In re Investigation of an accident which occurred on the Baltimore & Ohio Railroad at Cove Run, W. Va., May 10, 1917.

June 6, 1917.

On May 10, 1917, there was a rear-end collision between two freight trains on the Baltimore & Ohio Railroad at Cove Run, W. Va., which resulted in the death of 4 employees and the injury of 3 employees. After investigation of this accident the Chief of the Division of Safety reports as follows:

Eastbound freight train extra 1878 consisted of 35 freight cars, 6 cars of a wrecking outfit, and a caboose, hauled by locomotive 1878, and was in charge of Conductor Robinson and Engineman Knight. It left Berryburg Junction, 10 miles west of Cove Run, at 11.15 a. m., and at about 12 o'clock noon, while approaching Cove Run, Engineman Knight noticed a hot box on a car near the head end of the train. He applied the brakes, sounded the whistle signal for the flagman to protect the train, and brought the train to a stop about 60 car lengths beyond, with the locomotive near the water tank at Cove Run. After working on the hot box for several minutes it was decided to set out the car. This was done, water was taken, and the locomotive was coupled to the train, at about which time the rear end was struck by extra 2865, after having been standing at Cove Run about 15 minutes.

Eastbound extra 2865 consisted of 65 loaded cars and a caboose, hauled by locomotive 2865, with helper locomotive 2829, placed immediately in front of the caboose. The train was in charge of Conductor Crimer and Engineman Hoffman, with Engineman Acord in charge of the helper locomotive. This train passed Arden, the last telegraph station, 6.7 miles from Cove Run, at 11.58 a. m., and at about 12.15 p. m. collided with the rear end of extra 1878.

The caboose and three of the wrecking cars in extra 1878 were demolished, the wreckage being destroyed by fire; two other cars in this train were damaged. Slight damage was sustained by locomotive 2865 and by two of the cars on the head end of this train, while the seventh, eighth, ninth and tenth cars were destroyed.

This part of the Baltimore & Ohio Railroad is a single track line. Trains are operated by time-table and train

orders, the only block signal system in effect affording protection to passenger trains in the case of following movements. Approaching the point of accident from the west there are 1,471 feet of tangent, a 2-degree curve to the left, 475 feet in length, 150 feet of tangent, and a curve to the right of 1,820 feet, varying from one to ten degrees; the collision occurred on this curve, about 550 feet east of its western end, at a point where the curvature is six degrees. The grade for several miles is descending, with the exception of one or two short stretches of track where it is slightly ascending. The descending grade is about one-half of one per cent., although for a very short distance approaching the point of accident it is as high as 1.35 per cent. The weather was clear.

Engineman Knight, of extra 1878, stated that he noticed a blazing hot box on the sixth car from the locomotive, slowed down to 8 or 10 miles an hour, and sounded a whistle signal for the flagman to protect the train. He brought the train to a stop clear of the siding at Cove Run, about 60 car lengths beyond where he had whistled out the flagman, and was working on the hot box when the conductor came forward, about six or seven minutes afterward. They decided to set out the car, which was done, after which water was taken. The locomotive was then coupled to the train and he called in the flagman, the conductor in the meantime having started for the rear of the train. When he cut in the air the indicator on the air gauge went to zero. He said that his first knowledge of anything wrong was when he saw smoke from the rear of the train. Soon afterwards the conductor ran forward and told him that there had been a collision.

Conductor Robinson stated that when he first noticed the speed of the train being reduced, his caboose was from 75 to 100 car lengths from Cove Run. He was in one of the wrecking cars talking with a trainmaster about work to be done, and did not hear the engineman whistle out a flag. He went back from the wrecking car to the caboose, to see if the flagman had gone back, and as the flagman was not there and was out of sight of the rear platform, he supposed that he had gotten off before the train had come to a stop, and was back a sufficient distance to insure proper protection. He said, however, that at the point where the caboose stopped the range of vision was limited by the curvature, and by the mountain on the inside of the curve, to a very few car lengths, and that he did not go out far enough to see where the flagman was, but felt sure that he would go back far enough. After seeing that the flagman had gone out, he went to the head end of the train, and he thought about 12 minutes elapsed between the time the train stopped

and the time the car with the hot box was set out. He then saw smoke toward the rear end of the train and started back, telling the head brakeman to have the engineman call in the flagman. On his way back to the rear he was informed of the collision. In his opinion, the flagman should have been back 60 or 75 car lengths to insure protection, but the flagman afterwards told him that he went back only about 25 or 30 car lengths.

Flagman Dawson stated that approaching Cove Run the train slowed down and he thought he heard the engineman whistle out a flag, but was not positive. He got off at 12.02 p. m., just before the train stopped, and went back what he considered a sufficient distance, and placed two torpedoes on the rail. He then walked back and forth on the track, between the torpedoes and his train. He saw extra 2805 when it was 50 car lengths or more distant, but did not see any one on the locomotive until it ran over the torpedoes, about six car lengths west of where he was standing, at which time every one on the locomotive looked out, and when close to him the engineman acknowledged the stop signals by two short blasts on the whistle. He did not know how fast the trin was moving, but thought it was more than 20 miles an hour. Flagman Dawson stated that he was sure he was back a sufficient distance, and said that after the accident he found that he had been standing 24 car lengths from the rear of his train, and that the torpedoes were 30 car lengths from the train. He did not look at his watch when the locomotive of the extra passed him, but he thought it was about 12.15 p. m. Flagman Dawson further stated that he entered the service of the Baltimore & Ohio Railroad in October, 1914, and in the following January was furloughed on account of a reduction in force, being reemployed in April, 1916. He passed a written examination when first employed, and an oral examination when reentering the service. He said that in all he had had not more than one month's service on the C. & B. subdivision, on which this accident occurred, and was not very well acquainted with the territory; that he had not often been used as a flagman in this territory; that he had not run over it for about two months and was not familiar with the grades. He said that there was no particular reason why he could not have gone back farther, but he thought the engineman was going to take water at Cove Run, and that this would not consume more than 5 minutes. He also claimed that the approaching engineman could have seen him a distance of 50 car lengths.

