

The
VIRTUAL MUSEUM
of the
LANCASHIRE & YORKSHIRE RAILWAY

Accident Reports.

25 November 1869

BoT Report into Accident at
Lytham Junction.

(2 Pages).

carriage behind the van had lost its trailing wheels, which were found to be, with their axle, broken, between the last post-office and the last break-van. The horn-plates were torn away from under this carriage with the wheels and axle. One of the post-offices also lost a pair of wheels, which lay not far behind it. All the remaining vehicles of the train were off the rails to the right, towards the down line, more or less damaged, but with their wheels under them, and standing on their wheels in the ballast. Many of the axles were bent, and the wheels marked, but the bodies of the carriages sustained comparatively little damage.

The leading axle of the tender was found in four pieces, with its wheels near the hind van, in the intermediate space between the two lines. It would appear that the fracture of this axle was the cause of the accident; and that the wheels and axles of the second-class carriage and of the post-office were torn from under them by coming in contact with the tender wheels and axle; or, perhaps, the post-office wheels and axle by striking against the wheels of the second-class carriage, after these latter had been displaced by the tender wheels and axle.

One of the passengers has complained of injury, and six clerks, who rode in the post offices, of being considerably shaken.

The permanent way, which had been renewed in 1869, was much damaged, one rail, new last May, having been fractured, six partly fractured, and others bent, while many of the chairs and sleepers were broken.

The wheels of the tender, belonging to the detached axle, were deeply indented; and they showed several symptoms of tremendous violence. They were substantial wrought-iron wheels, with tyres upwards of two inches thick. But a spoke of one of the wheels was knocked out, and the tyre of the other was fractured, while the rim was cracked through in two places. The one tyre remained in its position on the wheel, while the other was shifted, and nearly driven off the wheel, the bolts by which it was secured having given way.

The axle in these wheels was made at Gateshead, at the principal works of the North-eastern Railway Company, from Low Moor Iron; and it appears to have been of good quality. It was fractured at the

points shown in the accompanying sketch, the fracture marked A, of which a section is given, having evidently been the cause, while the other fractures were results of the accident. The fracture marked A is shown in a half sized section, the unshaded part exhibiting a flaw of considerable dimensions, which has, no doubt, been gradually increasing as the result of wear and tear, and which had at length arrived at such dimensions as to render the axle too weak for the duty which it had to perform. This flaw, having been under the boss of the wheel, was not visible from the exterior, and could only have been detected on the removal of the wheel from the axle.

The axle had run 220,000 miles in about seven years. It was of the largest size which the company have yet employed for tenders, but they are now increasing the diameter from $5\frac{1}{2}$ to $6\frac{3}{8}$ in the boss of the wheel, and from $4\frac{1}{2}$ to $4\frac{3}{4}$ in the middle, retaining the same size at the journals. The ultimate life of such axles has been found, up to the present time, not to exceed about 10 years, or 300,000 miles; and in some cases, it has, of course, been very much shorter.

The only point worthy of special observation in this case is the position on the section in which the flaw which caused the fracture, and therefore the accident, has gradually grown,—opposite to the two points at which the axle was keyed to the boss of the wheel. I have frequently observed in other cases, that this mode of keying the axles to the wheels, at two points only, and within about one quarter of the circumference, has led to a similar result; and it would appear to be better that the axle should be keyed to the wheels at three or four points of the circumference, equidistant from one another. It is right, however, to observe, that the other end of the axle, keyed in the same manner to the boss of the other wheel, does not show a similar flaw; possibly because, the boss of the wheel having been tighter upon it, there was less strain upon the keys, or because, from more or less inequality in heating, the iron at one end may have been in better condition than the iron at the other end of the axle.

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

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

A copy of the above report was sent to the company on the 22nd January 1870.

PRESTON AND WYRE RAILWAY.

