

APPENDIX.

PARTICULARS OF DAMAGE TO ENGINES.

Engine No. 1132 of Second Goods Train.—Brick
knocked down and two tender buffers
damaged.

Engine No. 718 of Passenger Train.—Smoke
box bulged; hand rails bent; right side footstep
broken off; cab shifted and spectacles broken.

PARTICULARS OF DAMAGE TO COACHES AND WAGGONS.

Passenger Train.

Lancashire and Yorkshire Bogie Third Van,
No. 265.—Waist panels and footboards damaged.
Lancashire and Yorkshire Bogie Composite,
No. 482.—One short footboard broken.
Lancashire and Yorkshire Bogie Third, No. 474.
—One waist panel and projection broken.

Goods Train.

Lancashire and Yorkshire Waggon, No. 2371.—
Two axle guards, nine axle-guard bolts, three
axle boxes, one headstock, four end planks, two
end posts, two capping irons, and one corner
plate broken; one corner plate, two buffer rods,
and two buffer heads bent; one headstock and
one end plank grazed, and wheel flanges cut.
Liversedge Coal Company's Waggon, No. 7.—
One drawbar cotter and face plate damaged.
Lancashire and Yorkshire Goods Brake Van,
No. 6738.—Four end boards, one headstock, one

end light, one partition light, and one partition
board broken; one partition door displaced; one
hand rail and one corner plate bent; and one
side footboard broken.

Brooks and Pickup Waggon, No. 406.—Two
axle-guard bolts broken.

Great Central Railway Waggon, No. 8061.—
One axle box, one buffer liner, and one solebar
broken; one axle guard, two solebars, two buffer
hoops, one brake guard, and one end post
damaged.

Low Moor Iron Company's Waggon, No. 60.—
One bearing-spring shoe missing.

Low Moor Iron Company's Waggon, No. 35.—
One bearing-spring shoe missing.

J. Nicholson & Son's Waggon, No. 1.—One buf-
fer head, one end post, one end block, and two
buffer castings broken; one buffer rod badly
bent; one diagonal and one corner plate
damaged.

Great Central Railway Waggon, No. 8434.—
Broken up.

DAMAGE TO PERMANENT WAY.

Eleven chairs broken.

Printed copies of the above Report were sent to the Company on the 17th December.

LANCASHIRE AND YORKSHIRE RAILWAY.

Railway Department (Board of Trade),
8, Richmond Terrace, Whitehall, London, S.W.,
November 22nd, 1901.

Sir,

I HAVE the honour to report for the information of the Board of Trade, in
compliance with your Order of the 11th November, the result of my inquiry into the
causes of the collision, which occurred on the 4th November, between a passenger train
and a pilot engine at Todmorden, on the Lancashire and Yorkshire Railway.

In this case the 3.55 p.m. passenger train from Manchester to York was turned
down the branch line to Burnley at Todmorden No. 3 signal-box, instead of proceeding
along the down main line, and ran into a pilot engine which was standing about 130 yards
along the former line.

The passenger train consisted of a four-wheels-coupled express engine with leading
bogie and a six-wheeled tender, with automatic vacuum brake on the four coupled
wheels of engine and six tender wheels, and hand brake on six tender wheels, and of
three bogie carriages, viz. :—

One Bogie Carriage Brake,
One Bogie Composite,
One Bogie Carriage Brake,

fitted with the automatic vacuum brake on all wheels, which is stated to have been in
very good working order.

The collision was a very severe one, both engines being very badly damaged, the leading bogie carriage turned on its right side across the up road, the middle one turned over to the left and was held up from falling down the embankment by a telegraph post, and the rear one was derailed.

The pilot engine was not derailed, but was driven along the down branch line for a distance of over six hundred yards, and the main frame was so bulged out that it was foul of the up line.

The driver and fireman of the pilot engine were both very severely injured; the driver and fireman of the passenger engine were also both injured, and four passengers complained of slight injuries.

The collision occurred at 5 p.m. during a dense fog.

Details of damage to rolling stock and permanent way are given in the Appendix.

Description.

The main lines through Todmorden run approximately east and west, the down line being to the north of the up line.

The signalling is controlled by means of four boxes, known as Numbers 1, 2, 3, and 4; No. 1 being the most westerly and therefore the first one passed by down trains.

