break, G.N.
Bradford –	Third, G.N.
Bradford –	Composite, G.N., large.
Halifax –	Composite, G.N.
Hull –	Composite, G.N.
Halifax –	Break, G.N.

Total 13.

FORMATION OF 8.0 P.M. SCOTCH EXPRESS.

January 21st, 1876.

Engine	
Glasgow –	Break, G.N.
Newcastle –	Second, N.E.
Newcastle –	First, N.E.
Glasgow –	Composite, E.C.
Perth –	Composite, E.C.
Edinburgh –	First, E.C.
Edinburgh –	First, E.C.
Edinburgh –	First, E.C.
Edinburgh –	Second, E.C.
Edinburgh –	Break, G.N.

Total 10.

Appendix E.

GREAT NORTHERN RAILWAY.

Series of Experiments made on February 17th, 1876, with the Break-power attached to Passenger Trains.

The train was composed of eleven carriages, with two six-wheeled and one four-wheeled breaks of the G.N. Company's make, in all fourteen vehicles, arranged in the following order: –

		No.
Six-wheeled	break-van	1,412
Four-wheeled	third-class carriage	912
Six-wheeled	composite carriage	462
Six-wheeled	composite carriage	1,544
Four-wheeled	third-class carriage	1,420
Six-wheeled	composite carriage	278
Six-wheeled	composite carriage	111
Four-wheeled	third-class carriage	1,432
Four-wheeled	break-van	790
Four-wheeled	third-class carriage	652
Six-wheeled	composite carriage	371
Six-wheeled	composite carriage	47
Six-wheeled	composite carriage	50
Six-wheeled	break-van	1,047

The engine was of the express passenger class, with 7 feet driving wheels uncoupled, and weighed 32 tons; the tender had six wheels, and weighed 26 tons.

The total weight of the train, including engine, tender, breaks, and carriages, was 205 tons.

The trials were made between Huntingdon and Holme stations, on the up and down-lines.

1st trial – On down-line, with ordinary tender-break and guards' breaks in two six-wheeled and one four-wheeled vans; steam shut off at Abbotts Ripton down distant-signal.

Gradient falling with train -	1 in 200.
Speed	(¼ mile in 22 seconds) per hour = 40:9 miles.
Train ran after steam was shut off	631 yards
Time occupied in pulling up -	44 seconds
	Note. – The hind break was not applied.

2nd trial – On the down-line with Smith's Vacuum break; steam shut off at Abbotts Ripton down distant-signal.

Gradient falling with train -	1 in 200.
Speed per hour -	45 miles.
Train ran after steam was shut off	410 yards.
Time occupied in pulling up -	26 seconds

3rd trial – On down-line with Vacuum break; steam shut off at Holme down distant-signal.

Gradient falling with train -	1 in 200.
Speed per hour -	45 miles.
Train ran after steam was shut off	451 yards.
Time occupied in pulling up -	30 seconds

A second train was now procured at Peterboro' for the purpose of more thoroughly testing the ordinary breaks.

This train was composed of the following vehicles, viz.: –

		No.
Four-wheeled	break-van	1,004
Four-wheeled	first-class carriage	90
Six-wheeled	composite carriage	279
Four-wheeled	composite carriage	224
Four-wheeled	third-class carriage	1,649
Four-wheeled	break-van	884
Six-wheeled	composite carriage	215
Four-wheeled	third-class carriage	788
Four-wheeled	composite carriage	221
Four-wheeled	break-van	1,056
Six-wheeled	composite carriage	371
Six-wheeled	composite carriage	47
Six-wheeled	composite carriage	50
Six-wheeled	break-van	1,047

The engine of the second train was of the express passenger class, with eight-feet driving wheels, uncoupled, and with a bogie frame on four wheels under the leading end. The engine weighed 39 tons., The tender had six wheels, and weighed 28 tons.

The total weight of the train, including engine, tender, breaks, and carriages, was 209 tons 6 cwt.

4th trial – On up-line with ordinary tender-break, and guards' break in two four-wheeled vans. Steam shut off at Huntingdon up distant-signal.