Engineman Hoffman, in charge of the locomotive hauling extra 2805, stated that the maximum speed of his train approaching the point of accident was not more than 20 miles an

Fireman Bigman, of the leading locomotive of extra 2885, stated that he was leaning out of the window on his side of the locomotive when he first saw the flagman standing in the ditch, beside the track, seven or eight car lengths distant, at which time the locomotive was at the end of the tangent track. Both he and the head brakeman at once called to the engineman, who applied the air brakes just as the locomotive exploded the torpedoes, the first application being almost 20 pounds. He thought that if the flagman had been out about four additional car lengths he could have been seen a long distance. The speed was 2 or 3 miles an hour when he jumped from the engine, just as the collision occurred.

Head Brakeman Satterfield, who was riding on the locomotive, stated that he thought the speed was 15 or 18 miles an hour, or possibly 20 miles an hour. When he first saw the flagman his locomotive was near the end of the tangent track, and he saw the flagman wave his red flag once across the track. He notified the engineman that they were being flagged and at this time the locomotive exploded the torpedoes. He thought the speed at the time of collision was 7 or 8 miles an hour, and might have been as high as 10 miles an hour. He did not have any conversation with the flagman afterwards, but the flagman told him that he was back far enough to stop any one. Brakeman Satterfield also stated that at the point where the flagman was standing when he first saw him, he could have seen him from any point on the tangent track, and he therefore thought the flagman must have been sitting down previous to this time, for if the flagman had been in the center of the track all the time he could have seen him a distance of 75 car lengths.

Engineman Accord, of the helper locomotive of extra 2885, stated that he did not think the speed was over 15 miles an hour. Approaching Cove Run he felt the air brakes being applied and the train came almost to a stop, started again and then there was a sudden jam. He continued to use steam until the train stopped, in order to keep the slack bunched. He thought the train ran 15 or 20 car lengths between the time the brakes were applied and the time the train stopped. He said that when the first application was made he thought the leading engineman was using the air around the curve, and that there was a bad triple somewhere in the train line, and he used a little more steam. To the best of his knowledge the accident happened between 12.15 and 12.20 p. m.

Fireman Deakins stated that approaching Cove Run there were three distinct shocks to the train, the first one coming when the speed was about 12 miles an hour, previous to which the air brakes had been applied.

Conductor Criser, who was riding in the caboose, thought the speed was about 15 miles an hour approaching Cove Run. The air gauge in the caboose showed 65 pounds train line pressure and it was reduced to 50 pounds, the train coming to a stop abut 12 car lengths beyond. After the accident he saw the flagman of extra 1678 and asked him why he did not flag, and the flagman told him that he was back 25 car lengths.

Flagman Bonner, of extra 2685, stated that all he knew of the accident was that when the train line pressure, as registered on the air gauge in the caboose, started to go down it did not stop until there were only 30 pounds pressure. He thought the speed of his train at the time was about 15 miles an hour.

R. C. Davis, a member of the wrecking outfit on the rear of extra 1678, stated that it was 12.03 p. m. when his train stopped, and 12.15 p. m. when the collision occurred. There were three distinct shocks, the first one not seeming to amount to much, but the second shock knocked him off the platform of the coach on which he was riding, while the third shock was the one which did the most damage. Other members of the wrecking crew testified that there were only two shocks, the last of which did the most damage.

Superintendent Scott stated that on reaching the scene of the accident he made some observations, in company with Engineman Hoffman, and found that the engineman's view of the caboose of extra 1678 was restricted to about 120 feet; that according to the engineman's recollection of where Flagman Dawson stood, the flagman was back about 14 additional car lengths, or a total distance from the rear of his train of 17 car lengths; and that the flagman at this point could have been seen by Engineman Hoffman a distance of only 8 car lengths, making a total distance of 25 car lengths between the point where Engineman Hoffman could have seen the flagman and the point where the rear end of extra 1678 was standing at the time of the collision. The torpedoes were found to have been exploded at a point about 30 car lengths from where the caboose had been standing. Superintendent Scott also stated that if the flagman had gone back about 14 car lengths beyond where the torpedoes had been placed on the rail, he would have been visible a distance of about 60 car lengths. He also said that if the flagman had been standing at the point where Engineman Hoffman said he was standing, it would have been possible for the fireman and head brakeman, riding on the left side of the locomotive to have seen him practically the entire length of the tangent track, in his opinion a distance of 60 or 75 car lengths, provided the flagman had been standing in the middle of the track; and that practical-

ly all of this distance the flagman would have been in sight, except when the locomotive rounded the short curve to the left, immediately preceding the curve to the right on which the accident occurred.

This accident was caused by the failure of extra 1878 to be properly protected by flag, for which Flagman Dawson is responsible. At the time of the collision, extra 1878 had been standing about 12 minutes, and yet Flagman Dawson, according to his own statement, placed torpedoes only 30 car lengths from his train and then returned 6 car lengths toward his train. While he had not had sufficient experience on this subdivision to be acquainted fully with its grades, yet he knew that the rear of his train was out of sight around a sharp curve, and a proper performance of his duties would have required that he go back a much greater distance in order to insure full protection to the rear of his train.

Flagman Dawson was employed as a brakeman in October, 1914, and in January, 1915, was furloughed on account of a reduction in force. He was reemployed in April, 1916. His record was good. At the time of the accident he had been on duty 6 hours and 45 minutes, after a period off duty of 51 hours and 35 minutes.