

LONDON & NORTH WESTERN RAILWAY.

Railway Department, Board of Trade,
8, Richmond Terrace, Whitehall, London, S.W.,

25th February, 1914.

SIR,

I have the honour to report for the information of the Board of Trade, in compliance with the Order of the 7th February, the result of my inquiry into the causes of the collision which occurred on the 4th February, between an empty waggon train and a train of empty coaches, at Rugby on the London and North Western Railway.

In this case as a train of empty coaches was being shunted back from the down main platform line to the down Market Harborough line at No. 1 Signal Box, the engine was run into broadside, just as it was leaving the main platform line, by the engine working an empty waggon train from Northampton which was approaching on the down main platform line.

The impact knocked the engine, which was pushing the empty coaches, over on to its side, and the driver and fireman were killed. The fireman of the empty waggon train was also slightly injured.

The empty coach train consisted of a four-wheels-coupled bogie passenger engine with a six-wheeled tender, of a total weight in working order of 86 tons, and of six bogie coaches.

The empty waggon train consisted of an eight-wheels-coupled coal engine, with a leading radial axle, and six-wheeled tender—weight in running order $99\frac{1}{2}$ tons, fitted with the steam-brake on the eight coupled wheels and on the six wheels of the tender, and with a hand-brake on the tender wheels—and of 48 waggons and a 20-ton brake van. Thirty-seven of the waggons were empty.

Both engines were badly damaged.

The brakes of the coal engine are stated to have been in very good order.

The collision occurred at 8.20 p.m.

Details of damage to rolling-stock and permanent-way are given in the Appendix.

Description.

There are three down passenger lines approaching Rugby from the South which run approximately South to North. The down fast is on the western side of the three, then the down Northampton, and then the down Market Harborough line.

The signals governing the movement of trains into Rugby Station are worked from Rugby No. 1 Signal Box, and are placed on a gantry across the three lines concerned.

They are arranged in three groups, with a space of 10 feet between each group, and there are coupled signals for each road, the highest of the top ones being 55 feet, and that of the lower ones 30 feet above rail level, with the distant signals for the next box underneath.

The left hand group referring to the down fast line are three in number, 6 feet apart, of different heights, and one, the centre of the three, which is also the highest (55 feet above rail level), refers to the down through line, which runs on the western side of the station clear of the platform; the left hand one leads to the down goods line and the right hand one to the down platform line.

The centre group refers to the down Northampton line, and are five in number, of different heights; the left hand one of the group leads to the down goods, the next, which is the highest of the group (55 feet above rail level), to the down through line, the next to the down platform line, and the two right hand ones to No. 1 and No. 2 bay lines.

The right hand group refers to the down Market Harborough line and are also five in number similar to the centre group.

The points of the crossing leading from the down Northampton to the down through line are 80 yards north of the signal gantry and 90 yards south of the No. 1 signal box.

The trailing points of the crossing from the Market Harborough line to the platform line, through which the empty coaches were being propelled, are 46 yards north of the signal-box, the angle of the crossing being about 17 yards north of the box or 187 yards north of the signal gantry. The backing signal for movements from the down platform line to the Market Harborough line is 138 yards north of the signal-cabin and a few yards south of the end of the down platform.

The next signal-box to the south on the line from Northampton is Clifton Road Junction, 707 yards from Rugby No. 1. The home signals for this box are 23 yards to its south and are 560 yards south of the signal-gantry for Rugby No. 1 signal-box.

The gradient of the down Northampton line from Clifton Road Junction to Rugby No. 1 home signal is 1 in 88, falling for most of the way.

The following is an extract from the Instructions for Rugby No. 1 signal-box :—

GENERAL INSTRUCTIONS.

It will not be necessary for the signalmen at any of the Boxes between Nos. 1 and 7 (both included) to "Block Back" for shunting operations under cover of the Home Signals at the various Boxes, except where instructions to the contrary are given on the footnotes.

