

the night mail trains do not stop, which was the case at Esher. This is, however, a subject which would lead me into great length, and may be better treated of in a separate report.

The Earl of Ripon,
&c. &c.

I have, &c.,
FREDERIC SMITH, Lt.-Col. R. E.,
Inspector-General of Railways.

Appendix.
II.
Reports on
Accidents.
No. 12.
South Western

LETTER sent to the London and South Western Railway Company, with Copy of Sir F. Smith's Report on the Collision.

SIR, Board of Trade, 3rd November, 1841.

I AM directed by the Lords, &c., to enclose a copy of Sir F. Smith's report on the late collision on the London and South Western Railway for the information of the directors, and to call their especial attention to the observations and recommendations therein contained. To the Secretary of the London and South Western Railway Company. I am, &c.,
S. LAING.

IN Reply to Letter from this Office of the 3rd instant, with Copy of Sir F. Smith's Report on the Collision of the 16th October.

SIR, Nine Elms Station, 6th November, 1841.

I AM instructed to acknowledge the receipt of your communication, containing the copy of Sir F. Smith's report on the collision of the 16th ultimo, which was laid before the directors at their meeting yesterday, and with reference to the recommendations contained therein they have entered into the following resolutions:—

“That the guards of the mail train be reprimanded.

That the engineman and fireman of the mail train be prosecuted.

That Mr. Martin (the resident engineer and superintendent of the line) be instructed to consult with Mr. Locke (the engineer-in-chief) as to the best description of standard signal, or to propose some other plan equally effective.

That in addition to the usual tail lamp, a red lamp be placed on each side of the last carriage of every train.”

The question of an alteration to the guards' boxes as present in use on this line of railway is under the consideration of the directors.

S. Laing, Esq.
&c. &c.

I have, &c.,
ALFRED MORGAN, Secretary.

No. 13.

GREAT WESTERN RAILWAY.

No. 13.
Great Western.

REPORT of Lieutenant-Colonel Sir Frederic Smith on the Accident which occurred on the morning of the 24th instant.

Board of Trade, Whitehall, 25th December, 1841.

MY LORD,

I HAVE the honour to submit the following report, relative to the fatal accident which occurred yesterday on the Great Western Railway.

At half-past 4 o'clock A. M. a goods-train was despatched from the Paddington terminus, drawn by the Hecla engine, and this train consisted of 17 waggons, two carriages for third-class passengers, and a station truck.

There were two guards with the train, and it appears from their statements that the carriages were placed in the under-mentioned order:—

The Hecla, six-wheeled coupled engine.

The tender on six wheels.

A third-class carriage on six wheels.

A third-class carriage on four wheels.

A station truck on four wheels.

And 17 goods-waggons chiefly on four wheels.

Thomas Reynolds, who is represented to me by Mr. Seymour Clarke, the assistant-superintendent, to be a steady man, was the driver of the Hecla, and he had a fireman with him.

George Hassam, the first guard, was in the leading third-class carriage, and George Ayres, the second guard, was in one of the hinder goods-waggons.

I have not learnt that anything particular happened between London and Twyford, but I find that the train was 10 minutes behind time in leaving that station, as it did not start till 40 minutes, instead of 30 minutes after 6, which might lead to the conclusion that an undue velocity was used.

The distance from the Twyford to the Reading station is about five miles, and about midway between them there is a cutting through a clay and gravelly formation of $1\frac{1}{2}$ of a mile in length and of the extreme depth of 60 feet.

Appendix.

II.
Reports on
Accidents.No. 13.
Great Western.

This is called the Sunning-hill Cutting. The gradients rise in both directions towards the centre of the cutting at the rate of about 4 feet a mile.

When the train reached this point the engine came in contact with an obstruction which threw it off the rails, and its velocity being in consequence suddenly checked, while the waggons retained their impetus, they ran forward on the passenger-carriages, smashing one and considerably injuring the other, and, I lament to say, killing 8 and wounding 17 passengers.

At the time this dreadful accident occurred it was quite dark.

The guards jumped from their seats, and taking their lights they found that the cause of the accident was a heavy slip from the slope of the cutting adjoining their line, which had covered the rails to the depth of nearly four feet.

It was found that the concussion had thrown the whole of the passengers out of the carriages, and the train was discovered to be in the following condition:—

The engine, which had dashed through the slip, had left the rails and was found with its near side wheels buried in the slope of the cutting, but it was perfectly level and standing parallel to the rails.

The tender had not broken the couplings which connected it with the engine, but it was twisted across the "down" line, so that the fore and middle wheels were off the rails, and the hind wheels were over the rail nearest to the slope.

The leading third-class carriage on six wheels had broken from its couplings, but remained nearly over the rails, the head being a little turned towards the "up" line. I am informed that this carriage was very much damaged.

The second third-class carriage, on four wheels, was also found to have broken its couplings. It had run off the rails, and its head, which was rather beyond that of the six-wheeled carriage, stood over and obstructed the "up" line of rails.

