

December 2, 1912.

In re investigation of accident on the Illinois Central Railroad, near Hopkinsville, Ky., on October 20, 1912.

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On October 20, 1912, there was a derailment of a passenger train on the Illinois Central Railroad at Green's Crossing, about six miles north of Hopkinsville, Ky., resulting in the injury of 126 passengers.

After investigation, I beg to submit the following report:

The derailed train was north-bound extra passenger train No. 873. This train consisted of an engine, a baggage car, and four coaches. It was an excursion train bound for Paducah, Ky., where a celebration of the Woodmen of the World was being held. The derailment occurred on straight track at the foot of a slight descending grade, at 7:45 a. m., about 900 feet from Green's crossing station. Only the four coaches were derailed; the engine and baggage car remained on the track and were not damaged. The evidence indicated that the rear car was the first one to be derailed, that car pulling the other cars off from the track. The three rear cars were of wooden construction, and the other coach was of steel construction. All the derailed cars went off on the west side of the track, the first, second and fourth cars turning over on their left sides, and the third car remaining upright but being stripped of its trucks.

The speed of the train at the time of the derailment was estimated at from 12 to 15 miles per hour, the engineman expecting to stop at Green's Crossing.

This derailment was caused by a broken rail. After the accident this rail was examined and found to be badly piped for a considerable portion of its length, but this defect probably could not have been detected by an ordinary inspection as the piping did not come to the surface. The records of the railroad company show that this rail was manufactured in 1892 and had been in continuous service for twenty years. The holes bored through the rail at its ends for the rail-joint fastenings did not disclose the defective condition of the rail.

The first break in the rail was  $18\frac{1}{2}$  inches from the south or receiving end of the rail; the second break was 20 inches farther north; the third break was  $20\frac{1}{2}$  inches from the second, and the fourth was  $17\frac{1}{2}$  inches from the third. The top of the rail was broken off the web for some distance.

The engine which was hauling this train was built in 1906 and is of the standard 2-4-0 type, weighing 105 tons. It has a rigid driving-wheel base of 17 feet and a total wheel base of 24 feet. The wheel base of engine and tender combined is 57 feet,  $3\frac{1}{8}$  inches. The loaded weight of the tender is 145,000 pounds.

The equipment of the train was carefully examined after the accident, but no defect was found which might have caused this derailment.

The track is straight for a distance of three-quarters of a mile south and two and one-half miles north of the point where the accident occurred. At this place there is a slight ascending grade, and there is a fill of about eight feet. The track was constructed with 30-ft. rails, weighing 61-1/2 pounds to the yard, laid on oak ties, with about 18 ties to the rail. The rails were single-spiked and no tie plates were used. The ballast consisted of gravel and some crushed stone.

The maintenance of the track was fairly good. This section is six miles in length and in addition there is about half a mile of side track. A crew of from 8 to 10 men had been at work on this section for some time previous to the accident. The section foreman had had one year's experience on this section, and had had some experience elsewhere in this branch of the service. He had been over this section quite frequently previous to the accident.

The engineer of this train was an experienced man with a good record. He stated that the first intimation he had of anything wrong was a sound coming from under his engine as though the brake rigging or the ash pan had fallen. The fireman stated that he heard this

noise also. It is believed that the rail broke under the engine but that the pieces did not separate sufficiently to cause the derailment until the last car was passing over it.

This accident again calls attention to the need of more thorough examination and test of rails at rail mills or before they are put into railroad track.