The sections between the signal-boxes are very short, viz., 370 yards between Nos. 1 and 2, 312 yards between Nos. 2 and 3, and 470 yards between Nos. 3 and 4.

Todmorden Station is between Nos. 1 and 2 boxes, No. 2 being at the east end of the platform, and the down home signal for it is also the down platform starting signal. Todmorden No. 3 down distant is under No. 2 down home.

Nearly opposite No. 3 box are the points of the double junction between the Burnley branch lines and the main lines, but the home signals for No. 3 are 110 yards behind the points, and the distant signals for No. 4 and for Stansfield Hall box (the next box on the Burnley branch lines, 400 yards away) are underneath the home signals.

The Burnley branch lines run off sharply to the north and north-west on a curve of 10 chains radius, provided with a check rail.

At 110 yards along the down branch line are the trailing points of a connection from the coal sidings behind No. 3 box.

A little further on is a cross-over road between the up and down branch lines; the trailing points in the down branch line being about 150 yards from No. 3 box.

Owing to the sections being so short signalmen at Nos. 1, 2, and 3 boxes are instructed not to lower their distant signals unless the distant signal for the box in advance is lowered.

The down main line is on a falling gradient of 1 in 177 between Nos. 2 and 3 boxes.

The Burnley branch down line is on a falling gradient of 1 in 177 for the first 50 yards, then falls 1 in 585 for 150 yards, and then is mostly on a rising gradient in parts pretty steep for 500 yards.

Evidence.

James Hodgson, signalman, Todmorden, No. 2 box, states: I have been in the service since 1889, and a signalman since October, 1892, and have been in Todmorden No. 2 box for 2 years and 3 months. On November 4th I came on duty at 2 p.m. to work until 10 p.m., having been off duty since 10 p.m. on the 2nd inst. It was very foggy on the night in question. The Liverpool portion of the 3.55 p.m. from Manchester to York was circuit to me at 4.38 from Summit West box, and I forwarded the circuit call to the next circuit up to Hebden Bridge with the words, "Liverpool portion of York express leaving Rochdale 4.38." At 4.48 I received circuit call for the Manchester portion of York express leaving Rochdale, and I forwarded this circuit on at 4.50 p.m. At 5 p.m. I received circuit call for the 4.23 p.m. Rochdale to Burnley, but I did not forward this circuit call, *i.e.*, when it leaves Rochdale, as it is not the practice with these trains. The signalling of the Liverpool

and Manchester portions of the York train is as follows:—

—	Received "Is line clear" from No. 1.	Acknowledged.	Train entering section.	Train passed.	"Is line clear" acknowledged by box in advance.	"Train out of section" given.	"Train out of section" received.
Liverpool portion.	4.45	4.45	4.49	4.50	4.45	4.50	4.50
Manchester portion.	4.54	4.54	4.59	4.59	4.54	5.16	5.16

When I was acknowledging the "Train entering section" signal from No. 1 box for the Manchester portion by turning my needle to "Train on line" the signalman at No. 3 box gave me one stroke on the block bell. I gave him "Train entering section" signal, then I gave him one

the bell as an acknowledgment to his call. I then received the circuit call from Summit West for the 4.23 p.m. Rochdale to Barnley. This would be about 4.59, and at that moment the Manchester portion of the York express was just under my box. I took the receiver off the Hebden Bridge circuit at the same time as I took the receiver off the Littleborough circuit. I could not hear what Sunderland said to me, as I was attending the circuit from Littleborough, to which I replied "Aye." Directly I had finished with the Littleborough circuit I restored the receiver to its proper position, and I listened on the Hebden Bridge circuit, but could hear no one speaking, so I circuited the Manchester portion of the York train as passing my box at Hebden Bridge at 4.59 p.m. I did not know anything about the Manchester portion of express being turned on to the Burnley branch until Sunderland told me about 5.2 p.m. He said, "This express has run on the branch." I replied, "What is it doing on the branch?" I had all my signals off for the Manchester portion of the train at 4.56, and all the slot indicators in my cabin for the main line were taken off at the same time by No. 3 box. I could see No. 3 distant signals underneath my home signal, and at that time the main line distant signal was off. I should think the express passed my box at the rate of 30 miles per hour. There was no fogman at my home signal.

