

INTERSTATE COMMERCE COMMISSION
WASHINGTON

INVESTIGATION NO. 2832
THE NASHVILLE, CHATTANOOGA & ST. LOUIS
RAILWAY COMPANY

REPORT IN RE ACCIDENT
NEAR ELIZABETH, GA., ON
SEPTEMBER 25, 1944

SUMMARY

Railroad: Nashville, Chattanooga & St. Louis
Date: September 25, 1944
Location: Elizabetn, Ga.
Kind of accident: Derailment
Train involved: Passenger
Train number: 3
Engine number: 559
Consist: 10 cars
Estimated speed: 45 m. p. h.
Operation: Signal indications
Track: Single; 5°54' curve; 0.29 percent
ascending grade southward
Weather: Cloudy
Time: 6:42 a. m.
Casualties: 2 killed; 15 injured
Cause: Driving wheel moving outward
on its axle

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 2832

IN THE MATTER OF MAKING ACCIDENT INVESTIGATION REPORTS
UNDER THE ACCIDENT REPORTS ACT OF MAY 6, 1910.

THE NASHVILLE, CHATTANOOGA & ST. LOUIS RAILWAY COMPANY

December 1, 1944.

Accident near Elizabeth, Ga., on September 25, 1944, caused
by a driving wheel moving outward on its axle.

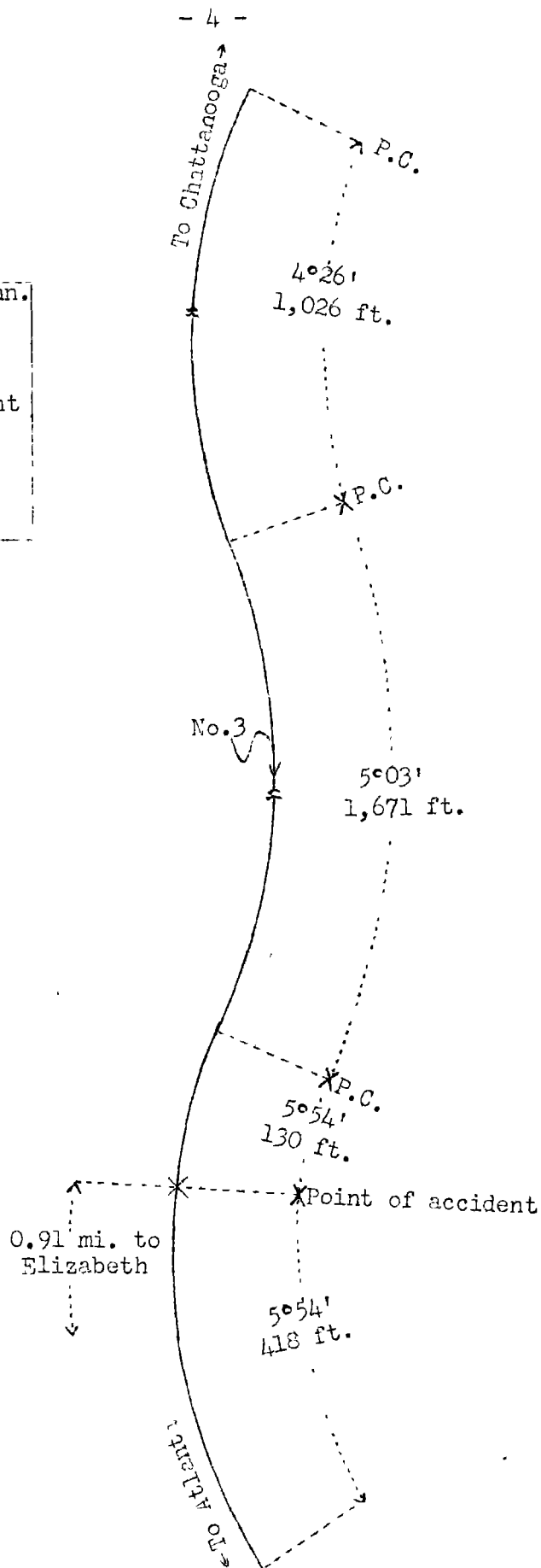
REPORT OF THE COMMISSION¹

PATTERSON, Chairman:

On September 25, 1944, there was a derailment of a passenger train on the Nashville, Chattanooga & St. Louis Railway near Elizabeth, Ga., which resulted in the death of two train-service employees on duty, and the injury of seven passengers, one person carried under contract, five railway-mail clerks, one train-service employee not on duty and one train-service employee on duty.

¹Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Chairman Patterson for consideration and disposition.

- o Chattanooga, Tenn.
108.19 mi.
- o Kennesaw, Ga.
5.95 mi.
- * Point of accident
0.91 mi.
- o Elizabeth
21.48 mi.
- o Atlanta, Ga.



Inv. No. 2832
Nashville, Chattanooga & St. Louis Railway
Elizabeth, Ga.
September 25, 1944

Location of Accident and Method of Operation

This accident occurred on that part of the railroad designated as the Atlanta Division and extending southward from Chattanooga, Tenn., to Atlanta, Ga., 136.53 miles. In the vicinity of the point of accident this was a single-track line over which trains were operated by signal indications. The accident occurred on the main track 114.14 miles south of Chattanooga, at a point 0.91 mile north of Elizabeth. From the north there were, in succession, a $4^{\circ}26'$ curve to the left 1,026 feet in length, a $5^{\circ}03'$ curve to the right 1,671 feet, and a $5^{\circ}54'$ curve to the left 130 feet to the point of accident and 418 feet southward. The grade for south-bound trains was 0.29 percent ascending.