*Board of Trade,
(Railway Department),
Whitehall, 15th December 1869.*

SIR,

I HAVE the honor to report, for the information of the Board of Trade, in obedience to your minute of the 29th ult., the result of my inquiry into the circumstances which attended a collision that occurred on the 25th ult. between a passenger and a goods train on the Preston and Wyre Railway near Lytham Junction. Three passengers have complained of having been injured on that occasion, and the breaksman of the goods train, and the fireman and guard of the passenger train, were also hurt.

This line of railway is leased to the London and North Western and Lancashire and Yorkshire Railway Companies, and it is under the management of a joint committee; but the traffic is mostly worked by the Lancashire and Yorkshire Railway Company.

On the morning of the 25th ult. the Lancashire and Yorkshire Company's 8h. 20m. goods train left Fleetwood for Preston 5 minutes late, with 26 empty and 5 loaded trucks. It is said to have reached Poulton station, 5 miles from Fleetwood, at 8h. 45m., and to have left at 9h. 5m., having detached two loaded and taken on one loaded and 27 empty trucks, making up a total load of four loaded and 53 empty trucks.

Sometimes this goods train shunts at Poulton for the 9h. 0m. a.m. passenger train from Fleetwood, sometimes at Lytham Junction, $10\frac{1}{2}$ miles from Fleetwood, and sometimes at Kirkham or Salwick; but the driver and breaksman of the goods train arranged, before they quitted Poulton, on this morning, that they would shunt at Lytham Junction. At the time they left Poulton, according to the working time tables, they were 10 minutes in advance of the appointed time at which the 9h. 0 a.m. passenger train is due to leave Poulton station. The weather is described as being dull when they left Poulton, and as they approached Lytham Junction, through a long cutting, they ran into a thick fog, so dense that the breaksman states that he could not see the length of more than two waggons, and the engine and the greater portion of the train had passed inside the Lytham Junction up distant signal, which is 606 yards outside the junction signal box, when it was overtaken and run into by the 9 a.m. passenger train.

The breaksman was in his van at the rear of the train at the time of the collision. He was injured in the head and leg, and must have had a narrow escape of losing his life. The van was thrown off the rails, and on to the side of the cutting; a covered van was broken to pieces and two other waggons were

also thrown off the rails. The passenger engine, and the leading wheels of the tender, were thrown off the rails. The buffer plank of the engine was broken, the buffers were knocked off, and the framing was bent up. The leading compartment of the composite carriage next to the tender was knocked in.

It is said that this goods train was travelling at the time at from 12 to 14 miles an hour, but this in all probability is somewhat in excess of the actual rate. The company's servants in charge of this train state that the collision occurred about 9h. 24m., while those in charge of the passenger train state that it happened at 9h. 29m., and I have no doubt that this was the correct time or near about it. This 9 a.m. passenger train, when it left Fleetwood at 9h. 3m., had an engine and tender and five carriages; it reached Poulton at 9h. 15m., and left at 9h. 18m., three minutes late, having taken on another carriage at that station from the Blackpool train. The breaksman of the goods train asserts that he requested the pointsman at Poulton station to caution the driver of the passenger train engine that the goods train was on the line in front, but the pointsman denies that any request of the kind was made.

The company's regulations, rule 83, prescribe, that "if a goods or mineral train should not be more than ten minutes in advance of a passenger train, it must be shunted into the nearest siding, to allow the passenger train to pass;" but a station master has discretionary powers given to him to the following effect, thus, "A light through cattle or goods train on a clear day or night, with a good engine, may be started before a passenger train which is due, should the latter have to stop at all the stations. Again, if from facts which may come to his knowledge by means of the telegraph, or otherwise, the passenger train which is due may not be expected for some time," he "will be justified in despatching the goods train; taking care, in this case, specially to warn the engineman of the passenger train, when it arrives, informing him the precise time when the goods train was despatched, and where next ordered to stop or to shunt."

