

INTERSTATE COMMERCE COMMISSION

WASHINGTON

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REPORT OF THE DIRECTOR

BUREAU OF SAFETY

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ACCIDENT ON THE  
ILLINOIS CENTRAL RAILROAD

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UNIONVILLE, INDIANA

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JUNE 4, 1939

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INVESTIGATION NO. 2361

Summary

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Inv-2361

Railroad: Illinois Central  
Date: June 4, 1939  
Location: Unionville, Ind.  
Kind of accident: Derailment  
Train involved: Freight  
Train number: Third 372  
Engine number: 1489  
Consist: 44 cars, caboose  
Speed: 20 - 35 m.p.h.  
Operation: Timetable and train orders  
Track: Single, 3<sup>0</sup> right curve, 1.01 per-  
cent descending grade northward  
Weather: Clear, hot  
Time: 3:40 p.m.  
Casualties: 1 killed  
Cause: Kinked track

Inv-2361

July 18, 1939.

To the Commission:

On June 4, 1939, there was a derailment of a freight train on the Illinois Central Railroad near Unionville, Ind., which resulted in the death of one employee. This accident was investigated in conjunction with a representative of the Indiana Public Service Commission.

#### Location and method of operation

This accident occurred on that part of the Illinois Division designated as the Indianapolis District, which extends between Palestine, Ill., and Indianapolis, Ind., a distance of 123.3 miles. In the vicinity of the point of accident this is a single-track line over which trains are operated by timetable and train orders, no block-signal system being in use. The accident occurred at a point 3.25 miles north of Unionville.

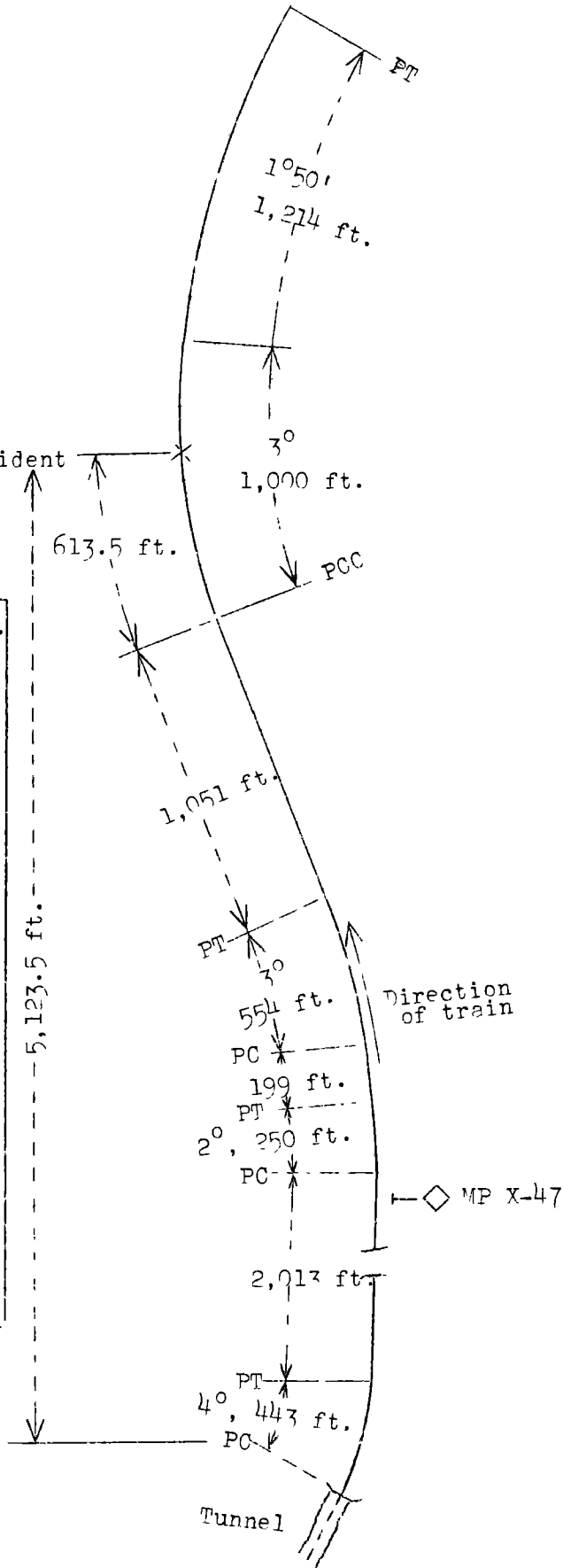
The north portal of a tunnel 432 feet in length is located 5,124 feet south of the point of accident. Approaching from the south there is a series of short tangents and curves followed by a tangent 1,051.5 feet in length, then a compound curve to the right 2,214.5 feet in length; the curvature of the south portion is  $3^{\circ}$  a distance of 1,000 feet, and the remainder is  $1^{\circ}50'$ ; the accident occurred on the  $3^{\circ}$  portion at a point 613.5 feet from its southern end. The grade for north-bound trains is 0.998 to 1.01 percent descending more than 2 miles to the point of accident and a considerable distance beyond, it being 1.01 percent at the point of accident.

