INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE LOUISVILLE & NASHVILLE RAILROAD NEAR CANTON, GA., ON JULY 15, 1926.

July 31, 1926

To the Commission:

On July 15, 1926, there was a derailment of a passenger train on the Louisville & Nashville Railroad near Canton, Ga., which resulted in the death of two employees, and the injury of three passengers, two mail clerks and two employees.

Location and method of operation

This accident occurred on that part of the Atlanta Division extending between Etowah, Tenn., and Marietta, Ga., a distance of 143.5 miles, this being a single-track line over which trains are operated by time-table and train orders, no block-signal system being in use. The point of accident was about 4 miles north of Canton; approaching this point from the south there is a 9° curve to the left, followed by 993 feet of tangent and then a 13° curve to the left 657 feet in length, the accident occurring on the last-mentioned curve at a point about 450 feet from its receiving end. The grade was 0.507 per cent descending for a distance of more than 1,000 feet, followed by a heavy ascending grade beginning a short distance south of the curve on which the accident occurred and extending for some distance north thereof; this grade was 1 per cent ascending at the point of accident.

The track is laid with 80-pound rails, 30 feet in length, with 18 oak ties to the rail-length, single-spiked, and on curves it is fully tie-plated. The track is ballasted with cinders and was maintained in good condition. The rails were rolled in 1905 and relaid in their present location in 1915; the gall of the our-side rail was curve-worn from 1/4 to 1/2 inch. The superelevation of the curve at the point of derailment was $4\frac{3}{4}$ inches, which under the recommended practice of the American Railway Engineering Association would be sufficient for a speed of about 23 miles an hour. The speed of passenger trains over this part of the Atlanta Division is restricted to 30 miles an hour.

The weather was clear at the time of the accident, which occurred at 9.06 A.M.

Description

Northbound passenger train No. 4 consisted of one combination mail, baggage and express car, and two coaches, all of wooden construction, hauled by engine 394, and was in charge of Conductor Shaft and Engineman DeArmond. It left Canton, according to the train sheet, at 8.58 a.m., six minutes late, and was derailed on the 13° curve previously referred to while traveling at a speed estimated to have been 30 or 35 miles an hour.

The engine came to rest in an upright position at the foot of the embankment on the outside of the curve with the combination car diagonally across the top of the engine, this car also being in an upright position. The other two cars in the train were also derailed, but remained on the roadbed in an upright position about opposite where the engine came to rest. The employees killed were the engineman and fireman.

Summary of evidence

Conductor Shaft said his train left Canton a few seconds after 8.57 a.m., traveled at a speed of from 15 to 20 miles an hour while within the city limits, a distance of slightly more than 1/2 mile, and then the speed was increased to about 30 miles an hour, and he estimated that it was traveling at this latter rate of speed at the time the accident occurred. He had no intimation of anything wrong until he felt the car in which he was riding leave the rails and begin to bump along on the ties. After attending to the killed and injured, Conductor Shaft made an examination of the track but was unable to find a mark of any kind to indicate where any of the wheels had crossed the rails toward the outside of the curve. The eastern ends of the ties were scarred for a distance of about one rail-length, with no marks between the rails, and then there were a great many marks on the ties, which were also badly bunched for some distance, while two of them were turned outward.

Flagman Lunsford said he was riding in the second car in the train talking with Baggagemaster Eich, that the train approached the curve at a rate of speed which he thought was a little higher than usual, and that he commented on this fact to the baggagemaster, saying that they were going to encounter the curve at too high a rate of speed. He did not think the speed was reduced, although he did say he felt the brakes apply at about the time the accident occurred, at which

time the speed was about 30 or 35 miles an hour. He did not make any examination of the track or equipment after the occurrence of the accident.

Baggagemaster Eich said he was talking with the flagman but could not remember what was said, although he said he made some remark to the flagman to the effect that at some time their train would turn over on that curve. Baggagemaster Eich said this remark was not prompted by the speed of the train at that particular time, which he thought was about normal, and he also stated that the brakes were applied as the train approached the curve. None of these three employees expressed any opinion as to the cause of the accident.

Section Foreman Bramlett said he reached the scene of the accident shortly after its occurrence and made an inspection of the track, going back along the track for some distance, but he was unable to find where the wheels had mounted the outside rail. He then took measurements of the track but did not find anything wrong. There were two rails which had been turned slightly outward, while the spikes on the outside were disturbed, but he was unable to find where any of the wheels had mounted the outer rail. Section Foreman Bramlett said he had passed over this particular portion of the track twice daily for a period of several weeks, the last time having been on the morning of the accident, but he had not noticed anything irregular about the track. He further stated that the ties on the curve had been renewed about six weeks previously, at which time he had given the curve an elevation of $4\frac{3}{4}$ inches; the track had been filled in with cinders about four weeks previously. No difficulty had been experienced in maintaining the track at this particular point, and he considered it safe for a speed of 30 or 35 miles an hour. He also stated that he had not been able to form any conclusion as to the cause of the accident, although he thought the engine was the first to be derailed.

