

The
VIRTUAL MUSEUM
of the
LANCASHIRE & YORKSHIRE RAILWAY

Accident Reports.

24 September 1875

BoT Report into Accident at
Miles Platting.

(8 Pages).

As the train reached the facing-points, at the end of the loop line close to Hartlebury station, the engine and all the coaches ran through them along the down line instead of running along the up line, as they were intended to run.

The engine-driver did not perceive that his engine was on the wrong line until he got close to the platform; he then reversed his engine and his fireman applied the break, but he could not stop his train in time to prevent his engine running into the engine of the empty passenger train, which was standing at the down-line platform.

The engine of the empty passenger train had its buffers and buffer-plank broken, but no injury was done to the engine or coaches of the train from Shrewsbury.

The collision was slight and no vehicles of either train were thrown off the rails.

The guard of the Shrewsbury train, and the signalman on duty at Hartlebury station, went to examine the facing-points immediately after the accident, and they found them standing in their proper position for the up line, although the train had passed through them along the down line.

On trying the points, the weight by which they were moved acted properly, and the points fell over so as to lie right for the up line, and the men failed to make them stick in the *wrong* position, although they tried to do so.

The points in question had been last used about 4 p.m. on the same day when the engine of a train from Birmingham was shunted through them. The train from Shrewsbury did not arrive until 7.5 p.m.

From the evidence of the several witnesses who were present at the Hartlebury station at the time of the accident, I see no reason to suppose that these points had been propped or fixed in a wrong position by any parties at or about the station, as the men who examined the points immediately after the accident did not find any key or other means on the spot with which they could have been fixed.

On running a four-wheeled carriage through the points, which are 14 feet long, I found that the weight will not act on them and pull the points back into their proper position during the passage of the carriage, which proves that if they did stick so as to be open for the down line when the passenger train arrived they would not fall back into their proper position until after the whole train had passed, and as the whole train did pass along the wrong line, the only reasonable conclusion is, that these self-acting points did stick in position for the down line, and were so placed at the time that the train from Shrewsbury arrived.

The Great Western Railway Company have decided to re-arrange the station yard and the junction with the Severn Valley line at Hartlebury, and to interlock the signals and points, which is very desirable.

I have, &c.,

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

F. H. RICH,
Colonel R.E.

Printed copies of the above report were sent to the Company on the 10th December.

LANCASHIRE AND YORKSHIRE RAILWAY.

SIR,

Manchester, 21st October 1875.

In compliance with the instructions contained in your Order of the 28th ultimo, I have the honour to report, for the information of the Board of Trade, the result of my inquiry into the circumstances connected with the collision which occurred on the 24th ultimo, at the Miles-Platting station, on the Lancashire and Yorkshire Railway.

In this case, the engine of a Lancashire and Yorkshire passenger-train, 3.10 p.m. from Manchester for Bury, left the rails near signal-cabin No. 5 at the Miles-Platting junction; and, in deviating to the right, it then crossed the up-main-line, and came into collision with a London and North-Western passenger-train travelling in the opposite direction, from Leeds for Manchester, on the adjacent Ashton branch. The Lancashire and Yorkshire engine struck the fourth, fifth, and sixth vehicles of the London and North-Western train, and overturned the seventh vehicle, and the engine itself was twisted round in the reverse direction to that in which it had been travelling. Twelve passengers, all in the London and North-Western train, have complained of injuries, and the head-guard of that train and the engine-driver of the Lancashire and Yorkshire train were also injured.

Description.

The permanent-way of this portion of the line is laid with rails known as "bull-headed," having a larger head than bottom, and weighing 80 lbs. to the lineal yard. They are in lengths of 21 feet, and are secured at the joints by suspended fish-plates, and four screw-bolts and nuts. The chairs are of cast-iron, weighing 47 lbs. each. They are fastened to the sleepers each by two trenails and one spike. The sleepers are of creosoted Baltic timber, measuring

10 feet long, and 10 inches by 5 inches in section. The ballast is of gravel and ashes.

The point at which the first mark in the permanent-way was observed is 21 yards on the west of the Miles Platting junction cabin No. 5. The main-line of the Lancashire and Yorkshire Railway is here joined by the line from Ashton and Staleybridge.

Shortly before the accident a rail which had done partial service in another part of the line, was newly placed, on the off-side, at the point where these marks were observable, instead of a rail which was found to have been fractured. This rail, so newly placed, was not a worn-out rail, but was a steel rail stated to have been selected for the purpose as being safer to use under the circumstances than a new rail, the section of which would have been different from the rails adjacent to it. I learn that there was, after the accident, a slight mark, which has since disappeared, on the top of this newly placed rail; and that the first chair that was chipped on the outside of it was the fourth from the joint between it and the old rail to the west of it. From that point forward, three chairs were chipped on the outside of the off-rail, and the chairs in front of them, also on the outside of the off-rail, were broken, up to the junction facing-points of the Ashton branch. The jaws of the chairs on the inside of the near rail were correspondingly marked up to the same junction facing-points, and the locking-bar of these points inside of the near rail was broken.

From these appearances it was concluded that the leading-wheels of the Lancashire and Yorkshire engine left the rails 21 yards on the west of the junction cabin, and that the engine ran forward with its leading-wheels off the rails to the junction facing-points. The near tongue of these points was struck

and bent by the near leading-wheel, and the near leading-wheel passed along it in the direction of Ashton, instead of going in the direction of Rochdale. The leading-wheels being thus guided by the rails of the Ashton branch, the engine turned from the down-line on which it had been running, towards and across the up-line of the Lancashire and Yorkshire Railway; and the leading end of the engine, pushed forward, apparently, by its own carriages, went so far as to foul the up-line of the Ashton branch, and became entangled in a passing passenger-train of the London and North-Western Railway Company. In striking the carriages of that train it was twisted round, as above stated, with its head towards Manchester, in the opposite direction to which it had been travelling, causing a good deal of damage to the permanent-way at the spot.

