

## INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE DAYTON UNION RAILWAY AT DAYTON, OHIO, ON NOVEMBER 29, 1927.

January 18, 1928.

To the Commission:

On November 29, 1927, a freight train of the Cleveland, Cincinnati, Chicago & St. Louis Railway derailed and then collided with a passenger train of the same railway which was passing in the opposite direction on an adjoining track, the accident occurring on the tracks of the Dayton Union Railway, at Dayton, Ohio, and resulting in the death of one passenger and the injury of two passengers, four dining car employees and two Pullman porters. This accident was investigated in conjunction with representatives of the Ohio Commission of Public Utilities.

Location and method of operation

The Dayton Union Railway operates the Dayton Union passenger station and about 1.8 miles of double-track line which extends eastward and westward from the station. The trains of several railroads, including the Cleveland, Cincinnati, Chicago & St. Louis Railway, hereinafter referred to as the Big Four, are operated over these main tracks by authority of interlocking signals and hand signals received from switch tenders, regardless of time-table superiority. The accident occurred at a point about 3,700 feet west of the station, within interlocking limits, at a point known as Miami City Junction. The point of derailment was at the frog of a trailing-point switch for eastbound trains, this switch being the junction switch of the Big Four Railway with the Baltimore & Ohio Railroad, located just inside the western limit of the tracks of the Dayton Union Railway. Approaching the switch from the west on the Big Four Railway the track is tangent for more than 2 miles, followed by a compound curve to the right 1,326 feet in length, the curvature of which varies from  $1^{\circ}$  to  $5^{\circ}$ , the switch involved is located on this curve at a point 671 feet from its western end. The grade is 0.14 per cent ascending for eastbound trains.

The tracks are laid with 100 and 105-pound rails, 33 feet in length, with 20 ties to the rail-length, tie-plated and double-soiked on curves, and ballasted with gravel. In the vicinity of the switch the roadbed is poorly drained, the ties at the heel of the frog displayed evidence of churning, and immediately west of the frog there were irregularities in cross levels. A superelevation of  $1\frac{1}{2}$  inches is maintained upon the greater part of the compound curve. At the time of the accident the guard rail opposite the frog was not in place, having been removed a short time previously with the intention of installing a new one. Trains are limited to a speed of 15 miles per hour on the tracks of the Dayton Union Railway.

The weather was clear at the time of the accident, which occurred at about 8.45 a.m.

#### Description

Eastbound Big Four freight train extra 326 consisted of 92 cars and a caboose, hauled by engine 326, and was in charge of Conductor McKittrick and Engineman Dillon. While passing through the switch leading to the tracks of the Dayton Union Railway, moving at a speed estimated to have been between 10 and 15 miles per hour, the engine-truck wheels derailed to the left at the frog of the trailing-point switch, and on reaching the facing-point switch of the crossover, 35 feet eastward, these wheels were diverted farther to the left toward the westbound main track and the left cylinder of engine 326 came in contact with the left front corner of the seventh car of westbound passenger train No. 15, which was passing in the opposite direction on that track.

Westbound Big Four passenger train No. 15 consisted of one club car, five sleeping cars, one dining car, and three sleeping cars, in the order named, all of steel construction, hauled by engine 6498, and was in charge of Conductor Kane and Engineman Monesmith. This train departed from Dayton Union Station at 8.42 a. m., seven minutes late, and shortly afterwards, while passing the crossover at a speed estimated to have been between 12 and 18 miles per hour, the seventh car in the train was struck by the derailed engine of extra 326.

As a result of the collision the seventh car in the passenger train, which was the dining car, was derailed and it then swerved away from engine 326, allowing the engine to collide with the left front corner of the following sleeping car. Both of these cars were overturned, coming to rest on their right sides, north of and parallel with the westbound main track. The left front corner of the dining car was crushed in and badly damaged, while the corner of the following sleeping car was demolished. Engine 326 was also over-

turned, coming to rest on its right side diagonally across both main tracks, about 300 feet east of the point of derailment, while the tender was immediately behind the engine, leaning to the right; the first four cars in the freight train were also derailed.

#### Summary of evidence.

Engineman Dillon, of extra 326, stated that at Washington Street, located about 200 feet west of the frog of the switch, the engine slipped badly, at which time the speed was about 12 or 15 miles per hour, but the first knowledge he had of anything wrong was when the engine cab had reached a point afterwards ascertained to have been about 95 feet east of or beyond the frog. At this point he heard a noise and on looking out he noticed that the trailer truck was derailed and he immediately applied the air brakes in emergency and at about the same time the rear end of the engine swerved toward the right, and he then felt the head end of the engine strike train No. 15, which was passing on the adjacent track. Engineman Dillon said that when he noticed that the trailer truck was derailed he did not look forward to see whether any of the other wheels were derailed, he did not think, however, that the driving wheels were derailed at that time. Engineman Dillon said that on previous trips he had noticed that the track was rough at the frog and that it caused the engine to lurch to one side. The statements of Fireman Wright practically corroborated those of Engineman Dillon. Conductor McKittrick, Head Brakeman Franklin and Flagman Proctor were riding in the caboose and were unaware of anything wrong prior to the accident, their estimates as to the speed at the time of the accident ranged from 10 to 12 miles per hour.

None of the members of the crew of train No. 15 was aware of anything wrong prior to the accident. Their estimates as to the speed of their train at the time of the accident ranged from 12 to 18 miles per hour.