In Clear Weather, as soon as a Light Engine, Goods Train, or Empty Carriage Train has arrived, with tail lamp complete, under cover of the Home Signal, the Bell Signal (2—1) must be given to the Signal Box in rear (the Block Indicator remaining at the "Train on Line" position), and the "Is Line Clear?" signal for a following Light Engine, Goods Train, or Empty Carriage Train may be acknowledged by repeating it and placing the Block Indicator to the "Line Clear" position; or if the "Is Line Clear?" signal for a Light Engine, Goods Train, or Empty Carriage Train has been acknowledged in either direction, the line may, if necessary, be occupied by shunting operations with similar Trains under cover of the Home Signal. If, while shunting operations with Light Engines, Goods Trains, or Empty Carriage Trains are going on under cover of the Home Signal, the "Is Line Clear?" signal is received from the Box in rear for a Light Engine, Goods Train, or Empty Carriage Train, that signal may be acknowledged by repeating it, and placing the Block Indicator to the "Line Clear" position. During fog or falling snow the Warning Arrangement (Rule 5) must be carried out.

NOTE.—This instruction only applies to sections worked under the Absolute Block System for Goods, &c., Trains, but does not apply to No. 1 Box as regards Trains on the Down Goods Line from Clifton Road.

Evidence.

Edward Hill, 31 years' service, 27 years signalman, 22 years at Rugby No. 1 Box, states :—I booked on duty at 2 p.m. on the day of the accident for 8 hours, having booked off duty at 10 p.m. the previous day. We do not book trains at this box. About 8.20 p.m. I had the "Back signal" from No. 2 Box for empty coaches to come back to No. 1 Box to go on No. 3 stops, and I lowered my signal for this movement. I was then offered an empty waggon train from Clifton Road Junction signal-box. I kept it waiting about 8 or 9 minutes. I could not accept it sooner as sometimes the engine of the empty coach train has to run round its coaches and to use the crossing close by my home signals, and then I do not like to accept a train up to my home signals as the over-run is so short. All my down Northampton signals at that time were at danger. My down home and distant signals main line were off for the 6.55 p.m. passenger train from Euston. I intended the empty waggon train to run down the platform line when the line was clear. I did not see the down empty waggon train pass the signals as the empty coaches hid my view to some extent. I tried to get to the window with a red light, but by the time I did the collision had occurred.

William Lambourne, 18 years' service, signalman 16 years; 6 months at Rugby No. 1, states :—I booked on duty at 2 p.m. for 8 hours, having booked off duty at 10 p.m. the previous day. We each take our own ends of the signal box, and I was taking the up trains on the night in question. The first I knew that anything was wrong, was hearing the crash of the collision. I asked my mate what was wrong, and he was then throwing the signals to danger which were off for the 6.55 p.m. from Euston. I could see that these levers were over in the box.

Hawtin Frederick Whitlock, 12 months' service, 8 months as signalman, 2 days in Clifton Road Box, states :—I booked on duty at 2 p.m. for 8 hours, having booked off duty at 10 p.m. the previous day. I was offered the "Is line clear?" for the 1.35 p.m. empty waggon train, Willesden to Bescot from Hillmorton

Box at 7.57 p.m., and accepted it at that time—in section at 8 p.m. I offered it to the box in advance (Rugby No. 1) at 8.14 p.m. and it was accepted then. I did not offer it previously. It arrived at 8.8 p.m. and left at 8.16 p.m. The regulator at Rugby told me to hold it until he gave me instructions. All my signals were at danger for the train when it arrived. I did not notice the collision as it was out of my sight. I do not pull off my distant signal until the signalman in No. 1 Box has turned off his disc.