The Lancashire and Yorkshire engine, No. 481, is a six-wheeled tank-engine, with four wheels coupled. The diameter of the leading-wheels is 3 ft. 6 in., and of the middle and trailing-wheels 5 ft. The wheel-base from the leading to the middle-wheels is 6 ft. 6 in., and from the middle to the trailing-wheels is the same. The registered weight of the engine in working order is 6 tons 11 cwt. on the leading-wheels, 12 tons 3 cwt. on the driving-wheels, and 11 tons 13 cwt. on the trailing-wheels. The cylinders, which are inside the framing, are 15 inches in diameter, with a stroke of 20 inches. The only tank is behind the trailing-wheels, above and below the framing. The leading-springs are inside the framing and above the axles; the driving-springs are also inside the framing and above the axles; and at the trailing end there is a transverse-spring below the axle, with two volute springs on each side of the foot-plate.

The engine remained on its wheels after the accident, but twisted round towards Manchester. The trailing-link of the leading-spring had got off the spring, and had fallen back against the side of the boiler behind it, at the back of the framing. The leading end of the same spring remained in its link, the trailing end of it was lifted up, and the axle-box had risen to the top of the horn-plate. On the engine coming into the shop the gauge of the wheels was taken, when the leading-wheels were found to be correct in gauge, and the trailing-wheels to be about $\frac{1}{4}$ inch out of gauge, showing that the trailing-axle had been slightly bent. The life-guards of the engine were knocked off, the buffers were broken, and the framing was damaged on the near side; and the stay for carrying the fire-irons, and one of the hand-rail pillars, were bent.

The off-leading-spring was composed of 19 plates; the lowest plate was cracked longitudinally; all the other plates were sound. The near-leading-spring, also composed of 19 plates, had the bottom plate cracked, and nearly broken through, with an old fracture, into three pieces. The remaining plates were all sound. This spring is 2 feet $2\frac{3}{4}$ inches long, by $3\frac{1}{2}$ inches wide, and 6 inches deep in the buckle. The camber of the top plate of the off-leading-spring, after its being removed from the engine, was $3\frac{3}{4}$ inches, whilst the camber of the top plate of the near leading-spring under similar conditions was $4\frac{1}{8}$ inches. The off-driving-spring, composed of 22 plates, was sound, with the exception of a slight crack at the end of one of the plates. It was 2 feet 7 inches long, $3\frac{1}{2}$ inches wide, and $6\frac{1}{2}$ inches in the buckle. The near driving-spring had a plate broken before the accident. The transverse trailing-spring consisted of 24 plates, and had a camber of $7\frac{5}{8}$ inches. It was 3 feet $8\frac{1}{2}$ inches long, from centre to centre of pin-hole, 6 inches wide, and $7\frac{3}{4}$ inches deep in the buckle. All the plates of this spring were sound. Altogether, the springs were in good order, excepting as regards the set of the off leading-spring.

Evidence.

Edmund Whitehead, the engine-driver of the London and North-Western train, has been an engine-driver for 18 years. On the 24th September he started from Leeds with the 1.40 p.m. passenger-train for Manchester. He ran through in due course to Staleybridge, about eight miles from Manchester, and left that station at 2.55 p.m., five minutes late. He found the distant-signal from Miles Platting at "danger," and passed it at a speed of five or six miles an hour, and found the line clear to and through the station. He passed through Miles Platting station at a speed of 12 or 14 miles an hour. Just as he had passed through the junction on the west of Miles Platting station, his fireman said to him, "Hold on, that engine is off the road," meaning a Lancashire and Yorkshire engine which was attached to a train running in the opposite direction. His steam was shut off at the time, and he reversed his engine, whilst his fireman applied the tender-break. On looking round he saw the Lancashire and Yorkshire engine strike the fourth carriage of his train, strip the sides of the fifth and sixth carriages, and knock the seventh carriage over on its left side. The draw-bar and head-stock in front of the fifth carriage were pulled out, and the engine and four leading carriages were brought to a stand about 10 yards in front of the fifth carriage. The Lancashire and Yorkshire engine was pulled round by the carriages, and only came to a stand when the draw-bar was thus pulled out. He then got off his engine and went to examine the spot, and endeavoured to find out the cause of the Lancashire and Yorkshire engine leaving its own line. He observed that a rail, not a new one, had been newly inserted in the Lancashire and Yorkshire down-line; and he observed a mark on this rail where the off wheel of the Lancashire and Yorkshire engine had mounted it. The rail was still in its place. He observed that three bolts were in the fish-plate at the west end of that rail, and that two of them were very slack, and one bolt had not been inserted. There were two bolts in the old rail and one in the new rail. The bolt in the fish-plate at the end nearest Manchester was tight, the one next to it in the old rail was slack, and the bolt in the new rail was slack. These two bolts were very slack. All the keys were in the chairs under this rail newly placed in the road. He did not notice how the chairs were fastened to the sleepers. He noticed, for three or four yards forward from the point where the engine mounted, marks on the chairs, where the wheels had been running off the rails. He thought that the accident had been caused by this rail not having been properly fastened in the fish-plate. He was three or four minutes at the fish-joint referred to, and he should think that he could have got a penny-piece in between the nuts of the two bolts, which he described as loose, and the fish-plate. When the Lancashire and Yorkshire train came to a stand after the accident the whole of it was in front of the rail which had been changed near No. 5 cabin. There were three bolts in the joint at the Manchester end of the changed rail; two bolts were not screwed up, and one was screwed up. He visited the spot about a minute after the accident. The only person he saw was a gentleman who came out of the Lancashire and Yorkshire train. He does not know who he was. The gentleman wanted to say that the engine came off at the switch, but he (witness) said, "No here is the place," pointing to the joint where the fish plate was not screwed up. He did not see the Lancashire and Yorkshire engine-driver. He did not know him "until he saw him here to-day."

Michael Morgan, the fireman with this train, confirmed the evidence given by his engine-driver, but he did not look at the fish-plate and the nuts, though he

glanced at the rail and thought it must be an old rail newly turned. When the engine-driver came back to the engine after examining the permanent way, he told him that it was the fault of a rail which had not been properly screwed up. He does not think that he said anything to his driver on his return to the engine as to the condition of the fish-bolts. He was looking principally at the overturned carriage and the passengers.

