

weight on the lever of the semaphore, by which the arm is raised to "danger" and the weight of the wire by which the signal is pulled to "all right" having been too nearly balanced, or by some dirt or other impediment interfering with the free movement of the wire and cranks.

The servants of the company who were in charge of the station and of the trains appear to have done

their duty. They do not seem to be in any way responsible for this accident.

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

I have, &c.,  
F. H. RICH,  
Colonel, R.E.

Printed copies of the above report were sent to the Company on the 14th February.

## LANCASHIRE AND YORKSHIRE RAILWAY.

Stn, *Bolton, 10th January 1874.*

In compliance with the instructions contained in your minute of the 19th December, I have the honour to report, for the information of the Board of Trade, the result of my enquiry into the circumstances connected with the collision that occurred on the 13th December, near the Gilnow level-crossing, between the Bolton station and the Lostock junction, on the Lancashire and Yorkshire Railway.

In this instance, the 5.25 p.m. down passenger train from Manchester for Fleetwood came into collision, whilst running, 701 yards on the west of the Gilnow level-crossing, and a mile and a quarter on the west of the Bolton station, with a preceding empty-wagon train, 2.20 p.m. from Oldham Road for Liverpool; and a portion of the wreck of the latter train having been thrown foul of the up line, it was immediately afterwards run into by the 4.45 p.m. up passenger train from Southport for Manchester. In this double collision, 42 passengers and six servants of the Company were injured or shaken.

### *Description.*

On the west of the Bolton station there is a tunnel, 528 yards long, known as the Bullfield tunnel; and on the west of this tunnel are two cabins, within 194 yards of one another, called the Bullfield upper and lower cabins, the lower cabin being 80 yards from the west entrance of the tunnel. On both sides of the main lines in the neighbourhood of these cabins there are extensive sidings; the sidings on the north of the main lines being used principally for exchange coal-traffic with the Blackburn line; and those on the south of the main lines being used, partly for the purposes of the Corporation of Bolton, and partly as a mineral-yard for the accommodation of the Bolton station-traffic. The Bullfield tunnel, between Bolton and these sidings, is worked by telegraph on the block-system, but that system is not extended further to the westward. The two cabins in question appear to have been constructed upwards of 20 years ago; and they are not supplied with modern means and appliances. Certain of the points in the neighbourhood and certain signals are worked from them, but the levers are not interlocked with one another. The signalmen in these cabins are each provided with a distant-signal working to the other cabin, and with a means of communication by mechanical-gong; but there is no homo-signal at either cabin, and there are no trap or safety-points to protect the main line from the north sidings. There are telegraph speaking-instruments in the lower cabin, from Bolton on one side and from Lostock junction on the other side, and the signalman in that cabin is thus provided with the means of knowing when to expect a train and what class of train is approaching him. The traffic on this portion of the Lancashire and Yorkshire Railway is very heavy, and may be said to be almost incessant; but no means has yet been provided for the shunting and marshalling of the goods trains independently of the passenger lines, and much obstruction and risk to the traffic are caused for the want of this extra accommodation. There is a rising gradient of 1 in 460 from the Bullfield sidings to the point of collision.

### *Evidence.*

The engine-driver of the 5.25 passenger train from Manchester for Fleetwood, James Clarkson, states that he left Manchester at 5.29 p.m., four minutes late, and that he was detained for six minutes, in consequence of the signals having been against him, at the Bury junction. He therefore reached Bolton at 5.55 p.m., 10 minutes late. He left Bolton again at 5.58, eight minutes late, with an engine and tender and seven carriages. He found the signals all right for him through the tunnel and past the signal-cabin at the west of it. In passing the Upper Bullfield cabin he saw a green light exhibited by the signalman from his hand-lamp. He was then travelling at a speed of 27 or 28 miles an hour. He partially closed his regulator, and thus reduced his speed to about 25 miles an hour in approaching the Gilnow level-crossing, 603 yards further to the westward. The gate-keeper at the Gilnow crossing also showed him a green light from his hand-lamp. He then shut his steam off completely, but he did not consider it necessary to whistle for the breaks, or to tell his fireman to apply the tender-break. The atmosphere had been tolerably clear from Bolton through the tunnel, and past the Bullfield cabins, but became much thicker after he passed the Gilnow crossing; and he was unable to see the goods train with which he then came into collision, 701 yards beyond the crossing, more than 30 yards before he struck the brake-van at the tail of it. On seeing the goods train, he reversed his engine, and had just time to open his regulator, after whistling for the breaks; and the fireman partially applied the tender-break. The buffer-plank of his engine was broken, and the leading wheels left the rails. He does not think that his engine moved forward 20 yards after the collision. On finding that two or three of the waggons in the middle of the goods train were thrown across from the down to the up line of rails, as a result of the collision, the fireman took the gnuco-lamp from the engine, and ran along the up line about 20 or 30 yards, to warn the engine-driver of any train that might be approaching from that direction. Seeing the Southport train suddenly coming up, the fireman was a little confused, and first turned his lamp to white before he turned it to red; and he thus did not show a danger-signal so rapidly towards the Southport train as he might otherwise have done. The engine-driver of the Fleetwood train believes that his speed was 12 or 13 miles an hour when the collision occurred. This man has been nearly 30 years in the Company's service as an engine-driver, and he holds a silver medal received for good conduct after 20 years' service.

