INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE GEORGIA SOUTHERN & FLORIDA RAILWAY, SOUTHERN RAILWAY SYSTEM, NEAR FARGO, GA., ON DECEMBER 11, 1925.

January 30, 1926.

To the Commission:

On December 11, 1925, there was a derailment of a passenger train on the Georgia Southern & Florida Railway, Southern Railway System, near Fargo, Ga., resulting in the death of 1 employee off duty, and the injury of 35 passengers, 2 mail clerks, and 4 employees.

Location and method of operation

This accident occurred on that part of the Southeastern District extending between Valdosta, Ga., and Jacksonville, Fla., a distance of 110.15 miles; 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. The derailment occurred at a point about 2 miles south of Fargo; approaching this point from the south the track is tangent for more than 2 miles, followed by a 2° curve to the left 987.5 feet in length, the initial point of derailment being on this curve at a point 471.5 feet from its southern end. The grade at the point of accident is 0.104 per cent descending for northbound trains. The track is laid with 75-pound rails, 30 feet in length, with an average of 18 ties to the rail-length, double-spiked and tie-plated on curves, and ballasted with cinders to a depth of 4 inches, on top of a sand fill about 2 feet in depth. The rails were rolled in May, 1900, and were relaid on this curve in November, 1918. Under the rules the speed of passenger trains is limited to 48 miles an hour.

The weather was cloudy at the time of the accident, which occurred at about 10.57 p.m.

Description

Northbound passenger train No. 4 consisted of one mail car, one club car, one combination car, one coach, two Pullman sleeping cars, and one Pullman observation car, all of steel construction, hauled by engine

8257, and was in charge of Conductor Saunders and Engineman Woodell. This train passed St.George, the last open office, 34.37 miles south of the point of accident, at 10.17 p.m., 46 minutes late, and was derailed while traveling at a speed estimated to have been between 40 and 50 miles an hour.

The entire train, with the exception of the last car and the rear truck of the car ahead of it, was derailed. Engine 8257 remained coupled to its tender and came to rest on its left side, to the left of and parallel with the track, with its head end approximately 1,460 feet north of the initial point of derailment. The first car also came to rest on its left side, to the left of the track while the second car came to rest across and at right angles to the track, but remained practically upright, as did the remaining derailed cars, which were on the east or right side of the track. The employee killed was a fireman, who was off duty and riding in the engine cab at the time of the accident.

Summary of evidence

Engineman Woodell stated that he thoroughly inspected his engine before departing from Jacksonville, and that the air brakes were tested and worked properly en route. He noticed nothing unusual with the riding qualities of the engine, nor any rough spots in the track in the vicinity of the point of accident. As the engine was rounding the curve on which the accident occurred he heard a noise under the tender, and on looking back saw fire flying, apparently from under the front tender truck, he thought a brake beam was down, but that none of the equipment was derailed, and made a service application of the air brakes, following which he applied the air brakes in emergency, at which time the derailment occurred. Engineman Woodell stated that when he first heard the noise under the tender he did not think the trouble was serious enough to cause an accident, this being the reason he first made a service application of the air brakes. He further stated that the mail car was the first to overturn, and that this car pulled the tender and engine over with it, and when the engine turned over it had almost come to a stop. Engineman Woodell estimated the speed of his train to have been about 48 miles an hour at the time of the accident. The statements of Fireman Walker and Student Fireman Galyon corroborated in substance those of Engineman Woodell, except that Fireman Walker did not think the speed exceeded 45 miles an hour at any point en route, while Student Fireman Galyon was of the opinion it averaged 50 miles an hour after leaving Crawford.

Conductor Saunders stated that no stops were made between Crawford and the point of accident, he was riding in the third car in the train, engaged with his work, and was unaware of anything wrong until the air brakes were applied just prior to the accident, at which time he estimated the speed to have been about 45 miles an hour, he said that he did not think the speed was more than 48 miles an hour at any point between Crawford and the point of derailment. After the accident he saw flange marks on the left side of each rail, the first marks were on a spike head on the inside of the right rail and on a tie on the outside of the left rail, about 6 inches from the rail, these marks continued for a distance of about 70 feet and he said that there would then be from two to seven ties on which there were no marks on the outside of the left rail, while the marks on the inside of the right rail were continuous, this condition existed all the way up to the point where the track was torn up. Such examination of the equipment as was made by Conductor Saunders did not develop anything which he thought could have caused the accident. The statements of Flagman Gunter, Baggagemaster Hilton and Train Porter Butler developed nothing additional of importance.

Road Foreman of Engines Lott was riding in the second car at the time of the accident, having gotten off the engine at Crawford, and was unaware of anything wrong until the air brakes were applied just prior to the accident. Inspection of the track after the accident failed to disclose anything that in his opinion would have caused the accident, and the same was the case with his examination of the equipment, although after the tender trucks were picked up he found what appeared to have been a slight variation in the side bearings, the right front and left rear side bearings being brighter than the others. He said the speed had been close to 48 miles an hour, and he thought this was about the speed at the time of the derailment, while he estimated that the track in this vicinity was good for a speed of 60 miles an hour. He further stated that when riding on the engine he had not noticed anything unusual.

Trainmaster Barnwell examined the track and equipment subsequent to the accident, and said that the indications were that the tender had been riding down on the right side bearing of the front truck and the left side bearing of the rear truck, these bearings being bright. After the tender was replaced on its trucks it was found that the left forward wheel of the lead truck of the tender ran against the left rail, at this time, however, the tender was empty and the side-

bearing clearance was sufficient to permit of the free movement of the truck. With the exception of the third car in the train, under which relief trucks were placed, all of the cars, together with the engine and tender, were \rerailed upon their own trucks and moved to Macon without any trouble. Trainmaster Barnwell was of the opinion that the forward tender truck was the first to be derailed and that it derailed on the inside of the curve, about midway the curve, he did not however find anything which he thought caused the accident, and expressed the opinion that the track in this vicinity was safe for a speed of 60 miles an hour.

