COMMISSIONER Meyer

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IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE BALTIMORE & OHIO RAILROAD NEAR CONFLUENCE, PA., ON SEPTEMBER 23, 1919.

November 3, 1919.

On September 23, 1919, there was a derailment of a passenger train on the Baltimore & Ohio Railroad near Confluence, Pa., which resulted in the death of 1 employee and injury of 8 passengers, 2 mail clerks, and 1 employee, who afterward died from his injuries. After investigation of this accident, the Chief of the Bureau of Safety reports as follows:

The Connellsville Division of the Baltimore & Ohio Railroad, on which this accident occurred, is a double-track line over which trains are operated by time table and train orders, supplemented by an automatic block signal system. The accident occurred at a point about 2 miles east of Confluence, Pa., approaching which point from the west, there is a tangent 2,234 feet in length followed by a 6-degree 50-minute curve to the right 1,650 feet in length, the point of accident being about 540 feet east of the western end of the curve. This curve is known as "Drakestown Curve" and slow boards at each end limit the speed of trains rounding the curve to 40 miles an hour. The grade was slightly ascending. Between Connellsville and Cumberland, within which territory the accident occurred, time-table rule No. 5 permits a speed for passenger trains of 50 miles an hour, except when hauled by freight locomotives, when the speed is limited to 35 miles an hour.

The track is laid with 100-pound steel rails, 33 feet in length, with 18 or 19 white oak ties to the rail; tie plates

are used, the ties are double spiked on the insids, and are laid on 30 to 36 inches of crushed stone ballast. The track in this territory was cut out of the side of the mountain, the mountain being on the left side, and the Youghiogheny River on the right side of the track. The eastbound track on which the derailment occurred rests on the fill side of the cut. The left ends of the ties rest about on solid foundation while the opposite ends rest on the fill, thus accounting for the large amount of ballast placed under the track at this point.

The train involved in this accident was eastbound passenger train No. 8, en route from Chicago, Ill., to Washington, D. C. At the time of derailment it was in charge of Conductor Lane and Enginemen Kennedy and Miller, and consisted of locomotives 4579 and 5071, 1 mail car, 1 baggage car, 2 coaches and 5 Pullman cars. This train left Pittsburgh, Pa., at 12.20 a.m., on time, and arrived at Connellsville, Pa., on time, leaving that point at 2.11 a.m., 6 minutes late. The delay at Connellsville was due to the brakes sticking on account of low steam pressure. The train continued to GU Tower, a distance of 12 miles, where it came to a stop for the purpose of getting locomotive 4579 to assist it to the top of the grade at Sand Patch. The train with locomotive 4579 coupled to its head end passed HK Tower, the next open telegraph office, at 2.51 a.m., and at 3.01 a.m. while running at a speed of about 40 miles an hour was derailed on Drakestown Curve. It was very dark at the time of the accident and a light rain was falling.

The accident resulted in the derailment of all the wheels of locomotive 4579 with the exception of the pony truck wheels. About 150 feet back of this locomotive, locomotive 5071 turned over on its left side, lying diagonally across both tracks, the tender being detached, with the cistern off its frame. The mail car was on the left side of the track, partly up the mountain side and almost clear of both tracks. The baggage car turned over on its left side, the first coach leaned at an angle of about 45 degrees while the second coach leaned slightly. The first Pullman car had all its wheels derailed but remained upright and the first truck of the second Pullman car was also derailed. The eastbound track was torn up for a distance of about 550 feet while the westbound track was knocked out of alignment. Fireman Glenn of locomotive 5071 was instantly killed and Engineman Miller of the same locomotive was so badly injured that he died about 45 hours after the accident.

Conductor Lane of train No. 8 stated that upon arrival of his train at Connellsville, Fireman Glenn reported at the telegraph office that the superheater flue on the locomotive had burst and asked for another locomotive. The conductor said that before leaving Connellsville, the operator at that point gave him a message to get a helper at GU Tower, and to cut it off at Manila. At GU Tower a freight locomotive, No. 4579, was coupled to the head end of the train and after the brakes had been tested the train left GU Tower at 2.41 a.m. He did not look at his watch for some time after the derailment but to the best of

his knowledge it occurred at 3.01 a.m. He stated that after the derailment he went to the head end and while he found Engineman Miller badly injured, he was perfectly rational and told him to protect the westbound track. Later the engineman was removed to one of the Pullman cars and Conductor Lane talked with him concerning the derailment. He stated that the engineman told him the front truck of the tender of the leading locomotive was the first to be derailed, that he attempted to cut in his brake but before he could do so he was thrown out of position and could not get hold of the cut-out cock. The engineman also told him that the speed indicator showed that the train was running at a speed of 40 miles an hour. The conductor said that he himself could not give any estimate of the speed, nor from his examination of the equipment and track could he determine the cause of the accident.

