

LANCASHIRE AND YORKSHIRE RAILWAY.

Board of Trade, (Railway Department,
Whitehall, London, S.W.,
November 19, 1890.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in compliance with the Order of the 11th instant, the result of my enquiry into the circumstances connected with the accident which occurred on the 8th instant, between Chorley and Euxton junction, on the Bolton and Preston line of the Lancashire and Yorkshire Railway.

In this case while the 7 p.m. passenger train from Manchester for Blackpool and Fleetwood was proceeding on its journey about a mile beyond Chorley station, where it had last stopped, it ran into a mass of clay which had slipped from the slope of a deep cutting shortly before the train reached the spot; the engine and tender at once left the rails, inclining to the left, followed by all the nine vehicles of which the train was composed, and the train after grinding along a wall retaining the foot of the slope, came to rest with the engine about 160 yards from where it had first left the rails.

Six passengers have complained of injury; the driver and fireman of the train were also hurt, and are still on the sick list.

The train consisted of engine, tender, two third-class carriages, first-class, second-class, brake-van (with guard), two third-class, composite and second-class brake carriage, nine vehicles in all coupled in the order stated, the automatic vacuum-brake being fitted throughout.

The damage sustained by the train and by the permanent way are given in an appendix.

Description.

This accident took place about a mile on the west or Preston side of Chorley station in a long deep cutting. About the centre of the cutting there is a short tunnel 123 yards long, and the slip occurred about 70 yards to the west of the west end of the tunnel. The top of the slope of the cutting at the place is about 70 ft. above rail level, but the foot of the slope being supported by a low retaining wall, the actual vertical height of the earthen slope is about 66 ft., the base of the slope measuring about 100 ft. The slip on the surface of the slope was in the form of an irregular ellipse about 20 ft. long by 15 ft. wide, the length being in a direction parallel to the rails; its maximum depth was about 3 ft., and its nearest point to the base of the slope was about 48 ft. measured on the line of slope. The stuff appears to have been shot out by pressure from underneath, and it then slid down the slope, ran over the retaining wall, and formed an obstruction on the down line about 24 ft. long and about 3 ft. deep over the inner rail, thence sloping off in both directions, covering the outer rail of the down line, and (to a less extent) the inner rail of the up line, the total amount deposited on the line being about 20 cubic yards. The stuff from the slip consisted of soft clay, and this appears to have rested upon a thin stratum of sand into which water had percolated after the heavy rain which had fallen a short time previously to the slip taking place. Just above the site of the present slip a previous one of a slighter character had taken place about four years since; piles had been driven into the slope below this slip, withes planted over the adjoining surface; and drains cut to carry the water away from it into the water table at the foot of the retaining wall.

The walking ganger and foreman platelayer in charge of this part of the line had walked along the slope where the slip afterwards occurred, the former between 2 and 3 p.m. on the day before, and the latter between 3 and 4 p.m. on the day of the accident, and both these men state that they observed no signs of movement on the surface of the slope.

The down line from Chorley and beyond the slip falls on a gradient of 1 in 133.

Evidence.

1. *Joseph Pilkington*, signalman; 15 years' service, Chorley, and I came on duty there on the 8th instant 11 years signalman.—I have been employed about at 6 p.m. to remain till 6 a.m. on the 9th. The next seven months in the cabin at Blackburn junction, block station towards Preston is (by day) Rylands

siding, then Euxton intermediate, and then Euxton junction, but Rylands siding is closed at 7.35 p.m. and Euxton intermediate at 7 p.m., according to custom, so that from 7.35 p.m. the block section was between my cabin and Euxton junction on both roads. The last down train prior to the boat train was the 6 p.m. passenger train from Manchester, which passed my cabin at 6.52 p.m., and was cleared from Rylands siding at 6.53 p.m. The next train was the 7 p.m. boat train from Manchester, due to leave Chorley at 7.37 p.m. This train left at 7.50 p.m. I gave it on to Euxton junction at 7.44 p.m. when I received the "Be ready" from Adlington junction. Euxton junction accepted the signal, and said nothing on the telephone about the previous train. The first intimation I received of anything being wrong with the boat train was at 8.8 p.m., when the guard came back and told me that all the train was off the road near the tunnel. He said the up line was blocked by the slip as well as the down line. I then telephoned to Euxton junction and told the signalman to block the up line. The last up train (the 3½ p.m. coal train from Fleetwood to Ellesmere sidings had passed at 7.35 p.m. I had accepted this train from Rylands siding at 7.21 p.m.; the driver of this train said nothing about any slip. After this train no other was offered from Euxton junction till 8.12 p.m., before which I had heard of the accident. The up line was cleared about 9.30 p.m. and the down line at 1.27 p.m. on the 9th.