Henry Smith, the head-guard of the London and North-Western train, has been a porter at the Lime Street station, Liverpool, for rather less than five years, and has done duty as extra-guard for four years last July. He has been working four or five months in place of guard *Morris*, who is acting as station-master and inspector at different places. He was riding in the break-van at the tail of his train, which was composed, on leaving Staleybridge, of an engine and tender, two vans, six composite carriages, three third-class carriages, and one first-class carriage; the vans were one behind the tender and one at the rear of the train. He left Staleybridge at 3.5 p.m., twelve minutes late, and passed through the Miles Platting station at a speed of from 10 to 12 miles an hour. He looked out through the near side-light of his van to see if the signal was off at the top of the bank, and, when doing so, he saw a composite carriage "tipping as if the front wheels were from under it." He immediately applied his break, and turned it on as tight as possible; and he was then knocked from it and thrown down in his van. He was hurt in the knee, and was off work for two days in consequence. He got out of his van as soon as he could, and asked the inspector to see to the passengers while he ran back to protect his train. Hearing that such was already done, he assisted the passengers out of the train and searched the carriages. He did not examine the permanent way.

John Gratrix, the under-guard of this train, is a regular guard in the employment of the London and North-Western Railway Company, and has been so for 12 months. He was previously an extra guard for three years. He was riding in the front break-van next behind the tender. He believes that his train passed through the Miles Platting station at a speed from 12 to 15 miles an hour. He was looking through the near side-light of his van when he suddenly felt a shock. He applied his break, and looked back through the window, and saw that the train was broken in two pieces, and that one of the carriages, the seventh from the tender, was in the act of falling over on its near side. He got out of his van, and walked back along the train, and went to the carriage that had been turned over. On his way back, he opened the doors, and let some passengers out of the front carriages, at their request. In going to the rear of the train, the inspector told him that he had better get the passengers out of the rear carriages, and take them down to Manchester in the front carriages. On going to the rail where the Lancashire and Yorkshire engine appeared first to have got off the line, he saw a Mr. Hughes, whom he believes to be a permanent-way-contractor, looking at it. It appeared to him (witness) to be an old rail turned, and he saw a platelayer in the act of screwing one of the bolts nearest Miles Platting in the fish-plate. He saw a mark on the fish-plate where the flange of an engine-wheel appeared to have struck, and on the fish-bolts. The bolt which he saw a platelayer screwing up was at the Miles Platting end of that fish-plate. He only recollects seeing three bolts in that fish-plate, and there were two men screwing them up; one man was working at the fish-plate at one end, and another man at the other end of the fish-plate of this rail. He only saw one man screwing one bolt up in each pair of fish-plates. He did not particularly observe the fastenings of the chairs, but they seemed to be fast to the sleepers. He did not observe anything else, but

proceeded with what carriages he had to Manchester. The only remarks he has made since the accident have been in repeating what he heard Mr. Hughes say on the spot, that the rail ought to have been out long before, and that it was impossible for a flange to go over it without striking on the fish-plate and bolts. He has never said that he noticed anything there before. He has been running over that road for 11 years, and has never had any cause of complaint at that spot before, nor has he reported anything.

Robert Webb, the engine-driver of the Lancashire and Yorkshire train, has acted in that capacity for 14 or 15 years in the Lancashire and Yorkshire Company's service. He left Manchester punctually at 3.10 p.m. with a passenger-train for Bury. He was approaching Miles Platting junction, on the west of Miles Platting station, at a speed of about 12 miles an hour, with a view to stopping at the station, when he felt a shock, and the engine coming off the road with its leading wheels; and he next found himself lying on the ballast outside of all the rails near the pointsman's cabin. He was hurt on the hip, the knee, and the ankle, and was much shaken, and has been off work ever since. As soon as he could get up from the ground he went to see the spot where the engine left the rails. It appeared to him that the off-wheel had mounted immediately after a joint where they had been changing a rail. He found a platelayer screwing the fish-joint up by the time he got back to look at it. He did not notice which bolt he was screwing up, nor how many bolts were in the joint; he was too much hurt to pay attention to it, and wanted to get away as soon as possible.

John Dickinson, fireman to the last witness, confirmed the evidence of his engine-driver. He remained on the engine till it came to a stand, holding on by the break-handle. He felt very much frightened, and as soon as he got off the engine he sat down to recover himself. After a minute or two he looked round to see what had been the cause of the accident. He did not examine the permanent way at all to see why his engine had got off the rails; he was too much engaged with the engine, trying to slack out the fire.

William Cowape, the guard of this train, has been a guard for about 14 years in the Lancashire and Yorkshire Company's service. He left Victoria station, Manchester, punctually at 3.10 p.m. on the 24th September. He was riding in a break-van at the tail of the train, which was composed of a tank-engine, two third-class carriages, one first-class carriage, a second-class carriage, and a break-van. The whole train was coupled up with Fay's continuous break. The train approached Miles Platting junction-cabin in due course. He was looking to the front, and expecting to stop at the Miles Platting station, when he suddenly saw his engine "rolling about." He at once applied his break, and had just got it on when he saw the engine turning to the off side, and running against the London and North-Western train. He found the carriages of his train coupled together after the accident, and the leading wheels of the carriage next to the engine were off the rails. The engine had broken loose from that carriage. After looking over his train he went back to see where his engine had left the rails. He saw a place on the left side where the engine had broken a piece off the rail, inside the left-hand-side rail, two or three rail-lengths from the cabin. He could not see anything to cause the engine to be "chucked off." He did not notice the condition of the fish-plates or bolts. He was the only guard with the train. It appeared to him that the North-Western train was running from 25 to 30 miles an hour; he was looking at it from the elevated portion of his van.

