

INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN
RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED
ON THE SOUTHERN RAILWAY NEAR ELKO, ALA., ON
MARCH 20, 1926.

April 19, 1926.

To the Commission

On March 20, 1926, there was a derailment of a passenger train on the Southern Railway near Elko, Ala., which resulted in the injury of one express messenger. The investigation of this accident was made in conjunction with representatives of the Alabama Public Service Commission.

Location and method of operation

This accident occurred on that part of the Memphis Division which extends between Citico, near Chattanooga, Tenn., and Sheffield, Ala., a distance of 167.2 miles. Trains are operated by time-table and train orders, no block-signal system being in use. The point of accident was 26 feet east of the west passing-track switch at Elko. Approaching this point from the west the track is tangent for a distance of about 2 miles, while the grade is alternately ascending and descending, being 0.87 per cent ascending immediately approaching the point of accident.

The track is laid with 85-pound rails, single-spiked to an average of 18 or 19 ties to the rail-length; tie plates are not used except at switches and on curves. The track is ballasted with from 16 to 18 inches of good quality gravel ballast. The general maintenance is good.

The weather was clear at the time of the accident, which occurred at 3.55 p. m.

Description

Eastbound passenger train No. 36 consisted of one express car, one combination mail and baggage car and three coaches, hauled by en-

gine 1319, and was in charge of Conductor Norris and Engineman White. The express car was of wooden construction while the balance were of steel construction. This train left Sheffield at 1.25 p. m., on time, left Madison, the last open office, 4.3 miles from Elko, at 3.48 p. m., five minutes late, and was derailed just after passing the west switch at Elko while traveling at a speed estimated to have been about 40 miles an hour.

The entire train was derailed to the right with the exception of the left engine truck wheels, but all the equipment remained upright with the exception of the tender, which turned over on its right side. The head end of the engine came to rest 495 feet beyond the point of derailment.

Summary of evidence

Engineman White said he had noticed nothing unusual in the track conditions when approaching Elko, but at about the time the engine passed over the switch he felt an unusual lurch to the right and immediately applied the air brakes in emergency. After the train had stopped he went back along the track to see if he could ascertain the cause of the accident, and while he noticed slight irregularities in the surface of the track he did not consider them sufficient to cause the train to be derailed. Engineman White said he also made a careful examination of the engine and tender but without result; he did say, however, that he thought the right forward tender-truck wheels were the first to be derailed and his idea as to the cause was that the engine and tender were coupled too tightly. It further appeared from Engineman White's statements that after the accident some one approached him saying that they were getting up a petition complaining of the condition of the ties and asked him to sign this petition, which he refused to do, at the same time saying that the accident was not due to the condition of the ties.

Fireman H. Ples said he had not noticed anything unusual in the way the engine rode although he had noticed that the tender did not seem to be riding properly, apparently being somewhat rigid on the left side. His first knowledge of anything wrong was when the engine made a sudden

movement to one side immediately following which the engineman applied the air brakes in emergency. Fireman Haples had been over this portion of the road on the preceding day, but at that time he had not noticed any rough spots in the track in the vicinity of the vest switch, and he stated that he considered this particular section of track to be maintained in good condition.

Master Mechanic Dyke said he examined the engine and tender after the accident and also examined the track but did not find anything which in his opinion would have caused the accident. Mr. Dyke was asked what he thought would happen if the south or right rail were low for a distance of about 20 rail-lengths, followed by a joint in the left rail which was one-half inch low, and he replied he thought there would be some vibration, but he also said it was his opinion that the side-bearing clearance and springs should take care of the situation and allow the engine to right itself. Supervisor Williams said he had been over this portion of the road on the day prior to the accident and at that time there was nothing about the track which needed attention.

In his final report covering his investigation of the accident, Superintendent Payne said the accident was due to a slight break in the elevation of the track, coupled with the fact that the tender was riding rigidly on the center casting and on the left side bearing, resulting in the leading tender-truck wheel on the right side mounting the right rail. According to his report, this wheel then ran on the bell of the rail a distance of 16 feet 6 inches before dropping off on the outside, and when the derailed wheels encountered the frog of the switch they damaged it to such an extent as to cause the derailment of the following cars.