Track Supervisor Martin, of the Big Four Railway, stated that he inspected the track at the point of accident about six days prior to its occurrence. He had been riding in a train which passed this point, noticed that the track was rough, and went back to examine it. He found that the eastbound track of the Big Four Railway immediately west of the frog of the switch was not unsafe but that it did need attention, the condition of the ballast being muddy, having churned to such an extent that it was sort under the ties. Track Supervisor Martin said he informed Section Foreman Murray, of the Dayton Union Railway, that there were several places at the extreme western end of that railway that needed attention as soon as the section foreman

could get around to it, and one of the places he had in mind was the place where the accident afterwards occurred, although he did not mention that point specifically. When talking with the track foreman, he did however call particular attention to a point near the bridge. Track Supervisor Martin did not consider these places to be sufficiently bad to require emergency attention, or to require that speed restrictions be placed in effect. With reference to the missing guard rail, Track Supervisor Martin said that he did not sanction its removal, and that while he never permitted a train to move over a rigid frog with the guard rail removed, trailing the point of the frog, he had allowed trains to pass over spring frogs by spiking the spring and then having the trains move at a safe speed. Mr. Martin said he would consider it safe, if trains were held down to a low rate of speed, to permit a trailing-point movement without a guard rail in order to save delay and congestion of traffic, and that he considered 15 miles per hour, the speed permitted in this territory, a safe rate of speed under such circumstances. It also appeared from the statements of Track Supervisor Martin that measurements taken during the afternoon of the day of the accident showed that the superelevation at the point of the frog was  $1\frac{1}{2}$  inches, at the heel of the frog it was  $1\frac{1}{4}$  inches and at a point  $4\frac{1}{2}$  feet west of the heel of the frog it was  $\frac{3}{4}$  inch. The gauge at the point of the frog was 4 feet  $8\frac{3}{4}$  inches, while at the heel of the frog it was 4 feet  $9\frac{5}{8}$  inches. Mr. Martin considered that the track was not in good surface or alinement and that under these conditions the absence of the guard rail might possibly have had something to do with the occurrence of the accident, but in his opinion, had the track been in good condition, the absence of the guard rail would not have made any difference.

Section Foreman Murray, of the Dayton Union Railway, stated that after ascertaining that trains would not be operated against the current of traffic he had his men remove the guard rail, with the intention of installing a new guard rail. He felt that it was absolutely safe to operate trains with the current of traffic without having the guard rail in place, and said that this had been done heretofore a number of times without accident. About 8 or 10 days prior to the day of the accident his attention was called to track conditions by Track Supervisor Martin, of the Big Four Railway, but Foreman Murray thought that Supervisor Martin referred to conditions at Miami River bridge. Foreman Murray inspected the track at the point of accident the day prior to its occurrence, he noticed a low place in the track just west of the frog, although he did not consider it dangerous, and he also noticed that the drainage was not particularly good and that

there were indications of churning. It also appeared from his statements that he had noticed vertical deflection under traffic within a few days previous to the accident, at a point just west of the frog. At the time the accident occurred Section Foreman Murray was standing on the north side of the westbound track opposite the frog of the switch and could not see what happened when the engine of the freight train reached the frog, since the passenger train was passing between the frog and the point where he was standing, he did, however, hear the freight engine slipping badly.

Section Laborer Lekovits, of the Dayton Union Railway, was standing near the frog, east of it and on the south side of the eastbound main track, at the time of the accident, and he said he saw the engine-truck wheel climb the throat of the frog and derail to the left.

General Superintendent White, of the Big Four Railway, stated that while a facing-point movement against the point of a frog, when not protected by a guard rail, was considered dangerous and almost impossible to make successfully, yet it was different with a trailing-point movement, which was considered safe, and he said that he had not only seen such movements made successfully but had personally directed them a great many times. He thought that the absence of the guard rail contributed to the occurrence of the accident and that when coupled with the curvature it probably was the cause of the accident.

The first indication of derailment was a flange mark on a nut of the east bolt of an angle bar on the north side of the north rail, 7 feet 1 inch east of the point of frog, flange marks then appeared upon the plates and ties, close to and on the left sides of the rails up to the facing-point switch of the crossover, where the marks followed the crossover rails to the left to the fouling point of the westbound main track.

Careful inspection of engine 326 in regard to lateral, flanges, gauge of wheels, wedges, equalizers, driving springs, hangers, saddles, etc., failed to disclose any defect that would have caused or contributed to the accident.

#### Conclusions

This accident is believed to have been caused by poorly maintained track, coupled with the absence of a guard rail at the frog of a trailing-point switch.

The statements of the track supervisor and also of the engineman of extra 326, based upon their experience in riding over this portion of the track, indicated that the track was in such bad condition as to be noticeable, in fact, it caused the track supervisor to go back on foot, make an examination of the conditions, and call them to the attention of the section foreman. These conditions consisted of wide gauge and irregular surface, and when coupled with the fact that the ballast was in poor condition they appear to be adequate to account for the derailment at the frog of the pony-truck wheels of engine 326. These wheels were derailed to the left and followed the rails closely until the switch points were reached, where the left wheel crossed over the left rail of the eastbound main track, both derailed wheels then continuing on the left sides of their respective rails until they encountered the facing-point switch of the crossover leading to the westbound track. At this point the engine was diverted to the left, followed the crossover rails, and collided with the side of train No. 15, which was passing on the westbound track. Not only is it probable that the accident could not have occurred had the track been properly maintained, but it is even more probable that the accident would have been prevented had the guard rail been in place, properly spaced from the stock rail.

The employees involved were experienced men, and at the time of the accident none of them had been on duty in violation of any of the provisions of the hours of service law.

Respectfully submitted,

C. P. BORLAND,

Director.