William Wilkinson, the guard of the 5.25 p.m. Fleetwood express train, states that he started from Bolton at 5.58 p.m., with an engine and tender and seven passenger carriages, of which the fifth was a brake-carriage, and all of which were coupled together with Fay's continuous break. He was looking through the window of his van towards the front, and saw that the signals were all clear up to and past the Gilnow level-crossing, and he saw no green light exhibited by any signalman. The first indication of any danger which he received was from the whistle of the engine.

He immediately applied his break, but he had not time to get his break properly on before he felt the shock of the collision. He was thrown violently back into the van, and was badly shaken. He was off duty for eight days afterwards. He does not consider that the train in front was visible, in consequence of the denseness of the fog, for more than 40 yards.

The engine-driver (Isaac Roberts) of the empty waggon train with which the above passenger train came into collision, states that he left the Bolton station at 5.56 p.m. for Liverpool. His train consisted of an engine and tender, 43 empty waggons, and a break-van. This engine-driver received all-clear signals through the tunnel, and past the Bullfield cabins; but at the Gilnow level-crossing he received a green light from the hand-lamp of the gatekeeper. He passed the level-crossing at a speed of about 15 miles an hour. He partially shut off his steam after passing the crossing, so as to slacken his speed a little, partly because he had received this green light, partly because the fog was so thick, and partly because he was nearing the Lostock junction, which was about two miles ahead of him. Whilst travelling at a speed of 15 miles an hour, he suddenly felt his engine and some of his waggons break loose (no doubt at the moment of the collision) from the rest of his train, and shoot ahead, as it were. He therefore ran forward, so as to give the remainder of his train time to stop short of him, and to prevent a collision between it and the 10 empty waggons which still remained attached to his engine and tender. He brought his engine to a stand somewhere near the Lostock-junction distant-signal, and, finding a fogman near that signal, he sent him back to look after the hinder portion of his train. After a delay of five minutes, he pushed back in the direction of his train, and he met some one who told him of the collision having occurred. He then took measures for stopping trains approaching in the opposite direction.

The head-guard of this goods train, George Baggott, states that he left Bolton station at 5.55 p.m. with an engine and tender, 43 empty waggons, and a break-van; and he rode in the break-van with an assistant guard, who was accompanying him for the purpose of learning his duties as goods-guard. He noticed that the signals were all clear for him to the Gilnow crossing; but he did not notice anything at the Gilnow crossing, as he was looking out of the other side of his van. He passed the crossing at a speed of about 15 miles an hour, or rather less. When he had gone about 100 yards beyond the crossing, he saw the passenger train behind him, on the other side of the crossing, within about 150 yards of him. He had a tail-lamp and two side-lamps lighted on his van, all showing red lights to the passenger train. He said to his assistant-guard, "Here's the passenger train coming," and he replied, "Shall we jump?" but he rejoined that he thought they were going too fast to jump safely. He watched the passenger train following until the engine had got within a few yards of his van; and he then went into the leading compartment of his van, to be more safe, as he thought; but he was knocked down immediately afterwards, and stunned by the shock of the collision. He was a week off duty in consequence of the injury he received. The first thing he remembered when he came to himself was that some people were tying his head up in a house. He still suffers from a contusion on his shoulder.

The assistant-guard, Wm. Millichip, who was riding with the previous witness, considers that the goods train was travelling at a speed of 22 or 23 miles an hour in passing the Gilnow crossing; and he thinks that he could see the passenger train following him from a distance of about half a mile. He saw it a few seconds before his train had passed the crossing. He proposed to his mate to jump out, but his mate replied that the train was going too fast; and he had no sooner made this reply than the collision occurred. He remained in the hind compartment of the break, and believes that his mate did the same, each looking

through one window, and watching the passenger train as the engine of it ran into their van. It did not appear to him to be very foggy at the time. He was bruised on his arm and hip, and he still feels the effects of it. A second collision occurred from the Southport train before he was able to leave his van, as he was stunned by the first shock. He had been out daily for a fortnight previously, learning his duties as a guard. It appeared to him that the passenger train must have been approaching at a speed of 40 miles an hour, and that the passenger train ran into his van with the steam on the engine.

