

INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY CONCERNING AN
ACCIDENT ON THE CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS
RAILWAY AT WORTHINGTON, OHIO, ON NOVEMBER 16, 1933.

January 29, 1934.

To the Commission:

On November 16, 1933, there was a derailment of a passenger train on the Cleveland, Cincinnati, Chicago & St. Louis Railway at Worthington, Ohio, which resulted in the injury of 9 passengers, 1 employee and 3 Pullman employees. The investigation of this accident was made in conjunction with representatives of the Public Utilities Commission of Ohio.

Location and method of operation

This accident occurred on that part of the Ohio Division extending between Berea and Columbus, Ohio, a distance of 125.5 miles. In the vicinity of the point of accident this is a single-track line over which trains are operated by time table, train orders, and a manual block-signal system. At Worthington this track crosses the double-track line of the Pennsylvania Railroad at an angle of approximately 8° ; there is a mechanical interlocking plant protecting this crossing, with a tower located just east of the crossing, and the accident occurred 57 feet east of the crossing and opposite the western end of the tower. Approaching from either direction the home signals are about 700 feet from the crossing, while the track is tangent for several miles. The grade for west-bound trains is 0.33 percent descending.

In the vicinity of the point of accident the track is laid with 105-pound rails, 39 feet in length, with 24 treated hardwood ties to the rail length, tieplated, and ballasted with coarse gravel and crushed stone to a depth of about 18 inches. At the crossing and just east thereof the track is laid with 100-pound rails, and the south rail consisted of four short sections having the following lengths: 18 feet 9 inches; 21 feet; 22 feet 4 inches; and the knuckle rail section, 16 feet 6 inches in length, and the initial point of derailment occurred approximately $2\frac{1}{2}$ feet from the receiving end of the 21-foot section, within territory where the Pennsylvania Railroad maintains the track.

The weather was clear and cold at the time of the accident, which occurred at 3:30 a.m.

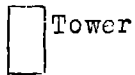
Description

West-bound passenger train no. 5 consisted of 1 baggage car, 2 coaches and 7 Pullman sleeping cars, all of steel construction,

Home signal

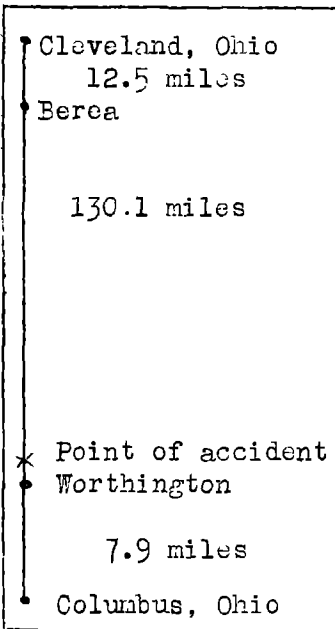


Direction of train



Point of accident

57 ft.



C. C. C. & St. L.

Pennsylvania tracks



Home signal

Inv. No. 1866
 Cleveland, Cincinnati,
 Chicago & St. Louis Ry.
 Worthington, Ohio
 November 16, 1933.

hauled by engine 6601, and was in charge of Conductor Dean and Engineman Coffey. This train departed from Berea at 12:42 a.m., according to the train sheet, 1 minute late, passed Jones, 13 miles east of Worthington, at 3:16 a.m., 19 minutes late, and was derailed at Worthington while traveling at a speed estimated to have been between 60 and 65 miles per hour.

The seven rear cars were derailed to the left and stopped in various positions in a shallow ditch between the crossing and the east-bound home signal, within a distance of about 600 feet. The engine, tender and first three cars were not derailed and stopped about 1 mile beyond the crossing. Brake equipment and running gear on these three cars sustained some damage. The employee injured was the flagman.

Summary of evidence

Engineman Coffey stated that on approaching Worthington he was operating his train at a speed of about 60 miles per hour and both the distant and home signals were displaying clear indications. Just after passing over the crossing the brakes applied in emergency, which he thought was due to a break in two, and to avoid having the driving wheels slide and the possibility of the rear portion running into the front portion of the train he kicked off the independent brake, the engine stopping some distance beyond the crossing. After the accident he looked over his engine very carefully and also on his arrival at Columbus, but could find nothing wrong, and said that he did not notice anything unusual in the riding of the engine before or after passing over the crossing. The statements of Fireman Wanke corroborated those of the engineman.