William Sunderland, Todmorden, No. 3 box, states: I am 53 years of age, and have been in the Company's service since 1873. I have been a signalman 28 years, the last 18 years at Todmorden No. 3 box, and 10 years previously at Hebden Bridge. On November 4th I came on duty at 2 p.m. to work until 10 p.m., having gone off duty the night before at 10 p.m. I received "Is line clear" signal for an express at 4.45, acknowledged it at 4.45, received "Train entering section" at 4.50. It passed me at 4.50, and was accepted by box in advance, No. 4, at 4.45. "Train out of section being given by me at 4.51, and I received "Train out of section" at 4.51 from No. 4. I received "Is line clear" signal for another express train at 4.56, acknowledged it at 4.56, received "Train entering section" at 4.59, and it passed me practically at the same time. The first of these trains was the Liverpool to York portion, which was running independently of the Manchester portion, and the second was the 3.55 p.m. Manchester to York portion. I did not know at the time what these trains were, as I had not attended to the circuit calls. Sometimes, if one is busy, one cannot get to the telephone in time. I am not prepared to say that the circuit calls were not sent. I had all my main line signals off for both express trains, and the trains were accepted by No. 4 box, the box in advance. At 4.41 I put a pilot engine in the coal sidings at the back of my box. I had had information that a goods train, which was coming from Yorkshire direction and going Burnley way, required a bank engine, and I asked the pilot driver, who was in the coal sidings, if he required water before he banked the train. He replied "Yes," and I told him I would turn him across on to the up main line to get water as soon as the express had passed. I allowed him out of the siding to stand above the cross-over road on the down branch to Burnley at 4.58. It was very foggy, and it was well out of sight of my box, being about 150 yards away. While I was talking to the pilot driver the signalman at Stansfield Hall called me up on the telephone and asked me where the Burnley train was.

I replied, "I do not know, but I have a train warned down; it might be it, but I will ask." I called the man up at No. 2 box and said, "Is this the branch train, Jim," and he replied, "Aye." I immediately turned round and put my main line signals on and reversed the junction. I was just turning to the telephone to ask him to cancel the train I had accepted in order to get the pilot across to the up line when the express dashed by. In order to get the pilot across on to the up line I was bound to reverse my junction, and before I could let the branch train go I should have had to remove the engine off the down line, and I thought that the train which I had accepted as main line train was the branch train, and would be standing in the station whilst this was being done, and I was going to ask No. 2 box to cancel the train he had signalled to me in order to get the pilot across. The train was running fast when it passed my box. No fog signals were exploded as the train approached my box. I do not think the fogman would have had time to put them on in the interval between reversing the signals and the train passing. The 4.23 Rochdale to Burnley train is the only through passenger train during the day; all the other Burnley trains run into Todmorden and back again. Both these trains are signalled to me as express trains, and I did not know the York train was running in two parts, not having attended to the circuit calls. When I took off my main line signals for the second express I thought it was the 4.25 p.m. from Manchester to Leeds express, due to stop at Todmorden at 4.55 p.m.

James Law, platelayer, states: I was on duty on the night of the accident, fogging Todmorden No. 3 down home signal. I remember the first express passing on the down main line just before the accident, and the signals were put to danger. I went back and put a fog signal on the line. Some little time after this both the signals were lowered again for the main line, and I went and took my fog signal off. I came back where I could see my signals plainly, and on the train approaching I gave the driver a green light. The signals were off when the train, which came into collision with the engine, was passing through the station, and when I gave the green light my back was to the signal. I was about 16 or 17 yards from the post. Directly after the train had passed I looked at the signals and they were on again. At this time the accident had not occurred. There was a very short interval of time between the signals being put to danger and the collision. I heard the crash about two seconds after the train had passed me. Immediately after the accident I put three fog signals on the rails, turned my lamp to danger, and put it on the rail of the viaduct, and went to the signal-box to see what was the matter. I then went back to my post. The train was running very fast passing me.

Ernest Moorhouse, signalman, states: On 4th November I was signalman at Stansfield Hall box which is an eight hours' box, when I received information that a goods train from Yorkshire direction for Burnley was approaching me, and required a bank engine. I asked the signalman at No. 3 box if he knew where the Burnley passenger train was, as it was due. He replied that he did not, but he had a train warned to him, and he would enquire if it was the Burnley train. Immediately after this I was sitting near the cabin window getting my tea,

when I saw a light engine rush by. This was the pilot engine with which the express came into collision, and which was knocked beyond my cabin at a very quick rate.

