Inv-2208

INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT OF THE DIRECTOR

BUREAU OF SAFETY

ACCIDENT ON THE

PENNSYLVANIA RAILROAD

RIEGELSVILLE, N. J.

OCTOBER 16, 1937

INVESTIGATION NO. 2208

SUMMARY

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Railroad:	Pennsylvania
Date:	October 16, 1937
Location:	Riegelsville, N. J.
Kind of accident:	Derailment
Train involved:	No. 363
Engine number	1163
Consist:	3 cars
Speed:	30-45 m.p.h.
Track:	$5^{\circ}15'$ left curve; 0.062 percent ascending grade.
Weather:	Clear
Time:	10:25 a.m.
Casualties:	7 injured
Cause:	Track spike on rail.

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November 16, 1937.

To the Commission:

On October 16, 1937, there was a derailment of a passenger train on the Pennsylvania Railroad near Riegelsville, N. J., which resulted in the injury of four passengers, one person carried under contract and two employees. The investigation of this accident was made in conjunction with a representative of the Public Utility Commission of New Jersey.

Location and method of operation

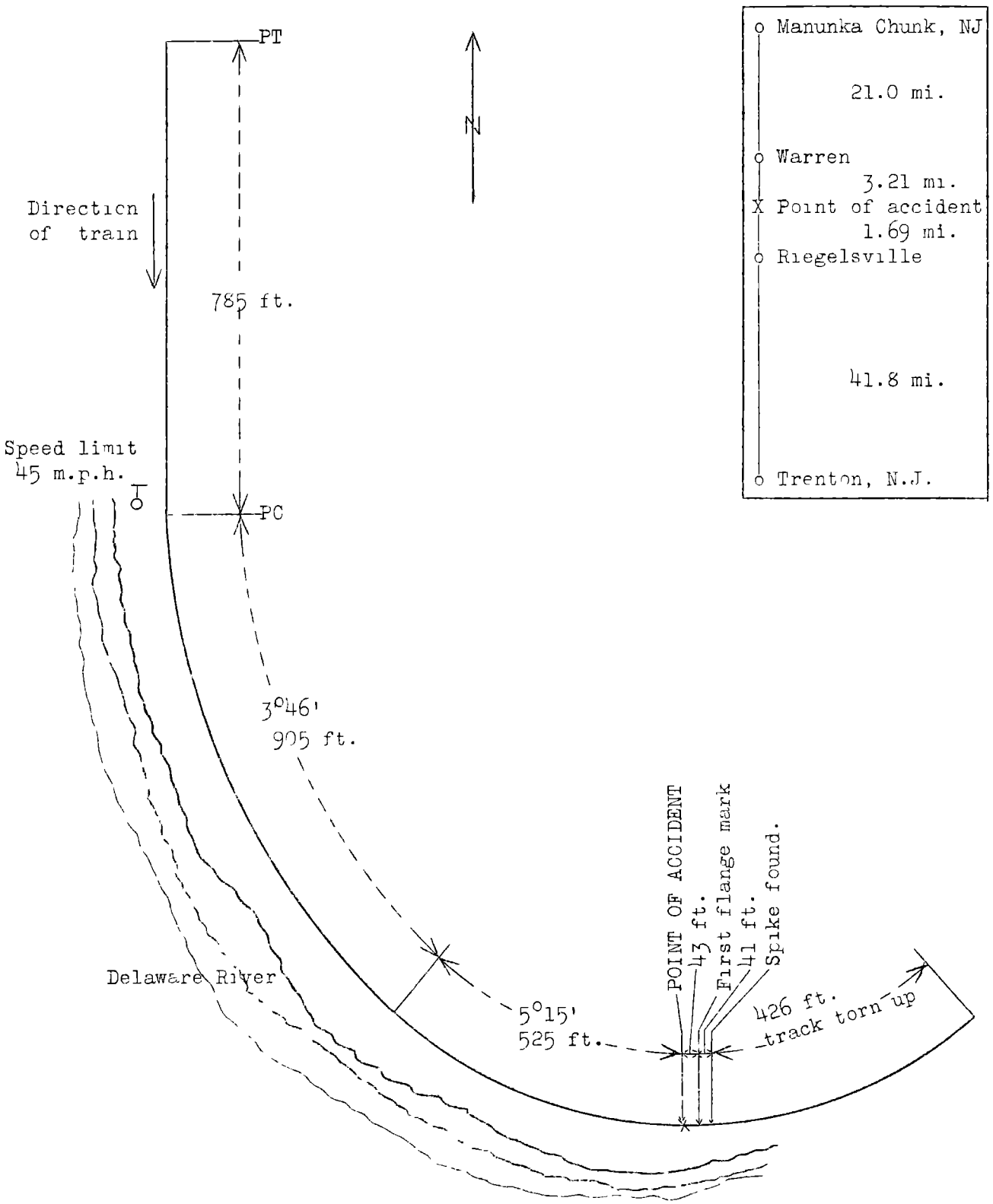
This accident occurred on that part of the New York Division which extends between Menunka Chunk and Trenton, N. J., a distance of 37.7 miles. This is a single-track line over which trains are operated by timetable, train orders and a manual block system. The derailment occurred at a point approximately 1.70 miles north of Riegelsville. Approaching from the north the track is tangent for a distance of 785 feet, then there is a 3°46' curve to the left 905 feet in length, followed by a 5°15' curve to the left 1,955 feet in length; the derailment occurred at a point approximately 525 feet from the northern end of the 5°15' curve. The grade is 0.062 percent ascending for south-bound trains.