The track is laid through a rock cut 500 feet long and 45 feet deep. Immediately north of this cut the track is laid on a fill 211 feet long and 63 feet high. The accident occurred at a point about 100 feet south of the north end of the cut.

The track structure consists of 90-pound rail, 31 feet long, laid on 18 treated oak ties to the rail length; it is single-spiked, fully tieplated, and is provided with three rail anchors, applied for northbound movement, to the rail length. The track is ballasted with 12 inches of washed river gravel and 18-inch shoulders are maintained. The superelevation at the point of accident is 2 inches.

Rule 101 of the timetable restricts the speed of northward freight trains to 20 miles per hour between Mile X 49 and Mile X 44, located 2.55 miles and 2.45 miles, respectively, south and

o Indianapolis, Ind.
41.30 mi.
o Trevlac
5.15 mi.
X Point of accident
3.25 mi.
o Unionville
6.20 mi.
o Bloomington
39.50 mi.
o Linton, Ind.
27.90 mi.
o Palestine, Ill.



Inv. No. 2361  
 Illinois Central R.R.  
 Unionville, Indiana  
 June 4, 1939

north of the point of accident; the speed of all trains through the tunnel is restricted to 20 miles per hour.

A bulletin issued January 1, 1939, reads in part as follows:

"\*\*\* northward freight trains must consume twenty (20) minutes from the depot at Unionville to the depot at Trevlac. \*\*\*"

The weather was clear and hot at the time of the accident, which occurred at 3:40 p. m.

#### Description

Third 372, a north-bound freight train, consisted of 44 loaded cars and a caboose, hauled by engine 1489, and was in charge of Conductor Mills and Engineman Stewart. This train departed from Linton at 2:02 p. m., passed Bloomington, the last open office, at 3:20 p. m., according to the train sheet, 2 hours 55 minutes late, and was derailed 3.25 miles north of Unionville while traveling at a speed variously estimated to have been between 20 and 35 miles per hour.

The engine and the tender, coupled, were derailed to the left and stopped 288 feet north of the initial point of derailment, practically parallel to the track and lying on their left sides; the left side of the cab was crushed. The first car stopped down the embankment north of the cut at an angle of 70 degrees to the track. The next 21 cars, derailed at various angles, practically filled the cut from end to end. The track was torn up a distance of 643 feet. The employee killed was the front brakeman, who was in the cab of the engine.

#### Summary of evidence

Engineman Stewart stated that an air-brake test was made at Palestine and the brakes functioned properly en route. After passing over the summit of the grade about 2-1/4 miles south of the point of accident and while traveling at a speed of about 25 miles per hour, he applied the brakes to control the speed through the tunnel. The speed having been reduced to about 20 miles per hour, he released the brakes and the train drifted a distance of 3/4 mile. In this distance the speed was increased to between 25 and 30 miles per hour and when approaching the cut where the accident occurred he applied the brakes again by making a brake-pipe reduction of 8 or 10 pounds. As this reduction was completed he saw a kink, or buckled place, in the track about 300 feet ahead of the engine and he immediately placed the brake valve in emergency position but the train failed to stop short of the distorted track. It was his opinion that as the engine swung on this kink a rail

either broke or overturned and that either the rear pair of drivers or the trailer truck was the first to become derailed. The tender was derailed to the left and was dragged on its side a distance of about 230 feet to the point where the engine was completely derailed and overturned. He had inspected the engine before departing from Palestine and found no sharp flanges or other defects which might have caused the derailment. The engine rode smoothly and without excessive lateral sway. Although the track was rough he had noticed nothing unusual in its condition on the trip southward the preceding day. He was familiar with the time-table instructions restricting the speed of freight trains to 20 miles per hour at this point, but was of the opinion that the bulletin of January 1 permitted an average speed of 25 miles per hour between Unionville and Trevlac. He said that the weather was extremely hot at the time of the accident.

Fireman Merriman stated that at the time of the accident he was seated on the left seatbox and the front brakeman was seated in front of him. On account of the curvature to the right it was impossible for him to see the track condition ahead of the engine at that point. He corroborated the engineman's statement as to the handling of the train just prior to the derailment. Judging by the manner in which the engine swung he was of the opinion that the track was kinked before the derailment occurred and that the rear pair of drivers was the first to become derailed. He said that the weather was very hot at the time of the accident.

Conductor Mills stated that it was 3:31 p.m. when they passed Unionville and that they passed through the tunnel south of Unionville at a speed between 25 and 30 miles per hour. Approaching the point of accident he was seated in the side doorway of the caboose, at which time the speed was about 30 miles per hour. He felt an application of the brakes and the train made several surges and stopped. He hurried to the front end of the train and found the engine, tender, and 22 cars derailed. He thought that the speed had not been excessive to the point of danger and he said that the train was handled in the usual manner. He was familiar with the time-table instructions restricting the speed of northward freight trains at this point but thought the bulletin of January 1 permitted an average speed of 25 miles per hour between Unionville and Trevlac. As the track was torn up when he first saw it he was unable to give the cause of the accident. When he passed over this track the preceding day he noticed nothing unusual in its condition. He said that the weather was hot at the time of the accident.

