INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE NASHVILLE, CHATTANOOGA & ST. LOUIS RAILWAY NEAR CALHOUN, GA., ON FEBRUARY 26, 1923.

April 5, 1923.

To the Commission

On February 26, 1923, there was a derailment of a passenger train on the Nashville, Chattanooga & St. Louis Railway near Calhoun, Ga., which resulted in the death of 1 passenger and 1 employee, and the injury of 34 passengers, 1 mail clerk and 9 employees.

Location and method of operation.

This accident occurred on the Atlanta Division, which extends between Atlanta, Ga., and Chattanooga, Tenn., a distance of 136.81 miles, at a point about 1½ miles south of Calhoun. In the vicinity of the point of accident this is a single-track line, over which trains are operated by time-table and train orders, no block signal system being in use. Time-table No. 148 limits the speed of all passenger trains to 50 miles an hour except trains Nos. 94 and 95, which are limited to a speed of 60 miles an hour; the speed on curves between Cartersville and Chattanooga, within which territory this accident occurred is restricted to 45 miles an hour.

Approaching the point of accident from the south the track is tangent for 1,728.5 feet to bridge 76.3, followed by a curve of 2°58' to the left 900 feet in length, then a tangent 79 feet in length, followed by a curve of 3°43' to the right 1,209 feet in length; the accident occurring on this curve 387 feet from its southern end and 143 feet north of bridge 76.6, on a low fill at the entrance to a cut, 700 feet long, with banks varying from 15 feet to 40 feet high. The grade from the south is descending for about 6,100 feet, varying from 0.4 to 0.04 per cent.

The track in the vicinity of the accident is laid with 90-pound rails, 33 feet in length with an average of 18 creosoted ties under each rail, tie plated and double spiked. River gravel ballast is used mixed at irregular intervals with a little crushed stone; stone ballast was

used through the cut. For a short distance south of bridge 76.6 there were stretches of open and partly filled track, insufficiently ballasted and poorly drained, and from the bridge northward to the first mark of the derailment, a distance of 143 feet, the track was laid on crushed rock but was insufficiently ballasted. The super elevation and gauge at the point of accident were maintained generally in good condition. It had been raining for several hours at the time of the accident, which occurred at about 12.50 p.m.

Description.

Northbound passenger train second No. 34 consisted of one baggage car, two coaches, one dining car seven sleeping cars and one observation car, in the order named, of all-steel construction, except the baggage car, which had a steel underframe, hauled by engines 507 and 551, and was in charge of Conductor Butler and Engineman McClain and Henderson. According to the train sheet, this train passed Adairsville, about 8 miles south of the point of accident, at 12.39 p.m., 1 hour and 41 minutes late, and was derailed south of Calhoun while traveling at a speed estimated to have been about 45 miles an hour.

Engine 507 came to rest with the front driving wheels derailed to the right, 1,146 feet from the point of derailment, and 466 feet north of the point where engine 551, together with its tender, was derailed and overturned on its left side, parallel with the track. The engine truck of engine 551 lay on the ties a few feet north of the engine, the ends reversed and upside down; the tender trucks were about 200 feet south of the tender. The first eight cars and the forward truck of the ninth car were derailed, two of them being entirely overturned. The track was torn up for a distance of about 680 feet. The employee killed was the fireman of the second engine.

Summary of evidence

Engineman McClain, of engine 507, said the engine rode smoothly until it reached a point about 10 or 15 feet north of bridge 76.6, when it swerved to the left suddenly and then came back; he looked back, saw ballast flying, and applied the air brakes in emergency and reversed the engine. Fireman Kelly, of engine 507, said the engine seemed to strike a rough place in the track just north of bridge 76.6, and then righted itself, while Traveling Fireman Countryman, who was riding on the engine, said it made two or three bad swings when about two rail lengths south of the bridge; these employees looked back about the time the engineman applied the air brakes in emergency and saw

engine 531 turn over. Engineman Henderson, of engine 531, felt his engine swing just as it passed bridge 76.6, and he thought the trailer truck had been derailed; the engine continued to swing for about 30 rail lengths, until the front end was raised up and the lead engine became separated from it, shortly after which the engine turned over. These employees, as well as the conductor and flagman, estimated the speed at from 40 to 45 miles an hour.

J. H. Carman, general foreman of the car department, and Trainmaster McShorter, together with Traveling Fireman Countryman, were riding on the train for purposes of general inspection of all conditions. Mr. Carman had inspected the cars before the train departed from Atlanta, and in company with the trainmaster and conductor made another inspection at Rogers, 27.16 miles south of Calhoun neither of these inspections had disclosed the presence of any defects. The trainmaster and general foreman were riding in the second car at the time of the accident, and had noticed nothing unusual prior to its occurrence.

