INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE LEHIGH VALLEY RAILROAD NEAR MOUNT CARMEL, PA., ON JUNE 2, 1928.

July 25, 1928

To the Commission:

On June 2, 1928, there was a derailment of a passenger train on the Lehigh Valley Railroad near Mount Carmel, Pa., resulting in the death of two employees, and the injury of five passengers, six employees, three of whom were off duty, and one Pullman porter. This accident was investigated in conjunction with a representative of the Pennsylvania Public Service Commission.

Location and method of operation

This accident occurred on that part of the Mahanoy and Hazelton Division extending between Penn Haven Junction and Mount Carmel, Pa., a distance of 51.8 miles; in the vicinity of the point of accident this is a double-track line over which trains are operated by time-table and train orders, no block-signal system being in use. The accident occurred within yard limits, at a point about 145 feet west of the east yard-limit board at Mount Carmel, on the westbound main track, on what is known as Morris Ridge curve; approaching this point from the east the track is tangent for a distance of 622 feet, followed by a 13° curve to the right 1,645 feet in length, the accident occurring on this curve at a point 496 feet west of its eastern end, or 105 feet west of the easement curve. The grade for more than 1 mile approaching the point of accident is descending for westbound trains, varying from 1.375 to 2.313 per cent, being at the minimum at the point of accident.

The track is laid with 110-pound rails, 33 feet in length, rolled in September, 1913, and relaid at this point in February, 1927, with 20 treated ties to the rail-length, fully tie-plated, double-spiked on the inside and single-spiked on the outside, and ballasted with cinders from 18 to 24 inches in depth. The track is well constructed and is maintained in good condition. The super-elevation and gauge were practically uniform; the gauge from the eastern end of the curve to the point of accident varied from 4 feet 8 9/16 inches to 4 feet 8 14/16 inches, while the maximum superelevation was 3 inches. At the point of accident the gauge was 4 feet 8 14/16 inches and the

superelevation was 2 11/16 inches. At the extreme eastern end of the curve there is a "Speed on Curve" sign, restricting the speed of westbound trains to 10 miles per hour while rounding the curve.

The weather was clear at the time of the accident, which occurred at about 10.40 p.m.

Description

Westbound passenger train No. 209 consisted of one baggage car, one smoking car, one coach and one Pullman chair car, in the order named, all of steel construction, hauled by engine 1613, and was in charge of Conductor Houser and Engineman Conahan. This train left Park Place, the last open office, 17.3 miles east of Centralia, at 10 p.m., according to the train sheet, five minutes late, made a stop at Centralia, and on reaching a point approximately 3.18 miles beyond that point the train was derailed while traveling at a speed estimated by members of the crew to have been from 15 to 20 miles per hour.

The engine, tender and the first car were derailed to the left and came to rest down the 30-foot embankment on the outside of the curve. The engine was on its left side, badly damaged and headed toward the tracks, at a point 212 feet beyond the first marks of derailment, with the tender immediately behind the engine. The first car was torn from its trucks but remained upright and came to rest against the engine and tender, headed away from the tracks, with its rear end projecting above the roadbed. The forward trucks of the second and third cars were also derailed, but these cars remained upright on the roadbed and were not badly damaged. The employees killed were the engineman and fireman.

Summary of evidence

Conductor Houser stated that the last stop was made at Centralia and at this point he looked at his watch, having in mind the connection at Mount Carmel, and noted that it was 10.35 p.m., after which he took out his timetable and noted that his train was four minutes late. As his train was approaching Morris Ridge curve the conductor was riding on the forward end of the rear car, and as soon as the train had come to rest after being derailed he looked at his watch and noted that it was 10.40 p.m. Conductor Houser said that the air brakes worked properly en route and he noticed nothing unusual as to the handling of the train, the stops being made in the regular way.

On previous trips it was his observation that the speed of the train would be reduced at points between Centralia and the point of accident, but he did not notice whether the brakes were applied between these points on this particular trip, nor did he notice any air-brake application made preparatory to rounding Morris Ridge curve on this trip, and while he was not paying any particular attention to the speed of his train he thought it was from 18 to 20 miles per hour. After the accident he made an examination of the track and roadbed, but did not find anything to indicate how the accident occurred. Conductor Houser further stated that prior to starting on the first trip this day, at 4.30 p.m., he had asked Engineman Conahan how he was feeling, knowing he had been off duty several days on account of sickness, and the engineman replied that his head did not feel right.