John Urnston, the signalman on duty at the junction-cabin west of Miles Platting station, has done duty in that cabin for rather more than two years, and has been a signalman in the Lancashire and Yorkshire Company's service for nearly 14 years. On the 24th September he came on duty at 2 p.m. A foreman platelayer, named John Brownhill, came to him at 2.40 p.m. and asked him when there would be five minutes of time between the trains, and he told Brownhill there were five minutes then. He (Brownhill) said he should require over five minutes to change a rail, and witness told him he had better wait until the North-Western train and the Middleton train had come up the bank, and after those trains had passed it was 3 o'clock. Brownhill then commenced with his gang to take out the rail, which was a little below the cabin towards Manchester, and on the right-hand side of the down line coming up. At 3.8 p.m. witness asked Brownhill whether he was ready, as they had a goods train waiting to go to the Brewery sidings. He said, "All right, let them go." The goods train passed all right, and next came the Bury train, to which the accident happened. As it approached the cabin, the engine of that train left the rails. He was in the middle of the cabin, and did not see the engine leave the rails. He heard a noise in the cabin, and that there was something unusual, and went to the window to see what was the matter. He then saw the Lancashire and Yorkshire engine off the rails approaching his cabin. He could hardly tell what happened after that for a minute or two. As soon as he recovered himself, he went down out of the cabin and looked to see where the engine had come off the rails. He saw marks on the rail which had been changed. There was a slight mark on the rail as if something had struck it, and then marks on the ballast, and the wheel appeared to have got outside the changed rail, and he saw marks on the ballast on the inside of the rail, opposite to the changed rail, on the near side of the line. He did not examine the fish-plates or bolts, and did not remain out of the cabin more than two or three minutes. He observed nothing else in the permanent way. Afterwards, when the train was drawn back, he found that the tongue of the facing-point on the inside of the near rail had been struck; the tip of the tongue was slightly bent, but he could not say which way. He is unable to say at what speed either of the trains was travelling at the time; he did not think there was any unusual speed on either train. There are always two men on duty in the cabin together by day and night, there being 72 levers in the cabin.

Daniel Dagger, was assistant signalman in the same cabin, and has done duty since the 7th May 1875. About 3 o'clock on the 24th of September, a platelayer came to the cabin and asked how soon he could change a rail. Urnston told him in reply that he could change it after the Middleton train had passed. He did not see the platelayers change the rail, but at 3.15 p.m., after the points and signals had been set for the Bury train to pass, and for the London and North-Western train coming off the branch to go to Manchester, he suddenly saw, as the Bury train approached, the engine turning round, and the driver falling from it, and the North-Western carriage turned on its side. He did not afterwards leave the cabin, nor did he go to examine the permanent way. He heard nothing about the fish-bolts. His mate told him on his return to the cabin that a rail had been struck, and a piece knocked out of it, and three or four chairs marked besides.

John Brownhill was acting foreman-platelayer, in place of Joseph Mort, who was away ill. He is one of Mort's gang, and has been a platelayer nearly 15 years on that length, and altogether 19 years in the Lancashire and Yorkshire Company's service.

Shortly after 6 o'clock on the morning of the 24th September, he found a rail broken in the permanent-way on the Manchester side of the signal-cabin, and on the off side as he looked from the direction of Manchester towards the signal-cabin. He thinks it would have been about 18 yards from the signal-cabin towards Manchester. The rail was broken through about three feet from the end towards Manchester, through a hole that had been drilled through the middle web for a tie-rod. As the rail was not one of ordinary length he was obliged to cut and drill another rail to replace it. Either just before or just after dinner he got another rail ready to replace the broken one. He went to the pointsman's cabin and asked what time he should have after the next train for putting in this rail; he said about 10 minutes would suit him; and the pointsman told him he could put it in after the Middleton train had passed from Manchester. As soon as that train had passed he got a red flag out some distance back, told the pointsman he was going to change the rail, and set to work with four other men, and got the rail in its place. All the keys were put in the chairs. The chairs were already spiked to the sleepers, and none of the fastenings were removed. He put on one tie-rod, put on the fish-plates, and put in all the bolts at each end of it. Three bolts were screwed up by a spanner at the Manchester end, and two bolts were screwed up by a spanner at the other end. There was one bolt at the joint near Manchester screwed up by hand, and two bolts at the joint near Miles Platting screwed up by hand. The pointsman then called to ask whether a goods train might pass, and he said it might do so. The goods train passed, and shortly afterwards the train came up to which the accident happened; it was coming up quick. He stepped first on the "six-foot" to let the Bury train pass, and then, seeing a London and North-Western train was coming in the opposite direction, he stepped out altogether. He stood whilst the two trains passed nearly opposite to where he had been working. The London and North-Western train passed between him and the Bury train. He heard a noise and saw a carriage turn over in the North-Western train. The London and North-Western train separated into two parts, and he passed between the two parts to the spot where he had been working, and he began at once to screw up the fourth bolt in the fish-plates at the Manchester end of the rail which he had been putting in. He next went to the junction facing-points and attended to them. He examined the place, and tried to find out where the engine had left the rails. He saw that the fourth chair from the joint on the "six-foot" side was just touched with the wheel. He did not see any particular marks on the rail before that. He saw one chair broken on the Manchester side of the points which he had to replace, and other chairs on the Miles Platting end of the rail which he had newly put in. He is quite certain that there were four bolts in both fish-plates at both ends of the rail which he had newly put in, and that two were tight at the Miles Platting end, and three at the Manchester end. The men working with him were John Thompson, Samuel Corns, William Hemmings, and George Holt. He had stuck a red flag in the ballast 12 or 14 yards on the Manchester side of the rail he put in, and he took it out again before the goods train passed.