At the point of derailment the track is on a side-hill fill 10 feet high and is laid with 130-pound rail cropped to 36-foot lengths, on an average of 20 ties per rail length; it is fully tie-plated, double-spiked, and equipped with anti-creepers and the ballast is cinders 18 inches deep. The superelevation of the 3°46' curve is 3¾ inches and of the 5°15' curve 5½ inches; the track is well maintained. The maximum authorized speed at the point of accident is 45 miles per hour.

The weather was clear at the time of the accident, which occurred about 10:25 a.m.

Description

Train No. 363, a south-bound passenger train, consisted of one coach, one combination coach and baggage car, and one combination baggage and mail car, in the order named, of all-steel construction, hauled by engine 1163 of the 4-4-2 type, and was in charge of Conductor Smith and Engineman Gallagher. This train passed Warren, 3.21 miles north of the point of the accident, at 10:18 a.m., according to the train sheet, 9 minutes late, and was derailed while traveling at a speed estimated to have been between 30 and 45 miles per hour.



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The engine stopped on its right side 296 feet beyond the point of derailment and about 43 feet west of the track. The tender remained upright at the rear of the engine but the trucks were thrown out from under the tender to the right of the track; the engine and tender were badly damaged. The three cars ran by the engine; the first car was derailed but remained upright and stopped on the roadbed 220 feet ahead of the engine; the second car stopped upright behind the first car and at an angle of 30° with the track; the third car stopped on its right side to the right of the track just ahead of the engine, with the head end 24 feet and the rear end 28 feet from the track. The first and third cars were considerably damaged while the second car was only slightly damaged. The employees injured were the engineman and fireman.

Summary of evidence

Fireman Phillips stated that a brake test was made in the usual manner and said the brakes functioned properly en route. He did not notice anything unusual in the riding qualities of the engine. Approaching the curve on which the derailment occurred at a speed of about 55 miles per hour, the engineman made a service application of the brakes and the speed had been reduced to 35 or 40 miles an hour when the engine suddenly became derailed. Fireman Phillips stated that he did not observe any indication that the engine had run over anything. He said the engineman seemed alert and that he was making a fine run.

Due to critical injuries sustained by Engineman Gallagher, no statement was obtained from him.

Conductor Smith stated that an air-brake test was made at Stroudsburg, the initial terminal, at which time he talked with the engineman and the fireman and they appeared normal. At no point was the speed excessive and he did not notice anything unusual in the operation of the train. As it approached the point of derailment at a speed of about 45 miles per hour he was in the second car; he felt a brake application followed by two short jerks and then the derailment occurred, about 10:25 a.m.

Brakeman Brewer was in the head end of the second car at the time of derailment; prior thereto he heard no unusual noise but did feel a jerk and the derailment followed instantly, at which time he estimated the speed to have been about 45 miles per hour. When going back to flag he observed marks on about 20 ties but he had no definite idea as to the nature and location of these marks.

Baggagemaster Sargent was in the second car when he heard a peculiar sound and the car began to rock, followed by the immediate derailment of the train, the speed being 40 to 45 miles per hour.

Track Supervisor Fish stated that he arrived at the scene of the accident about 11:00 a.m. and immediately inspected the track. He found marks on top of and on the outside edge of the high rail; also, intermittent marks on ties about 18 inches inside the high rail. These marks extended for a distance of several hundred feet but he did not think they were made by dragging equipment. Near the point of derailment he observed flange marks on top of the high rail and about 100 feet beyond he saw a broken rail which, in his opinion, was a result of the derailment rather than the cause. He said the track in the vicinity of the point of accident was in good condition and that it is suitable for a speed of 45 miles per hour.