William Stephenson, guard, states: I have been in the service 26 years, and a guard 20 years. On November 4th I came on duty at 6.40 a.m. to work until 6.6 p.m. I worked the same hours the day before. I was in charge of the 3.55 p.m. from Manchester to York, which left Victoria at 4.23, and Rochdale at 4.46 p.m. We had a clear road from Rochdale to Todmorden. It was clearish from Rochdale to outside Todmorden, and we passed Todmorden at about 4.58. Here I felt the brakes applied in full force. We had just passed through the station, and I think we were on the viaduct. I should say we were running at 40 or 50 miles an hour through the station. The first I knew of the accident was when the train began to jump, and I was knocked from one end of the van to the other. All lights were out, and when I picked myself up I relit my hand lamp. I sent late guard Booth (now station master's clerk of Halifax) back to No. 3 box to block all roads, and goods inspector Simms of Wakefield, who was also in train, went to Stansfield Hall to block all roads there. They were both passengers of this train. My train consisted of three bogie vehicles; bogie carriage brake, bogie compo, bogie carriage brake. Rear third van was off the road, and compo next to it partly on its side, leaning to the left against a telegraph post; the leading third van was on its side across

the up road. We had about 40 passengers in the train. The pilot engine which we struck was driven beyond Stansfield Hall platform. Our engine was wrecked. All the passengers got out and only one complained to me, and he said some of his teeth had been knocked out. Most of the passengers were removed to Stansfield Hall Station. My train was fitted throughout with the vacuum brake which was in very good working order. The driver told me after the accident that all the distants were off for him.

Copy of written statement of driver W. Clough, working 3.55 p.m. Manchester to York, and who was injured in accident, and unable to attend enquiry.

"Approaching Todmorden Station about 4.58 p.m., all the signals were off as far as Todmorden No. 3, and these signals we were unable to see owing to fog, but we got an all right signal by fogman. Soon after passing this point I found we were turned on to the branch. I shut off steam at once and applied the brake with its full force. Owing to the sharp curve we were both thrown from our feet, and knew nothing further until the engine came to a stand. We were very much stunned. As soon as I got up I gave information to the pointsman at Whiteplatt's Junction and blocked both roads at once, whilst my fireman stopped on the engine. When I got back my fireman had gone to have the cuts on his head attended to. I was assisted to Dr. Elliotts to have cuts, which I had sustained, attended to, afterwards, travelling home by passenger train leaving Todmorden at 9.30 p.m."

Conclusion.

The cause of this collision, which might have been attended with far more serious results, is quite clear, there being no discrepancy in the evidence as regards the events which preceded it.

On the day in question the Liverpool and Manchester express to York, which usually runs as one train from Rochdale, was run in two portions, owing to the Manchester portion being delayed through the dense fog which was prevailing at the time.

On the Lancashire and Yorkshire Railway, information as regards the running of important trains is conveyed to the various signal-boxes concerned by telephone-circuit calls, *i.e.*, a certain number of successive signal-boxes are grouped in a circuit, and the signalman at the first box in a circuit, on the departure of a train, calls up all the boxes in that circuit on the telephone simultaneously, and after a short pause gives the information as to the time the train in question leaves his station, which is heard simultaneously by all the signalmen in the circuit. The man in the end box of that circuit then, if so instructed, forwards the message to the next circuit, and also sends a further circuit message when the train in question passes his box. Thus, Todmorden No. 2 box, one of those concerned in the collision in question, is the last box in the circuit Summit West box to Todmorden No. 2, and the first box in the circuit Todmorden No. 2 to Hebden Bridge, as regards down main line trains.

The Company attach great importance to these circuit calls, as they enable signalmen to know beforehand how trains are running.

Signalman Hodgson in Todmorden No. 2 box, the end box in that circuit, received the circuit call for the first portion of the York train at 4.38, and he forwarded the circuit call to the next circuit, in which Todmorden No. 3 is the next box, at once, *viz.*, 4.38 p.m., with the words "Liverpool portion of York express leaving Rochdale, 4.38." At 4.48 p.m. he received the circuit call for the Manchester portion, which he forwarded at 4.50 p.m.