Flagman Ervin of train No. 8 stated that at the time of the accident he was riding in the rear car, that he did not notice anything unusual in the running of the train previous to the derailment and could not intelligently estimate the speed of the train. He thought, however, that the train was running at a speed of about 40 miles an hour.

Head Brakeman Fisher stated that at the time of the accident he was riding in the smoking car and noticed an application of the brakes as the train entered the curve. He did not notice that the speed of the train was any faster than usual on the curve and thought it must have been about 35 miles an hour, the maximum speed allowed for passenger trains hauled by freight

locomotives.

Engineman Kennedy of locomotive 4579 stated that when train No. 8 stopped at GU Tower, Engineman Miller handed him a message instructing him to couple his locomotive to the train and help it to Manila. After coupling to the head end of the train, testing the brakes and calling in the flagman, the train left GU Tower, but he did not look at his watch and could not state the time. He stated that he slowed the train down several times passing around curves and over other portions of the track where slow orders were in effect before reaching the point of accident. He stated that he did not apply the brakes on entering Drakstown Curve, as he had just released them on the straight track preceding it and in his opinion the train was not exceeding a speed of 35 miles an hour at the time of the derailment. He said the rules permitted him to make that speed with a freight engine when assisting a passenger train and that the curve board restrictions at each end of Drakstown Curve permitted a speed of 40 miles an hour on the curve. He stated that he was looking back along the train going around the curve and heard a noise, saw fire fly from the engine trucks of the second locomotive and immediately applied the brakes in emergency, but did not shut off the throttle until about the time his locomotive stopped. His locomotive ran about two engine lengths after it broke loose from locomotive 5071 and stopped with the pony trucks on the rails and the driving wheels, trailer truck and tender off the track, beside the rails. He stated that he examined the track

at the point of derailment and found wheel marks on the ties on the inside of the right hand or south rail; he then went a short distance back of this point and found the track was out of alignment, being pushed toward the left. He stated that he had no speed recorder on his locomotive and while he understood that there was one on locomotive 5071, he did not examine it after the derailment.

Fireman Lansberry of locomotive 4570 stated that he could not remember whether or not a test of the brakes was made before leaving GU Tower but that the brakes were applied several times between that point and the point of accident for the purpose of reducing the speed over bad places in the track. Just prior to the derailment he was putting coal in the fire, having one foot on the tender and the other on the deck of the engine. He stated that on the straight track just before reaching Drake-town Curve the engineman made a 5 or 6 pound application of the brakes and the train began to slow down. As the engine struck the curve it began to kick very badly and he stepped up on to the deck of the cab just a few seconds before he felt the wheels of the engine on the ties. At this time, to the best of his knowledge, the train was running at a speed of between 40 and 45 miles an hour. He was sure the wheels of the engine were derailed before the wheels of the tender, as in his position on the locomotive, he would have known positively had the tender derailed first. He stated that at the time of the derailment both locomotives were using steam, and the throttle of his engine was not closed until after it came to a stop.

Section Foreman Woodmancy, in charge of the section on which the derailment occurred, stated that he started to raise the track on this curve on September 17th, using all of the ballast in the track for this purpose and that he completed the work on September 18th. He said that the super-elevation on this curve should be 6 inches but at the time he raised it he gave it about 5 inches as the track settles sufficiently on the low side of the curve to warrant his giving it that amount of leeway. On September 19th he began filling in the centers of the track starting at the east end of the curve and using the ballast between the tracks. The work of filling in the centers had been accomplished up to about the point of derailment. On the morning of September 21st he received a message from the superintendent, advising that a bad place existed in the track on this curve and to repair it. He found the alignment bad, corrected it and had the track raised in several places. On the morning of the accident he arrived at the scene at about 8.00 a.m. and made an examination of the track and found it badly out of alignment, as much as 10 inches in one place back of the point where the derailment occurred. In his opinion this was due to the high rate of speed of trains passing over the track with the centers of the track not filled in, but he considered that it would have been safe for the speed permitted on the curve and he had not considered it necessary to request the superintendent to place further speed restrictions over it.

