INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE MISSOURI PACIFIC RAILROAD NEAR OXFORD, KANS., ON NOVEMBER 8, 1929.

February , 1930.

To the Commission.

On November 8, 1929, there was a derailment of a passenger train on the Missouri Pacific Railroad near Oxford, Kans., which resulted in the death of one employee and the injury of three employees

Location and method of operation

This accident occurred on the Conway Springs District of the Southern Kansas Division, which extends between Conway Springs and Dearing, Kans., a distance of 130.04 miles, and is a single-track line over which trains are operated by time-table and train orders, no block-signal system being in use. The accident occurred at a point 9 feet east of mile post 525-36, which is located east of Oxford. Approaching this point from the west the track is tangent for a distance of 2,495 feet, while the grade in the vicinity of the point of accident is level. The maximum speed permitted for passenger trains is 40 miles per hour.

The track is laid with 56-pound rails, 30 feet in length, with an average of about 17 oak ties to the rail-length, and is single-spiked; four-bolt angle bars are used, and the track is ballasted with sandy loam soil.

It had been raining about seven hours prior to the occurrence of the accident and it was still raining at the time of the accident, which occurred at 2.35 p.m.

Description

Eastbound passenger train No. 314 consisted of one deadhead dining car, one combination mail and baggage car, one coach and one combination cafe and chair car, in the order named, hauled by engine 7025, and was in charge of Conductor Davis and Engineman Francis. The first two cars had steel center sills and the third car a steel underframe, while the fourth car was of all-steel construction. This train departed from Oxford, the last open office, at 2.31 p.m., 11 minutes late, and was traveling at a speed estimated to have been from 30 to 35 miles per hour when it was derailed as a result of a broken rail

The engine was derailed to the right and came to rest on its right side with the front end slightly nearer the rail than the rear end, the tender was derailed to the right at an angle of 45°, while the first two cars were also derailed to the right but remained upright. All of the equipment remained coupled. The employee killed was the engineman, while those injured were three dining-car employees.

Summary of evidence

Fireman Funk stated that he was riding on his seat box and the first he noticed of anything unusual was when the engine gave a lunge, at first towards his side, then it straightened up and started to lean toward the right until finally it turned over. About 30 minutes after the occurrence of the accident, he examined the broken rail, which was on the south side of the track, and noticed that the east or leaving end of the rail was turned toward the south and that there was a slight coating of rust on the fractured ends. Fireman Funk stated that he was thoroughly familiar with the track in this vicinity, having operated over it both as an engineman and a fireman, but had never noticed that the engine had swayed any more in the vicinity of the point of accident than at any other point. On two previous trips with Engineman Francis, he had noticed that the engineman reduced speed in this locality, but he did not know his reasons for doing so. Fireman Funk estimated the speed of the train at the time of the accident to have been about 30 miles per hour.

Conductor Davis stated that the first intimation he had of anything wrong was when he felt the air brakes apply in emergency, and he was of the opinion that the accident was caused by a broken rail. He observed that the end of the east section of the broken rail had been pushed over toward the north or inside of the track and formed a lip, which, he thought, caught the wheel flange. He also was of the opinion that the pony trucks of the engine were the first to derail. Conductor Davis said they held no slow orders over this section of track and he estimated the speed of the train at the time of the accident to have been about 35 miles per hour. The statements of Brakeman Monroe brought out nothing additional of importance.

Division Engineer Murray stated that he arrived at the scene of the accident about two and one-half hours after its occurrence and found a broken rail which in his opinion was the cause of the derailment. He thought the failure of the rail was due to crystalization, age, and climatic conditions, and did not think its condition could have been detected by inspection. There was a little rust on the ends of the broken rail, due to the constant rain on the day of

the accident At the end of the break at the west section of the rail, there was a battered appearance which indicated to him that the rail had been broken by a westbound passenger train which had passed over the track that morning A freight train had also passed over the track, at about 6 a m , but he was of the opinion that had the rail been broken by the freight train, the following westbound passenger train would have been derailed, or at least the broken rail would have been noticed by the crew of that train. He did not think there were any other track conditions that could have caused the derailment. Division Engineer Murray further stated that measurements taken for a distance of 150 feet west of the point of accident showed a maximum of only one-half inch variation in cross level and 1 inch in gauge, the line was good and the surface was in fair condition, although there were some slopping joints which were due to recent rains. The broken rail was left in the track until the following day, and during that time the track was used for switching movements in clearing up the wreckage