2. *Thomas Martindale*, walking ganger; 37 years' service, five years walking ganger.—My length extends from Bolton to Euxton, from Bolton to Blackburn, and from Chorley to Cherry Tree. Between 2 and 3 p.m. on the 7th I walked the line from Chorley towards Euxton and passed the spot where the slip afterwards occurred. I got on to the slope on the down side of the line by climbing up the retaining wall at the Euxton end of the tunnel, and walked along the slope about half-way up it. I observed no sign whatever of movement below the place where a slip had occurred about four years since. I had no particular reason for walking along this slope except to carry out my instructions. I afterwards walked along the slope on the up side of the line. The slip four years since had been a gradual one, and had not come down on the line. After it occurred piles had been driven below it, withes planted, and a drain made, and there had been no movement since. I got to the spot about 9.30 p.m. on the 8th; no stuff had then been removed from the down line. The stuff extended for about eight yards, it was about three feet high as a maximum on the six-ft. rail of the down line and about one foot high on the outer rail. There had been very little thrown on to the up line, and this had been cleared off before I got to the place. I have since had the slope lightened and driven some piles below it, and I have no fear of any further slip. The 7th had been a very wet day. I have a watchman now at the place. The stuff that came out was like clay with a sandy bed underneath it.

3. *James Botton*, foreman platelayer; 35 years' service, about half the time foreman platelayer.—My length extends from the Chorley end of Chorley tunnel to Euxton junction, about 2½ miles, the tunnel being about a mile from Chorley. Between 3 and 4 p.m. on the 8th, I had walked along the top of the slope of the cutting on the down side of the line, and passed the place of the old slip, which is just above the fresh one. I saw no signs of any fresh movement below the old slip, and I was bound to have seen it had there been any. It was not wet at this time, but had been raining heavily the night before. After the accident I reached the spot between 9 and 10 p.m., and the first thing I did was to have the dirt removed from the up line, where there was not much of it, and what there was was soft. The greatest depth of stuff on the down line was about a yard, and extended for nearly a rail length. Several pairs of rails had to

be replaced, also broken chairs and sleepers. The train was all off the rails on the wall side.

4. *Edward Barton*, inspector of permanent-way in the same district as walking ganger Martindale.—I have held this position 15 years, having been assistant inspector 12 years previously. I had examined the spot where the slip occurred on the 13th and 29th October in the usual inspection of the line, and nothing was observable of any movement below the former slip which had taken place four years ago, the first time since I had known it, though there had been a much older small slip before this. The slip four years ago had been piled, drained, and some withes planted on the slope, and I had never been uneasy about any further movement. I attribute the present slip to the wet weather, the rain having made its way into a sandy bed below the clay. Twenty cubic yards were thrown on to the rails, and in addition to this I have removed 30 cubic yards from the place where the slip took place. I have also put in some piles and planted some withes, and intend to put in more drainage and clay puddling. Ninety-six yards of the down line were torn out, and had to be relaid with fresh material.

5. *Henry Southworth*, driver; 29 years' service, 23 years driver.—I was driver of the 7 p.m. passenger train from Manchester for Fleetwood on the 8th instant. I had commenced work at 7.10 a.m. to sign off at 9.10 p.m. The train consisted of engine and tender and nine vehicles. The automatic vacuum-brake was fitted to the whole train, and was in good working order. We started punctually, first stopped at Bolton, where we were detained waiting for a York connection, and left nine minutes late, at 7.30 p.m. We were slacked at Redmoss from permanent way repairs, and reached Chorley at 7.47 p.m., 12 minutes late; we left Chorley at about 7.50 p.m., having next to stop at Preston. The evening was dull and very wet. I met no up train after leaving Chorley, and I think I had got into a speed of 25 to 30 miles an hour when without the least warning, just after passing through Chorley tunnel, the engine appeared to make a tremendous leap and to rise on the right side, fall on the left side, and it then ran along off the rails, grinding against the wall of the cutting the latter portion of the way till it stopped in about 160 yards from where I felt the leap. On feeling the engine leap I at once shut off steam and applied the brake with full force. The engine and tender were jammed against the wall when they stopped; one carriage was still attached to the tender, but the other eight were separated from the first one by about eight yards, and these eight remained all together. I was hurt and have been on the sick list since. The fireman was also injured and is still on the sick list. I have seen John Porter, the driver of the up coal train from Fleetwood to Ellesmere, who had passed over the spot before the accident, and he said he had felt nothing whatever when he passed the place.