John Thompson is a platelayer in the Lancashire and Yorkshire Company's service, and has been so for five years on the same length, from Miles Platting to Colleyhurst Street Bridge, near Manchester. He was working near the signal-cabin, Miles Platting, on the 24th September, with Brownhill. After a train passed, he believes to Oldham, he commenced, about five minutes before 3 o'clock, to put a rail into the line coming up from Manchester, on the Manchester side of the signal-cabin. It was on the right-hand side looking towards the signal-cabin. He screwed

three bolts in the fish-plates nearest Manchester with a spanner; two bolts at the Manchester end, and one bolt at the Miles Plating end, and the third bolt in those fish-plates he screwed by hand. He did not screw any bolts at the other side of the rail. After the accident, the three bolts he had screwed up by spanner were as tight as possible, and the fourth bolt was as tight as his hand could screw it. Immediately after the accident he screwed up with a spanner the third bolt from Manchester, which he had previously only screwed up by hand. He then went to assist at the carriage that was upset. He did not notice anything else connected with the permanent-way, nor did he know why the accident had happened. Before screwing up the fourth bolt he went to the carriage that was turned over. He went to the top of it, and lifted two children and two ladies out of it.

James Atherton is inspector of permanent-way for about 39 miles, including the spot where the accident happened. He has been six years in charge of that length, and five years an assistant-inspector, and 11 years previously a platelayer. He was walking up the Ashton branch, and was within a few hundred yards of the junction, when one of his foremen came to tell him what had happened. He immediately went to the scene of the accident, and found a carriage on its side, and that they were just lifting a woman out, after getting the children out of the carriage. He did not see Thompson helping. He does not remember who was helping to get those people out. He then went to the spot where he thought the Lancashire and Yorkshire engine must have left the rails. He saw either Brownhill or Thompson, he could not be sure which, screwing up a bolt in the Manchester end of the rail which had just been put in the road. The other three bolts were tight at that end of the rail. At the other end of the same rail the two middle bolts had been screwed up tight with the spanner and the two end bolts had only been screwed up by hand. They were quite loose. He could find no mark on either rail, but he noticed that the chairs were marked. The fourth chair on the outside of the off rail had a corner chipped off, the next was still more chipped, and from that point forward they were all more or less chipped or broken. Inside the near rail there were corresponding marks on the ballast, and on the insides of the chairs, where the near wheel had run along. The end of the near tongue of the facing points was bent, apparently by an engine-wheel striking it. He had it taken to the smithy and straightened. The road was in good level at the point where the engine came off. The joint sleepers were working a little as trains passed over them, but not, he thought, so as to cause an accident. He could not come to any conclusion as to the cause of the accident.

John Mayo, the station-master at Miles Plating station, has been there for nearly two years. He was standing on the platform about 100 yards from the signal-cabin when he saw the Lancashire and Yorkshire Bury train approaching, about 3.15 p.m. on the 24th September. He saw the leading part of the engine "in difficulties, wobbling about," and saw it take off in the direction of the Ashton branch. He saw it in collision with the London and North-Western train, and that one of the carriages of that train was turned on its side. He sent at once for medical assistance, and instructed his staff to do all they could to assist the passengers. The signalman Urmston came to him and asked him to go and examine the points at the spot on his behalf. He was in the signal-cabin telegraphing to Manchester when the pointsman asked him to do so. He left the signal-cabin and went towards the point where the engine left the rails, and saw that the platelayers had been at work at that point, but he did not examine the fish-joints at that time. An hour afterwards he went again to the spot, and saw that the new rail which had been put in was not level with the old

one. He observed that the new rail was projecting more than the old one on the inside, and he thought that might give a tendency for the engine to mount. He did not notice when he first went to the spot how many bolts there were in the fish-plates.

Mariner Brogden is platform-inspector at Miles Plating station, and has been so for about five years. He was standing on the platform about 150 yards from the signal-cabin when this accident occurred on the 24th September. He saw the Lancashire and Yorkshire engine leave the rails and come into collision with the London and North-Western train. He went first to assist the passengers out of the carriage that was upset. About half an hour or three-quarters after the accident he went to the spot where the engine left the rails. He could not make out anything as to the cause of the accident.

Thomas Grafton is a locomotive outside-foreman at Miles Plating, in the service of the Lancashire and Yorkshire Railway Company. He has been at Miles Plating two years in that capacity, and was at Blue Pits for 15 years. He was about 400 yards from the Miles Plating station when the accident occurred, and went at once to the spot, and was there within four or five minutes after the accident. As soon as the carriages had been pulled back he examined the permanent way, to endeavour to ascertain the cause of the engine leaving the rails. From all the appearances it seemed to him that the engine wheels had first mounted at the joint on the Manchester end of the rail newly put in. He saw the fish-plates of that joint. He believes the bolts were all in, but could not speak as to how many were screwed up at the time. He is sure the bolts were all in at the fish-plates at both ends of this rail. The rail newly put in projected at the joint beyond the old rail by about $\frac{3}{16}$ inch. The joint was level. There was a mark on the newly put in rail, beginning at the joint, and running about half way along the top of the rail, before the flange of the wheel fell over on the outside. He did not notice any corresponding mark on the opposite rail, but he noticed where the ballast was torn up on the inside of the near rail. He did not notice anyone screwing up the bolts until after the road was clear. He then saw the platelayers putting the road in order. He did not notice them screwing up the joints of the newly placed rail at any time. It was about 15 minutes after the accident before the Bury train was drawn back. Before that was done no one could have got at the joints of the newly placed rail without going between the wheels under the carriages. The off-wheel of the engine has a bias towards mounting the off-rail at that point, in consequence of the curve, and the absence of any super-elevation on the outer rail, and a slight cause might make an engine mount there that would not mount anywhere else. He thought that the state of the permanent-way had something to do with the accident.

Samuel Corns is a platelayer in the Lancashire and Yorkshire Company's service, and has been so for 20 years. He was working near No. 5 cabin on the 24th September. He remembers changing a rail there. He keyed it up. Thompson put on the fish-plates nearest Manchester, and Hemmings the plates nearest Miles Plating. He saw that all the four bolts were in the plates towards Manchester, and three of them were screwed up. After the accident he began to open out where the broken chairs were. He did not help at the carriages. He did not go back to the spot where the engine first got off the rails.