Signalman Sunderland, at Todmorden No. 3 box, says he had not attended to these circuit calls as he was busy shunting, and so was unable to leave his work and go to the telephone to receive the messages, and that this pretty frequently happens. Accordingly he was unaware that the York train was running in two portions.

The signalling of the two portions of the York train was as follows:—

Sunderland at No. 3 box was offered the Liverpool portion at 4.45 p.m., which he

acknowledged at once; it passed his box at 4.50 p.m., and he received the "Train out of section" signal for it from No. 4 box at 4.51 p.m., and he gave the "Train out of section" signal for it to the box in rear, No. 2, at the same time.

Sunderland received the "Is line clear" signal for another express train, *i.e.*, four strokes on the bell, at 4.56 p.m., which he acknowledged at once, and which he offered and which was accepted by the box in advance on the main line, Todmorden No. 4, and he accordingly lowered all his main line signals for it, thinking that it was the 4.25 p.m., Manchester to Leeds passenger express train, due to stop at Todmorden Station at 4.55 p.m.

At 4.58 Sunderland let a pilot engine out of the coal sidings just behind his box, on to the down branch line to Burnley, the engine being required to bank a goods train which was coming from Hebden Bridge to Burnley, and as it required water Sunderland arranged for it to cross to the up line to go to the water column as soon as the express, which he had accepted, had passed. Accordingly, the pilot engine went about 130 yards down the Burnley line to get to the cross-over road leading to the up line.

As Sunderland was talking to the driver of the pilot engine he was called on the telephone by the signalman at Stansfield Hall box, *i.e.*, the next box in advance on the Burnley line, who asked him where the Burnley train, due to leave Todmorden at 4.48 p.m., was. Sunderland replied "I do not know, but I have a train warned down—it might be it, but I will ask."

Sunderland then called up Hodgson at No. 2 box, and says he asked Hodgson "Is this the branch train," and that Hodgson replied "Aye." Hodgson's account of what occurred is that at 4.59 p.m., just as he was acknowledging the "Train entering section" signal for the Manchester portion of the express from No. 1 box, Sunderland called him by giving one stroke on the block bell. Hodgson says he first gave Sunderland the "Train entering section" signal for the express, and then gave him one stroke on the bell to acknowledge his call.

At the same time Hodgson says he received the circuit call from Summit West box for the 4.23 p.m., Rochdale to Burnley, train, and so he took the receivers off both telephones, which are alongside each other in the signal cabin, at the same time. He states he did not hear what Sunderland said to him as he was attending to the circuit message, and to which he replied "Aye," and that then having restored the receiver to its proper position in the telephone to Summit West, he listened to the Hebden Bridge circuit, but could hear no one speaking. Unfortunately, Sunderland heard the word "Aye" intended for the signalman at Summit West, and, thinking the approaching train was the one for Burnley, instantly put his main line signals to danger and reversed the junction points.

He states he reversed his junction points in order to get the pilot engine across to the up line, as he was bound to get it off the down line before he could let the Burnley train go, and he then thought that the train he had accepted was the Burnley branch train and not a main line train, and that the branch train would be standing in the station while this was being done. Having reversed his junction points he was just turning to the telephone to ask Hodgson at No. 2 box to cancel the train he had accepted, when the express went by.

Accordingly, the York train was turned on to the branch line and violently collided with the pilot engine. The blow was so great that the pilot engine was driven by it for a distance of 640 yards on an up gradient, and in the words of the signalman at the Stansfield Hall box (250 yards ahead), it rushed by his box.

It was an unfortunate coincidence that the 4.23 p.m., Rochdale to Burnley, train is the only through train in the day to Burnley, all others starting from the bay line at Todmorden. Accordingly, the 4.23 p.m., which does not stop between Todmorden and Burnley, is signalled on the block bell as an express, *i.e.*, four consecutive beats, whereas all others in the day for the branch are signalled as ordinary passenger trains by the "three, pause, one" signal. Thus, Sunderland, who had not attended to the circuit call, could not tell from the bell signals whether the express offered him was for the main line or for the Burnley branch.

