Inv-2266

INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT OF THE DIRECTOR

BUREAU OF SAFETY

ACCIDENT ON THE

MISSOURI-KANSAS-TEXAS RAILROAD

ATOKA, OKLA.

APRIL 10, 1938.

INVESTIGATION NO. 2266

SUMMARY

Inv-2266

Railroad:	Missouri-Kansas-Texas
Date:	April 10, 1938
Location:	Atoka, Okla.
Kind of accident:	Derailment
Train involved:	Freight
Train number:	Extra 891 South
Engine number:	891
Consist:	72 cars, caboose
Speed:	25-40 m.p.h.
Track:	Tangent
Weather:	Clear
Time:	8:10 p.m.
Casualties:	1 killed; 5 injured
Cause:	Loose pilot brace struck heel filler block of trailing-point switch and lodged under engine truck wheel.

May 11, 1938.

To the Commission:

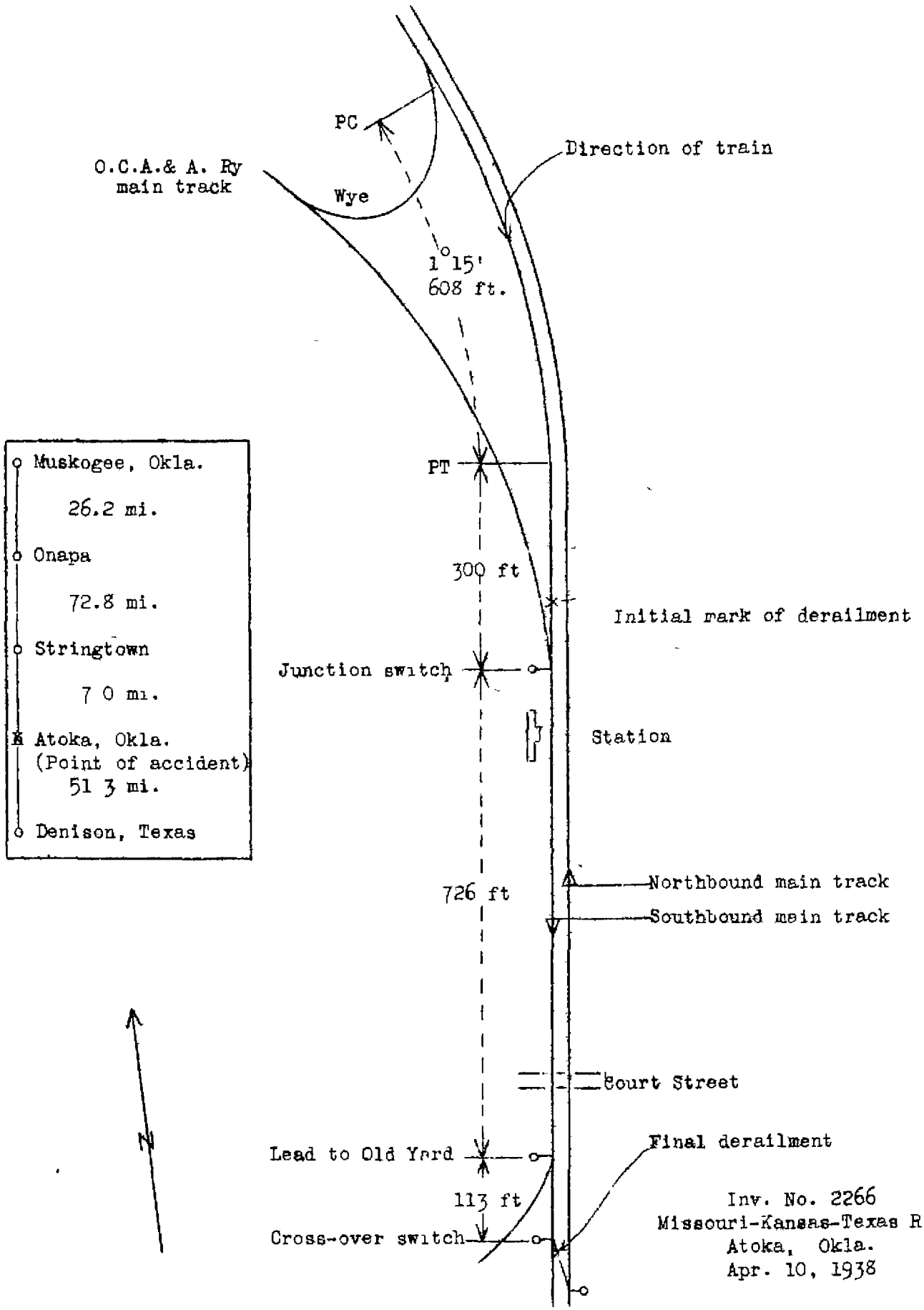
On April 10, 1938, there was a derailment of a freight train on the Missouri-Kansas-Texas Railroad at Atoka, Okla., which resulted in the death of one employee, and the injury of two employees and three trespassers.