Gradient falling with train -	1 in 200.
Speed per hour -	45 miles.
Train ran after steam was shut off	795 yards
Time occupied in pulling up -	55 seconds
	Note. – The hind break was not applied.

5th trial—On down-line with ordinary tender-break, and guards' breaks in two four-wheeled and one six-wheeled vans. Steam shut off at Abbotts Ripton down distant-signal.

Gradient falling with train -	1 in 200.
Speed per hour -	40.9 miles.
Train ran after steam was shut off	800 yards
Time occupied in pulling up -	59 seconds

6th trial—On down-line with ordinary tender-break, and guards' break in one four-wheeled van only. Steam shut off at Conington down distant-signal.

Gradient falling with train -	1 in 200.
Speed per hour -	45 miles.
Train ran after steam was shut off	1,125 yards
Time occupied in pulling up -	70 seconds

Appendix F.

List of Killed.

1. Sanderson, Miss Margaret.
2. Sanderson, Miss Elizabeth.
3. Fosberry, Miss S.
4. Fosberry, Miss.
5. Fosberry, Mrs.
6. Jolliffe, Mr. Benjamin.
7. Sanderson, Mr. James.
8. Allgood, Mr. J. C.
9. Allgood, Mrs. J.
10. Allgood, Mr, D. H. -
11. Noble, Mr.
12. Boucicault, Mr. W. Dion.
13. Mure, Mr. Thomas.

Appendix G.

Name of Witness	Qualification	P	p		P	p
Oakley, Mr.	General Manager	18	29			
Johnson, Mr.	Engineer	3	2			
Cockshott, Mr.	Superintendent	4	3			
Piggott, Mr.	Chief Signal Inspector	12	18	recalled	18	28
Radcliffe, Mr	Telegraph engineer and superintendent	13	19			
Rouse, Mr	Peterboro' district locomotive superintendent	17	27			
Preece, Mr.	Post Office Telegraphs	13	19			
Oldman, Dr.	Passenger by Scotch express	13	19			
Bray	Driver of coal train	5	4			
Faulkner	Fireman of coal train	5	5			
Hunt	Guard of coal train	5	5			
Catley	Driver of Scotch express	19	31			
Scott	Fireman of Scotch express	7	7			
McDiarmid	Head guard of Scotch express	13	20			
Day	Under guard of Scotch express	6	6			
Wilson	Driver of Leeds express	6	6	recalled	7	6
Falkinder	Fireman of Leeds express	6	7			
Wills, Robert	Guard of Leeds express	7	8			
Simpson	Guard of Leeds express	7	9			
Robinson	Guard of Leeds express	8	10			
Edis	Driver of Manchester express	9	11			
Murfitt	Fireman of Manchester express	9	12			
Osborne	Signalman at Holme	10	14	recalled	15	22
Jakes	Signalman at Conington	11	15			
Rose	Signalman at Wood Walton	11	16	recalled	16	24
Johnson, Chas	Signalman at Abbotts Ripton	11	16	recalled	15	24
Bradshaw	Signalman at Abbotts Ripton	15	23			
Trowell	Signalman at Stukeley	12	17			
Maddison	Signalman at Huntingdon (south cabin)	16	25			
Gurney	Signalman at St. Neots	17	26			
Colbert	Signalman at Crescent cabin, Peterboro'	17	27			
Osborn	Telegraph lad at Crescent cabin, Peterboro'	17	27			
Pallinder	Signal fitter	12	17			
Blatch	Telegraph clerk at Peterboro'	16	25			
Gregory	Holme station-master	10	13	recalled	14	22
Gammons	Holme foreman platelayer	10	14			
Clark	Holme under platelayer	11	15			
Marriott	Holme under platelayer	11	15			
Mason	Holme under platelayer	14	21			
Wills, Jos	Holme lad porter	14	21			
Marshall	Holme porter	15	23			
Wright	Abbotts Ripton platelayer	9	13			
Jolley	Abbotts Ripton platelayer	17	26			
Hall	Abbotts Ripton platelayer	17	27			
Corble	Inspector at Peterboro' station	18	29			
Usher	Relief clerk	8	11	recalled	17	27