On the curve the track structure consisted of 110-pound rail, 39 feet in length, laid on an average of 23 treated ties to the rail length. It was fully tieplated, single-spiked inside and double-spiked outside the high rail, provided with 4 gage rods and 8 rail anchors per rail length, and was ballasted with gravel to a depth of 2 feet. The maximum superelevation was $3\frac{1}{4}$ inches and the gage varied between 4 feet $8\frac{1}{2}$ inches and 4 feet $8\frac{7}{8}$ inches. At the point of accident the superelevation was $3\frac{1}{4}$ inches and the gage was 4 feet $8\frac{1}{2}$ inches.

The maximum authorized speed for passenger trains was 45 miles per hour.

Description of Accident

No. 3, a south-bound first-class passenger train, consisted of engine 559, a 4-8-2 type, one passenger-box car, one baggage car, one mail car, two baggage cars, four coaches and one Pullman sleeping car, in the order named. All cars were of steel construction. This train departed from Chattanooga at 2:59 a. m., 4 minutes late, passed Kennesaw, 6.86 miles north of Elizabeth, at 6:36 a. m., 19 minutes late, and while moving at an estimated speed of 45 miles per hour the engine and the first 8 cars were derailed.

The engine and tender and the first and third cars stopped on their right sides west of the track and practically parallel to it, with the front end of the engine 385 feet south of the point of derailment. The second car and the fourth to the eighth cars, inclusive, stopped practically upright and in line with the track. The engine and the first 6 cars were badly damaged, and the seventh and ninth cars were slightly damaged.

It was cloudy at the time of the accident, which occurred about 6:42 a. m.

The engineer and the fireman were killed and the baggageman was injured.

The total weight of engine 559 in working order was 340,000 pounds, distributed as follows: Engine truck, 53,000 pounds; driving wheels, 224,000 pounds; and trailer truck, 63,000 pounds. The diameters of the engine-truck wheels, the driving wheels and the trailer-truck wheels were, respectively, 33, 69, and 43 inches. The tender was equipped with four-wheel trucks. The rigid wheelbase of the engine was 18 feet 3 inches long, and the total length of the engine and tender was 87 feet 3 inches. The center of gravity was 75-3/5 inches above the tops of the rails. The last class 3 repairs were completed on March 26, 1943.

Discussion

No. 3 was moving at a speed of about 45 miles per hour in territory where the maximum authorized speed was 45 miles per hour when the engine and the first 8 cars were derailed on a 5°54' curve to the left having a maximum superelevation of 3-1/4 inches. The engine overturned to the right and stopped 385 feet south of the point of derailment. There was no indication of dragging equipment, defective track, or of any obstruction having been on the track. It could not be determined when the enginemen first became aware of anything being wrong, as they were killed in the accident.

Examination of the track disclosed that, beginning at a point 130 feet south of the north end of the curve, flange marks appeared on the web and the base on the inner side of the high rail, and this rail was canted outward. The three outer rails immediately south of this rail were overturned outward, and flange marks appeared on the inner side of the web. Southward from the third overturned rail the track was torn up to the point where the engine stopped. Examination of the engine disclosed that the right No. 3 driving wheel had moved outward 2 inches on its axle, and was firmly secured in that position. The crank pins had moved outward 1/2 inch on the right No. 1 driving wheel and 7/16 inch on the right No. 3 driving wheel. The right No. 3 busning collar was broken in two places. The wheel-center and the axle keyways of the right No. 3 driving wheel were badly battered, and were about 1/4 inch wider than the key. It is evident from the manner in which the rails were overturned that these conditions existed prior to the accident. As a result of the derailment the side rods were displaced from the right and the left sides of the No. 3 and No. 4 pairs of driving wheels, the threaded trunnion ends were broken on the right and left sides of the No. 3 and the right side of the No. 4 crank pins, the threads of the crank pins were damaged and

the cotter key was sheared from the left No. 4 crank pin. The right No. 3 wheel-center was applied to the axle in August, 1937. Records of the carrier indicated that during a period of 18 days immediately prior to the accident engineers operating engine 559 had reported to the mechanical forces that the engine was pounding abnormally and was riding roughly. Mechanical forces who examined this engine in each instance reported the engine suitable for service.

The surface, alinement and gage of the track in the vicinity of the point of derailment were well maintained for the maximum authorized speed of 45 miles per hour. The complaints made by the engineers operating this engine and the condition in which the right No. 3 driving wheel assembly of engine 559 was found after the accident indicate that the wheel had gradually moved outward from its normal position on the axle and had reached the maximum outward displacement of approximately 2 inches when the engine entered the curve on which the accident occurred. Since the gage between the No. 3 driving wheels was about 2 inches wider than the gage between the rails, a wedging effect was created and the high rail was canted outward. Then the right No. 3 driving wheel dropped to the web and base of the canted rail and following wheels completed the overturning of the rail.

Cause

It is found that this accident was caused by a driving wheel moving outward on its axle.

Dated at Washington, D. C., this first day of December, 1944.

By the Commission, Chairman Petterson.

(SEAL)

W. P. BARTEL,
Secretary.