Roadmaster Walker stated that the first mark of derailment was a flange mark on top of the low rail, near the center of the curve, about 9 feet 4 inches in length, the wheels then dropped on the outside of the low rail, marks appearing on the ties about 5 inches to the left of the rail, which he thought were made by the left lead wheel of the front tender truck. The gauge was found to vary between 4 feet 8½ inches and 4 feet 9 inches. He further stated that the drainage was good, the ties were in good condition, and the gauge, surface and alinement as nearly perfect as possible considering the condition of the rails themselves, explaining that they were slightly surface-bent due to long service and would result in slight discrepancies when measurements of the elevation were made. In view of their condition, and the present traffic handled, he thought heavier rails should be used; he considered, however, that the track was safe for a speed of 48 miles an hour, but that this speed should not be exceeded. He further stated that about 75 per cent of the spikes were not driven entirely down, due to the fact that in the case of the cypress ties, which constituted 95 per cent of the ties in the track, the spikes would work upward on account of the soft wood. He did not think, however, that track conditions had anything to do with the accident.

Section Foreman Duggan stated that the track in the vicinity of the point of derailment was in good surface, alinement, elevation and gauge. On December 2 the bolts were tightened and joints picked up on the curve, while on December 5 he had gauged the track. He considered the track to be good for a speed of 48 miles an hour.

Car Repair Foreman Sharps stated that the bearings on the front truck of the tender were uneven as the weight rested on the bearing on the left side, which in his opinion would interfere with the truck rounding the curve properly, although he did not think this condition would have contributed to the derailment of this truck, which in his

opinion was the first to be derailed. He did not examine the rear truck of the tender and said he thought the front truck rocked off the track.

Superintendent De Butts stated that the indications were that the truck for some reason was held in a rigid position, causing it to bind to the inside rail of the curve instead of against the outside rail, which it would do under normal conditions. He said that prior to the accident the tender loaded about three tons of having a full load of coal, was approximately two-thirds full of water, and that it was equipped with splash boards.

Examination of the track disclosed the first mark of derailment to be a flange mark on the top of the inside rail of the curve starting at a point 471.5 feet from the southern end of the curve and extending for a distance of 9 feet 4 inches, then dropping to the ties outside the west rail, about 5 inches from the outside edge of the rail; 30 feet north of this point the flange marks were 14½ inches from the rail. There were corresponding marks on the inside of the right rail, these marks continuing on the ties for a distance of 940 feet, from which point the track was completely torn up for a distance of 390 feet. Measurements were made of the gauge and elevation, beginning at the point of derailment and extending southward, these measurements being taken at each half rail-length. The gauge at the point of derailment was 4 feet 8 5/8 inches while the elevation was 2 inches. The gauge varied between 4 feet 8 1/2 inches and 4 feet 9 inches. While the elevation at the point of derailment was 2 inches, it was found to be 1 1/2 inches at the center of the rail immediately south of the point of derailment and also 1 1/2 inches at the next joint to the south, at the center of the following rail, however, the elevation was only 1 inch, and from this point southward for a considerable distance the elevation varied between 1 inch and 1 1/2 inches.

The weight of the tender of engine 8257, loaded, is 147,200 pounds, carrying 12 tons of coal and 7,500 gallons of water. A test was made with the tender loaded, it was moved over straight and level track and at all times the weight was observed to have been carried on the right side bearing of the front truck and the left side bearing of the rear truck, and at no time did the left front side bearing and the right rear side bearing come in contact. Careful examination of the surfaces of the various bearings clearly showed that the bearings on the right side of the forward tender truck and the left side of the rear

tender truck were worn in such a peculiar manner as to make them constitute a rigid bearing whenever the top and bottom bearings were in contact with each other.

According to the train sheet, train No. 4 passed St. George at 10.17 p.m. and traveled the distance of slightly more than 34 miles to the point of accident in 40 minutes, or at an average speed of slightly more than 51 miles an hour.

Conclusions

This accident probably was caused by the defective condition of the side bearings of the tender, coupled with irregularities in elevation and excessive speed in view of those irregularities and the elevation which was maintained on the curve.

The peculiar manner in which the side bearings had been worn indicated quite clearly that they would be rigid when in contact with each other. The tender in rounding the curve would have the greater weight placed on the right forward bearing, reducing the weight on the left bearing. These conditions, coupled with the movement of the rear end of the engine, the irregularities in track and the speed of the train, apparently caused the forward tender truck to become derailed toward the inside of the curve. Proper inspection of this engine should have disclosed the defective condition found to exist.

The elevation of the outer rail was 1 inch at a point 45 feet south of where the first marks appeared on the rail, this elevation increasing to 2 inches at the point of derailment. According to the recommended practice of the American Railway Engineering Association an elevation of only 1 inch on a curve of 2° would not permit a speed of more than 30 miles an hour, for a speed of 50 miles an hour the elevation should be 3 1/4 inches.

The estimates as to the speed of the train at the time it was derailed varied between 40 and 50 miles an hour; it is entirely within reason that it was not exceeding the speed limit of 48 miles an hour, but the fact that the train had maintained an average speed of about 51 miles an hour for a distance of more than 34 miles would indicate that the speed limit had not been observed at all points en route.

The crew of this train had been on duty 2 hours and 42 minutes at the time of the accident, previous to which they had been off duty from 9 hours to nearly 33 hours.

Respectfully submitted

W. P. BORLAND,

Director.