The driver and fireman of the York train were too ill to attend my inquiry, but from the statement of the driver given to the Company, and the evidence of platelayer James Law, who was acting as fogman at No. 3 box home signals, there is no doubt but that the main line signals were not put to danger by Sunderland until just as the train was passing them; and Sunderland's own statement bears this out.

The driver could not see the signals themselves, but saw the all-right signal from the fogman.

The driver (Clough), finding he was turned on to the branch, shut off steam and applied his brakes, and if it had not been for the pilot engine would soon have stopped his train without mishap, as it kept the rails in spite of the sharp curve and the high speed, which in combination threw both driver and fireman off their feet.

Thus, neither the driver nor fireman of the passenger train are to blame in any way. Also, neither the driver nor fireman of the pilot engine are to blame in any way as they were standing on the down branch line by orders of the signalman.

Signalman Hodgson, in No. 2 box, gave his evidence in a very clear manner, and cannot be blamed, I consider, for the unfortunate accident by which Sunderland took his answer to Summit West for the answer to his own question; but to prevent misunderstandings the telephones should be placed further apart, and instructions given that the receivers of both telephones must never be off their hooks at the same time.

Signalman Sunderland is, I consider, alone to blame in the matter, as, if in doubt of what the second express train was by not having attended to the circuit calls, he should have called up No. 2 box before accepting it in order to ascertain.

His getting the answer intended for another man on the telephone was a pure accident, but after accepting the train he should not have reversed his junction points until he had got the train cancelled by the box in rear, or had brought it to a stand at his own home signals.

But for the very dense fog prevailing at Todmorden at the time, the accident would not have happened, as Sunderland stated that, when he misses the circuit calls, he can tell whether the trains are through expresses or not by seeing whether they stop at Todmorden Station.

Sunderland is a signalman of 28 years' experience, and had been 18 years at No. 3 cabin. He had been on duty three hours at the time of the collision, having previously been off duty for 16 hours.

The Assistant Secretary,
Railway Department, Board of Trade.

I have, &c.,
E. DRUITT,
Major, R.E.

APPENDIX.

Damage to Coaches in York Train.

No. 260 bogie third van.—2 bogie frames badly buckled; 4 axleboxes, 1 bearing spring, 2 headstocks, 4 footboards, 1 crossbearer, 1 diagonal, 2 brakeblocks, 3 buffer rods, all side lights, 2 buffer castings and 1 drawbar broken; end staved in; body shaken and panels broken; roof damaged; 5 roof boards broken; brakework and gasfittings displaced and damaged; heating pipe tap broken; vacuum train and coupling pipes broken; 2 lamp irons broken; 6 leg irons broken; 2 projection seats displaced and damaged; both bogies knocked from under; centre casting broken.

No. 640 bogie carriage.—2 headstocks, 2 long footboards, 5 end panels, 6 top side panels, 4 bottom side panels, 3 door panels, 2 waist panels, 4 door pillars, 1 quarter light, 4 axleboxes, 1 buffer and vacuum train pipe, all broken; 3 buffer rods bent; roof damaged; inside fittings displaced; door completely broken; body frame rails broken; body moved and badly shaken; vacuum coupling and heating coupling pipes broken; brakework and gasfittings damaged.

No. 503 bogie third van.—1 headstock badly damaged; 1 headstock cap broken; 1 long footboard badly split; 2 bottom side panels broken;

1 bottom body rail damaged; 1 end stop iron broken; 2 waist panels damaged; roof damaged—one board broken; one end staved in; seats displaced and trimmings damaged; floor boards displaced; vacuum pipe and 4 buffer rods bent.

Damage to Engines.

Engine No. 987, working the Manchester York train.—Practically everything damaged except boiler and firebox, the main frames being badly bent, the cylinders forced back into the motion, and all axles badly bent. The tender was also badly damaged in every part.

Engine No. 809 (the light engine).—Both main frames bent; coal bunker, cab, brakework, life guards, sandboxes, injectors and buffer plate, require renewing. Reversing gear, smokebox, splashers, ashpan and valve spindle bracket badly damaged.

Particulars of Damage to Permanent Way.

208 yards single rail, 86 lbs. section, broken or bent; 10 No. B 82 8-in. chairs broken; 9 No. B 82 6-in. chairs broken; 33 crossing chairs broken; 125 sleepers broken or damaged; 528 iron spikes broken or bent; 528 treenails broken; 389 keys (wood) damaged.