6. *George Henry Cox*, guard; 7½ years' service, 1½ years guard.—I was guard in charge of the 7 o'clock passenger train from Manchester for Fleetwood and Blackpool on the 8th instant. I was riding in the fifth vehicle from the engine, the train consisting of nine coaches, every vehicle being fitted with the automatic vacuum-brake. The vehicles were arranged as follows: two third-class, first-class, second-class, and two third-class, composite and second-class brake. We left Manchester at right time, Bolton 11 minutes late, waiting for the York connection, and Chorley 13 minutes late, one minute being lost from permanent-way alterations, and one minute collecting tickets at Chorley. I was at the rear end of my van standing up when I felt the train had left the rails and then felt as if it had struck a wall, and a large stone came into the front left side of the van, and fell on to the floor, soon after which the van stopped. I was thrown down, but not hurt. I felt the brake

applied just after the train had left the rails; the whole of the vacuum left the gauge. I think the accident occurred at 7.53, three minutes after leaving Chorley; the speed was, I believe, between 25 and 30 miles an hour; 13 minutes are allowed for running from

Chorley to Preston, about nine miles. I came on duty at 8.30 a.m. to go off at 8.27 p.m. The passengers who complained of injury were principally in the front portion of the train. The driver went forward to protect the up line, and I went back to Chorley.

Conclusion.

This accident, in which the whole of the 7 p.m. passenger train from Manchester for Fleetwood and Blackpool left the rails about one mile from Chorley station, where the train had last stopped, was caused by a slip which had suddenly occurred in the slope of a deep cutting just beyond Chorley tunnel, the soft clay from which slip had run down the slope and formed an obstruction about 24 feet long and 3 feet thick over the inner rail of the down line, whence it spread with diminishing thickness over the outer rail of the down line and the inner rail of the up line. It being quite dark the driver saw nothing of the obstruction till the engine plunged into it and at once left the rails, inclining to the left, followed by the whole of the vehicles, and grinding along the retaining wall supporting the slope, which wall gradually increased in height a short distance from the slip. On finding what had occurred the driver at once shut off steam and applied the automatic-brake with full force, the train being stopped after the engine had run about 160 yards from where it left the rails. The first carriage remained attached to the tender, but the eight remaining vehicles were separated from the first one and stopped about eight yards from it. A coping stone from the top of the retaining wall was struck by the side of the van (the third vehicle from the engine), forced its way into the van, fell on its floors, happily without injuring the guard.

The speed of the train at the time of the accident is stated by the driver and guard to have been between 25 and 30 miles an hour, but judging from the distance run after the engine left the rails, it was probably considerably in excess of this.

The occurrence of the slip must have been sudden, for neither the driver of the 6 p.m. down train from Manchester for Fleetwood, which passed the spot about 6.55 p.m., about an hour before the accident, nor the driver of an up coal train which passed the spot at about 7.25 p.m., half an hour before the accident, had felt anything unusual as they passed the place.

The slope in which the slip occurred had been walked over in the course of the customary inspection by the foreman platelayer between 3 and 4 p.m. the same afternoon. This man declares that he had seen nothing to indicate any movement in the slope, which he thinks he would certainly have done had it then commenced; and the walking ganger who had been on the slope the previous afternoon gives similar testimony.

In the face of this evidence there appears to have been no want of proper inspection of the locality, and the occurrence of the slip must be attributed to a quantity of water from the recent heavy rains having made its way along the sandy vein underlying the clay at the surface of the slope, this water being then obstructed in its course and forcing out the clay above it.

Owing to the precautions which have now been taken by the formation of additional drains, by the driving of piles below the slip, and by lightening the slope, it is very unlikely that any fresh movement will take place. It is however important that the spot should be carefully watched for some time to come.