The station truck, which was the next in the train, broke its fore couplings, and rushed on the top of the hinder part of the four-wheeled truck. It remained coupled to the leading goods-waggon, and this goods-waggon had its hinder end lifted off the rails by the next following waggon.

I was also desirous of seeing the third-class carriages, but when at Twyford I was informed that they had been sent back to Paddington, whereas, on returning there, it appeared that they had been forwarded to Reading. I did not think it of sufficient consequence to make a second journey to inspect them, as all the witnesses agreed as to their state, and I was enabled to judge of their construction by a carriage which was shown to me by Mr. Seymour Clarke, at Paddington.

On examining the ground where this unfortunate accident occurred, I found that the permanent way on both sides of the slip was in excellent order, and the slopes of the cutting in as good a condition as could be expected after the late continued unfavourable weather. The vertical height of the cutting at the slip is 58 feet, and the slope two to one, the base being 116 feet.

The length of the slip is about 30 yards.

I do not imagine that any engineer would have thought it necessary to give the sides of this cutting a greater slope than two to one, and therefore there has been, in my opinion, no error in the construction; but it is a question whether the large mass of "spoil" resting on the natural ground adjoining the edge of the cutting did not mainly cause, or at least greatly contributed to increase the extent of this extensive slip.

The height of this spoil bank varies from 10 to 16 feet, and is from 50 to 80 yards in width.

It seemed saturated with wet, and although the general drainage is to the south of the cutting, still the superincumbent weight of a portion of the mass was in part sustained by the soil that has given way. However I am told that it has remained in the state in which it was just before the accident for nearly two years, and it may therefore be presumed, that but for such excessive rain as we have had during this autumn, the slope would not have given way.

I understand that workmen have been occasionally employed in the Sunning-hill Cutting, in repairing slight slips of that description, to which all railways have of late been subject, but that owing to the ample width that the engineer had allowed between the slope and the rails, the latter have never before been covered, and there does not seem to have been any greater reason for watching this cutting at night than other parts of the line.

The slip must have happened between the passing of the preceding goods-train at 1 o'clock A.M., and the arrival of that to which the accident happened at about a quarter before 7 A.M.

This accident could only have been prevented by the line having been more closely watched, for which, as I have already said, there did not seem to have been any urgent necessity; but it might have been rendered less dreadful in its consequences if the passenger-carriages and the waggons of this train had, in conformity with the recommendation in my report of the 13th October, 1840 (in reference to the Hull and Selby accident), been properly provided with buffers. In that and in subsequent reports, and in my evidence before the Select Committee of the House of Commons on railways, of the closing session of the last Parliament, I recommended that every carriage running with a passenger-train should be provided with spring buffers. There can be no question that the intensity of the blow on the two passenger-carriages of yesterday's train would have been much diminished if even those carriages alone had been so provided, and it would have been still more reduced if the station-truck and a proportion of the waggons had been also fitted with spring buffers.

These spring buffers, I am aware, are expensive, but I still think that it should be pressed

upon every Company to use them with all the carriages that are to form a part of a passenger train.

I have stated that the whole of the passengers in the two-third class carriages were thrown out, and that the foremost carriage was very much broken, while the second was less injured.

Now I think it is reasonable to conclude that if the intensity of the blow had been so reduced by spring buffers, as to have materially diminished the damage done to the carriages, and that if also from that cause, and from the construction of the carriages, the passengers had not been thrown out, the loss of life would in all probability have been much less.

But whether this conclusion be arrived at or not, I am bound to state that the third-class carriages used on the occasion of this accident were not of such a construction as the public have a right to expect.

The third-class carriages have seats 18 inches high, but the sides and ends are only two feet above the floor, so that a person standing up, either when the train is unexpectedly put in motion or stopped, is, if near the side or end, in great danger of being thrown out of the carriage, and those sitting near the sides are also in danger of falling; besides which, the exposure to the cutting winds of the winter must be very injurious to the traveller, who, if proceeding from London to Bristol, often remains exposed for ten or twelve hours, a great part of which is in the night-time.

The Great Western Company should in my opinion be immediately recommended to alter the construction of their third-class carriage, and to give the sides and ends a height of 4 feet 6 inches above the floor. This recommendation should be extended to all companies whose carriages have a less internal height.

I beg also to repeat the suggestion contained in my report of the 23rd February, wherein I recommended that all engines should carry a reflector white lamp on the buffer beam. I am aware that these lamps do not throw their rays sufficiently far to admit of the drivers of trains, which are moving at very high velocities, seeing an obstruction early enough to be enabled to stop their trains before coming in contact with the obstruction, but it would give such warning of danger to the drivers of trains moving at a moderate speed, as to enable them to apply their breaks and sound the steam-whistle, as a signal to the guards to apply their breaks also, by which the rate of speed would be so diminished as considerably to lessen the force of any collision.