William Hemmings is a platelayer in the Lancashire and Yorkshire Company's service and has been so for three years on that length, and for a long time in the service. On the 24th September he was assisting in putting in a rail near No. 5 signal cabin. He screwed up the joint nearest Miles Plating. He

put in all the bolts, and screwed up the two middle ones with a screw-key. After the accident he assisted in putting chairs on. He did not go back to the spot where the engine first left the rails. He finished screwing up the joint nearest Miles Platting after the accident, as soon as the carriages were off it.

George Holt was a platelayer in the Lancashire and Yorkshire Company's service for two days before this accident happened. He assisted in putting in a rail near No. 5 cabin on the day of the accident. He helped to lift the rail into the chairs, and filled in the ballast. He had nothing to do with putting on the fish-plates, and did not notice how it was done, nor how many bolts were put in. He did not go to this changed rail after the accident, but assisted at other parts of the line.

Mr. Joseph Hughes is a contractor for permanent-way on the London and North-Western Railway, and has been so for 20 years last March. On the 24th September he was a passenger by the London and North-Western passenger-train from Leeds for Manchester, the train which was struck by the Lancashire and Yorkshire engine. He got out of the train as soon as he could after it came to a stand. He was riding in a carriage behind the one that was turned over, he thinks about the ninth in the train. He passed through the opening where the train was separated, and went to the west of the signal-cabin to try to ascertain what was the cause of the accident. He followed the track to the point where certain wheels appeared first to have left the rails. He found that a rail appeared to have been newly put in, and that the fish-plate at the end of that rail nearest Manchester was not properly screwed up. He saw a man screwing away at it when he first came in sight of the joint. He touched the bolts with his fingers and found three of them were still loose. He could not tell which the man had been screwing at when he first saw him. He said to the man "Stand back. What are you doing here? You have not got the fish-plate in the proper place." The man said nothing. From the mark on the rail newly put in it was evident that the flange of the wheel had mounted at the joint, and had run along the top of the rail for about nine feet before it dropped on the chair outside, as well as the next to it; and it then tore the road open. He did not notice the joint at the Miles Platting end of the rail newly put in. The bolts were all in at the joint of that rail nearest Manchester. One of them might have been put in after the accident and before he reached there, but he could not say whether it had been so put in. He saw somebody coming from the side of the London and North-Western engine, but he does not know whether it was the engine-driver. He saw him go to the spot as he was leaving it. He spoke to him but he does not recollect what he said to him. He was a tall man. The fish-plate was pressed flat, where the wheel appeared to have struck it, and he considered that was the point where the wheel had mounted. It was the bolt next to Manchester in the fish-plate next to Manchester which was screwed up tight when he got there, but the others were loose, he kicked them with his foot. He is sure they were all put in. The top of the fish-plate was within one-eighth of an inch level with the top of the rail. It was a red rusted rail which had been put in the track. It did not look as if it had been used for a good while. He only saw it on Monday when passing in the train, but it did not appear to have been of the same colour. It was the third chair from the joint which was first chipped or split; the next chair (the fourth) was displaced altogether from the rail.

Confronted with the London and North-Western engine-driver, the latter recognized Mr. Hughes, who, however, could not recognize the driver. The engine-driver was certain that Mr. Hughes was approaching the spot when he was coming away from it, and stated that they met where the train was divided, only a few yards from the spot. He (the driver) did not then speak to Mr. Hughes, but Mr. Hughes afterwards

came to him and said that the Lancashire and Yorkshire engine must have been thrown off by the fish-plate.

Mr. James Taylor is a cotton-waste-dealer, residing at 73, Manchester Road, Heywood. He left the Victoria station, Manchester, at 3.10 p.m. on Friday, the day on which the accident happened at Miles Platting. He was riding in the front carriage of the train next behind the engine, and in the third compartment of that carriage, and was sitting with his back to the engine. There was only one other passenger in the same compartment. He felt a sudden shaking or oscillation of the train, and put his feet on the opposite seat. He also saw another train passing in the opposite direction, and after a second or two he felt a shock, and his train came to a stand-still. He at once got out of his carriage and walked back to the tail of the train, with the idea of ascertaining the cause of the accident, which he thought might have been occasioned by the facing-points. On getting to the back of the train he found two platelayers, each with a large screw-key, screwing up bolts in the fish-plates. They were attaching fish-plates to a rusty rail, which appeared to be newly turned, and were screwing the fish-bolts up at the end of that rail nearest to Manchester. The fish-plate appeared to him to be a bad fit on the inside of that rail. It bulged out, and stood almost level with the rail, instead of fitting into the groove between the head and bottom of the rail. He noticed a bright mark on the fish-plate, where the flange of the engine-wheel appeared to have struck it, and a mark from that point on the top of the rail, where the flange of the wheel appeared to have run along the top of that rail before dropping on the outside; the mark was, he thinks, about two or three yards in length. The wheel appeared to have broken the chairs all the way after it dropped outside the rail until the engine stopped. He did not count the number of chairs so broken. He thinks there were four bolts in the fish-plate when he reached the spot. He does not think anybody was there before him except the platelayers. Two platelayers were screwing up at that one fish-plate, and his opinion is there were four bolts in it. He might be able to recognise the two platelayers, but he is not sure. One was a tall dark man, and the other shorter and stouter with a lighter complexion. One of the platelayers he found at the joint; the taller one was actually screwing up a bolt with a screw-key. The other was standing opposite him and seemed to be in the act of working, but they stopped when he reached the spot, and he said "You fool, what are you doing that for now? You ought to have done it sooner!" or something to that effect. He intended to convey to him that he was trying to hide the cause of the accident. He thinks it was four or five minutes after the collision before he reached the fish-plate in question. He looked at the facing-points in passing to the joint referred to, and they seemed to be all right as he saw them under the train, excepting that the tip of one of the tongues was a little bulged. He did not examine the Miles Platting end of the rusty rail, but went straight to the Manchester end of that rail, where the platelayers were working. There were three or four others with him at this rail, though he believes he reached it first. Mr. Hoyle, a cotton spinner, of Wheelton near Chorley, Mr. John Fell, manager of the same mill, were there, and Mr. Samuel Clegg, coal merchant, of Heywood, came a little later. A good many came afterwards. He went to the driver of the Lancashire and Yorkshire engine, and asked him to give a look at the cause of the accident, which he did. He saw him at the spot when he returned to it a short time afterwards.

