In re investigation of an accident which occurred on the Chesapeake & Ohio Railway near Beaver Creek Junction, Ky., on March 29, 1918.

April 17, 1918.

On March 29, 1918, there was a derailment of a passenger train on the Chesapeake & Ohio Railway near Beaver Creek Junction, Ky., which resulted in the death of one trespasser. After investigation the Chief of the Bureau of Safety reports as follows:

The Elkhorn and Beaver Valley Branch of the Chesapeake & Ohio Railway, upon which the accident occurred, is a single-track line extending between Beaver Creek Junction and Wayland, Ky., a distance of 20.8 miles, over which trains are operated by time table and telephone dispatching system, no block system being in use. There are no train order offices on this branch, there being five telephone booths where train crews receive train orders. There are no facilities for turning engines, which makes it necessary that they be run backward in one direction, and there is a speed restriction of 15 miles an hour for engines running forward and 12 miles an hour when running backward.

The track was laid with 75-pound steel rails, 30 feet in length, on about 17 ties to the rail, single-spiked and tie-plated on curves, ballasted with crushed slag and fairly well maintained. While the rails have been in the track for several years, they were not badly worn and were in fair condition.

Westbound passenger train No. 57, en route from Wayland to Beaver Creek Junction, consisted of locomotive 206 running backward, 1 baggage car, 1 combination car and 1 coach, in charge of Conductor Davis and Engineman Conway. It left Wayland at about 12.30 p.m., about 15 or 20 minutes late, made 11 stops en route, and was derailed at a point 2.7 miles east of Beaver Creek Junction at 1.25 p.m. while running at a speed of about 25 or 30 miles an hour. The accident occurred on a 9-degree curve to the left; the first indications of derailment were wheel marks on top the outside rail 250 feet from the east end of the curve, these marks continuing for a distance of 12.3 feet, then the wheels dropped off on to the ties and ran for a distance of 65

feet. The locomotive, tender and front trucks of the baggage car were derailed on the inside of the curve, the locomotive turning over and crushing the trespasser who was riding on it; the tender was turned crosswise the track. The weather at the time was clear.

Engineman Conway stated that his train stopped at all the stations between Wayland and the point of accident, kept closely to the speed restrictions, and when it was derailed its speed was 12 or 15 miles an hour. He thought the tender was the first to be derailed, which caused the locomotive to derail and turn over, but so far as he knew it was in good condition and he had noticed no unusual swaying or rocking. In his opinion the track in the vicinity of the accident was safe for a speed of 20 miles an hour. He said his train left Wayland 20 or 25 minutes late and at the time of derailment it was only about 10 minutes late, but they were able to make up this time on account of the express business being lighter than usual thus making the stops at stations shorter. He did not think speed had anything to do with the derailment.

Conductor Davis stated that his train left Wayland at about 12.30 p.m., made all the station stops between Wayland and point of derailment, nine in number, and a stop for water and coal. He was in the rear car when the derailment occurred, went to the head end and found that the locomotive had turned over, and assisted in getting the trespasser from under the locomotive. The station agent at Dinwood was at the scene of accident and found a piece of a wheel flange under the rear car of the train, and Conductor Davis said he saw the tender wheel from which the flange had been broken. He said the speed restriction of 12 miles an hour had not been violated at any time after leaving Wayland, and in his opinion the accident was caused by a broken flange.

Fireman Perry stated that he thought the speed of his train was about 12 miles an hour at the time of derailment. He said his train stopped at all the stations, the time consumed at each station being from a minute and a half to two minutes.

Brakeman McGuire said he thought the speed of his train was 12 or 15 miles an hour at the time it was derailed and thought it was proceeding at a safe rate of speed.

A careful examination of the tender trucks was made after the derailment by the shop superintendent and general foreman, together with inspectors of the Commission, and they found that a piece of flange, 8 inches in length, had been broken out of the front wheel on the right hand side of the tender. It was found that the break was a fresh one and its edges were not battered or marked, indicating that the broken part of the wheel had not come in contact with the rail. One of the wheels on the left hand side of the rear truck of the tender and on the front axle of that truck had a piece 3/4 inch long broken out of its flange, and the wheel on the opposite end of the axle was battered and cracked. The rear axle of the tender was bent 1-3/4 inches and the front axle 3/8 inch, but there was no flange wear on the wheels to indicate that these axles were bent prior to the accident. It was their opinion that the flanges were broken and axles bent as a result of the accident.

The cause of this accident could not be definitely ascertained. From all available evidence it is certain that train No. 57 was being operated in backward motion on a 9-degree curve at a speed much in excess of that allowed by time-card rule, probably about 30 miles an hour, and very likely the accident was caused by operating this train at an unsafe rate of speed. However, in view of the fact that an 8-inch piece was broken out of the flange of one of the tender wheels and two of the other wheels of the tender had small breaks and cracks in them, it is possible that the accident was caused by a broken flange.

All of the employees involved in this accident were unanimous in their statements that the train did not exceed a speed of 12 or 15 miles an hour at any time on this trip. The distance from Wayland to point of derailment is 18.1 miles and train No. 57 traveled that distance in about 55 minutes, stopped at nine stations and took coal and water once. One of the employees estimated that the average length of each station stop was from one and a half to two minutes, and using that as a basis, about 20 of the 55 minutes were consumed in making those stops and taking coal and water, which would leave 35 minutes as the actual running time of train No. 57 from Wayland to point of derailment, or

an average speed of a little more than 30 miles an hour.

In this connection it is to be noted that the schedule contained in the time card allows 1 hour and 15 minutes for train No. 57 to proceed from Wayland to Beaver Creek Junction, a distance of 20.6 miles, which provides for an average rate of speed of 16.6 miles an hour without taking into consideration the station stops. If 20 minutes be deducted for all regular stops, it would be necessary for train No. 57 to run at an average speed of 22.7 miles an hour in order to maintain its schedule, while the time card rules provide that it must not exceed a speed of 12 miles an hour when the locomotive is running backward. Obviously if the schedule is maintained the crew must operate their train at a speed in excess of that provided by the rules governing the speed of their train.

All of the employees involved in this accident were experienced men with good records and at the time of accident had been on duty 6 hours and 25 minutes.