The head-guard believes also that the engine-driver of the passenger train had his steam still on when the collision occurred, and that he did not whistle for the breaks; but, disagreeing with the assistant-guard, he is certain that the latter went into the front part of the van before he did, and that they both did so before the collision occurred.

Fredk. Johnson, the driver of the 4.45 p.m. passenger train from Southport for Manchester, states that he left Southport at 4.48, and that his train consisted of an engine and tender and five carriages. It stopped at Lostock junction to collect tickets, and started from that junction at 6.5 p.m., 14 minutes late, partly in consequence of starting three minutes late from Southport, and partly from being detained at stations on the road. About a quarter of a mile after he left the Lostock junction, he saw an engine on the down line. He did not at first notice anything particular about it, except that it was a new engine. He observed to his fireman that it was probably going to Liverpool, and the fireman replied, "No; it has a 'green light, and it has a waggon or two attached to it.'" He again said, "He must have broke loose somewhere," and, on going further, he came in sight of some waggons on the down line, and the fireman said, "Here's his waggons." He looked round towards the waggons, and then looked to the front again. As he was doing so, he saw a "bit of a white light" in front of him, and his engine immediately struck certain waggons which were foul of the up line. His engine mounted the waggons, and then dropped down again, and fell against the carriages of the Fleetwood train. The engine and tender were off the rails with all their wheels, but he did not notice what state his train was in after the accident. He was rather shaken, but he did not leave his work. The fireman received a blow from the tool-box on the leg and foot, but he was at his work again after one day's rest. This engine-driver had shut his steam off, on account of the fog, and was preparing to stop, if necessary, at the Bullfield sidings; and the fireman had his hand on the break; but they had neither of them time to do anything more. It was dark, and he was therefore unable to see that the up line was obstructed by the waggons, and the only light that he saw was the white one from the hand-lamp of the fireman of the Fleetwood passenger train. He noticed after the collision that he was unable, from the point of collision, to see the distant-signal worked from the Gilnow crossing, which was about 400 yards from him, but he thinks he could have seen it for about 200 yards. He was a "good deal knocked about in the collision," and was busy getting out his fire to save his boiler, so that he could not state with any confidence what was the state of the atmosphere.

The guard of this train, Wm. Barker, states that he left the Lostock junction about 6 o'clock, seven minutes late, with an engine and tender, and six passenger-carriages. He rode in a break-carriage next but one to the tender. Except a third-class carriage, next behind the tender, the train was fitted with continuous breaks. After proceeding for some little distance, he noticed that the engine-driver shut off his steam, as he supposed for the signals approaching the Gilnow crossing; and he prepared to apply his break if necessary. He was standing at his break-handle when he suddenly felt the shock of the collision. He was stunned for a moment, was knocked down at

the bottom of his van; was slightly shaken, and was off work for three days in consequence. He was the only guard of the train, and no one was with him in the van.

The results of the double collision were very considerable. Both rails of the up line were torn up for a distance of nearly 100 yards. The engine and tender and all the carriages of the Southport train were thrown off the rails, and the engine and tender and certain carriages of the Southport train came into contact with the sides of the carriages of the Fleetwood train; but only one carriage and the leading wheels of the engine of the Fleetwood train appear to have been thrown off the rails. One first, two composite, and three third-class carriages were damaged, and nine of the waggons of the goods train were more or less damaged, about four of them having been completely broken up.

Thomas Walker, the gate-keeper at the Gilnow level-crossing, has done duty at that crossing for 18 years. He lost one arm previously in the service. The crossing is used for the road traffic to and from the Gilnow Mill only. He does not work any signals except for the protection of the crossing traffic, and he does not record the passing of any trains after dusk. He lives at the gate-ledge of the level-crossing. To the best of his belief the Normanton goods train passed his cabin at about 5.56 p.m., and the empty-wagon train at 5.59; and the passenger train approached him about 6.4 p.m. He gave the engine-driver of the empty-wagon train, and also the engine-driver of the passenger train, a green signal, and they acknowledged it in passing. It was rather foggy at the time. He could not see his distant-signal green back-light, but when he pulled the signal off he could see the white back-light. In his opinion the empty-wagon train was running at 25 miles an hour when it passed him, but he thinks the engine-driver reduced his speed when he saw the green light. He thinks the passenger train was running at 30 miles an hour in passing him. To the best of his belief the empty-wagon train passed him two or three minutes in front of the passenger train.

