Accidents
676

IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE ATLANTIC COAST LINE RAILROAD NEAR LUCAMA, N. C., MARCH 5, 1920.

May 5, 1920.

On March 5, 1920, there was a derailment of a passenger train on the Atlantic Coast Line Railroad near Lucama, N. C., which resulted in the death of 2 employees and the injury of 13 passengers and 5 employees. After investigation of this accident the Chief of the Bureau of Safety reports as follows:

That part of the First District of the Atlantic Coast Line Railroad on which this accident occurred, known as the Fayetteville District, extends between South Rocky Mount, N. C., and Florence, S. C., a distance of 172.3 miles. From South Rocky Mount to Parkton, N. C., within which territory this accident occurred, it is a double track line, over which train movements are governed by time-table, train orders, and an automatic block signal system.

The derailment occurred on straight and practically level track at the foot of a descending grade nearly five miles in length, the grade for the last mile and a half averaging about .6%. The track is laid with 85-pound rails, 33 feet long, single-spiked, with about 18 ties to the rail length; the ties are of cypress, pine and some of oak. Tie plates are used on the soft wood ties and rail anchors are used to some extent. The ballast is of sand and gravel. The general condition of track in the vicinity of the accident was fair. According to time-table instructions the speed of first-class trains is restricted to 50 miles an hour. The weather was clear.

Northbound passenger train No. 86, known as "The Havana Special,"

was en route from Key West, Fla., to New York, N. Y., in charge of Conductor Nelson and Engineman Wilson. It consisted of engine 1528, 1 express car, 1 mail car, 1 baggage car, 2 day coaches, 3 Pullman sleeping cars, 1 dining car, and 5 Pullman sleeping cars, in the order named. The cars were of all-steel construction with the exception of the express car, which had a steel underframe. The train left Florence at 11:15 a. m., 8 hours and 40 minutes late, passed Kenly, N. C., the last telegraph station, 5.7 miles south of the point of accident, at 2:47 p. m., 7 hours and 50 minutes late, and at about 2:55 p. m., was derailed while running at a speed estimated by its crew to have been from 40 to 50 miles an hour.

The engine was derailed to the left, but continued on between the main tracks for a distance of approximately 425 feet, coming to rest on its left side parallel with the tracks; the tender remained coupled to the engine but came to rest across the northbound track at right angles to it. The express car came to rest on the right side of the track and at right angles to it, with its forward end across the northbound track close to the tender. The mail and baggage cars went to the left of both tracks, at an angle of about 45°, the rear end of the baggage car being nearly opposite the rear of the engine. The two coaches, the first two sleeping cars and the forward trucks of the third sleeping car were derailed, but remained on the roadway. The employees killed were the engineman and fireman.

Northbound train 2nd No. 80 had passed over this portion of the track about 10 minutes prior to train No. 86, and at that time the crew noticed nothing wrong with the track, although the engineman said that the track was not in as good condition as formerly, being a little irregular as a result of recent rains; he thought it was safe for the maximum

rate of speed allowed. The crew of train No. 86 did not notice anything unusual as the train approached the point of derailment, neither did they notice any application of the air brakes prior to the derailment.

Careful examination of the engine made by the road foreman of engines, general road foreman of engines and master mechanic shortly after the accident failed to disclose anything which could have caused the derailment. The statements of all of these officials were to the effect that the battered condition of the boiler head indicated that the engine had been pushed along on the ground by the cars, while judging from the wreckage and the manner in which the track and roadway were torn up one of them estimated the speed to have been about 75 miles an hour while another estimated it to have been not less than 60 miles an hour.

Engine 1522 had been inspected the preceding night at Florence, and at that time a bolt and plate were found to be missing from a driving box, while an adjusting screw was loose. These defects were repaired before the engine went out on train No. 86. The cars in the train were also inspected when they arrived at Florence on the day of the accident, no defects being found and no repairs of any kind being made.

Examination of the track disclosed that the first indication of anything wrong was a broken rail on the left side. About 14 inches of the leaving end of the rail had been broken off, and was afterwards found at a point about 60 feet north, with a mark on it about half an inch deep indicating that it had been struck by a wheel flange. The point at which the rail had broken was inside of the point where the bond wires of the electric track circuit were fastened to the rail, and thus there was no possibility of the automatic block signals displaying a stop indication as a result of a broken track circuit due to the broken rail, even if

the rail had been broken and the broken portions separated prior to the arrival of train No. 86. Near the point where the break occurred there were wheel marks on three or four ties, one of these being the tie immediately south of the break, while north of this point the track was badly torn up as a result of the derailment.

With the exception of the 14-inch section missing from the leaving end, the rail remained in the track and was not damaged in any way. The south end of the rail was in gauge, with the rear trucks of the eighth car resting on it. The north end had a slight outward twist, while the spikes on the inside of the north end had been partially pulled from the ties. The trainmaster thought its appearance indicated that the rail had been twisted outward due to the strain and shock incident to the derailment of the cars in the first part of the train and that the forward trucks of the eighth car had dropped inside the rail close to the break; he thought the marks on the ties did not indicate that there had been any other cars off at this particular point.

On the day previous to the accident the section foreman and his men had lined and surfaced the track in this vicinity. The ties were in good condition, about two-thirds of them being comparatively new; the number of new ties was thought by the section foreman to have been responsible for the track being a little rough. Considerable difficulty had been experienced with the rails creeping resulting in the ties being pushed out of place. Rail anchors were used to prevent this condition, there being from four to six anchors to the rail at a point about on mile south of the point of accident. There was no evidence to show that at the time of accident any difficulty of this kind was being experienced, and all statements were to the effect that while the track was not in the best condi-

tion it was considered safe for the maximum permissible speed of 60 miles an hour.

The rail which failed was an 85-pound rail, A.S.C.E. section, made by the Maryland Steel Company in 1907 and laid in the track in the same year. It broke at a point directly over a tie, which was in good condition. The break appeared to have originated at the outside of the running surface, and to have extended down through the web and base in a diagonal direction, it then separated into two cracks, one of which extended into the third bolt hole from the end of the rail. There was no defect at the point of rupture.

This accident was caused by a broken rail. As a result of inspection of the rail the conclusion was reached that it probably broke from a lateral thrust, that is, the nosing of an engine, and by a train which had preceded train No. 86.

All of the members of the crew of train No. 86 were experienced men. At the time of the accident they had been on duty about 5 hours after periods off duty ranging from 14 to 24 hours.

R.W.L.