Location and method of operation

This accident occurred on the Choctaw Division of the Southern District, extending between Muskogee, Okla., and Denison, Tex., a distance of 157.3 miles, in the vicinity of the point of accident this is a double-track line over which trains are operated by time-table, train orders and an automatic block-signal system. The initial derailment occurred on the southward main track near the trailing-point junction switch leading to the O.C.A.&A. Ry., while the major derailment occurred about 925 feet beyond. Approaching from the north there is a 1°15' curve to the right 608 feet in length, followed by 1,988 feet of tangent; the trailing-point junction switch is located on this tangent at a point 300 feet from its northern end. The grade at the junction switch is 0.35 percent ascending for southward trains. Two facing-point switches are located 726 feet and 839 feet, respectively, south of the junction switch, the first leads off to the right to a yard lead, and the second is at the north end of a cross-over connecting the main tracks. In this vicinity there are numerous tracks on both sides of the main tracks.

The main tracks are laid with 90-pound rails, generally 28 feet in length, with an average of 19 ties to the rail length, tieplated; they are poorly ballasted and poorly maintained. The maximum speed for freight trains is 45 miles per hour.

The weather was clear at the time of the accident, which occurred about 8:10 p.m.



Inv. No. 2266
Missouri-Kansas-Texas R.R.
Atoka, Okla.
Apr. 10, 1938

Description

Extra 891 South, consisted of 72 freight cars and a caboose, hauled by engine 891, of the 2-8-2 type, and was in charge of Conductor Hanan and Engineman Miller. This train left Muskogee at 4:40 p.m., according to the train sheet, passed Stringtown, the last oper office, 99 miles beyond, at 7:57 p.m., and while passing through Atoka, 7 miles farther south, it was derailed while traveling at a speed variously estimated to have been between 25 and 40 miles per hour.

Engine 891, its tender, and the first 22 cars were derailed and stopped in various positions, piled up within a space of 345 feet, one car stopping on top of the overturned engine and another skidding by it a distance of 40 feet; 18 of these 22 cars were destroyed. The engine stopped with its front end 1,135 feet south of the junction switch; it was leaning at an angle of about 45 degrees. For a distance of 87 feet south from the north cross-over switch the rails of both the main track and the cross-over were turned over, and for the next 218 feet the track was demolished. The employee killed was the engineman, and the employees injured were the fireman and the head brakeman.

Summary of evidence

Fireman Williams stated that car men tested the air brakes at Muskogee and reported them to be working properly. They were used only once en route, and at that time their operation was satisfactory. Approaching Atoka the headlight was burning brightly, the train handled properly, and the engine rode all right; the block signal was displaying a proceed indication, and the speed was about 30 to 35 miles per hour, with the engine working steam lightly. In the vicinity of the junction switch the fireman saw fire flying from under the forward end of the engine truck on his side, and he shouted a warning of danger to the engineman. The engineman held the engine brake off and made an emergency application of the train brakes just as the engine went over Court Street crossing; immediately afterward the general derailment occurred. Fireman Williams said that the engineman looked over the engine before departing from Muskogee, but did not say anything about a loose pilot brace, the fireman did not know whether any work had been performed on the pilot of the engine at Muskogee and said that he could not recall having run over any object that might have broken it. He did not know what caused the accident and did not realize that the engine was derailed until it passed over Court Street crossing.

Head Brakeman Riddle was in the cabin on the tank and was not aware of anything wrong until the train started off the track; at that time the speed was about 35 miles per hour. So far as he knew the engine did not run through any switches prior to leaving Muskogee, nor did it run over any obstruction en route.

Conductor Hanan and Flagman Hammock were in the caboose cupola; they were not aware of anything wrong prior to the accident, and they estimated the speed to have been about 25 or 30 miles per hour. After the accident the conductor examined the track; the first mark he found was opposite the filler-block location, at the junction switch. The ties were marked on the gauge side of the west rail and there were marks on spike heads outside the east rail, and the crossing plank was torn up in front of the depot and also at Court Street crossing.

Trainmaster Grace stated that in company with Superintendent Schaller and Road Foreman of Engines Henley, he arrived at the scene of the accident about 12:35 a.m., April 11, and they immediately made an inspection of the track. The marks of derailment were traced back to the junction switch. Directly opposite the filler block of the east switch point, the east rail of the main track was chipped and broken. Ties were marked practically all of the way to Court Street along the west rail and quite a few spikes and tie plates along the east rail were marked. After the wrecker lifted the forward end of engine 891 it was found that the pilot brace was broken, or had become loose and apparently had become wedged under the pony-truck wheel on the left side as the engine passed over the filler block of the lead rail at the junction switch. The end of the brace was considerably battered. Subsequent inspection of the lead rail of the junction switch showed evidence of something greasy having rubbed against it down to the filler block, and the west side of the pilot brace showed evidence of abrasion. Trainmaster Grace was of the opinion that the pilot brace was moved over by the lead rail of the junction switch until it contacted the filler block and was forced under the left engine-truck wheel, derailing the engine truck.