Six men having been brought in, five of them platelayers, and the other a greaser in the carriage department, Mr. Taylor at once recognised John Brownhill as the man whom he saw screwing up a bolt in the fish-plate with a screw-key when he reached it immediately after the accident. He could not re-

cognise any one of them as the second man whom he also saw at the spot after the accident with a screw-key.

Mr. George Fairbrother is a registrar of births and deaths in the district of Heywood, and resides at 116, Manchester Street, Heywood. He was travelling in the Bury train leaving Manchester at 3.15 p.m. on Friday, 24th September. He was riding in the first carriage of the train, and was travelling with his face to the engine, opposite to Mr. Kershaw Hardman, and in the third compartment of the carriage. It was a third-class carriage. He did not see Mr. Taylor until after the accident. The train went all right until he felt that his carriage was off the rails, "bumping up and down" in approaching Miles Platting station. After proceeding for some distance in that way, the train was brought to a stand. He got out of his carriage at once after it stopped, and he, with three or four others, went down the line to see what was the cause of the accident. Mr. Taylor (the previous witness), Mr. James Meddicroft, of Heywood, and Mr. John Hoyle (he thinks of Chorley), went together till they came to the point where the engine appeared to have left the rails. He noticed the rail which appeared to be very rusty. He was looking at the end of that rail next to Manchester. The fish-plate which should have been in under the head of that rail was projecting, and was nearly on a level with the top of the rail. That fish-plate was inside the rail. He cannot be certain how many bolts were in the rail, but he saw what appeared to be platelayers screwing two bolts up. One of those bolts was at the end of the fish-plate nearest Manchester, and he cannot be sure where the other bolt was. There were two different men, the one screwing the one and the other the other of these bolts. As regards the bolt nearest to Manchester in that fish-plate, the nut had not got the thickness of itself on to the bolt when he got there and saw it, and there was at least half an inch between the nut and the plate. A man was screwing that nut up when he got there. He saw where the wheel of the engine had run along the top of the rail and dropped outside and broken some chairs. He asked Mr. Meddicroft to attend this morning, but he did not like to attend.

John Brownhill, recalled, explains that immediately after the accident he unloosed the fish-bolts, either he or one of the men, to put a piece of packing in between the fish-plate and the rail to make the joint square, because one rail projected beyond the other. For that purpose he unscrewed all the three bolts, and the fourth bolt did not require loosening because it was loose enough. He did not remove the fish-plate. He had a piece of iron packing by him which he inserted, and then screwed the bolts up again. After putting the packing in, three bolts were again screwed tightly up. He screwed the same three bolts up after the packing was put in as before the train passed. He did not think it necessary to screw up the fourth bolt. There were one or two other platelayers assisting him to unscrew the bolts of the fish-plates after the accident.

John Thompson recalled. After assisting some people out of a carriage, he came back to where the new rail had been put in the road. He found Brownhill about to place a piece of packing in to square the joint between the fish-plate and the rail. Brownhill unscrewed and screwed the bolts, but he (Thompson) did not screw or unscrew any of the bolts. He is quite certain that after the accident he did not screw or unscrew any of the bolts in that fish-plate; Brownhill did it all. After the accident, he put in the packing while Brownhill screwed up the bolts. Reminded of his evidence on the previous occasion, he thinks now it must be incorrect as to his having screwed up after the accident with a spanner the bolt which he had left screwed only by hand before the accident.

John Gray is a greaser in the waggon department, and has been so since the 28th July last. He was in his cabin within two or three yards of the spot where the new rail had been put in on the 24th September. He watched the platelayers taking out the old rail, and putting in the new one. He saw them put in four bolts, and screw up three of them before the accident. He saw them screwing them up with a screw-key. The nuts must have been tight, because he saw Thompson screwing them up with a screw-key, and putting his whole weight on the key to tighten them. He noticed that they screwed up three, but he cannot say that the fourth was screwed up, and he cannot say which three were screwed up. He went in his cabin, and saw a luggage-train go by when he was in his cabin. The passenger-train also passed while he was in his cabin. He heard a crash, and ran outside to see what it was, and he saw the overturned carriage of the London and North-Western Company. He ran to the carriage, and almost immediately ran back again, forgetting that he had not fastened the cabin-door. He had had things stolen from his cabin some weeks previously. He went back, and locked his cabin door, and came outside, and he saw a stout gentleman, he believes Mr. Hughes, disputing with Brownhill about the bolts not being screwed up at the end of the new rail nearest Manchester. He (witness) said, "Oh no, sir, they were screwed up, because I saw them." Mr. Hughes, speaking to another gentleman, and pointing to the fish-plate, said "That was the very thing which thro't us off." He then went to the overturned carriage, and there he did nothing; there was too great a crowd to admit of his doing anything. He did not see anybody screwing or unscrewing at the fish-plate after the accident.

Conclusion.

In considering the circumstances of this case, it is at once apparent that the collision between the Lancashire and Yorkshire engine and the London and North-Western train was only the result of a previous accident to the Lancashire and Yorkshire engine. In approaching the facing-points of the junction of the Ashton branch with the main-line of the Lancashire and Yorkshire Railway, the flange of the off-leading-wheel of that engine mounted a rail, newly inserted, on the off side, at the joint at the Manchester end of that rail. And the reason why that flange so mounted that rail is the problem to be solved. After a careful examination of the various parts of the engine, and of the permanent-way, and a careful consideration of the evidence of the different witnesses, I have come to the conclusion that there was no one cause to which alone the accident could be ascribed, but that there were several conditions of the engine and of the permanent-way, all of which contributed more or less to cause the off-leading-wheel of the engine to leave the off-rail.

As regards the engine, which was a tank-engine, there was a great preponderance of weight upon the trailing as compared with the leading-wheels; the weights on the wheels having been, as already stated, distributed, with the engine in working order, as follows:—

Trailing.	Middle.	Leading.
11 tons 13 cwt.	12 tons 3 cwt.	6 tons 11 cwt.

