

**IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE
NORFOLK & WESTERN RAILWAY NEAR ADA, W. VA., ON
AUGUST 28, 1918.**

November 12, 1918.

On August 28, 1918, there was a derailment of a passenger train on the Norfolk & Western Railway near Ada, W. Va. which resulted in the death of two employees and the injury of nine passengers, two employees and three other persons. After investigation, the Chief of the Bureau of Safety reports as follows:

The Radford Division of the Norfolk & Western Railway, upon which this accident occurred, extends between Bluefield, W. Va. and Roanoke, Va. It is a double track line, except through a tunnel and over New River Bridge, a distance of about a mile. Train movements are governed by an automatic block system, time-table and train orders.

Eastbound passenger train No. 4 consisted of locomotive 101, 1 mail car, 1 express car, 1 combination car, 3 coaches, 1 dining car and 2 Pullman sleeping cars in the order named, and was in charge of Conductor Glenderson and Engineer Turner. All of these cars were of steel construction, except the dining car, which had a steel under frame. This train left Bluefield at 11:40 A.M., 2 hours and 5 minutes late, and was derailed about one mile east of Ada, W. Va., or 5.4 miles east of Bluefield, at about 11:49 A.M., while running at a speed estimated to have been from 25 to 40 miles an hour.

The derailment occurred on a 11-degree curve and on a

18-foot fill. Approaching the point of accident from Ada and beginning at Milepost 288, there is a tangent 1157 feet in length, then a curve to the right about 500 feet long, with a maximum curvature of 11 degrees. The train had reached a point about 400 feet in on this curve when the derailment occurred. Both the engineman and fireman were killed.

The first evidence of derailment was a score mark near the end of the ties about 18 inches outside of the rail on the outside of the curve, and continuing for about 40 feet to the point where the engine turned over on the westbound track. The engine and tender slid along the rails on the westbound main track approximately 80 feet coming to rest with the front end of the engine leaning against the corner of the side cut which began just east of the point of derailment; the mail car passed the engine about 100 feet and the express car about 80 feet, and, together with the next two cars in the train, they turned over and rolled down the embankment. The mail car turned completely over and the other three cars turned over on their right sides; the fifth car was derailed but remained in an upright position on the roadway, and the front truck of the sixth car was derailed. Approximately 150 feet of the eastbound and westbound track was torn up.

In the vicinity of the point of accident, the track is laid with 100-pound steel rails, 33 feet long, with 18 oak ties under each rail, single spiked and tie plated, and on about 12 inches of crushed stone ballast. The track was re-aligned, surfaced, and put in good condition last spring, and an inspection

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of the curve on which the accident occurred showed it to be in good condition. A superelevation of 5 inches is provided on this curve for eastbound trains. The gauge was $\frac{1}{8}$ inch wide and the rail on the outside of the curve very slightly curve-worn. At the time of the accident the weather was clear.

Conductor Glendonum stated that he was collecting tickets after having left Bluefield, and did not notice the speed or anything unusual until the derailment occurred; at that moment he was at the front end of the second coach. They had left Bluefield at 11.41 and were derailed at about 11.50, approximately 5.4 miles from Bluefield. He also stated that the brakes had been properly tested before they left Bluefield, and that he had heard the brake whistle once or twice around the curves before the accident occurred. He had noticed a slight swaying of the train on the curve preceding the one where the accident occurred, and had felt three distinct jars just before it happened. When the first jar came, he thought the brakes had been applied in emergency; at the second jar, he thought there must be something wrong, and after the third jar, he looked out and saw the cars going over. He stated that he examined the track after the accident, but did not notice any marks on the ties or the rails, and was of the opinion that the derailment had been caused by something falling under the engine, but could give no reason for that opinion.

Head Brakeman McEllellan stated that his train was 2 hours and 5 minutes late in leaving Bluefield, and he believed that the brakes had been tested before leaving that point; that

he was riding in the fourth car from the engine and had not noticed anything unusual during the trip until the accident occurred. He stated that he knew an extra engineman was making the run, but he had been too busy with his duties to notice whether or not the brakes had been applied to reduce the speed around the curves. In his opinion the train was running at a speed of about 35 or 40 miles an hour, which was not unusual, and the car in which he was riding turned over on its side when derailed.

Brakeman Shelton stated that his watch indicated that it was 11:44 and a fraction when his train left Ada, and when the accident occurred, it was 11:48. He thought they were running at about 35 miles an hour, which he did not consider unusual, and that the sliding car door slammed against his feet when the train started around a curve. He said he had seen the air brakes tested at Bluefield and they had applied and released properly. Two applications of the brakes had been made after leaving Bluefield, he said --one west of Ada and the other east of Ada-- and he heard them released just before the derailment occurred. At the time of the accident, he thought the speed was about 35 miles an hour, and that the brakes had been applied in emergency.

Engineman Gerald, who was a passenger on train first No. 4, stated that this was his regular run, and that he was en route to Remond to make this run on his next trip. At Bluefield, he had talked with the engineman and fireman and had not noticed whether the running test had been made. When he got on the car, he looked at his watch and saw that they started at 11:40. He-

between Elmfield and the point of accident, he had not noticed any unsafe running, except that the train lurched a little more than usual. He stated the brakes had been applied twice to steady the train around curves before reaching the point of accident. He was interested in reading a paper, and did not notice anything unusual after the lurch, until the car went over the bank and he was thrown under a seat. His estimate of the speed was 30 miles an hour; he said he had heard several people remark about the speed. In his judgment, the accident was caused by failure on the part of the engineer to apply the brake properly.

The dining car crew were unanimous in their statements that the speed of the train was excessive, which caused the train to sway heavily, and said no brake applications were made in going around the curves. They said the speed was so great that they were thrown from one side of the car to the other, and that many dishes were broken in the pantry.

The baggageman stated that he was busy writing up his baggage report and did not pay much attention to the speed of the train, although he thought they were running a little faster than usual because of the increased swaying of the car. Express messenger Solter stated that he was very busy and did not notice whether the speed was any greater than usual.

Mr. J. W. Cook, Superintendent of the Railroad Division of the Norfolk & Western Railway, stated that the curve on which this accident occurred was not protected by a "G" board, and that the speed restriction of 25 miles per hour for passenger trains

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and 15 miles per hour for freight trains, did not apply because there was no curve board there; therefore, the only restriction to the speed on this curve was the maximum rate of 45 miles an hour, as shown on the time-table.

Mr. J. A. Pilcher, Mechanical Engineer for the Norfolk & Western Railway stated that he had made calculations concerning the speed of engines and tenders of the type involved in this accident. These calculations showed that on a 12-degree curve with 5 inches superelevation, and track in perfect condition, the center of gravity would be shifted enough to cause the engine and tender to overturn at a speed of 56 miles per hour. If the track conditions were not perfect the speed of overturning would be correspondingly reduced. In Mr. Pilcher's opinion, a speed of 50 miles per hour, under the conditions named by him, would be too close a margin for safe practice.

While the direct cause of this accident could not be definitely ascertained, it is believed to have been caused by excessive speed on a 11-degree curve.

All of the employees involved in this accident were experienced men with good records. At the time of the accident, the engineman and fireman had been on duty 1 hour and 15 minutes; the conductor and rear brakeman 6 hours, and the head brakeman 8 hours.