Brakeman Wise stated that he was thoroughly familiar with the territory involved and knew where the air brakes were usually applied, that on approaching these points it was customary for him to put one foot forward in order to brace himself, and that he did so on this occasion when approaching Morris Ridge curve. He was riding in the second car and felt an air brake application made; the brakes then were released, after which a second application was made, the accident occurring in about one-half to one minute from the time the second application was made. Brakeman Wise noticed no indication of excessive speed, like rough riding or rolling of the cars, and could not make any estimate as to the speed at the time of the accident.

Baggagemaster Dougherty, who was riding in the second car between Centralia and the point of accident, observed nothing unusual in connection with the speed of the train nor did he notice whether any air-brake application was made, as he was not paying particular attention to the matter, but he did not think the speed was in excess of 20 miles per hour at the time of the accident, at which time he said it felt as though the air brakes applied in emergency. All three of these members of the crew thought the train would gather sufficient momentum on the heavy descending grade to cause it to be derailed on the curve provided the air brakes were not used.

Division Engineer Donovan stated that in his opinion train No. 209 could have rounded Morris Ridge curve in safety at a speed of 20 miles per hour.

The first indication of derailment was found on a tie outside of the high rail of the curve; at this point the end of the tie was splintered, not the result of a wheel mark, but apparently caused by some heavy object having been dragged across it, and immediately west of this mark what looked like a trench had been dug in the ballast between the westbound and eastbound tracks, about 3 feet in depth and 30 feet in length. The eastbound track was torn out and pushed to the south, down the embankment, while the westbound track was slightly distorted. No distinct mark of derailment was found on the tops of the rails or on the ties at the point of derailment or east thereof which would have indicated the presence of dragging equipment nor was any wheel mark found on the rails or ties to indicate that a wheel or wheels had dropped off the rails. One of the two air pumps on the left side of the boiler of the engine was found buried in the ballast about midway between the point where the first mark of derailment appeared on the outside of the high rail and the point where the engine came to rest.

Engine 1613 is of the double-cab, 4-6-0 type, with a driving wheel-base of 13 feet 4 inches and a total wheel-base of 25 feet 4 inches. A thorough inspection was made of the engine and cars following the accident, but nothing was found that would have contributed to the occurrence of the accident.

Conclusions

This accident is believed to have been caused by the operation of train No. 209 at an excessive rate of speed on a sharp curve, for which Engineman Conahan is responsible.

While the surviving members of the crew estimated the speed of the train not to have been in excess of 20 miles per hour, the weight of evidence is to the contrary. It appears that the rate of speed at which the engine rounded the curve was so great that it overturned to the left by centrifugal force. The absence of marks on the rails, the condition of the wreckage, the distance the engine traveled and the manner in which the equipment came to rest indicate conclusively that the maximum rate of speed permitted on this curve, 10 miles per hour, was being greatly exceeded, while there was no evidence to show that the condition of the track or equipment was in any degree responsible for the accident.

According to the statements of Conductor Houser it was 10.35 p.m. when he looked at his watch at Centralia, after which he took out his schedule and observed that his train was four minutes late, gave a proceed signal, and the train departed. He further stated that on looking at his watch following the accident, after the equipment had settled, it was a little after 10.40 p.m. Taking these figures, and not taking into consideration getting up speed on departing from Centralia or the time it took for the conductor to gather himself together following the accident before looking at his watch, the train traveled the distance between Centralia and the point of accident, 2.18 miles, in five minutes, or at an average rate of speed of approximately 26 miles per hour, although within this distance there was one slow order in effect, as well as two curves on which a 15-mile speed limit is in effect, prior to reaching the curve on which the accident occurred.

Engineman Conahan entered the service of this railroad as a fireman in November, 1905, and was promoted to engineman in October, 1912; his record was good. At the time of the accident none of the employees involved had been on duty in violation of any of the provisions of the hours of service law.

Respectfully submitted,

W. P. Borland,

Director.