C. H. Pulley, a resident of Huntsville, was a passenger on train No. 36 at the time of the accident and he stated that he had not noticed anything unusual prior to its occurrence. Mr. Pulley has a large farm about 15 miles from Huntsville and rides between this farm and Huntsville two or three times each week, and he said that he had often walked over that portion of the track in the vicinity of his farm. He considered the ties to be in bad condition and said he had been informed that the section foremen were not allowed to renew more than five or six ties per rail-length per year.

He also said that on one occasion he had found two spikes which he had been able to pull out of the ties by hand, and he thought this was a condition which existed rather generally. He had had no track experience of any kind but said he considered that the accident was due to the bad condition of the track and that decidedly more than six ties per rail-length were in need of renewal.

W. L. Baker, also a resident of Huntsville, made the complaint to the State Commission which was the basis for this investigation. In that complaint he said he felt that this accident was due to the bad condition of the ties, saying that the road showed, and he had also been informed by some of the section men, that only six new ties were allowed per rail-length per year. This letter of complaint did not indicate any personal knowledge of defective conditions, and on account of Mr. Baker's absence from Huntsville at the time the investigation was made, no opportunity was offered for personal interview.

Data furnished by the railroad officials showed the measurements of the surface which were taken for a distance of several hundred feet west of the point of accident. These measurements indicated that at the initial point of derailment the south or right rail was one-quarter inch low, at the first joint to the westward the left rail was one-half inch low, and back of this point the right rail was either level or low for a considerable distance, the rail at its lowest point being one-half inch lower than the left rail. With respect to the gauge, the figures showed that as a whole it was well maintained, while with respect to the condition of the ties it appeared that within the distance of 604 feet immediately west of the point of accident there were 336 ties in use, 50 of which had been classified as being in bad condition. The examination of the ties by the Commission's inspectors, however, indicated that some of these 50 ties were still in serviceable condition.

In addition to checking the data furnished by the officials of the company as a result of their own investigations, made shortly after the occurrence of the accident, the Commission's inspectors examined the track for a distance of several miles for the purpose of ascertaining its general condition. In addition to finding the data referred to in the preceding paragraph to be generally correct, it was found that the conditions there outlined were fair-

ly representative of those prevailing elsewhere. In addition, the Commission's inspectors found that within the distance of 1 mile immediately west of the point of accident there were 31 spikes which could be pulled out of the ties by hand, while there were 19 others which were missing or in an unserviceable condition. The distribution of the loose and missing spikes was such, however, as to have practically no effect on the security of the track structure, and it appeared that the general condition of the track with respect to rails, ties, spiking, maintenance of joints, ballast and surfacing was good, although there was one point about 850 feet west of the point of accident where the drainage was poor but not sufficiently so to make the track unsafe. At another point where the track runs through the farm of Mr. Pulley there were 14 missing spikes within a distance of approximately $1\frac{1}{2}$ miles, while there were also a few ties which were to be removed, but here again the general condition of the track was good.

According to the records, engine 1319 had only traveled about 400 miles since leaving the shops. At the time of the investigation of this accident by the Commission's inspectors the tender had not been returned to service and it was possible to make a careful examination of the tender trucks. It was found that a shim had been placed over the side-bearing resting on the left side of the forward truck in order to compensate for excessive side-bearing clearance. Careful examination of this feature, however, did not indicate the presence of any binding or rigidity as referred to in the superintendent's report, while the wear on either side of the center casting appeared to be uniform, indicating that the tender had been well balanced, in fact, the investigation so far as the equipment was concerned failed to develop anything which it was thought could have led to the occurrence of the accident.

Conclusions

The cause of this accident was not definitely ascertained.

The Commission's inspectors did not reach the scene of this accident until 19 days after its occurrence, and of course the necessary repairs to the track which had been damaged in the accident

had long since been completed. The inspectors were able, however, to confirm the data furnished by the officials to the effect that the right rail was lower than the left rail for a considerable distance, followed by one low joint in the left rail, and it is entirely possible that this abrupt change in the general surface of the track might have been a feature in causing the derailment. The examination of the track in the immediate vicinity of the point of accident and also for a distance of several miles east thereof did not indicate the existence of any dangerous conditions, in fact, it appeared that the statements that the ties were generally in a more or less rotten condition were unwarranted, and that the condition of the track was fully equal to the average, if not above the average, considering the traffic movement to which it is subjected, consisting of about six trains daily in each direction.

Respectfully submitted,

W. J. PATTERSON

Assistant Director.