John Morris, the signalman at what is called the Bullfield upper cabin, 274 yards from the mouth of the Bullfield tunnel, saw the goods train pass him about 6 p.m., at a speed of 17 or 18 miles an hour, and the Fleetwood passenger train follow it about two minutes afterwards, at a speed, probably, of about 30 miles an hour. He showed a green light from his hand-lamp to the engine-driver of the Fleetwood train. He had no home-signal at his cabin for the down line, on which these trains were running. The only signal worked by him in that direction, towards Bolton, was a distant-signal near the mouth of the tunnel, opposite to the Lower Bullfield cabin. That signal was at "all right," to allow both trains to go by. He acted on that occasion precisely as he was in the habit of acting. His ordinary practice is when one train follows another within five minutes, to show a green hand-signal to the second train. He has had no particular instruction to that effect, but it has been always the practice since he has been at the cabin for eight months. He found that practice existing when he joined the cabin, and has continued to work to it ever since; and he has never been found fault with for working in that manner. He is aware of the printed rule of the Company which requires him to show a danger-signal for five minutes after the passage of a train, and a caution-signal for five minutes longer. But he states that if he were to attempt to work to that rule he would be obliged to stop nearly every train passing during the day, and that the line would be continually blocked; that, in fact, it would be impossible to work the traffic if that rule were adhered to. He has been discharged from the service of the Company in consequence of this accident, for not having exhibited a red in place of a green signal from his hand-lamp to the driver of the Fleetwood train. He would have shunted the Oldham Road goods train in place of

allowing it to run on in front of the passenger train, if there had been room in the sidings for the purpose; but there were already three trains shunted into those sidings, to allow the passenger train to pass, and there was no more room in the sidings for the purpose. He has frequently been obliged to cross the goods trains from one line to another, to allow the passenger trains to pass on one or the other main line, for want of sidings into which the goods trains might be placed. This man thinks that he has been unjustly dealt with in being discharged from the service, because it has never been a rule to stop a passenger train at his cabin; and the rule for preserving intervals of time between following trains applies equally to the Bolton station as to Bullfield. Those who started the train from the Bolton station were, he considers, as much, if not more, in fault than he was. The superintendent of the line states that the conduct of this man, for the 12 months that he has been altogether in the Company's service, has been very good, and that there has never been any complaint against him until the present accident happened.

The signalman, Joseph Brown, who was in the Lower Bullfield cabin, 80 yards from the tunnel-mouth, states the goods train was telegraphed to him from the Bolton cabin at 5.58, and he saw it pass his cabin at 6.1. He noted those times in his record-book, and he cleared the line to Bolton for it at 6.1. At the same time, on taking off his block for the goods train, he received notice of the approach of the passenger train, also at 6.1; and the latter train passed his cabin at 6.3, at which time he cleared the line through the tunnel to Bolton, and entered the time in his book. He states that it was a daily occurrence for trains to follow one another at that short interval past his cabin, and even for passenger trains to follow goods trains at so short an interval. It is his practice to give a green flag or green hand-lamp to a train which follows another train within five minutes or so, as they come out of the tunnel, and to point to one road or another, according to the direction in which they have to travel after passing the Lostock junction. In this instance, he showed a green hand-lamp to the driver of the Fleetwood train, and he saw the driver acknowledge that signal by a wave of his hand as he passed the cabin. He did precisely in this case what he has been in the habit of doing for about 12 months in all previous cases. He has been 24 years a signalman, and six years in the service of the Company, and he did duty at the Bullfield upper cabin before joining the Bullfield lower cabin. There has been no previous report against him since he has been in the Company's service. He has been dismissed from the Company's service, for not showing a red light instead of a green light on this occasion to the engine-driver of the Fleetwood train. He does not consider that he has been justly treated, because he notices that the trains are booked to leave the Bolton station,—for instance, the Blackpool express at 4.43, the Preston passenger train at 4.45, the Liverpool passenger train at 4.47; and, taking other instances, a passenger train is booked out from Bolton at 1.33, and a cattle train to follow it at 1.35. He considers that he was in a difficulty; that if he had stopped the Fleetwood passenger train, he might have been suspended or discharged for doing so, whilst he has now been discharged, on the other hand, for not stopping it; and he refers to the above trains as being instances of trains being timed to start from the Bolton station within less than five minutes of one another, whereas the printed rule of the Company states that no train should follow another train at a less interval than five minutes without a danger-signal, and 10 minutes without a caution-signal. Considering the way in which the trains are timed to run in the Company's time tables, and the number of trains that pass his cabin in the day, and the shunting that is going forward in the neighbourhood of his cabin, it would not be possible to carry out the printed regulations of the Company in regard to the five minutes interval of danger and the 10 minutes of caution to trains