Track Supervisor Sneed made a careful examination both of track and equipment, but was unable to state the exact cause of the accident, although he thought some part of the engine had been dragging, resulting in the battering of the ends of the ties, and the disturbing of the ballast for a very short distance preceding the point of derailment. His examination of the engine indicated to him that at some time the pilot had been down, rubbing on a rail. He found the gauge, alinement and elevation to be maintained in good condition, and further stated that he had last inspected this portion of the road on July 12, at which time he did not observe any irregularities.

Master Mechanic Berry made a careful examination of the equipment but was unable to find anything which could have caused the accident. He found two or three rails turned toward the ends of the ties but none of them was broken, and he expressed an opinion that the engine was not derailed but that it had rolled from the track without touching either the ties or the roadbed and that this was the result of excessive speed; he did not think that the track had given way under the engine. Wreck Foreman Elmore made an examination of the equipment and track and said that he found a mark which indicated that a wheel had mounted the rail before the engine turned over. He thought the accident was due to excessive speed and the curve-worn condition of the outside rail.

Roadmaster Lockhart reached the scene after the track had been repaired sufficiently to allow trains to move at a low rate of speed, this work having included replacing two bent rails. On examining the track he found a scratch across the ball of the outside rail, 12 inches north of the first rail to be disturbed, this mark might have been a flange mark. About 16 feet south of this point the ends of the ties had been scarred by some part of the equipment, while on the running surface of the outside rail, extending for a distance of about 300 feet, there was a faint mark about $\frac{1}{4}$ inch in width which could have been caused by something dragging on the rail. There were also some faint scratches on the gauge side of the head of the rail, recurring at intervals of 6 or 8 feet throughout this distance of 300 feet south of where the derailment occurred. Roadmaster Lockhart was assisted by Supervisor Speed and Section Foreman Bramlett in measuring the gauge, alinement and elevation, finding no irregularities sufficient to have contributed to the occurrence of the accident. Roadmaster Lockhart also examined the equipment but found nothing except the marks on the under side of the pilot of the engine which indicated that at some time it had been riding on a rail, wearing a slight groove which blued from heat. As a result of his investigation, however, he had reached no conclusion as to the cause of the accident.

Examination of the track and equipment made by the Commission's inspectors did not disclose the presence of any irregularities which in their opinion could have contributed to the occurrence of the accident, neither were they able to discover any indications of flange marks on the running surfaces of any of the rails, or any evidence of wheels having mounted the rails.

Conclusions

The cause of this accident was not definitely ascertained.

The investigation failed to develop anything in the way of irregular track conditions which it was thought could have contributed to the occurrence of the accident, nor was anything discovered in the way of defective equipment, although there was evidence that at some time the pilot had been rubbing against a rail, while the statements of Roadmaster Lockhart indicated that something might have been dragging for a distance of approximately 300 feet approaching the point of derailment. On the other hand there was a conflict in the testimony as to whether there were any marks to indicate that any of the wheels had mounted the outside rail, in fact, some of the testimony would seem to indicate that this did not occur at all, but rather that the engine either jumped entirely over the rails without touching them, or else that it rolled over, either of which could have resulted from excessive speed. At the time of the examination of the track by the Commission's inspectors, however, they found nothing to indicate that the wheels had mounted the rails.

As previously stated, the elevation maintained was within the recommended practice for a speed of about 23 miles an hour. The surviving members of the crew probably did not overestimate the speed when they fixed it at 30 or 35 miles an hour, and it is possible that this rate might have been exceeded. A speed in excess of 35 miles an hour on a curve of 13° with an elevation of $4\frac{3}{4}$ inches probably would closely approach the theoretical overturning speed, and the true cause of the accident possibly can be traced to excessive speed coupled with the curve-worn condition of the outside rail, but in view of the many conflicting statements as to the various marks, etc., found when examining the track shortly after the accident, it is not possible to express a definite opinion on this point.

The employees involved were experienced men; at the time of the accident they had been on duty less than 3 hours previous to which the engine crew had been off duty $13\frac{1}{2}$ hours, while the train crew had been off duty nearly 38 hours.

Respectfully submitted,

W. P. BORLAND,

Director