Flagman Stewart stated that he was in the cupola of the caboose and was observing the air guage. Approaching the tunnel, at which time the speed was between 30 and 35 miles per hour, a brake-pipe reduction of between 15 and 20 pounds was made and the speed was reduced to between 20 and 25 miles per hour. The brakes

were then released and the train drifted about  $3/4$  mile, the speed increasing to about 35 miles per hour. Near the point of accident an 8 or 9-pound brake-pipe reduction was made which was followed immediately by an emergency application of the brakes and the train stopped abruptly. He was familiar with the speed restrictions at the point of accident and thought that the handling of the train on this trip was about as usual. When he passed over the track the preceding day he noticed nothing unusual in its condition.

Section Foreman Jones stated that on June 2, two days prior to the accident, as the weather was quite warm he felt concern as to the condition of the track in the vicinity of the point where the accident later occurred, and about 3:30 p. m. made an inspection trip over this track, finding it in good condition. About a week before this he had used a level on the curve involved and at that time the elevation was 2 inches, as required. He had surfaced and alined this curve in July and August, 1938, and had experienced no difficulty with it since. It had not been necessary to cut the rail on account of tightness, and there had not been any sun kinks at that point. He was at the scene of the accident when the wreckage was removed and he examined the track but found nothing which in his opinion might have contributed to the accident. He found one rail with a portion of the base broken in a series of chips over a section  $2-1/2$  feet in length but he thought that this was a result and not a cause of the accident. He had been instructed by the road supervisor to maintain a 2-inch superelevation on the curve involved.

Road Supervisor Murphy stated that on June 2 he had inspected the track at the point of accident from the rear platform of a passenger train. The track was in good condition and it did not need attention at any place. The track having been surfaced and alined to the engineer's stakes, he had instructed the section foreman to maintain a 2-inch superelevation, also to cut the rail whenever it became tight and to notify him. There had been no tightness experienced at the curve where the accident occurred. The standard gage of 4 feet  $8-1/2$  inches was maintained on  $30^\circ$  curves and after the accident he gaged the track in both directions from the derailed equipment, checking at centers and joints; the gage was well maintained, the greatest variation being  $3/16$  inch. There was one place  $1/4$  inch low on the low rail near the south point of the curve. The elevation was 2 inches, as prescribed.

Master Mechanic Kann stated that engine 1489 was inspected after the accident and all wheels of the engine and the tender were gaged for lateral motion and were found to be well within the prescribed limits. The wheels were gaged back to back at the flanges and were not out of gage, varying between  $53-1/8$  and  $53-3/8$  inches. All driving-box wedges were examined and none was stuck. The six transverse and the two longitudinal splash plates of six tiers each in the tender were found in good condition. He said that the front axle of the tender had been bent in the derailment.

## Observations of the Commission's Inspectors

The Commission's inspectors examined the derailed equipment and found no defects which might have contributed to the derailment. The engine pilot was intact and did not show any signs of having been in contact with dirt or rock. The wheel flanges on the engine and the tender were not sharp.

An inspection of the track from Unionville northward to the point of accident failed to disclose any indication that any part of the equipment had been dragging on the ties. The track structure conformed to specifications. The track had been completely torn out a distance of 558 feet, but none of the rails was broken through the ball or web. One rail was broken in a serrated manner at the base a distance of 39-1/2 inches; this break was fresh and it appeared to have been a result and not a cause of the accident.

## Discussion

According to the evidence there was no defect in either the engine or the cars that would have caused the accident. Preceding the point of accident the track was in good surface and alinement. The maximum authorized speed of 20 miles per hour at the point of derailment was being exceeded somewhat but none of the witnesses thought the rate of speed high enough to cause the derailment.

The engineman said that he saw a kink in the track about 300 feet distant. The fireman did not see the kink because he was on the outside of the curve but he said that when passing over the track involved the engine swung in a manner indicating that the track was kinked. The engineman thought that either the rear drivers or the trailer truck was first to be derailed; the fireman thought the rear pair of drivers was first to be derailed. The surviving members of the crew said that at the time of the accident the weather was very hot. Even though the track was destroyed a distance of several hundred feet, there were no broken rails. The section foreman said that because of hot weather two days prior to the accident he was apprehensive concerning this track and he inspected it for tight condition; he said, however, that he had encountered no tight track in the vicinity of the point of accident.

Obviously the track was tight because of hot weather; this condition, combined with the track being ballasted with washed gravel, which offers less resistance to track movement than some other types of ballast, and the fact that the track involved was on a one percent descending grade and on a curve, caused the track to become kinked.

## Conclusion

This accident was caused by kinked track.

Respectfully submitted,  
W. J. PATTERSON,  
Director.