

INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN
RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED
ON THE BOSTON AND MAINE RAILROAD NEAR NORTH
CHARLESTOWN, N. H., ON MARCH 28, 1929.

July 29, 1929.

To the Commission:

On March 28, 1929, there was a derailment of a passenger train on the Boston and Maine Railroad near North Charlestown, N.H., which resulted in the injury of 12 passengers, 3 mail clerks, 1 express messenger, 2 Pullman employees and 4 railroad employees.

Location and method of operation

This accident occurred on that part of the Connecticut Division extending between Windsor, Vt., and Springfield, Mass., a distance of 109.11 miles, which is a double-track line over which trains are operated by time-table, train orders and an automatic block-signal system. The accident occurred at a point approximately 2,450 feet south of North Charlestown station; approaching this point from the north the track is tangent for a distance of about 1,900 feet, followed by a $1^{\circ} 05'$ curve to the left about 750 feet in length, the accident occurring on this curve at a point approximately 550 feet from its northern end. The grade at the point of accident is 0.8 per cent descending for southbound trains.

In the vicinity of the point of accident the track is laid with 85-pound rails, 33 feet in length, with an average of 19 ties to the rail-length, and is single-spiked; no tie plates are used. The track is located on a fill, the maximum depth of which is 50 feet.

The weather was cloudy at the time of the accident, which occurred at about 4.47 a.m.

Description

Southbound passenger train No. 78 consisted of one milk car, one baggage car, one combination mail and baggage car, one express car, one Pullman sleeping car, two coaches and one Pullman sleeping car, in the order named, hauled by engine 3651, and at the time of the accident was in charge of Pilot Conductor Moran and Pilot

Engineman Costello. This train left Claremont Junction, 4.70 miles north of North Charlestown, at 4.40 a.m., five minutes late, and had just passed the latter point when it was derailed while traveling at a speed estimated at about 45 miles per hour.

The engine and first car came to rest approximately 1,125 feet beyond the first mark of derailment with the right rear driver and the right trailer wheel of the engine derailed on the inside of the right or west rail. The tender and the rear truck of the car were also derailed, while the wheels of the front truck indicated that they had been off the rails and had then rerailed themselves; all of the tender wheels were inside the rails. There was a space of about 300 feet between the head end and where the remainder of the train came to rest. The second to the sixth cars, inclusive, and the forward truck of the seventh car were derailed, the body of the fifth car sliding down the embankment and coming to rest about 75 feet from the track. The employees injured were the pilot conductor, conductor, baggage master and head brakeman.

Summary of evidence

Pilot Engineman Costello stated that the last stop was at Claremont Junction, where water was taken, and that the speed of his train was not more than 50 miles per hour at any time after leaving that point. He was operating the train on the descending grade with the throttle slightly open, and there was no unusual motion until he felt a lurch from behind when his engine reached a point about an engine and three car-lengths south of a highway crossing. Upon being informed by the other engineman, who was riding on the fireman's seat, that fire was flying from under the train, he immediately applied the brakes in emergency but he did not know whether this application caused the brakes to apply or whether it was due to the train having already broken in two. He inspected the engine after the accident and found a train line connection broken between the engine and tender and there was a brake shoe missing from the left side of the tender; this shoe was later found a few feet to the rear of the head car. He then returned to the point of derailment and examined the track. There were light marks as if something had been hitting on the ties north of the highway crossing and a flange mark on a spike head on the outside of the east rail about 10 or 15 feet south of the crossing, there were no flange marks on the ball of the rail to indicate that the wheel rode over the top of it. A piece of metal was found between the main tracks, about three or four car-lengths north of the crossing, which he did not identify at first but later learned that it was an oil step brace.

