In re Investigation of Accident on the Decorah Branch of the Chicago, Rock Island & Pacific Railway near Maynard, Iowa, September 1, 1913.

On September 1, 1913 there was a derailment of a passenger train on the Decorah branch of the Chicago, Rock Island & Pacific Railway near Maynard, Iowa, resulting in the death of 2 passengers and the injury of 69 passengers, 1 mail clerk, and 5 employees.

This accident was reported to the Commission by wire on September 2nd, by Superintendent Merrill of the Chicago, Rock Island & Pacific Railway, and was further brought to the Commission's attention by Hon. Clifford Thorne, Chairman of the Board of Railroad Commissioners of the State of Iowa, in a letter dated September 11th. Following receipt of this letter an inspector of the Commission was instructed to report to Chairman Thorne and investigate this accident. The Iowa Board of Railroad Commissioners held a hearing on this matter on September 11th, and this Commission's investigation, in cooperation with the Iowa Commission, began on September 17th.

After investigation of this accident and the circumstances connected therewith, the Chief Inspector of Safety Appliances submits the following reports.

The Decorah Branch of the Chicago, Rock Island & Pacific Railway is a single track line extending between Cedar Rapids and Decorah, Iowa, a distance of 116.3 miles. The train involved in this accident was passenger train No. 444, southbound from Decorah to Cedar Rapids. On the date of the accident this train left Decorah on time at 12:30 p.m., in charge of conductor Walters and engineman Crawford. It was hauled by engine No. 413 and consisted of one combination mail and baggage car and two coaches, all of wooden construction. Coal and water were taken at Maynard, the last stop previous to the accident, and the train left that station at 3:28 p.m., three minutes late. The derailment occurred about 2 miles south of Maynard, at about 3:36 p.m., while the train was running at an estimated speed of from 25 to 30 miles per hour. The average schedule running time of this train is about 22 miles per hour.

At the place of derailment the track is straight and on a grade of 1.1 per cent descending for southbound trains. The track is on a fill about 10 feet high. It is laid with 30-foot steel rails weighing 60 lbs. to the yard. These rails were rolled by the Illinois Steel Co. in 1886 and 1891, at the North Chicago and South Chicago rolling mills. Until the fall of 1912 these rails had been in use in the main track of the Cedar Rapids division at which time they were taken up,

and were relaid on the Decorah branch in May, 1913. The ties used at the place of derailment were mostly cedar, 17 and 18 under each rail. No tie plates were used. The track was insufficiently ballasted with cinders.

Extending southward from Maynard the track is on an ascending grade of 1.5 per cent maximum for a distance of about one mile and a quarter; there is then a descending grade of 1.1 per cent maximum for about the same distance. The derailment occurred at a point about 3150 feet from the top of this grade, while the train was drifting down hill. The wheels of the forward tender truck were the first to leave the track. The wheel flange ran along on top of the right hand rail for a distance of about 15 feet and then dropped off on the outside of the rail, and after running about 15 feet on the ties, began to bunch them and demolish the track, derailing the train. The cars ran along on the ties for a distance of about 400 feet before coming to rest, and then gradually toppled over to the right and went down the bank, carrying the engine along with them.

Engineman Crawford stated that upon leaving Maynard he maintained fairly good speed to the top of the hill and then shut off steam. His engine was coasting and the train was not making much noise, when he noticed the tender leave the rails and lunge about half way across the track to the right. He immediately applied the brakes in emergency and when the train came to a stop he looked over his shoulder and saw the tender and the baggage car tipping over to the right. That was the last he remembered about the accident, as he was carried down the bank with his engine and was badly scalded by escaping steam. He said that his train was running at a speed of between 25 and 30 miles per hour at the time of derailment. In his judgment the train ran about 300 feet after derailment before stopping.

Fireman Henning stated that the train was running about 28 miles per hour just prior to the derailment. He and engineman Crawford noticed the derailment of the tender at about the same time. As far as he could recall the engine itself was not derailed. When the train came to a stop it remained poised for an instant and then gradually tipped over and went down the bank, the tender and the baggage car being the first to go. The fireman jumped and when he got up the entire train had toppled over down the bank.

Conductor Walters said that in his judgment the train was running between 28 and 30 miles per hour at the time of the derailment. He was in the rear end of the first class coach, having just finished collecting tickets, and had started to return to the smoking car when he felt the air go on suddenly and knew that the train was derailed. In his judgment the train ran about two train lengths before coming to a stop. After the car he was in came to a stop, he felt it settle a little and then it tipped over on its side.

Brakeman Clifton stated that the train was running about 25 or 30 miles per hour. He was in the front end of the rear coach taking up hat checks when the derailment occurred. He felt the emergency brakes go on, after which, in his judgment, the train ran about 200 feet before coming to a stop. The cars then gradually tipped over and slipped down the bank.

Engine No. 413 is a standard eight-wheel engine, somewhat heavier than was regularly used on this run, having larger driving wheels and setting up higher. Engineman Crawford was an extra man. He made the northbound trip with this train on the previous Saturday, the derailment occurring on Monday, that being his first trip over the Decorah branch as a passenger engineman, and also his first experience with engine No. 413. He had made several trips over this branch as a freight engineman. Engineman Crawford said that the tender of the engine No. 413, did not ride well, and in his opinion the engine was too heavy for this service. He said that when the tender was loaded it had the appearance of being top heavy and it jumped around considerably. The Company's record shows that this tender was derailed twice during the month of May, 1913, on another branch line, due to uneven track and the tender swinging from side to side.