Eric George Meredith, 18 months' service as porter, stationed at Rugby all the time, states :—The empty coaches came from London and consisted of London and Rugby twin train, 6 bogie coaches. The train arrived about 8.10 p.m. on the down platform line and had to be shunted on No. 3 stops. To do this the train had to be set back on the Market Harborough line and then on to the stops. I was in charge of the movement, and told the signalman in No. 2 Box we wanted to go on No. 3 stops. The "Backing" signal was taken off about 8.20 p.m. The coaches were backed by their own engine and I was riding in the rear brake-van. I did not notice the empty waggon train approaching. The tail lamp on the coaches was burning, and shewing a red light.

Walter Tomes, shunter, 16 years' service, stationed at Rugby all the time, carriage shunter 10 years, states :—I booked on duty at 7.30 p.m. till 5.30 a.m., having left duty at 5.30 a.m. the same day. I was standing close to the "Backing" signal which was off for the empty coaches to shunt. I did not observe the empty waggon train approaching, but I noticed that the back lights on the big gantry shewed that the signals were off for the 6.55 p.m. train from Euston.

John Thomas Clarke, age 50 years, 36 years' service, extra driver 25 years; regular driver 19 years, states :—I booked on duty at 1 p.m. at Willesden to finish on arrival at Bescot, due 9.35 p.m., having booked off duty at 11.55 p.m. the previous day. I

was the driver of the 1.35 p.m. empty waggon train, Willesden to Bescot, with 4-cylinder 8-wheels-coupled and radial truck engine and six-wheeled tender, fitted with steam brake on the eight coupled wheels, also tender wheels, and hand brake on the tender wheels. My brakes were in good order and I had a full head of steam. My train consisted of 1 goods, 3 cattle, 7 mineral, and 37 empty waggons, and brake-van. I was shunted at Althorp Park for an express to pass. Approaching Clifton Road all signals were at danger. I was there about 5 minutes. The right hand signal was then lowered for me to proceed and on approaching the signal gantry for No. 1, I thought I saw my signal off for the Northampton to main line, also the distant signal underneath it. I was travelling about 15 miles per hour. I had steam on as I thought we were going in front of the 6.55 p.m. from Euston. I then looked for the distant signal for No. 4 Box to see if it was off. Finding I did not take the main line I looked for the signals at the end of the platform, and as they were at danger I applied my brake and then collided with the coaches. I was then travelling about 4 or 5 miles an hour. I cannot account for my mistake. I may say that both the signals for the down Northampton and down main line were raised. I could see the signals on the gantry soon after leaving Clifton Road. I have travelled 23 times over the down Northampton line since November last, and have a thorough knowledge of the signals at Rugby. I now think that I must have mistaken the signals on the gantry. I have had fireman S. Miller with me about 1 month, but he would not know the signals and could not assist me.

Harry Sydney Miller, age 25 years, 9 years' service, booked fireman 8 years, states:—I booked on duty at 1 p.m. at Willesden to finish on arrival at Bescot, due 9.35 p.m., having booked off duty 11.55 p.m. the previous day. I was working with driver Clarke

on the 1.35 p.m. empty waggon train from Willesden. I am not well acquainted with the signals between Northampton and Rugby. I have worked about 25 to 30 trips to Rugby, and about 11 trips this year to Rugby. I saw a distant and a home signal off on the gantry at No. 1 Box. When near the gantry the driver said, "They are going to let us out in front of the 6.55 p.m.," and later on he said, "Hold tight, we are going to run into something." I cannot say what speed we were travelling when passing the gantry. Our engine did not leave the road after the collision. While waiting at Clifton Road signals I went to the signal-box to carry out Rule 55.