Engineman Rice stated that he was not operating the engine at the time of the accident for the reason that he was not qualified to run south of White River Junction. He estimated the speed between Claremont Junction and the point of accident at between 40 and 45 miles per hour, and said he was riding on the fireman's side of the engine at the time of the accident. When he felt a surge of the engine he looked back, saw fire flying from under either the tender or the first car, and immediately notified the pilot engineman, who in turn applied the brakes. He did not think the tender was off the track at the time he felt the lurch, and said he did not know how far south of the crossing the accident occurred as this was his first trip over that part of the road. There was no unusual movement of the engine previous to the accident to indicate that the track was rough. He inspected his engine after the accident and noticed nothing wrong except that a brake shoe was missing from the L-2 tender-truck wheel; he found this shoe near the rear end of the milk car but when he examined it he did not notice any marks on it. Upon examining the track several car-lengths north of the highway crossing he noticed fresh marks on the ties, as though something had struck them, while there were also indications that something had struck the crossing planks lightly, the first indication of derailment was just south of the crossing.

Fireman Smith stated that his train departed from Claremont Junction with the water tank filled to within 6 inches of the top. He was riding on his seat box behind Engineman Rice at the time of the accident and upon looking back he saw fire flying which in his opinion was from under the first or second car. He estimated the speed at the time of the accident at 40 or 45 miles per hour.

Pilot Conductor Moran stated that his first intimation of anything wrong was when the car in which he was riding, which was the sixth car in the train, became derailed; he had not felt any application of the brakes prior to this time, and estimated the speed at the time of the derailment to have been between 45 and 50 miles per hour. The statements of Conductor Stockwell, who was also riding in the sixth car, practically corroborated those of Pilot Conductor Moran, except that he felt an emergency application of the brakes about two or three seconds prior to the accident. He said that the train was in charge of the pilot conductor as this was only his second trip over that part of the line and he was not familiar with it.

Flagman Lyon stated that on his way back to flag he found a piece of iron lying between the northbound and southbound tracks approximately 300 feet north of the highway crossing. He examined but could not find any marks on it, and later he identified this piece of metal as an oil step brace which had fallen from the engine of his train.

The statements of Baggage man Gammell and Brakeman Derby added no additional facts of importance as neither of them felt any unusual motion of the train until the cars in which they were riding were derailed.

Section Foreman Poisson, in charge of the section on which the accident occurred, stated that he last patrolled the track in that vicinity at about 3.35 p.m., the previous day and that the last work performed was when he had done some shimming about three or four weeks prior to the accident. Upon his arrival at the scene of accident he inspected the track in order to determine if possible what caused the derailment but found nothing except a few fresh marks between the rails on the ties north of the highway crossing which appeared to have been made by something dragging; corresponding marks appeared on the edges of the crossing planks.

Assistant Track Supervisor Davis stated that he found indications that something had been dragging. The north end of the middle crossing plank had a piece gouged out of it and the west flangeway of the crossing was marked as if by a loose wheel. He continued northward from the crossing and noticed slight marks on the ties between the rails for a distance of about 400 feet. He said that the track south of the point of accident was badly damaged and in some places it was entirely torn out. North of the point of accident the track appeared to be in a very good shape, excepting at a point just south of the crossing the inside rail on three or four ties was slightly low but he did not think it would take one-half inch shims. He also said that the only work done in that locality was the installation of some shims north of the crossing about three or four weeks previously.

Division Engineer Sampson stated that he took measurements of the alignment, gauge and elevation. These measurements were taken at a point 6 feet south of the point of derailment, at the point of derailment, and at each rail joint northward for a distance of 181½ feet. It developed that there was a slight sag in each rail just south of the crossing, but it did not appear that there was any condition which could be held responsible for the occurrence of the accident. It is to be noted, however, that within less than two car-lengths

of the point of derailment, which it is believed actually began south of the crossing, there was a variation in elevation of 7/8 inch within a distance of half a rail-length.

Engineer of Track Thornton stated that when he examined the track he found that the edge of the plank next to the flangeway of the crossing had been sheared off for about 15 feet, and while it appeared that this had been done by a loose wheel yet he was of the opinion it was caused by something dragging through the flangeway. He said the track approaching the point of accident was in fairly good condition and considered it safe for a speed of 60 miles per hour.

