

INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE
INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON
THE ATLANTA, BIRMINGHAM & ATLANTIC RAILWAY AT
ATLANTA, GA., ON APRIL 20, 1924.

May 28, 1924.

To the Commission:

On April 20, 1924, there was a derailment of a switch engine on the Atlanta, Birmingham & Atlantic Railway at Atlanta, Ga., which resulted in the death of one employee. The investigation of this accident was made in conjunction with a representative of the Commission's Bureau of Locomotive Inspection.

Location and method of operation.

The accident occurred on the Birmingham Division, which is a single-track line extending from Bellwood Tower, Atlanta, to Manchester, Ga., a distance of 78.2 miles, over which trains are operated by time-table and train orders, no block-signal system being in use. The accident occurred at a dirt road crossing located a very short distance west of Bellwood Tower; approaching that point from the west the track is tangent a distance of 1,630 feet, followed by a curve of $10^{\circ} 30'$ to the right which is 661 feet in length, the point of accident being on the curve 237 feet from its western end. The grade for eastbound trains is ascending varying from 0.75 per cent to 1.8 per cent, being 1.14 per cent on the curve. The track is laid with 80-pound rails, 33 feet in length, with an average of 20 ties to the rail-length, tie-plated on the curve, and ballasted with from 14 to 20 inches of cinders. The rails had been in service at this point since 1908, but although they were considerably curve-worn, the track on either side of the point of accident was found to be maintained in fairly good condition.

The weather was clear at the time of the accident, which occurred at 4.03 p.m.

Description.

Switch engine 23, headed west, in charge of Engine Foreman Reed and Engineman Cowart, left Bellwood yard, at 3.55 p.m., backing up hauling a cut of 12 loaded cars, en route to the Southern Railway yard. After having proceeded about 1/2 mile, on reaching the dirt road crossing located a short distance west of Bellwood Tower, the tender was derailed while traveling at a speed of about 7 or 8 miles an hour.

The tender was derailed to the north but remained upright and coupled to the engine, at an angle of about 30° to the track; none of the other equipment was derailed. The employee killed was the switchman, who was riding on the rear footboard of the tender.

Summary of evidence.

Engine Foreman Reed stated that he was riding on the rear of the tender on the fireman's side of the engine; that the engine proceeded up the hill at a speed of about 8 miles an hour and that the first he knew of anything wrong was when the accident occurred. Foreman Reed stated that one derailment occurred about 14 or 16 inches from a rail joint, the wheels climbing the north rail, and the rear end of the tender coming to rest about 50 feet beyond. He examined the track immediately after the accident, and found that the rail joint on the north rail at the road crossing was loose enough so that it could be moved less than 1/2 inch, by pressing his foot against it. He was of the opinion, owing to the curve worn rails, slightly loosened spikes, and the loose angle bar, that the north rail gave to a small extent, and that the flange on the new pair of rear wheels in the rear truck of the tender climbed the rail.

Engineman Cowart stated that the engine was immediately over the road crossing when the rear of the tender became derailed and he at once applied the air brakes in emergency, coming to a stop within 10 or 12 feet. He thought the accident probably was caused by the loose joints and new pair of tender wheels. Engineman Cowart further stated that on previous occasions he has brought his engine to a stop just before proceeding over this road crossing in order to remove obstructions from the track. He had noticed nothing unusual with the handling of the engine, although on several occasions he had noticed that the rear end of the tender seemed to be higher than the front end, but, he thought, to the weight of the coal, at the time of the accident the tender was about two-thirds full of water and carried practically a full load of coal.

Chief Engineer Beall said he examined the track at the point of derailment and found it in good condition, the rails were slightly curve-worn but not enough to make them dangerous. There was a mark extending diagonally across the top of the north rail at the dirt road crossing apparently caused by a wheel flange having climbed the rail. On one tie the tie-plate showed lateral movement of about 1 inch, there being about 1/2 inch on each side of the plate.

