IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURED ON THE TOLEDO & OHIO CENTRAL RAILWAY NEAR NEW LEXINGTON, OHIO, ON FEBRUARY 25, 1921

March 28, 1921.

On February 25, 1921, there was a derailment of a freight train on the Toledo & Ohio Central Railway near New Lexington, Ohio, which resulted in the death of 2 employees. After investigation of this accident the Chief of the Bureau of Safety reports as follows:

Location

This accident occurred on that part of the Corning Division extending between Corning and New Lexington, a distance of 13 miles, it is a single-track line, over which trains are operated by time-table, train orders, and a manual block-signal system. The accident occurred at a point about 1½ miles south of New Lexington. Approaching the point of accident from the south there is a curve to the left varying from 1° 25' to 4° 50', this curve being 1770 feet in length; the accident occurred on this curve at a point about 160 feet from its northern end. At the point of accident the curvature was 3° 45', the track having a superelevation of 5½ inches. The grade for a distance of 3,500 feet is descending, varying from 9 to 1.5 per cent. The track is laid with 90-pound rails, 33 feet in length, with an average of 17 oak or treated ties to the rail-length, ballasted with crushed stone, gravel and cinders, single-spiked and tie-plated on curves. The track was poorly maintained The speed of trains handling high, self-

clearing, hopper cars, loaded, similar to one of the cars involved in this accident, is limited to 25 miles an hour. The weather at the time of the accident was cloudy.

Description

Northbound freight train No. 51 consisted of locomotive 9746, 37 cars, locomotive 9657 and a caboose, in the order named, in charge of Conductor Muth and Engineman Trout and Pearon It left Corning at 6.15 a m., passed Clay Bank, 5 miles from New Lexington and the last open telegraph office, at 7 04 a m., and was derailed at about 7.15 a.m. while travelling at a speed estimated to have been about 25 or 30 miles an hour.

Locomotive 9746 and the first 36 cars stopped with the rear of the thirty-sixth car about 2,000 feet beyond the first mark of derailment. The last car in the train, T. & O. C. hopper car 28071, which was loaded with coal, came to rest on its right side about 1,350 feet from the initial point of derailment. Locomotive 9657 turned over to the right and went down a 10-foot embankment, landing nearly bottom up, about 500 feet south of the hopper car; the caboose was also derailed. The employees killed were the engineman and fireman of locomotive 9657.

Summary of evidence.

The statements of the surviving members of the crew of train No. 51 were to the effect that the speed at the time of the accident was about 15 miles an hour, although Engineman Trout nad not applied the brakes on the descending grade.

The first intimation any of them had of anything wrong was when the engineman in charge of locomotive 9657 whistled for brakes Conductor Muth and Flagman Christman were riding in the cupola of the caboose at the time and neither of them had noticed anything wrong.

Three section men who were working within a short distance of the point of accident said the speed of train No. 51 was much higher than usual, they estimated it to have been from 35 to 40 miles an hour. Sectionman Baum also said that the hopper car was jumping and dirt flying before the locomotive was derailed. Section Foreman Tucker considered the track to be safe for a reasonable rate of speed. Work had been done on the rail joints in this vicinity about two weeks previously and he said that while some of the joints south of the point of accident were not in good condition there were other places on his section which he considered to be more in need of repairs. Observation of the first rail joint south of the point of derailment revealed the fact that it went down $1\frac{1}{2}$ inches under the weight of a passenger train, this joint rested on very soft, wet ballast.

The first indication of derailment was a flange mark on the top of the east or outside rail of the curve. This mark was $1\frac{1}{4}$ inches from the gauge side of the rail and after running on the top of the rail for a short distance the wheel dropped off on the outside; north of this point there

was a corresponding mark on the inside of the west rail, indicating the derailment of at least one pair of wheels. The marks of these derailed wheels followed the track at varying distances from the rails until they reached a trailing-point switch approximately 500 feet north of the first mark, where a partial derailment seemed to have occurred. North of the switch the east rail was partly turned over, allowing the derailed wheels to run on the inside of the rail, to a point about 875 feet north of the first mark, at which point there was a broken rail on the east side of the track. While there was a flaw in the head of this rail, undoubtedly it was broken by the derailed wheels of the hopper car; it appeared that locomotive 9657 was not derailed until it encountered the broken rail.

Examination of the trucks of the hopper car, neither of which had been overturned, showed that there was a roller side bearing missing on the left side of the front truck and that a block of wood had been substituted for this side bearing. Both side bearings were missing from the rear truck and it seemed probable that they had been missing for a considerable period of time. The steel draft sills on both ends of the car had been badly cut by wheel flanges, while on all four corners of the car the rivets of the body bolsters had been flattened from rocking down on the truck frames, normally there should have been an intervening space of above 5 inches. This hopper car had been on the Corning repair track February 23 on account of a hot box, but the

absence of side bearings and the substitution of a block of wood for one of the side bearings was not discovered The condition of the block of wood indicated that it had been in use for a considerable length of time. Examination of locomotive 9746 failed to reveal anything which could have contributed to the cause of this accident.

Conclusions

This accident is believed to have been primarily due to the absence of one or more roller side bearings on T. & O. C. hopper car 27081.

The marks which appeared on various parts of the car, together with the marks on the track, indicate that when rounding the curve the car rocked to such an extent as to cause a wheel to mount the outside rail, dropping off on the outside and finally resulting in the derailment. Examination of this car indicated that it had been in a defective condition for some time and that this condition had not been discovered at Corning, which is an inspection point.

It is noted that the estimates as to the speed of train No 51 varied from 15 to 40 miles an hour. While the latter estimate may have been too high, the fact remains that train No. 51 had been operated for a distance of 3,500 feet on a descending grade varying from 0 9 to 1.5 per cent, without any application of the brakes having been made; under these circumstances it is probable that its speed was much in excess of the speed of 15 miles an hour as estimated by the train crew The rate of speed at which this train

was operated, together with the condition of the track, undoubtedly contributed to the excessive rocking of this car.

All of the employees involved were experienced men and none of them had been on duty in violation of any of the provisions of the hours of service law.