Examination of the track showed the first mark of derailment was a flange mark on the web of the gauge side of the outside rail, 143 feet north of bridge 76.6, the left driving wheels of engine 531 then dropped inside the rail, together with the engine truck, overturning the rail for a distance of over 600 feet, the right driving wheels apparently remaining on the rail until the engine was overturned. Near the point where engine 531 came to rest the front end of the engine truck became wedged in the track and caused the engine to be raised upward and turn over, the truck coming to a stop a few feet distant. When this occurred, engine 507 became separated from engine 531, and it is probable the violent lateral motion transmitted to it from engine 531 resulted in its forward driving wheels being derailed. There were a few abrasions on the right driving wheels of engine 531, while the outside faces of the left driving wheels indicated that they had been revolving rapidly against the gauge side of the rail; there were also indentations in the frame of the engine where the truck had come in contact with it at the time the truck wedged in the track and caused the engine to rise and overturn. A careful examination was made of the engines and cars involved, but nothing was found which could have contributed toward the accident.

Examination of the track south of the point of derailment showed that when the track was raised by the section crew there was not enough of the old ballast to fill in between the ties except at occasional points. Approaching the point of accident, the track was open a distance of

66 feet, with not to exceed 2 inches of ballast between the ties; then a few feet of track was well ballasted in front of a landing place for track cars, then 30 feet or more of track was open, followed by 35 feet of partly filled track extending to bridge 76.6; the ballast was foul with slime about the ends of and under the ties, good drainage not being provided. From bridge 76.6 northward to and beyond the point of derailment, the track was laid on crushed rock but was insufficiently ballasted between the ties and some ballast still remained at the ends of the ties, having been taken out to facilitate the removal of old ties.

While not involved in the accident it was noted that near the station at Calhoun, slime oozed up around the ends of the ties when the weight of a man was placed upon them, while within a distance of less than 60 feet six spikes were removed by hand.

Section Foreman Blankenship said he overhauled the track north of bridge 76.3 about 1,350 feet south of the point of accident, raising the track 3 or 4 inches and renewing ties, completing the work up to bridge 76.6 on February 14; he had no occasion to go back over the work except to raise two or three joints. On February 16, he had completed the work up to the point where the rail turned over. This track had held its line and surface for nine days and was in good shape on the morning of the accident, when the foreman said work was discontinued on account of rain. Section Foreman Blankenship said a freight train passed the point where they were working on the morning of the accident, and before going in with his men he inspected the track and removed the caution signs erected before starting work that morning, as he considered the track to be in good shape and that there was no necessity for a speed restriction. After the accident he noticed that the track south of bridge 76.6 was about 4 inches out of line, the distance the track was out of line being about two or three rail lengths. Section Foreman Blankenship said he considered the track sufficiently ballasted and filled in between the ties to hold the track in place, and accounted for the accumulation of slime at the ends of and underneath ties to the limestone in the gravel ballast, which had been deposited at the time of a flood in a nearby creek.

Track Supervisor Ritchey said that he rode over this track on train No. 5 a few hours prior to the accident and everything seemed satisfactory. Supervisor of Bridges Hooper said that he rode engines over the track in the vicinity of the point of derailment three times the week previous traveling at a speed of at least 45 or 50 miles an hour, and notices no uneven condition of the track or bridges.

Conclusions.

This accident was caused by a weakened condition of the track due to insufficient ballast.

The evidence indicated that Section Foreman Blankenship had been raising the track and putting in new ties, in doing which it had been necessary to remove much of the old ballast. After this work had been completed, there was not a sufficient amount of ballast in the track, and the combination of thin ballast, new creosoted ties, which are very slippery when wet, and heavy rain, undoubtedly caused the track to slide out of line under the weight of the two engines at high speed, resulting in such a violent motion of the engines as to cause the left rail to overturn and derail the train.

While the responsibility rests primarily with Section Foreman Blankenship, the condition of the track in this vicinity was or should have been known to supervising officials in the track department, and they are open to censure for their failure to see that proper steps were taken to make the track safe for the movement of heavy trains at high speed, or else that proper warning signals were displayed and restrictions imposed requiring trains to proceed at low speed until they had passed over the section of insecure track.

The maximum estimate made as to the speed of train second No. 94 was 45 miles an hour; if the air brakes were applied in emergency as soon as the evidence indicates was the case, then it is believed that this estimate undoubtedly represents the minimum rate at which the train was traveling.

The employees involved were experienced men; at the time of the accident the crew of train second No. 94 had been on duty less than 3 hours, after periods off duty ranging from 21 to 46 hours.

Respectfully submitted,

W. P. BORLAND,

Director.