

INTERSTATE COMMERCE COMMISSION
WASHINGTON

REPORT OF THE DIRECTOR
BUREAU OF SAFETY

ACCIDENT ON THE
ATCHISON, TOPEKA & SANTA FE RAILWAY

PLAINES, ILLINOIS

OCTOBER 1, 1939

INVESTIGATION NO. 2385

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SUMMARY

Inv-2385

Railroad: Atchison, Topeka & Santa Fe
Date: October 1, 1939
Location: Plaines, Ill.
Kind of accident: Derailment
Train involved: Freight
Train number: Extra 3264 West
Engine number: 3264
Consist: 66 cars and caboose
Speed: 20-25 m. p. h.
Operation: Timetable, train orders, and automatic block system
Track: Double; 2° curve to right; 0.40 percent descending
Weather: Clear
Time: 12:05 p. m.
Casualties: 2 killed, 1 injured
Cause: Track spike on rail

December 14, 1939

To the Commission:

On October 1, 1939, there was a derailment of a freight train on the Atchison, Topeka & Santa Fe Railway near Plaines, Ill., which resulted in the death of two employees and the injury of one employee. This accident was investigated in conjunction with a representative of the Illinois Commerce Commission.

Location and Method of Operation

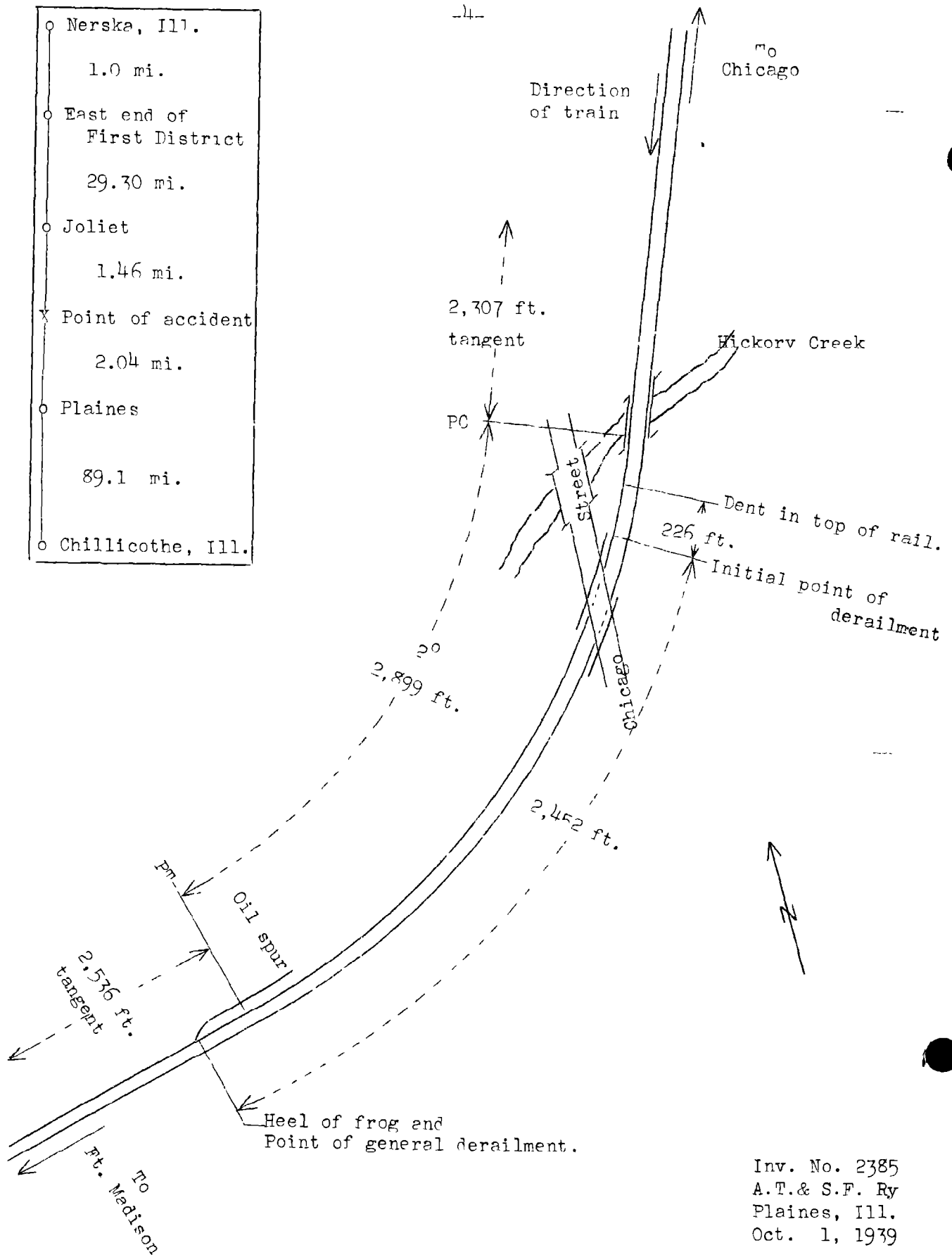
This accident occurred on that part of the Illinois Division designated as the First District which extends between Chillicothe and a point 1 mile west of Nerska, Ill., a distance of 121.9 miles. In the vicinity of the point of accident this is a double-track line over which trains are operated by timetable, train orders, and an automatic block system. The derailment occurred on the westward main track at a point 2.04 miles east of Plaines, and 1.46 miles west of Joliet. Approaching from the east there is a tangent 2,307 feet in length, which is followed by a 2° curve to the right 2,899 feet in length, including spirals; the initial derailment occurred 413 feet from the east end of this curve, at which point the superelevation is 4 inches. Beginning at the west end of the curve involved there is a tangent 2,535 feet in length, on which the general derailment occurred at the heel of a switch frog located 192 feet west of the east end of the tangent. The grade for west-bound trains is slightly descending, being 0.40 percent at the point of general derailment.