Then, again, although the spring-plates were generally sound, there was a loss of camber in the off-leading, as compared with the near-leading spring, of $\frac{1}{16}$ ths of an inch, and that defect allowed the trailing link of the off-leading-spring the more easily to be liberated from it in the course of the accident; and finally, the flanges of the leading-wheels, through not worn sharp, had become nearly perpendicular in their sides. These three conditions of the engine, which might not, any or all of them, have caused the off wheel-flange to mount a rail on an ordinary portion of railway in good order, combined, nevertheless,

with certain conditions in the permanent-way to produce that result in the present instance.

As regards the permanent-way, the insides of the off-rails were considerably worn away, on the curve approaching the junction, by the flanges of the wheels grinding against them; and a strong bias towards the mounting of the flanges of wheels was thus shown at the very joint where the flange of the wheel mounted. Such a tendency could not be counteracted by the super-elevation of the off-rail, in consequence of the positions of the points and crossings at both ends of the rail on which the engine mounted. It is admitted, further, that there was a little spring in the sleepers under that rail, and it is a question whether the fish-plates recently attached to it were properly screwed up. There was conflicting evidence upon this latter point. The London and North-Western engine-driver who went straight from his engine, as soon as it came to a stand, to the spot, maintained positively that only three fish-bolts had been inserted, and that two of them were quite loose; and Mr. Hughes, a permanent-way contractor of upwards of twenty years standing, found, a little later, four fish-bolts in the plates, three of which were loose. Mr. Hughes, the under-guard of the North-Western train, the engine-driver of the Lancashire and Yorkshire train, the inspector of the permanent-way, Mr. Taylor, and Mr. Fairbrother, all saw some one at work screwing up at the joint in question after the accident. On the other hand, the foreman-plate-layer, who

did not give his evidence in a satisfactory manner, asserted that all the four bolts were in the fish-plate of the joint at which the engine-wheel mounted before the engine passed it, and that three of them were screwed up, and the platelayer who was working at the joint gave similar evidence. The greaser, Gray, saw the platelayers screwing up the fish-bolts before, and did not see them screwing them up after the accident. The inspector of permanent-way, also, on arriving at the spot some five minutes after the accident, found the four bolts in the fish-plates, and three of them tight. I am led, on the whole, to the conclusion that this fish-joint was not properly fastened as the engine passed over it, and that this also was a contributory cause of the accident.

There were thus defects, both in the engine and in the permanent-way, which fully accounted for the accident; and, obviously, the remedies necessary to prevent such accidents from occurring, are to employ engines with the weights on the wheels better adjusted, and with the leading springs of more uniform camber, on a permanent-way maintained in a thoroughly efficient condition, and well secured, in the course of repairs, before engines or trains are allowed to travel over it.

I have, &c.,

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

H. W. TYLBR.

Printed copies of the above report were sent to the Lancashire and Yorkshire and the London and North-Western Railway Companies on the 5th November.

LANCASHIRE AND YORKSHIRE RAILWAY.

SIR, *Liverpool, 20th November 1875.*

I HAVE the honour to report, for the information of the Board of Trade, in compliance with the instructions contained in your order of the 4th instant, the result of my inquiry into the circumstances connected with the accident which occurred on the 1st instant, about a quarter of a mile to the north of Bury station, on the Lancashire and Yorkshire Railway, by which the driver, Joseph Taylor, of an express goods train lost his life.

It appears that on the day in question, an express goods train from Salford to Colne left Salford at 4h. 15m. a.m., stopped at Radcliffe for about 10 minutes, and then went forward to Bury station, and was detained by signal at the south block signal-box for about five minutes. It then entered Bury station and put off some waggons near the tunnel at the north end of the station, and then proceeded northwards to B. block signal-box, which is about 662 yards north of the south block signal-box, and placed opposite to the entrance of a siding called the Liverpool siding, on the western side of the down line, which is entered by a pair of trailing points on the down line, on which the train was running.

This express goods train had to bring out certain waggons from this Liverpool siding, and to take them on, and the driver (Joseph Taylor) stopped his train a short distance south of the B. signal-box, and the goods guard, Richard Parker, unhooked the coupling and left 16 waggons and the break-van standing on the main down line, while the engine, tender, and two waggons were then drawn ahead, and the signalman at B. signal-box having opened the trailing points leading into the siding, the engine, tender, and the two waggons were shunted back into the Liverpool siding, and were then hooked on by the guard to 13 or 14 waggons which were about to be taken on with the rest of the train, which had been left standing on the down main line.

It is necessary to explain that the portion of line up to and past the B. signal-box is constructed on a rising gradient of 1 in 377, and is on an embankment of about 25 feet in height. About 50 yards south of the trailing points there is a single switch or throw-off point on the outer or left rail of the siding, which is moved from B. signal-box by a lever, and about 10 yards further south there is a disc-signal lamp, lighted by gas at night, which is also worked from the same signal-box, the object of such single switch being to prevent any train standing in the siding from coming out on to the down main line, except by the express permission of the signalman in B. box, which permission is given to the driver of a train standing in the Liverpool siding by his turning off the "danger" signal, exhibited by the lamp, and showing the driver an "all right" signal.

Another goods train from Bury to Rawtenstall, a pick-up goods train, had left Bury a short time before this express goods train arrived, and when it had got to the B. signal-box, and had done its work, it was shunted to the up main line, to allow the express goods train to precede it; and it is stated that when the express goods train was passing from Bury to the B. signal-box, the driver gave some signals with his whistle to indicate that he was running through without stopping, and some words passed between the driver and the signalman on the subject, as the latter complained that he had both main lines blocked, and that there were passenger trains nearly due in each direction.

The points and signals at B. box are properly interlocked with each other, and the single switch or throw-off point is worked by one lever, and the disc-signal by another.

The signalman on duty in B. box, Valentine Atkinson, stated that he went on duty the previous night at 6 o'clock, and had to remain until 6 o'clock the next morning: that the Salford goods train was due to