following one another. On Thursday December 11th 1873, between 6.0 a.m. and 6.0 p.m., there were 67 engines and trains passing his cabin in the 12 hours on the down line, and on the up line there were 57 engines and trains passing during the same hours. In addition to these streams of traffic there is almost constant shunting going on at the sidings near his cabin. Sometimes five trains are "given on" to him between Lostock junction and Bullfield at one time; that is to say, he has notice of the fifth before the first has reached him. He has had as many as three or four coal trains shunting at his sidings at one time, and blocking up both main lines, and he has had continually to cross goods and coal trains from one main line to the other, to allow the passenger trains to pass when there has been no room in the sidings. Considering that there is thus on an average one train in twelve minutes on each main line through the day, and that during parts of the day they run at less intervals one after another, and the amount of shunting that is going on, it would be impossible for him to work the traffic if he attempted to carry out the intervals of time prescribed in the regulations, in showing a danger-signal for five minutes after each train passes him. He complained to a former Station-master at Bolton (Mr. Crompton) as to the short interval that was allowed to elapse between trains being sent one after another out of the Bolton station and the Bullfield sidings, and was told in reply, that he must try to work as near to the five minutes rule as he could. He states that it was not very foggy at his cabin when the passenger train passed him on this occasion, and that he could see signal-lamps 400 yards from him at that time. He considers that this particular goods train and another before it ought not to have been started in front of the passenger train from the Bolton station. He points out that five trains were started from the Bolton station within 16 minutes,—three goods trains and two passenger trains. First, a Liverpool passenger train at 5.45,—secondly, a Liverpool goods train at 5.49,—thirdly, an express goods train at 5.53,—fourthly, the Oldham Road empty-wagon train at 5.58,—fifthly, the Fleetwood passenger train at 6.1; and of the trains in the opposite direction, he received notice from Lostock junction of the Southport passenger train at 6.5, and the Liverpool passenger train at 6.8.

The main-line Inspector at Bolton, Stephen Craddock, has been for two years and a month specially employed for keeping the main-lines clear for passenger trains, from Burden junction to Craddock Lane and Gilnow, in all about two and a half miles. On the day in question, a special goods train from Bury arrived on the down goods line at Bolton somewhere about five o'clock. The engine was detached from the train, run to the turn-table, turned round, brought back, and re-attached to the train for Bullfield, where it was intended to shunt into the siding for the purpose of picking up more waggons. Whilst this goods train was standing on the down line at Bolton, the 7.40 a.m. goods train from Normanton for Liverpool came up behind it with 40 or 45 waggons attached to the engine; and it was detained on the goods line in the station waiting until the Bullfield tunnel should be cleared by the special goods train previously referred to. Whilst the second goods train was standing at the Bolton station, the Oldham Road empty-wagon train arrived on the down main line at Bolton. The Inspector then went to the west end of the Bolton station, and despatched the second goods train after the first, in order to make room in the station for the empty-wagon train to draw forward, so as to clear the entrance at the east end of the station for the Fleetwood passenger train to run up to the station-platform. He shouted to Inspector Moss, who was on the platform, to send a man forward to the engine-driver of the empty-wagon train, and to tell him that as soon as the Fleetwood train had drawn up to the station-platform, he was to set back with his empty waggons, in order that the Fleetwood train