Conductor Dean was riding in the second car from the engine when he had a feeling that the car had run over something. He jumped to his feet and noticed that the brakes were applied and the car seemed to straighten, but when he saw that the train was not going to stop he pulled the signal cord and then the emergency, not knowing at that time that the train had broken in two. When he went back to the scene of the accident he saw a broken rail opposite the tower, there being about 3 or 4 feet of rail at the joint. He was told later that a journal box was broken on the third car, which he could not account for unless the car had been on the ground, and in view of the feeling he had when he first noticed something wrong he thought the car had been derailed and then rerailed itself, although when he first examined the flanges after the head portion of the train had been brought to a stop he did not notice any condition which would indicate they had been derailed.

Brakeman Ross was riding in the third car and it seemed to him that the car jumped the track and then jumped back again; he tried to get to the brake valve and as he did so he looked out through the rear door of the coach and saw that the cars behind were missing.

Baggage man Enright stated that when they reached the crossing the baggage car began to shake a little and it sounded as if the car had been struck by something; there was a terrific noise at the front end and it seemed that the car was on the ground and then straightened up and rerailed itself.

Operator Smith, on duty at the Worthington interlocking tower at the time of the accident, stated that as soon as train no. 5 was reported out of Jones he cleared the signals for the passage of the train over the crossing. He was watching the train as it passed when suddenly he heard a heavy pounding of the wheels on the rail in front of the tower and sparks and fire began to fly; he thought the engine was just passing over the crossing when the derailment occurred. About $\frac{1}{2}$ hour later he inspected the track and observed cuts on the ties where the derailment first occurred and the piece of rail 2 or 3 feet in length which was still connected in the track on the south side; the rail west of this short section was missing.

Car Foreman Dolby arrived at the scene of the accident about 45 minutes after its occurrence and inspected the track eastward from the broken rail for a distance of several hundred feet, but did not find marks of any kind that could have indicated the cause of the accident. He made a careful inspection of the first three cars in the train, noting the damage done to these cars; some of the journal boxes on the south side of the first car were broken and several wheels had the appearance of having been in contact with something, there being marks on the outside edge of the tread. Broken journal boxes also were found on the second and third cars, and as a result of his examination he came to the conclusion that these cars had been derailed and then rerailed themselves.

Track Supervisor Brown, of the Pennsylvania Railroad, stated that the rail involved showed a fresh break, irregular in shape, with no sign of defect. This was a 100-pound rail rolled in 1910 and he thought it was laid in 1928. It was laid on short ties but he did not think its proximity to the crossing would tend to cause more vibration than at any other point. The track in this vicinity had been last inspected on the afternoon prior to the occurrence of the accident and no rail trouble or breaks had been found at this crossing recently.

East-bound first-class train no. 28 passed through Worthington at 2:48 a.m., at which time the crew noted nothing unusual in the riding of their train as it passed over the crossing or on either side of the crossing.

The rail involved was on the left or south side of the track, breaking at a point about 57 feet east of the center line of the first of the Pennsylvania tracks; this rail broke into many pieces, some of it being shattered, and about 7 feet of it could not be found. The breaks ran in various directions, some

diagonally through the ball and web to the base, while other breaks ran horizontally; all of the breaks were fresh and there were no indications of fissures. The rail showed extreme hardness and much wear, and the base and web were both very thin. Under date of December 20, 1933, Superintendent Gegenheimer of the Pennsylvania Railroad advised that the rail had been sent to Altoona, Pa., for testing, but at the time of this report no information relative thereto has been received.

Conclusions

This accident was caused by a broken rail.

Examination of the track subsequent to the accident disclosed that a rail in that portion of the track maintained by the Pennsylvania Railroad had been broken into many pieces, some of it being shattered; the breaks were fresh, with no indication of fissures, and it was apparent that the breaking of the rail was the cause of the accident. The statements of members of the crew who were riding in the first three cars in the train, and the nature of the damage sustained by these cars, indicate that they were derailed and then rerailed themselves. Inspection of the engine after the accident, as well as the track eastward from the point of accident disclosed nothing that might have contributed to the cause of the accident, and at the time of this investigation the reason for the failure of the rail had not been determined.

Respectfully submitted,

W. P. BORLAND,

Director.