Road Foreman of Engines Henley was of the opinion that the pilot brace on left side became disconnected at the lower end and was bent back by striking the north end of the guard rail at the junction switch; it followed the turnout rail to the filler block at the heel of the switch point and there acted as a derail. A piece was chipped out of the gauge side of the east rail of the main track, and immediately south of this point the rail was broken, indicating that a terrific force had been exerted at this point, and had derailed the engine truck. Inspection of the engine disclosed that the

throttle was closed, the reverse lever was at about 25 percent cut off and the brake valve was in release position. The brake rigging, spring rigging, wheels, flanges and tires were in good condition and intact; engine truck and driving-wheel lateral motion was within the prescribed limits and no other condition was found that would have contributed to the accident.

General Master Mechanic Lewis said that his findings agreed with those of the road foreman of engines. The left outside pilot brace was broken off at the foot on the bottom end of the brace and he thought a piece of the bottom of the brace 6 or 8 inches long was missing. This brace is constructed of 1 inch by 3½ inch iron and is fastened to the pilot with two staybolts riveted on both ends. The top end of the brace is fastened to the front end of the main frame by two bolts; one of these bolts was missing. The portion of this brace remaining on the engine was bent in circular shape to the left and there were indications that it had dragged on metal. It was possible that this brace being loose had caused the accident.

Signal Inspector Holmes found the chip that was broken out of the gauge side of the ball of the east rail opposite the filler block of the east switch point of the junction switch. The chip measured approximately 2 inches long ⅝ to 7/8 inch wide and about 1/8 inch thick and had a blue scar across its surface.

Observations of Commission's Inspectors

On April 12, an examination of the track was made in company with the district engineer; this examination included the track from a point 568 feet north of the junction switch to the switch location. The track was poorly ballasted and all joints were churning sufficiently to cause a deflection of from one to two inches under a slow moving locomotive. Nevertheless, it did not appear that track conditions were the cause of the accident.

The first mark that could be definitely associated with the derailment was an abrasion on the north end of the guard rail of the junction switch turnout, about 65 feet from the switch. Approximately 28 feet south of this point the outside of the base of the lead rail of the turnout was scraped for 15 inches; the head of one spike had been broken off and the two following spikes were moved southward. Ten feet farther south, the heel of the filler block between lead rail of turnout and east rail of south main track was abraded on the north end to a depth of about 1/8 inch for 7/8ths of an

inch. At this point something had apparently become wedged between the lead rail and a wheel flange and had forced the flange to the top of the ball of the main track rail, breaking the rail, and chipping out a piece on gauge side, about 3-1/8 inches long, 7/8 inch wide and 1/8 inch deep. The break occurred at about the middle of the filler block and extended diagonally northward about 12 inches. A flange mark 5 inches from the base of the gauge side of west main-track rail was found at a point about 22 feet south of the filler block, or 4 feet 5 inches south of the switch. A corresponding mark about 7 feet south of the switch appeared on outside of the base of the east rail. These marks continued intermittently, about uniformly spaced. The wheels had sheared off bolt heads en route, and the right flange had passed over a frog located about 816 feet south of the junction switch and continued inside of west rail until it reached the cross-over between the main tracks. From the heel of the cross-over switch points, the main-track rails and the cross-over rails were turned over. From a point approximately 87 feet south of the cross-over switch, the cross ties were torn out and the track was totally demolished for a distance of approximately 218 feet.

An inspection of the locomotive disclosed that a pilot brace was loose on the left side. This was a metal brace having a cross-sectional area 3½ inches by 1 inch; it was applied to inside of left side of the locomotive frame and extended downward at an angle of about 45°, turned at bottom and bolted or riveted to the pilot frame with two bolts or rivets. One of the bolts by which this brace had been bolted to the frame was missing. The foot of the brace had been broken off and, together with the bolts or rivets which held it to pilot frame, was missing, and the remaining portion of the brace had been bent back under and around the engine truck wheel. The condition of its bottom end indicated that it was responsible for breaking off the spike head and shoving the spikes southward. The right wheel of the engine truck had chafed the right side of the engine frame severely, indicating that the truck had been derailed to the left and had run for some distance in this condition. Otherwise, the locomotive appeared to have been in good mechanical condition prior to the time of its derailment.

Engine 891 is a 2-8-2 type, oil burning locomotive which weighs 324,000 pounds in working order.

Discussion

The evidence indicates that as Extra 897 approached the O.C.A. & A. Ry. junction switch approximately 650 feet north of Court Street, the fireman noticed fire flying from the left side of the engine truck, and shortly after passing Court Street the general derailment of the train occurred. Examination of the track showed evidence that the engine truck was derailed at the junction switch and continued close to the rails until the facing-point switches south of Court Street were encountered.

Inspection of the engine showed that a pilot brace on the left side of the engine had become loose at the bottom, and that one of the bolts securing its top end to the frame was missing. The condition of this brace after the derailment indicated that it had been bent to such an extent by impingement against the end of a guard rail north of the junction switch that it took a position under the left engine-truck wheel and acted as a derail which caused the truck to leave the rails.

Conclusion

This accident is believed to have been caused by a loose pilot brace, which became lodged under the left wheel of the engine truck and forced it off the rail.

Respectfully submitted,

W. J. PATTERSON

Director.