might get away at the west end of the platform. This proceeding was rendered necessary by the fact that the empty-wagon train was so long that it obstructed, first the entrance at the east end of the station, and afterwards the exit at the west end of the station, the through line not being sufficiently long to admit of this train standing without fouling one end of the platform line. He went forward to the pointsman's cabin, and saw the empty-wagon train starting out of the west end of the station towards Bullfield. He asked the pointsman why he had allowed the empty-wagon train to start, and the pointsman replied that he had received from the station-platform certain signals instructing him to allow that train to start. About four or five minutes afterwards, as he thinks, he saw the passenger train follow the empty-wagon train out of the west end of the station. At this time of the day—the Inspector states—the traffic is so excessive that he has much difficulty in keeping the goods trains out of the way of the passenger trains. There are so many special, in addition to the ordinary goods trains, that it becomes difficult to keep the lines clear; and the difficulties are increased for the want of siding-accommodation. It sometimes happens that the trains are so numerous that they are obliged to send goods trains away in front of passenger trains when they would not otherwise do it. In doing so, he is obliged to disobey the printed regulations as to the interval that should be allowed between following trains. When he is thus obliged to send forward a goods train, he gives a caution-signal to any passenger train that may follow within 10 minutes. It is impossible in all cases for the signalman at Bullfield to carry out the printed regulations with the existing traffic and the present accommodation. He is aware that at times they cannot preserve five minutes intervals between the trains; but he is not aware that as a regular custom the trains are allowed to follow within less than five minutes. He refers to the inspector at Bullfield, who has special charge of that part of the line, and who is better acquainted with the mode of working it. There are four lines of rails from the Burden junction, on the east of Bolton, to Bolton,—two main passenger lines and two main goods lines; and they were so full on the day in question that he could not set these goods trains into them. It was for that reason he sent these goods trains forward in front of the passenger train. He requires more shunting accommodation over the whole of the Bolton yard. He is at present very much pinched for room to accommodate the traffic he has to contend with. In the neighbourhood of Bullfield the sidings require to be lengthened, and a loop line to be constructed, especially between Bullfield and Gilnow, in order that goods trains may be marshalled and shunted independently of the passenger lines. He did not caution the driver of the Fleetwood passenger train on this occasion, because he was 300 yards from him, and because he was attending to two goods trains coming in on the up lines. He is not aware whether the Company are in treaty for the purchase of land, or whether they have any scheme for improvement.

Joseph Moss, Inspector in the Bolton station, states that he does not know who started the goods trains in front of the Fleetwood train previous to the present collision, nor did he start the empty-wagon train. He saw the empty-wagon train leave the station a few minutes before six, and he started the Fleetwood train about three minutes after it. He did not consider that he was doing anything unusual, and he did not give any special warning to the engine-driver, because the engine-driver complained to him about the empty-wagon train going in front of him; and he only said in reply he was unable to help it. As soon as a passenger train is ready to start, he gives a signal to allow it to go away, without considering what train has gone in front, trusting to the pointsman to give the requisite signals at the west end of the station. He considered it his duty to allow the passenger train to leave the platform when its duties

had been concluded there. He is frequently compelled to start trains in less than five minutes after one another, because there are sometimes two and three together, and because the station would be blocked up if he did not do so; and some of the trains are timed to leave within three minutes of one another. He has been 15 years doing duty at Bolton, part of the time as a pointsman, and five or six months as an Inspector. The principal difficulty he has to contend with is, that the station gets blocked up with goods trains to the detriment of the passenger traffic. He is in daily difficulty in getting the traffic through the station, sometimes once a day, and sometimes oftener, when he gets blocked up with traffic. The only instruction he gave to the engine-driver of the empty-wagon train on this occasion was to draw forward, so as to clear the line at the east end of the passenger station, to admit the Fleetwood train to the platform. Inspector Craddock had asked him to send a man forward to fetch back the empty-wagon train, and he went into the office to find a man to go westward for that purpose, intending that the empty wagon train should set back as soon as the Fleetwood train had drawn into the platform, and cleared the crossing of the goods line by the passenger line at the east end of the station. But while he was in the office the empty-wagon train had started away, and it was then too late to stop it. In instructing the signalman to draw the empty-wagon train forward, he moved his lamp gently. If he had intended that the empty wagon train should go away, he would have moved his lamp more violently.

A relieving-pointsman in the service of the Company, Robert Stones, who is now doing duty at the Lower Bullfield cabin, is well acquainted with that cabin; and has worked also at the Upper Bullfield cabin. He has worked in those cabins for about eight years, and has been about 18 years in the Company's service. He is well acquainted, not only with his own mode of working at the Bullfield cabins, but also with what other men are in the habit of doing at those cabins. When a passenger, or other train, follows a goods train past his cabin from the direction of Bolton, if it follows within five minutes he shows a green flag by day or a green light by night, to warn the engine-driver that there is a train within five minutes in front. He would never give a red signal to the following train under those circumstances. He would not do so, first, because it is not customary to do so on that part of the line, and secondly, because the trains are so numerous, and come so thick one after another. The traffic could not be worked over this portion of the line if he were to attempt to stop every train that was less than five minutes after the one which preceded it. The trains "ebb and flow," so that sometimes six arrive close after one another, and sometimes there is a 10 minutes interval between them, and the difficulty of working is therefore the greater. When he came from his cabin to give evidence, he left—he said—five engines on 'one line and three on the other at the Lower Bullfield cabin, one shunting on each side, and the others waiting for their turn to shunt, or to pass, as the case might be. On enumerating the engines he found there were six engines on one line and three on the other, viz: north goods, Liverpool special, Blackburn coal, two Blue Pitts coal, and pilot, on the up line. On the down line, a pilot engine with some waggons attached from Bolton, Blackburn coal, and Grindford Bar. And that state of things—he states—gives a fair sample, showing the difficulties he has to contend with in working the traffic at Bullfield; and especially at the present time when there is so much coal traffic. He considers that the two men who have been discharged from the Company's service for not showing a red light to the passenger train were only doing what was their duty at those cabins, and what was the practice of all men working in those cabins; and if it had so happened that he had been on duty at that time he should himself have been dismissed from the Company's service for the same offence. He never stopped a