The track structure consists of 112-pound rail, 39 feet long, laid on an average of 25 treated hardwood ties to the rail length; it is fully tieplated with single-shoulder tie plates, equipped with eight rail anchors to the rail length, ballasted with washed-crushed gravel to a depth of 10 to 12 inches beneath the ties, and is well maintained. The track is laid on a fill, the height of which varies between 17 and 26 feet in the vicinity of the initial point of derailment; there is practically no fill at the point of general derailment.

In this territory the maximum authorized speed for freight trains is 50 miles per hour.

The weather was clear at the time of the accident, which occurred at 12:05 p. m.

| | |
|------------------------------|-----------|
| o Nerska, Ill. | |
| | 1.0 mi. |
| o East end of First District | |
| | 29.30 mi. |
| o Joliet | |
| | 1.46 mi. |
| x Point of accident | |
| | 2.04 mi. |
| o Plaines | |
| | 89.1 mi. |
| o Chillicothe, Ill. | |



Inv. No. 2385
 A.T. & S.F. Ry
 Plaines, Ill.
 Oct. 1, 1939

Description

Extra 3264, a west-bound freight train, consisted of 48 loaded and 18 empty cars and a caboose, hauled by engine 3264, and was in charge of Conductor Bennett and Engineman Breault. This train left Joliet Yard at 11:54 a. m., according to the train sheet, and was derailed while moving at a speed variously estimated to have been between 20 and 35 miles per hour.

The engine, remaining coupled to the tender underframe, stopped on its left side with its front end on the eastward track; the engine truck was broken loose and the cab was crushed inward on its left side; the cistern of the tender stopped on its left side at right angles to the track and just behind the engine. The first 11 cars were derailed, 10 of which stopped at various angles to the track; only the forward pair of wheels of the eleventh car was derailed; 7 of the derailed cars were destroyed. Because of a broken center pin the twenty-ninth car was off center at one end.

The employees killed were the fireman and the front brakeman, and the employee injured was the engineman.

Summary of Evidence

Engineman Breault, of Extra 3264, stated that before leaving Corwith Yard a terminal test of the air brakes was made, and the brakes functioned properly en route. When his train was approaching the curve on which the derailment occurred, at which time the speed was about 35 miles per hour, he felt the engine jar a trifle on the left side, which he thought was caused by a flat wheel or broken tire. He started a service brake-pipe reduction but before the brake-pipe exhaust was completed, feeling the engine leave the rails, he moved the brake valve to emergency position. The accident occurred about 12:03 p. m.

Conductor Bennett, of Extra 3264, stated that he was in the cupola of the caboose when approaching the point of derailment, and the train was moving at an estimated speed of 20 or 25 miles per hour when an emergency application of the air brakes occurred; the train stopped abruptly about 12:05 p. m. He proceeded to the front end of the train and observed that the engine and 11 cars were derailed. He was unable to determine the cause of the accident.

Brakeman Jurkovitch, of Extra 3264, corroborated the testimony of the conductor in all essential details.

Division Engineer McKibben stated that he arrived at the scene of accident soon after its occurrence and inspected the