Arthur Smith, 14 years' service, 11 years as brakesman, states:—I booked on duty at 1.5 p.m. at Willesden to work the 1.35 p.m. train to Bescot, due 9.35 p.m., having booked off duty at 4.5 a.m. the same morning. My home is at Bescot. We last attached waggons at Northampton, and on leaving there my train consisted of 3 cattle, 7 mineral, 32 empty, 1 goods, and 5 empty waggons, and 20-ton brake-van—48 waggons and brake-van. I had not made out the weight of the train. On approaching Clifton Road Junction the signals were at danger and we stood there about 8 minutes. I saw the signal lowered and the fireman come from the box, and the driver started the train. The driver was going rather fast and I applied my hand-brake to steady the train. When I got under the over-bridge I saw all signals for our train were at danger, and I applied my brake as hard as possible. I noticed that the signals were off for the main line. I did not feel anything of the collision, but I felt the bump of the engine reversing and it put all the lights of the brake-van out. My brake-van came to a stand about 7 or 8 waggon lengths short of No. 1 Box. My engine stopped down in the platform road close to No. 2 Box. No vehicle on my train was derailed.

Conclusion.

The circumstances attending this unfortunate collision were as follows, viz., the empty waggon train from Willesden to Bescot, consisting of a large coal engine, weighing 99½ tons, with a load of 48 waggons, of which 37 were empty, and a 20-ton brake-van, arrived at Clifton Road Junction at 8.8 p.m., and came to a stand at the home signals close by the signal-box, and the fireman went to the signal-box to carry out Rule 55 (a). It stood there waiting for instructions from Rugby Station. Meanwhile, at 8.10 p.m., a passenger train arrived at the down platform line in the station, which terminated its journey there, and the empty coaches had to be backed out by their own engine into the carriage sidings. To do this the coaches had first to be backed from the down platform line to the Market Harborough line, and E. G. Meredith, the shunter in charge of the movement, informed the signalman in No. 2 signal-box what was required. He communicated with E. Hill, the signalman in No. 1 box, who accordingly set the road and lowered the backing signal, which is 25 yards south of the end of the down platform and 138 yards north of the signal-box. Hill was also offered the empty waggon train from Clifton Road Junction, and he accepted it at about 8.16 p.m., according to the Clifton Road Junction train book (no train book being kept at Rugby No. 1 signal-box). As soon as Hill accepted the train, H. Whitlock, the signalman at Clifton Road Junction, lowered his home signal for the train to proceed towards the home signals of Rugby No. 1.

E. Hill, the signalman at Rugby No. 1 box, states that when he accepted the empty waggon train all his signals for the down Northampton line were at danger, but his down home and distant signals for the down main line were "off" for the 6.55 p.m. passenger train from Euston. Soon after driver Clarke of the empty waggon train had left Clifton Road Junction, he thought he saw the home signal for Rugby No. 1 box, which leads from the down Northampton line to the down main line, and the distant signal underneath, "off" for him, so he put on steam as he thought that he was going in front of the 6.55 p.m. train from Euston. After that he says he looked ahead for the distant signal for No. 4 signal-box to see if it was "off," but after passing the home signals, finding that he did not take the crossing leading from the down Northampton line to the down main line, he looked at the platform signals just ahead of the signal box, and seeing that they were at danger he applied the engine brake, but he was travelling too fast to stop before colliding

with the engine which was propelling the empty coaches from the down platform line to the Market Harborough line, which he only saw when a short distance away. The fouling point of the crossing is 187 yards inside the home signals. The heavy coal engine of the empty waggon train hit the other engine at the fouling point of the crossing and knocked it over on to its side, unfortunately killing the driver and fireman. No wheels were derailed of the empty waggon train, which ran along the down platform line for a distance of about 280 yards past the point of collision before coming to a stand.

A. Smith, the guard of the empty waggon train, saw that the home signals at No. 1 signal-box were against his train when he got to the road overbridge beyond Clifton Road Junction; this bridge is 350 yards from the home signal gantry. He applied the brake in his van as hard as he could, but this would have no effect on the train, which was travelling quite 15 miles an hour.