A copy of the above report was sent to the Lancashire and Yorkshire and the London and North-Western Railway Companies on the 5th January 1870.

In this instance a heavy goods train left Poulton at 9h. 5m. for Lytham Junction, five miles distant, with the intention of being shunted there, and the passenger train was due to leave at 9h. 15m., and the Poulton station master states that he let the goods train go because he had not received any advice (by telegraph) of the departure of the Blackpool passenger train, and he did not consider that the rule 83, which I have quoted, applied to these circumstances.

The driver of the passenger train received no caution from any one before leaving Poulton. He says that the weather was very thick after leaving Poulton, but at that time he could see about 100 yards; that he was running at the usual speed of about 20 miles an hour, and he was not above 30 yards from the goods van when he first saw it; that he reversed the engine, and whistled for the breaks. The guard of the train says that they were running at from 20 to 30 miles an hour, and that the whistle of the engine and the collision followed close upon each other, but that he had the patent breaks on five vehicles partly on, when he heard the whistle, for the purpose of stopping at Lytham Junction, and he had only time to take two turns of the break wheel when he was knocked insensible. He thinks the speed had been somewhat diminished.

I am of opinion that the Poulton station master, and, in a lesser degree, the breaksman of the goods train, are to blame in having permitted the goods train to leave at 9h. 5m., instead of shunting it at Poulton station for the passenger train to pass.

This collision could not have occurred if the traffic had been worked with the assistance of the electric telegraph on the absolute block system; and the circumstances under which it occurred are constantly recurring on all the principal lines of railway throughout the kingdom, where the traffic is not worked according to that system.

I have, &c.,
W. YOLLAND, Col.

The Secretary,
Board of Trade,
Railway Department.

SOUTH-EASTERN RAILWAY.

Board of Trade,
Railway Department,
Whitehall, 10th August 1869.

SIR,

IN compliance with the instructions contained in your minute of the 30th ultimo, I have the honour to report, for the information of the Board of Trade, the result of my enquiry into the circumstances which attended the accident that occurred on the 28th ultimo on the South-Eastern Railway, at the junction of the line leading to Cannon Street station with the line leading to Charing Cross station.

Eight passengers and the guard (who was travelling in the last carriage of the train) were cut and bruised.

The points and signals at the junction in question are worked on the locking principle, and the signalman's hut, which is called the Borough Market hut, is provided with block telegraph instruments.

The train which leaves Strood at 7 p.m. stopped at London Bridge. It was telegraphed to the Borough Market hut at 8.18 p.m. on the evening in question, and the junction signal was lowered for the train to approach. It consisted of an engine and tender, a van with a guard, a 3rd, two 2nd, two 1st, two 3rd, and one 2nd, class carriage, with a break compartment and a 2nd guard. The train was coupled in the order given.

This train passed the Borough Market junction hut, which is about 20 yards west of the junction points,

at 8.20 p.m. The signalman put up his junction signal to danger as the train passed his hut. A lad of about 15 years of age who is employed in the hut to register the hours when trains are telegraphed to the signalman, and also to register the hours when the trains pass the hut, was standing at the end of the point of signal lever frame, looking at the train, and his hand was placed on one of the levers.

Without intending to do so, the boy released the lever, by pressing the spring. The lever, which was unlocked by the signalman putting up the junction signal, flew out of its notch, and released the points, which were moved by the vibration of the train passing over them.

The two last vehicles of the train got at the wrong side of the points, and were dragged off the rails. The front vehicle of these two struck the signal post at the angle where the boundary walls of the two lines meet, and the carriage was damaged. The front draw bar was broken, but the side chains prevented this carriage getting loose; and it did not fall over. The last carriage became detached, and fell over on its rear side, across the up and down lines which lead to Charing Cross station.

The train was running at a speed of five or six miles an hour when the accident happened. The whistle, which is attached to the engine boiler, and was connected with both the guards vans by a wire running under the train, was sounded by the last two