equipment and track to determine the cause of the derailment. He observed that there were several new breaks in the radius-bar braces which supported and guided the truck. The outside of the right engine-truck wheel was scarred, because of striking angle-bar bolts; the flange of the left front wheel was scarred, because of shearing off angle-bar bolts on the outside of the south rail. He found no condition on the engine that might have contributed to the derailment. He found a number of broken car wheels; the breaks were new and unquestionably were a result of the derailment. Starting at the point of the initial derailment and progressing westward he examined the track and found a distinct mark made by the flange of the left engine-truck wheel riding the ball of the high rail a distance of 226 feet, beyond which there were marks which indicated that the wheel had dropped to the ties. He observed that several bolts had been sheared off the inside angle bars of the north rail and off the outside angle bars of the south rail. Marks on the inside guard rails of two bridges, located a short distance west of the initial point of derailment, indicated that they were caused by the engine-truck tie bar dragging on the guard rails; there were corresponding marks on the engine-truck tie bar. Marks on the ties made by the right wheel of the derailed engine truck and marks on the tie plates made by the flange of its left wheel continued a distance of 2,452 feet to the point of general derailment. A spike found near the point of initial derailment was polished near its point, on both front and back; the metal in the cross-sectional area was distorted because of pressure of a wheel; the heel had been crushed downward, and the head was crushed and slightly upturned. The heel of the spike, when it was laid in position, fitted an indentation on the ball of the rail. The spike involved was struck on a 2° curve at a point where there was a superelevation of 4 inches. The track was gaged in a number of places preceding the point of derailment; the gage was standard, the alinement was good, and the track was well maintained. This track was resurfaced in October, 1938, and re-alined in June, 1939.

Trainmaster Yost stated that he arrived at the point of accident about 3:40 p. m., and immediately inspected the track. He found flange marks on the ball of the high rail of the curve which started about 413 feet from its east end; these marks were in evidence a distance of about 220 feet, following which there were wheel marks on the ties to the frog of a trailing-point switch leading to the left, a distance of approximately 2,400 feet. The marks clearly indicated that the engine truck was derailed, as only one pair of wheels had been on the ground. The superelevation, gage, and alinement of the curve on both sides of the point of accident conformed to the standards of his railroad. A track spike, which was found near the first flange mark on the ball of the high rail near the east end of the curve, bore marks indicating that a wheel had run over it, as the point

was flattened and it was quite bright; evidently the spike had lain lengthwise and on its back on the rail, as it was not bent.

Master Mechanic Goodrich stated that after arriving at the point of accident he examined engine 3264 to determine the cause of the derailment, but was unable to find any defect that might have contributed to the accident. The position of the engine truck and the marks on the engine-truck wheels indicated that the truck had been on the ties and had struck an obstruction which drove it backward under the cylinders and caused the general derailment. After the engine was rerailed, the engine truck, drivers and spring rigging were examined, and after being moved to Corwith, the engine was thoroughly inspected; no defect was found which could have contributed in any manner to the derailment; all flanges, lateral motion, tires, and wheel spacing were in safe and suitable condition for service; all parts which moved in friction were well lubricated. He examined the spike which was found near the point where the marks on the ball of the rail began; it was his opinion that this spike had been on the rail and that it was the cause of the derailment.

Just prior to the occurrence of the accident, three girls, aged 16, 11, and 9 years, were walking on the right-of-way. The two younger girls stated that the oldest girl had picked up track spikes and placed them on the top of a rail; the youngest one removed them, but the two younger girls left the track in advance of the oldest one and could not say if any more spikes had been placed on the rail. The oldest girl said that on the day of the accident she placed spikes on the rails but the youngest girl had removed all of them. All three girls stated that two boys had chased them off the right-of-way.

Dominic Virona, a school boy, stated that shortly before the accident occurred he saw three girls walking on the railroad tracks and also two boys.

Observations of Commission's Inspectors

Inspection of the engine, engine truck, and equipment by the Commission's inspectors disclosed no condition that might have contributed to the cause of the derailment. There was a dent on top of the left or high rail on the curve involved, and from that point there was a flange mark on the ball of this rail which extended a distance of 226 feet; then marks appeared along the base on the outside of the left rail and corresponding flange marks appeared on the inside of the right rail to the point where the track was destroyed. A track spike, which was found adjacent to the initial point of derailment, bore indications of having been run over while lying on its back; the pointed end was smooth and shiny, indicating that it had been in contact with some heavy object. The flattened head of the spike fitted the dent of the high rail at the point where the wheel climbed the rail.

Discussion

The evidence indicates that the speed of the train at the time of the accident was not in excess of the maximum authorized speed; the highest estimate given by any member of the crew was 35 miles per hour. The track was well maintained and the superelevation appeared to be sufficient for the maximum authorized speed. There was no indication that defective equipment contributed to the cause of the accident. A spike, found adjacent to the point of derailment, was crushed and shiny; this indicated that it had been struck by some heavy object, such as an engine wheel. An indentation on the top of the high rail of the curve was similar to the snape of a spike, and the crushed spike fitted it readily. From this indentation to a point 226 feet west thereof, there was a flange mark on the high rail, following which there were flange marks on the ties outside this rail to the point of general derailment. Apparently the engine-truck wheel on the left side struck the spike and was raised and deflected sufficiently for the flange to drop on top of the rail, where it remained a distance of 226 feet.

The investigation disclosed that three girls had been playing on the right-of-way just prior to the accident and one of the girls had placed spikes on top of the rails but that the other girls had removed them; also two boys were on the tracks at the same time and remained after the three girls had left.

Conclusion

This accident was caused by a locomotive truck-wheel striking a spike which had been placed on top of the high rail of a curve.

Respectfully submitted,

S. N. MILLS

Director.