The Assistant Secretary,
Railway Department, Board of Trade.

I have, &c.,
C. S. HUTCHINSON,
Major-General, R.E.

APPENDIX.

DAMAGE TO ROLLING STOCK.

ACCIDENT at CHORLEY, November 8th.

Engine No. 870.—Left-hand trailing splashers, left-hand footsteps, ejector steam-pipes, cylinder cocks, cab over foot-plate, and portion of left-hand platform over framing carried away; left-hand sand boxes, hand-rail, and buffer-beam broken.

Tender.—Three axle-boxes broken; one bearing spring carried away; two footsteps carried away; hand-rail, fall plate, and hinges, damaged; also brake gear.

VEHICLES.

Third No. 469.—Panels, footboards, buffer-casings, &c., damaged. Estimated cost of repairs, 80*l*.

Composite No. 170.—Footboards, brake-gear, axle-boxes, &c., damaged. Estimated cost of repairs, 20*l*.

Second van No. 411.—Panels, ascending steps, &c., damaged. Estimated cost of repairs, 20*l*.

Third No. 1758.—Panels, axle-boxes, doors damaged, &c. Estimated cost of repairs, 100*l*.

Third No. 956.—Panels, brake-gear, axle-boxes, &c., damaged. Estimated cost of repairs, 40*l*.

First No. 330.—Panels, footboards, &c., damaged. Estimated cost of repairs, 40*l*.

Second No. 172.—Headstock, panels, door pillars, &c., damaged. Estimated cost of repairs, 110*l*.

Van No. 253.—Panels, footboards, projection, &c., damaged. Estimated cost of repairs, 60*l*.

Third No. 1722.—Panels, door pillars, footboards, headstock, axle bent, &c., damaged. Estimated cost of repairs, 60*l*.

DAMAGE TO PERMANENT WAY.

Ninety-six yards of the down line were torn out, and had to be relaid.

Printed copies of the above report were sent to the Company on the 12th December.

LANCASHIRE AND YORKSHIRE RAILWAY.

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

December 31, 1890.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in compliance with the instructions contained in the Order of the 23rd instant, the result of my enquiry into the causes of a collision which occurred on the 21st instant at Brindle Heath junction between Salford and Pendlebury stations, on the Lancashire and Yorkshire Railway.

In this case the 8.45 p.m. train from Manchester to Southport (consisting of tank engine, two third-class carriages, brake-van, two composite, four third-class, and one composite carriages, all fitted with the automatic vacuum-brake), when running past Brindle Heath junction on the line to Bolton at about 8.57 p.m. came into collision with the tenth waggon from the front of a special up goods train from Liverpool (consisting of engine and tender, 36 loaded waggons and brake-van), which, having been allowed to come forward at caution from Wardley station signal cabin, had overrun the up home-signal for the slow line from Atherton at Brindle Heath, and was standing across the junction.

The collision was a violent one, the engine of the passenger train mounting upon some of the goods waggons, and the second carriage telescoping both the leading carriage, the leading buffers of which penetrated the tank of the engine, and also the brake-van, which was the third vehicle in the train.

Twenty-five passengers are returned as having complained of injury, some of them being seriously injured, and a passenger in the second carriage having since died from the effects of the injuries he received.

The driver, fireman, and guard of the passenger train were also injured, the guard being badly shaken.

A return of the damage to the rolling-stock is given in an appendix.

In the permanent-way the trailing-points of the junction were forced and strained, a check-rail was displaced, and two chairs were broken.

Description.

At Brindle Heath junction, 2 miles 1,577 yards from Victoria station, Manchester, there is a junction between the slow line from Atherton, and a line from Bolton, the trailing-points of the junction being upon the up line to Manchester.

The line from Bolton is straight and runs from the north, and the line from Atherton approaches the junction from the north-west upon a right-hand curve towards the south.

The fast line to Liverpool running on an embankment crosses immediately over the junction on an overbridge, and the signal cabin, which contains 36 working levers, is upon the Manchester side of the bridge and the down side of the line.

The junction is signalled in the usual manner, with down junction home-signals upon a bracket post 175 yards from the junction facing-points, double down distant-signals about 800 yards from the home-signals, and up home and distant signals for the line from Bolton and the line from Atherton, the home-signal for the latter line being in the angle between the two lines, 40 yards from the crossing of the junction, and