Roadmaster Philpot stated that he arrived at the point of accident about 3 10 a m the following morning, at which time the broken rail was still in use He noticed that the ends were battered and rusty, and was of the opinion that the rail had been broken only a few hours previous to the occurrence of the accident, by one of the two trains which had passed over the track that morning. He himself had been over that territory on the day previous to the accident and had noticed no bad conditions in the track which would warrant any immediate action on the part of the section forces

Section Foreman Cokenour stated that he examined the broken rail on his arrival at the scene of the accident about one-half hour after its occurrence He also noticed that the broken ends of the rail were battered, the end of the west section being battered more than the other end, and they also had a burnished appearance. The west section was in place on the ties, while the east section was turned inward and there was a flange mark for a distance of about 2 feet on the ball of that portion of the rail, extending to where the wheel dropped off on the ties on the outside of the rail It was the section foreman's idea that the east section had been moved inward enough to form a lip, and that a wheel flange caught it and caused the derailment. He had inspected this section of track on the afternoon previous to the occurrence of the accident and noticed nothing that would necessitate issuing a slow order

Statements made by the crew of freight train No. 393, which passed over the track about 6 a.m on the morn-

ing of the accident, and by the crew of passenger train No. 313, which passed over the track about 11 30 a.m , were to the effect that nothing wrong was noted and there was no indication of a broken rail

An examination of the track for a distance of 1,376 feet west of the point of derailment disclosed the track to be in poor condition, of the 780 ties within that distance, 92 per cent were oak and the balance were untreated soft pine, and 35 of these were split or broken, the general appearance indicated that they were center bound, and at 15 different points they had been churning or slopping during rainy weather The ballast, which was of sandy loam soil, covered the ties between the rails at many places so that it was impossible to ascertain the true condition of all of them. However, at four or five of the places where the ties had been churning, this condition extended a distance of four or five ties, while at other points two or three consecutive ties were working, and the ballast had slushed out, leaving the ties practically unsupported The track was not uniform as to gauge, there being a variation within a distance of 300 feet west of the point of accident of from 1/8 inch to 1/2 inch, and the surface was very uneven, varying from level to 3/4 inch low in the south or right rail and from level to 1 1/2 inches low in the north rail, such a condition would cause a swaying motion of an engine, traveling at a speed of 30 or 35 miles per hour - the speed of train No 314 at the time of the accident.

The rail involved was rolled in 1887 and was laid during the same year Inspection of this rail showed that the break occurred at a point 21 feet 6 inches from the receiving or west end of the rail, and at the break in the short end there was an indentation in the center of the ball, as if it had been struck by the flange of a wheel; this mark was plainly visible along the ball to the leaving end of the rail and extended onto the adjoining rail for a short distance, where it disappeared as the rail turned over. The ties were broken up at that point so that no marks could be traced The fracture was comparatively new, although the entire surface was rusted when examined by the railroad employees immediately after the occurrence of the accident There was a spike maul mark on the top of the base of the rail at the edge of the tie, indicating that at some past time, in driving a spike, the maul had missed the spike and hit the rail and apparently caused a crack to extend into the base a distance of 3/8 inch, as this portion of the fracture was dark colored while the rest of the break was comparatively new. The break extended upward irregularly and slanted backwards as it approached the top of the ball, so that the fracture through the ball was about 1 inch west of a vertical line at right angles with the base of the rail as it lay in the track, thus forming

a chair or seat for the ball of the short end of the rail to rest upon.

Conclusions

This accident was caused by a broken rail.

The rusted appearance of the fracture and the badly battered condition of the broken end of the west section, indicated that this rail was broken at some time prior to the arrival of train No 314, the location of the fracture at this particular point possibly being determined by the fact that it had been damaged at some previous time as a result of having been struck with a spike maul.

The indications also were that the short section of this rail was forced out of its normal position, resulting in the formation of a lip, and when this was encountered by the engine it caused a wheel or wheels to mount the rail

The investigation disclosed that the track was not in good condition, the surface being especially bad.

All of the employees involved were experienced men and at the time of the accident none of them had been on duty in violation of any of the provisions of the hours of service law.

Respectfully submitted,

W P. BORLAND,

Director.