In conclusion, I beg to observe that in my opinion passengers should not be carried with heavy luggage trains, for, independent of other objections to this system, the danger is increased by the means of arresting the progress of the train, not being in due proportion to its weight.

I have, &c.

FREDERIC SMITH, Lt.-Col. R.E.

Inspector-General of Railways.

The Earl of Ripon.

&c. &c. &c.

LETTER sent to the Great Western Railway Company, relative to Sir Frederic Smith's Report on the Accident of the 24th December.

SIR,

Board of Trade, December 28, 1841.

WITH reference to the late fatal accident on the Great Western Railway, I am directed, &c. to inform you that Sir F. Smith has reported to their Lordships, among other points arising out of the investigation with which he was charged, that in all probability the result of the accident would have been much less disastrous if the passenger-carriages and waggons forming the train had been provided with spring buffers. He has further reported, "that the third-class carriages used on the occasion of the accident were not of such a construction as the public had a right to expect, having sides and ends only two feet above the floor, so that a person standing up either when the train is unexpectedly put in motion or stopped, is, if near the side or end, in great danger of being thrown out of the carriage, and those sitting near the sides are also in danger of falling; besides which, the exposure to the cutting winds of the winter must be very injurious to the traveller, who, if proceeding from London to Bristol, often remains exposed for 10 or 12 hours, and great part of which is in the night-time." And he states "that the Great Western Railway Company should be immediately recommended to alter the construction of their third-class carriages, and to give the sides and ends a height of at least four feet six inches above the floor."

These recommendations, viz. that the height of the sides and ends of the third-class passenger carriages should be raised, and that all such carriages should be fitted with spring buffers, appear to their Lordships so important that they think it their duty to urge them at once upon the attention of the Directors, leaving to a future period such further observations as a full consideration of the circumstances connected with the accident may suggest.

To the Secretary of the Great Western
Railway Company.

I am, &c.,

S. LAING.

IN reply to Letter from this Office of the 28th December, relative to Sir F. Smith's Report on the Accident of the 24th.

SIR,

Prince's Street, Bank, December 29, 1841.

YOUR letter of yesterday's date, referring to a report made by Sir Frederic Smith on the recent melancholy accident to a goods train in Sunning Cutting, was submitted to the Board of Directors immediately upon the receipt of it this day.

Appendix.
 II. —
 Reports on
 Accidents.
 No. 13.
 Great Western.

It is a satisfaction to the Board to know that the very recommendations now made by Sir Frederic Smith had been already adopted some weeks ago, the directors having ordered the construction of several third-class trucks, with sides and ends of the height described, and with spring buffers, for the greater comfort and protection of the passengers.

I am desired to add that the Directors will press forward the completion of those conveyances with the utmost expedition, consistent with good workmanship. They will be extremely solid, and upon six wheels. The Directors are also engaged in considering, most maturely, whether they can in any other manner contribute to the greater security of third-class passengers.

S. Laing, Esq.,
 &c. &c.

I have, &c.,
 CHARLES A. SAUNDERS, Secretary.

LETTER to the Great Western Railway Company, in reply to their Letter of the 29th, relative to Third-class Carriages, &c.

SIR,

Board of Trade, December 30, 1841.

IN reply to your letter of the 29th December, I am directed, &c., to express their satisfaction at finding that the Directors of the Great Western Railway Company intend to afford to third-class passengers the protection of spring buffers, and an increased height of framing, and that they are anxiously engaged in considering what other measures can be adopted to contribute to the security of passengers of that class.

Referring to the late melancholy accident which occurred on the 24th instant, and to the other accident announced in your letter of the 22nd instant, by which a third-class passenger was thrown out of the carriage in which he was riding, it appears to their Lordships urgently demanded by a due regard for the public safety that the additional height to the framing of third-class carriages should be given without delay, and that if the new third-class carriages are not completed, some temporary protection should be fitted up in those which are despatched in the interim. Referring also to the accident of the 24th instant, and to the evidence of the Company's officers at the inquest, from which it appears unquestionable that the practice of sending third-class passengers by heavy luggage trains is attended with considerable additional risk, whether such passengers are placed next the engine or at the end of the train, their Lordships would suggest to the Directors the desirableness of making, if practicable, some arrangement by which third-class passengers may be conveyed in a manner which does not expose them to any additional danger.

To the Secretary of the Great Western
 Railway Company.

I am, &c.,
 S. LAING.

IN reply to Letter from this Office of the 30th December, relative to Third-class Carriages.

SIR,

Prince's Street, Bank, January 1, 1842.

Your letter of the 30th instant will receive the most careful consideration of the Board of Directors.

In the mean time I have the pleasure to inform you that the Directors had ordered luggage-trucks with higher sides and ends to be temporarily fitted up for the conveyance of passengers in the third class, and that such trucks have been in use ever since Tuesday the 28th ultimo.

S. Laing, Esq.,
 &c. &c.

I have, &c.,
 CHARLES A. SAUNDERS, Secretary.