Signalman Hill was correct in accepting the empty waggon train at the same time as the empty coach train was being shunted back from the down platform line to the Market Harborough line, as he was allowed to do so under the instructions for his signal-box. The regulation is that, while shunting operations with empty carriage trains, etc., are going on under cover of the home signal, a light engine, goods train, or empty carriage train, but not a passenger train, may be accepted from the signal-box in rear. This modification of block working is necessary owing to the heavy traffic through Rugby Station.

It will be seen then that the collision was due to Driver Clarke passing his home signals at danger, owing to mistaking which of them was "off" when he first sighted them after leaving Clifton Road Junction Box, which is 537 yards from the signals in question. When approaching these signals, he says, he was looking ahead for the distant signals for No. 4 signal-box, to see if he had a clear run, and so apparently could not have looked a second time at the home signals, or he could not possibly have mistaken which one was "off". As described above, these are in three groups, with a space of 10 feet between each group, and they are placed overhead and to the left of the line to which they refer, and are quite distinct, and very easy to read.

Driver Clarke has an excellent record, and is thoroughly well acquainted with the signals in question. He had travelled 23 times over the down Northampton line since November last. He had been on duty 7½ hours at the time of the collision, after an interval of rest of 13 hours. His eyesight was tested after the mishap and found to be quite satisfactory.

The Assistant Secretary,
Railway Department, Board of Trade.

I have, &c.,

E. DRUITT,
Lieut.-Col.

APPENDIX.

DAMAGE TO ROLLING STOCK AND PERMANENT WAY.

Rolling Stock.

Coal engine, 1869. Right cylinder broken off from framing; right leading sand box broken; foot-framing bent and broken, right side; leading buffer plate bent, right side; angle iron bracket broken off, right side; covering plates over right cylinder and valve covers, bent and broken; smoke-box plates bent, right side; steam pipes broken off, right side; right high pressure piston crosshead damaged, and piston rod broken off; right high pressure connecting rod bent; leading brake beam bent, rods also bent; splash-plate over right leading wheel bent badly; sand valve gearing, right side damaged; right high pressure spectacle framing casting broken; right leading life-guard broken off; right side hand-rail bent; washer broken off, right leading brake hanger.

Tender 1795, attached to engine 1869. Right hand-rail bent.

Engine 1905. Casting, trailing end of left main framing broken; left foot-step broken off; left foot-framing and splasher bent, trailing end of engine; front buffer-plate slightly bent; casing plate over right high pressure cylinder bent; right foot-framing bent; right foot-step bent and cracked; chimney damaged and top broken off; right hand-rail bent; boiler lagging plates and dome shell damaged; filling-up casting for foot-plate board broken; foot-plate hand-rail pillars bent, and panels damaged; right injector feed-pipe bent; steam brake pull-rod bent;

side couplings between engine and tender bent; cab bent and damaged badly; steam heating pipes in right corner of cab broken off; whistle bell broken off; steam heating gauge pipe and boiler pressure gauge pipe bent; vacuum regulator steam valve box broken off below where coupled to whistle column; whistle column casting cracked; steam valve spindle to vacuum regulator bent; feed bags damaged; wheels slightly strained.

Tender 1974, attached to engine 1905. Top step, right side bent; bottom steps broken off; hand-rail bent, right side; middle axle-box cover broken off, right side; both trailing horn-plates bent; main framing broken, both sides, trailing end; buffer beam broken badly, left side; buffer plungers and castings broken; vacuum pipe damaged; heating hose, back end, damaged; coal rails at top of tender bent; lamp bracket broken; tank damaged, back end, left side, badly; left trailing and left leading axle-boxes broken; left middle axle-box cover broken; left step broken off; leading drawbar bent; plate under lap-plate bent.

Permanent Way, &c.

3 P. & C. chairs; 4 8-inch chairs; 26-inch chairs; 8 bolts; 4 spikes; 4 screws; 3 point rods; 50 yards P. & C. road and 110 yards plain road—rails badly bent and road pushed out of line 5 inches.

50 yards flagging (platform coping) badly chipped; Point and signal connections were also damaged.