Roadmaster Wilder said he went over this section of track about two weeks prior to the accident, and at that time found the track to be in fair condition. He arrived at the scene of the accident about one-half hour after its occurrence; examination of the track at that time disclosed that there were no broken rails or spikes that had been pulled out, and that the gauge was practically standard, while the rail joint at the crossing, on the north side of the track, was from 1/2 to 5/8 inch open, owing to recent rains and the joint swinging about 1/4 inch. He also saw the mark on top of the rail at the road crossing, beginning about 15 or 20 inches beyond the joint, and was of the opinion that the accident was caused by a wheel mounting the rail, owing to some obstruction on the track, however, he found nothing of this character.

Section Foremen Culver and Dean stated that the track in the vicinity of the point of accident was in good condition, and they were of the impression that the rail joint was not swinging to such an extent as to affect the use of the track.

General Foreman Bauknight stated that on the day of the accident engine 23 was out of service for about 8 hours, for the purpose of replacing staybolts and washing out the boiler. The forward end of the tender was about 2 inches lower than the rear end, as had been noted by Engineman Cowart, it being the practice to lower or raise the tender to correspond with the height of the engine, which varied with the wear of the tires, on leaving the shops at 3.10 p.m. the tender was level with the deck of the engine. The new pair of wheels were installed in the rear truck of the tender on April 1, 1924. According to Mr. Bauknight's examination of the tender after the accident, the bolster under the side bearings of the front truck was broken nearly through, an old defect, it was also broken under the center plate. In January, 1924, he knew this bolster was cracked, but he said the side bearings covered up the crack, making it necessary to get underneath to inspect it and determine its extent, which he did not do, he did not, however, deem the defect to be of a serious nature. The side-bearing clearance of the rear truck was about 12/16 or 13/16 inch.

When the Commission's inspectors arrived at the scene of the derailment the track had been opened to traffic and necessary repairs made. Near the receiving end of the north rail at the point of accident there was a mark, 8 feet 8 inches in length, extending diagonally across the top of the rail, dropping off and disappearing on the outside of the rail.

Engine 23 is of the 0-6-0 type, having a total weight, engine and tender, of 250,226 pounds. The tender has a water capacity of 5,000 gallons and a coal capacity of 6 tons; the weight capacity of each truck is 50,000 pounds. The front tender truck was of the arch-bar type, with a Reliance bolster. The top portion of this bolster is pressed into channel shape, 14 inches wide at the female center casting, which is bolted to it, tapering to 12 inches wide at the arch bars, with flanges 4-1/2 inches wide at each side. At the left side of the center casting this bolster showed an old break, extending entirely across with the exception of a new break 1-3/8 inches in length at the lower corner of the back flange. There was also an old defect at a point outside the left side bearing, which is of the rocker type, extending from the lower edge of the front flange upward through the flange across the top of the bolster to the top of the flange at the back side. At the right side of the center casting the bolster was cracked and slightly sprung downward. Interior parts of the lower portion of the left side bearing, judging from their condition, had been crushed for some time. The condition of the male and female portions of the center casting indicated that the left side was worn from being out of level. It is also to be noted that although General Foreman Bauknight knew this bolster was cracked, as early as January of this year, the condition of the tender was shown as good in the report of the annual inspection, dated January 22, and also in the monthly inspection reports for February, March, and April.

Conclusions.

This accident is believed to have been caused by the insecure condition of a rail joint on the outside of the curve, coupled with the defective condition of the front tender truck.

The evidence is clear that the gauge at the rail joint was somewhat open, and it also appeared that the joint was loose enough to enable the engine foreman to move it with his foot when he examined the joint after the accident. There were several breaks in the bolster of the front tender truck, and it is believed that the tender frame settled down on the left side of the front end, placing excessive weight on it, making the truck rigid, and tending to reduce the weight at the right rear corner of the tender, springing the corner to the left when the

engine was backing around the curve to the right, and lessening the resistance of the wheel flange against the gauge side of the rail, already curve-worn, and that this permitted the right rear wheel to climb the rail at the insecure joint and thus result in the derailment.

General Foreman Bauknight is open to censure; several months previously he had discovered that there was a large crack in the bolster but made no attempt to ascertain its extent and apparently no report concerning its defective condition was made, the engine being reported in good condition and allowed to remain in service without repair until the occurrence of this accident.

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.