The track in the vicinity of the derailment was carefully examined on September 18th, seventeen days after the accident. At that time the track north of the point of derailment had not been disturbed, except that 11 new ties had been placed in a distance of 30 rail lengths from point of derailment. In this section of track 81 ties were found to be rotten, broken or so badly cut by the rails as to be unfit for use. For a distance of 13 rail lengths south of the point of derailment the track had been rebuilt, this being the section of track which was torn up by the accident. In rebuilding this 13 rail section 103 new ties were used, and the track was ballasted with cinders. The next 8 rail lengths to the southward had also been ballasted with cinders and 12 new ties put in the track. In this section of 8 rail lengths 14 bad ties still remained continuing southward 30 rail lengths, where the track had not been disturbed 32 bad ties were found. On all of this track except that portion which had been rebuilt, it was found that fully half of the spikes needed to be re-driven or tightened; in many places where the rails had been shimmed the shims had worked out, and the ties had not been tamped up nor spikes tightened. Both north and south of the accident the track was without ballast, and the fill, which was originally 16 feet wide at the crown, had been washed away so that it was not more than 14 feet wide, many of the ties not being fully supported at the ends. In one place it was found that the ties could be teetered up and down for want of filling under the ends. Several spikes were pulled by hand. Many spikes stuck up two inches from the flange of the rail and a number of ties were not fully spiked. There was considerable unevenness in the surface of the track for a distance of 30 rail lengths north of the point of derailment, as shown by levels

taken by the railroad company's engineers after the accident. Four rail lengths north of the point where the tender wheels left the track the west rail was nearly 1½" high; two rail lengths further south the track was practically level, and at the point of derailment, two rail lengths further south, the west rail was 1" low, thus showing 2½" variation from level, or from 1½" high to 1" low in a distance of 4 rail lengths.

The section on which the train left the rails contains seven miles of main track and about one mile of side track. Section foreman Barnes had been in charge of this track for 18 months prior to this accident, previous to which he had had about 15 years experience as a section laborer. At the time of the accident he had 4 men employed. In his testimony at the coroner's inquest Mr. Barnes stated that he did not have men enough to do the work and could not get them. He had only one man for about four months last winter and had only one or two men during the previous summer. The Company's records show that during the first 8 months of the present year, the average number of men employed on this section, in addition to the foreman, was as follows: January and February, 1 man; March, 1-1/3 men; April, 3 men; May 3-1/3 men; June 3-2/3 men; July, 5 men; August, 4-2/3 men. These men are paid 15 cents an hour in winter and 18 cents per hour in the summer season. General Manager Whittenton stated that his Company had experienced great difficulty in getting men to work on the railroad; it was almost impossible to get native labor as men could earn more at something else.

Engineer of Maintenance of Way, Peterson, confirmed the statement of General Manager Whittenton that the work of placing new ties and heavier rails on this branch, and of ballasting the track, was being pushed as rapidly as material and labor could be procured. Mr. Peterson said that on the south end of the branch, from the point where it leaves the main line to Independence, a distance of about 55 miles the track has been recently ballasted. The track on the remainder of the branch, between 30 and 90 miles was without ballast, being what is known as a "dirt" roadbed.

The speed of trains on this branch is regulated by time card rule No. 10, which specifies a maximum speed of 40 miles per hour for passenger trains on straight track, 35 miles an hour on curves, and 25 miles an hour over interlocked grade crossings. In addition to this time card rule special slow orders, in the form of written bulletins, are given to enginemen when conditions require them. Slow flags are also placed at proper locations to protect any emergencies that may occur. Engineman Crawford had no bulletin directing him to observe slow speed, and there was no slow flag in the vicinity of the accident. Under the rules, therefore, a speed of 40 miles per hour was permitted on this piece of track. There is no evidence, however, that the train was running in excess of 30 miles per hour at the time of the accident. The train was

practically on time leaving Maynard, and all members of the train crew agree in stating that the speed at the time of derailment was from 25 to 30 miles perhour.

This accident was caused by the bad condition of track and roadway, it not being sufficiently well maintained to permit the operation of trains with safety at the speed at which this train was running. Contributing materially to the accident was the heavy engine used on this train. The total weight of engine and tender, with tender full of coal and water, was 179,500 pounds. The tender sat up rather high, and when fully loaded had a tendency to roll excessively. It had been derailed on two former occasions, on another branch.

The speed of trains on this branch should be reduced until such time as the track has been put in condition to permit the operation of trains with safety. This branch is laid with light rails, there being 42 miles of 52 pound rails, 28 miles of 56 pound, 34 miles of 60 pound, and 10 miles of 70 pound. When rails of such light weight are used on badly spiked and insecure ties, entirely without ballast, it is not conducive to safety to permit trains to be run at a speed of 40 miles per hour. Under existing track conditions on this branch the maximum speed allowed passenger trains should be reduced.