train or saw one stopped under similar circumstances. He would never, at his cabin, show more than a green light to a driver passing that point.

John Grime, Inspector in the service of the Lancashire and Yorkshire Company at the Bullfield sidings, states that he attends to all shunting at the sidings, and has charge of the main line in the neighbourhood of the sidings. The signalmen in the cabins are under his control, and work under his instructions. The two men who have been discharged from Bullfield have been under him eight months, and he has always found them very steady and attentive to their duties. The practice which he knows to prevail at those cabins, is for the signalmen to give a caution-signal to every train following another train within five minutes, whether passenger or goods. They never in such cases exhibit a red flag or red light from their hand-lamps when the road is clear in advance, however short the interval may be between one train following another. For the eight years he has been there, he has never seen a red light given to one train following another within ever so short an interval of time, unless there has been an actual obstruction, or danger close at hand. He cannot see that the signalmen ought to be blamed for having done precisely what all signalmen have done at that spot, as he himself is aware, for the last eight years. There is so much traffic that if the printed regulations in this respect were to be obeyed the line would be continually blocked. The rule of five minutes interval could not be followed out in the present state of the accommodation in regard to lines and sidings. In order that the traffic may be properly worked, it would be necessary to construct a loop line, half a mile long, at each side of the main lines, and extra sidings in connection with those lines. There are trap-points to the sidings at the west end of the station, but there are none at the Lower Bullfield cabin, where eight sidings join the up main line. The statement made by the previous witness (Stones), of his having left six engines on one line and three on the other, waiting for other trains to shunt or to pass, is a fair sample, as he states, of the difficulties which are frequently, even daily, encountered in the neighbourhood of those sidings; and the loop lines and sidings above referred to are very much required. About noon, and again at night, there are frequently five or six trains between Lostock junction and Bullfield, a distance of about two miles, averaging from 20 to 30 waggons each.

The signalman at the Blackburn junction-cabin on the west of the Bolton station, John Adams, has done duty there for three years, ever since it was opened, and has been employed in the neighbourhood of the Bolton station for 25 years. The traffic has increased "tremendously" in those 25 years, and is very great at the present time. On the day in question, a quick goods train reached Bolton at 5.48, and started at 5.51 for the direction of Liverpool. The Oldham Road empty-wagon train reached Bolton at 5.51, and the Normanton train was cleared from the other end of the tunnel at 5.56, at which time the Oldham Road empty-wagon train started to follow it through the tunnel, and the latter train was cleared from the Bullfield end of the tunnel at 6 o'clock. The Fleetwood passenger train reached Bolton at 5.58, and started again at 6.0 p.m. He lowered his signals for the Normanton train to go through, but he did not lower them for the empty-wagon train to follow it. He gave a green light for it to draw forward, because he believed there was another train at the back of it. On seeing the waving of a light from the platform, and receiving "clear" from the other end of the tunnel for the Normanton goods train, he allowed the empty-wagon train to start by changing his hand-lamp from green to white. He did not know whether Inspector Craddock had given an order for the empty-wagon train to shunt at Bullfield, and he did not know what goods trains there might be still to go forward. Having got clear again for the empty-wagon train from Bullfield, he allowed the passenger

train to start in due course. He states there was plenty of time for one of the inspectors to have come to his cabin and told him not to start the empty-waggon train if they did not wish it to go away. He states that it would be impossible to work the traffic if every train was detained five minutes after every preceding train.