Track Foreman DeRoach had inspected the track in the vicinity about one week before the accident occurred and no work had been done on this particular part of the track within the past three weeks. The outside rail on the curve involved was elevated 5½ inches above the other rail. He said the track was in good condition. At the time of the accident he was working 10 miles distant; on arrival at the scene and after examining the track he was unable to reach a conclusion as to the cause of the accident.

Extra Track Foreman Wismer was working about ¾ mile north of the point of derailment when No. 363 passed him and he did not observe anything dragging or anything unusual in the operation of that train except that he thought the speed was slightly in excess of the usual speed.

Road Foreman of Engines Hipkins stated that he arrived at the scene of the accident at 2:50 p.m. He found the automatic brake valve in emergency position, the throttle approximately half open and the reverse gear set at 20 percent cut-off; this indicated that the train was being operated at about the usual speed. He examined the track and found flange marks on the outside rail and on the ends of the ties for a distance of about 20 feet, which, in his opinion, began a distance of about two rail lengths north of where the engine began to topple over; he did not find corresponding marks on the inside rail or between the rails and concluded that something was on the high rail which lifted the engine truck and caused it to derail.

Mechanical Engineering Department Foreman Wyrough arrived at the scene of the accident about 2:00 p.m. and inspected the engine and engine truck; he found nothing that would have

caused the derailment. About 250 or 350 feet north of the point of derailment, he saw marks opposite each other on the rails which indicated to him that something had been caught by the wheels, then slid along the rail some distance and was finally thrown off, possibly raising the wheels to the top of the rail. It was his opinion the engine jumped the track.

Leading Machinist Shoemaker and Machinist Hopkins made statements to the effect that engine 1163 entered the Stroudsburg engine house the evening of October 15 and several minor repairs were made; they said the records showed this engine to be in serviceable condition on its departure the morning of October 16.

Car Foreman Gruner and Car Inspector Taylor made statements to the effect that the cars of train No. 363 were inspected the evening of October 15 as well as the morning of October 16. The records showed that all cars were in good condition on departure from Stroudsburg.

Engine House Foreman Buchsbaum arrived at the scene the afternoon of the occurrence of the accident. The result of his examination of the engine agreed with that of the road foreman of engines. On October 19 the engine house foreman returned to the scene and found a peculiarly bent track spike about 12 feet west of the high rail; this location was about 32 feet north of the point where flange marks appeared on the ties.

Observations of Commission's inspectors

Inspection of the engine and cars by the Commission's inspectors disclosed no condition that would have contributed to the cause of the derailment. The inspection of the track disclosed slight abrasions on top of both high and low rails at a point 393 feet north of where the track was torn out, while at a point 179 feet farther south there was a slight mark rubbed on the outside edge of the high rail; these marks were faint and were not attributable to dragging equipment on engine or cars. At a point 84 feet north of where the track was torn out there was an indication of a flange mounting the high rail and flange marks appeared between the rails and on the ends of the ties on the outside of the curve from this point to where the track was destroyed.

The bent track spike, which was found at a point 43 feet from flange mark on high rail and 12 feet to the west of the track, was a Pennsylvania Railroad Standard spike 7 inches in length and 5/8 inch by 5/8 inch in thickness. Placing this

spike on the rail against the tread of the engine-truck wheel of engine 1163, with the head of the spike against the gauge side of the rail, it appeared that the groove on top of the spike near the head was made by a flange striking it; the opposite side of the spike showed evidence of pressure and sliding. In addition, when this spike was placed on the high rail at the point of derailment it was found that it had been bent in such manner as to exactly fit the contour of the top of the high rail; all of the marks on the spike appeared to have been made recently. The broken rail mentioned above was examined and it appeared to have been caused by the derailment.

After the investigation, Crossing Watchman Kilpatrick stated that he placed a spike on the rail a short time before the approach of the train.

Discussion

The evidence is to the effect that there were no defects on the engine or cars that would have contributed to the derailment. The superelevation on the curve in question was $5\frac{1}{2}$ inches which is sufficient for the maximum speed permitted, 45 miles per hour; the weight of evidence is to the effect that the speed of this train was not in excess of 45 miles per hour.

The nature of the marks found on the rail preceding the point of derailment, coupled with the manner in which the track spike was bent, indicate definitely that the spike was lying on top of the high rail with the head of the spike against the gauge side; the rail marks also indicate that the spike slid along the rail for some distance after being struck by the engine truck wheel but finally the wheel was lifted high enough to permit the flange to roll on top of the high rail.

Conclusion

This accident was caused by a track spike lying on top of the high rail of a curve.

Respectfully submitted,

W. J. PATTERSON

Director.