Division General Car Foreman Coburn stated that he inspected the first car in the train at the scene of accident, after it was rerailed, and found that the spring-block hanger castings on the left side, at both ends of the car, were out of their proper positions; he also found that the rear truck frame was cracked and the crossover pipe broken, the defect in the truck frame being a new crack. This car was later moved to White River Junction with the same truck still in service. He examined the trucks of all of the derailed cars but could find no evidence of a loose wheel.

Traveling Inspector of Locomotives Prentiss stated that his inspection of engine 3651 on the day of the accident disclosed that the train and signal lines were broken under the front tender sill, and the left No. 2 brake shoe and pin, as well as the left front safety bar from underneath the brake beam, were missing. He also noticed that the brace between the bottom of the oil step and the bottom guide on the left side of the engine was missing.

General Inspector of Locomotive Maintenance Ohnesorge stated that after the tender was rerailed he checked the side-bearing clearance on the front truck and found it all right but he could not check the clearance of the rear truck as it was off center. He assisted in replacing the tender brake shoe found in the vicinity after the accident and it fitted properly, and it was his opinion that it was the same shoe that was missing from the tender truck. After the engine was taken to Springfield Station the brake hanger was disconnected from the brake head on the No. 2 beam on the left side of the tender and the beam allowed to drop down the full length of the safety chain, and with the beam in this position the brake head cleared the rail about 1 inch, although a bolt through the head and end of the beam came in contact with the rail. He also said he was present when the oil step brace,

which was found north of the point of accident, was fitted into place, and said the bolt holes lined up perfectly and he thought it was the same brace that was lost from the engine.

Enginehouse Foreman Ollis stated that when engine 3651 arrived at Bellows Falls a few hours after the accident it was discovered that both side-bearing filler blocks were missing from the rear truck of the tender and that a piece of the top side-bearing casting on the left side of the same truck was broken off. This truck was off center and the center pin bent so that the castings could not be centered until this pin had been removed. These parts were replaced by temporary parts in order that the engine could be moved to Springfield for repairs. A new brake rod was applied to the forward truck and the brake shoe on the left No. 2 wheel was replaced, while the brake beam truss was out of its socket at one end and had to be forced back into place.

Machinist Dubois stated that he made repairs to the tender of engine 3651, at Springfield, which consisted of replacing two broken side-bearing casting bolster bolts, located on the right side of each truck. Two side bearing castings were also broken on the left side of the front truck, which were repaired and replaced. He also replaced two new side-bearing blocks, one on each side of the rear truck.

Engine 3651 was in the shops for unclassified repairs from February 13 to March 6, 1929. It had been in regular service since that time between Springfield, Mass., and Woodsville, N.H., and was inspected at the end of each trip. This engine was carefully inspected by the Commission's inspectors and it was found that all foundation brake equipment was in proper place and secured, the gauge of the wheels and flanges of both the engine and tender were in good condition, and all parts such as cellars, wedges, etc., were in proper place.

Conclusions

The cause of this accident was not definitely ascertained.

Immediately after the occurrence of the accident an oil step brace from the engine was found a few hundred feet north of the point of accident; there were no wheel marks on this brace, nor was it distorted in any way, and apparently it had nothing to do with the occurrence of the accident. The same thing may be said of a tender

brake shoe, which was found some distance south of the point of accident. None of the things noted about the milk car, the first car in the train, was of such a nature as to indicate that any of them had any bearing on the accident. There were some variations in elevation, however, a short distance north of the crossing, and it is possible that the accident can be accounted for by the presence of these variations, coupled with missing side-bearing blocks from the rear tender truck. These blocks were not found after the accident, and if they were missing at the time of the accident there would have been considerable sway to the tender, nearly full of water, in rounding the curve on which the accident occurred, and this condition would have been aggravated by the uneven elevation which was found to exist.

The employees involved were experienced men, and at the time of the accident they had not been on duty contrary to the provisions of the hours of service law.

Respectfully submitted,

W. P. BORLAND,

Director.