#### Conclusion.

The above evidence contains, probably, some of the most striking revelations concerning the working of railway traffic under difficulties that have yet been brought to light. It must be read in full to be appreciated. It is vain to attempt, in condensing it, to give an adequate iden of it. The signal-cabins are said to be 20 years old, and their condition lends confirmation to the statement. The appliances connected with them, or in them, are in keeping with them. The inspectors and the signalmen tell the same extraordinary tale. The sum of it is that the accommodation at the Bolton station on one side of the tunnel, and at the Bullfield sidings on the other side of it, is quite insufficient for the traffic to be dealt with. Some of the trains are timed to leave Bolton within two or three minutes of one another, and yet signalmen are discharged from the Company's service for not obeying a rule which directs that they shall be kept five minutes apart. The Company's printed regulations in this respect have been practically in abeyance, while nominally in force, at all events for eight years, during the whole of which time alterations in the mode of working or increase in the accommodation must evidently have been required. Goods trains are sent forward from the

Bolton station in front of passenger trains, because there is no room for them in that station; and they cannot be shunted out of the way at the Bullfield sidings for a similar reason. The engine-driver of an express passenger train complains of an empty-waggon train being sent away in front of him, and is told that it cannot be helped. Six engines on one line and three on the other are left shunting, or waiting to shunt or pass, at Bullfield, when a signalman from one of the cabins comes to give his evidence; and this signalman, an old servant of the Company, and evidently a responsible, trustworthy man, deliberately states, that a little later he would himself have been on duty, and would, in accordance with his practice, and the practice of others at the Bullfield cabins, have acted precisely as the signalmen did who were discharged from the Company's service. It is impossible to attach blame for such an offence to the servants of a company working under such circumstances; and it is useless to recommend any detailed improvements for the working of such traffic under such conditions. Nothing short of the construction on a large scale of fresh lines and sidings, or the diversion by other routes of a large proportion of the traffic, can enable this section of railway to be worked with a proper regard to safety. I venture to recommend that no further delay should now be allowed to take place in providing the required accommodation, and furnishing the necessary means and appliances, for dealing with this important traffic.

I have, &c.,  
H. W. TYLER.

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

Printed copies of the above report were sent to the Company on the 11th February.

## LONDON AND NORTH-WESTERN RAILWAY.

Mr, *Tamworth, 23rd September 1873.*

In compliance with the instructions contained in your minute of the 15th instant, I have the honour to report, for the information of the Board of Trade, the result of my inquiry into the circumstances which attended the death on the 8th instant, of Lucy Ann Booth, at the Tamworth station of the London and North-Western Railway.

In this case, a return excursion train had been brought to a stand, on its way from Rugeley to Northampton, on the south of the Tamworth station, 80 yards beyond the passenger-platforms, and on the up through-line. Many of the passengers at once got out of the carriages, and, as they were passing towards the down line platform, an express train approached on the down through-line. The above-named child, about five years of age, was knocked out of the arms of its mother, and killed on the spot, by the engine of the express train. The mother of the child was injured in the left arm and hand.

As shown in the enclosed printed paper, certain special excursion trains were arranged to be run from various places, to convey passengers to the Autumn Manœuvres at Cannock Chase and back, between Saturday the 23rd of August and Monday the 8th September; and amongst them there were excursion trains from Northampton to Rugeley and back, on the 23th August, on the 30th August, and on the day in question, Monday the 8th of September. The train on that day was timed to leave Northampton at 9.5 a.m., and reach Rugeley at 11.40 a.m.; and to leave Rugeley at 7.30 p.m. on the return journey, so as to reach Northampton at 10.10 p.m. It was timed to stop at Lichfield, Nuneaton, and Rugby, but not at *Aberstone* or Tamworth.

At the Tamworth station there are platforms on both sides of the line, with four lines of rails between them. The two lines of rails adjacent to the platforms are used for stopping trains, and the two lines intermediately between them, and away from the platforms, are used for through trains, or trains not due to stop at the station. The points connecting the through-lines and the platform lines with each other, on the north and the south of the station, are, respectively, at distances of 143 yards and 100 yards from the platforms. The length of the platforms, which are opposite to one another, is 100 yards, so that the loop-lines are 345 yards long. The station is approached on a curve from each direction. The view of a train approaching from the north is obstructed by a road bridge over the line, about 550 yards on the north of the station. There is also a bridge carrying the Midland Railway over the line on the south of the station; but the line can be seen for a considerable distance southward from the down platform. There is a public footpath level-crossing at 80 yards to the south of the platforms, with a railway bridge over a river. Between the footpath crossing and the river bridge, and 100 yards south of the platforms, and nearly opposite the points connecting the through and the platform lines, there is a signal-cabin from which the points and signals south of the station are worked.

The excursion train in question left Northampton at 9.10 a.m., five minutes late, for Rugeley, on the *down* journey; and, after stopping at all the stations shown in the special time table except Lichfield, reached Rugeley at 12.25, 45 minutes late. The engine-driver was prepared to stop, and would have stopped, at Lichfield, but that he was motioned forward by an officer of the Company on the platform, and he