Track Supervisor Metzger stated that he went to the

scene of the accident as soon as he learned of it and made an examination of the track, finding the elevation good, but the track west of the point where the first wheel marks appeared on the rails was badly out of alignment. In some places the track was crowded toward the outside of the curve as much as 8 inches, this condition existing for about 150 feet in the direction from which train No. 8 approached. He said the track was not uniformly out of alignment but was kinked. He also stated that the track had recently been raised at this point and the ballast taken out of the cribs; that he had been over the track in this territory four days prior to the accident, which was since the track had been raised, and had noticed that the ties had been tamped and the track was on solid foundation. In his opinion the track was safe for the speed permitted on the curve. He stated further that the foreman in charge of this section had a force consisting of a track-walker, six track laborers and three watchmen, but that the men did not work very regularly; however, when the maintenance of the track began to go down, he was supplied with an extra force to help put it in proper condition again.

Engineman Reed of train No. 10, which was the last train to pass over the track prior to the derailment of train No. 8, stated that on his previous trip over this curve two days before the derailment, he found a very bad place and reported it. On this account he reduced his speed to between 20 and 25 miles an hour on the morning of the accident and at that time noticed nothing wrong.

Master Mechanic Rhuark stated that he arrived at the point of accident about 7.30 or 8.00 a.m. and made an examination of all the equipment but found nothing connected with it which he considered could have caused the derailment. He stated that he noticed the speed recorder box on locomotive 5071 was open and the tape gone. The feed pen in the holder was in about the center of the cylinder, indicating that it had been removed by some inexperienced man, as otherwise the needle would have been at the bottom. He noticed that the ballast was out of the center of the track and that the track had been kicked out of alignment.

Superintendent Brady stated that he arrived at the point of accident two hours after its occurrence and found the roadbed of the eastbound track torn up for approximately 550 feet and the westbound track knocked out of alignment. He examined the track and found the ties and rails both in good condition, but back of the first marks of derailment the track was from 4 to 8 inches out of alignment in several places, giving evidence of having been kicked out by traffic. He stated that he talked with Engineman Miller concerning the accident and that Engineman Miller told him that when entering the curve he looked at his speed recorder, which registered 5 miles slow, and it indicated 35 miles an hour, making it evident that the speed at the time of the accident was 40 miles an hour.

On the day following the accident, measurements of the track as to gauge and elevation were taken, beginning at the

western end of the curve and continuing to the point of derailment. With the exception of a short distance west of the point of derailment, the condition of the track had not been changed at the time these measurements were taken. Two measurements were taken for each rail length and at no place did the gauge vary more than one-fourth inch in 15 feet, while the elevation varied three-fourths inch in three places.

This accident was caused by the weakened condition of the track, due to an insufficient amount of ballast in the center of the track to support the ties.

In raising the track during the week just prior to the accident, all of the ballast in the track was placed under the ties, leaving the ties with nothing in the center of the track to hold them in place, thereby causing the track to shift out of proper alignment under the strain of trains passing over it at the rates of speed permitted. Both the track supervisor and the track foreman admitted that the track was not safe for a high rate of speed, but in their judgment it was perfectly safe for the speed permitted by rule, and for that reason no slow order was placed on the track at Drakstown Curve. The evidence indicates that two days prior to the accident the track was reported by the engineman of train No. 10 and was found to be in bad alignment, which should have been sufficient warning to those in charge of the track that it was not safe for the speed at which trains were running in that territory and greater precautions should have been taken in the way of reducing the speed limit. Examinations of the track subsequent to the derailment showed that at

the time of the derailment the track was in bad alignment for some distance west of the point of derailment and [illegible] establishes the conclusion that the track was not safe for the usual speed of trains in that territory.

On account of the conflicting testimony, it is not possible definitely to ascertain which part of the train was first to be derailed. The fireman of the leading locomotive, however, who was perhaps in a better position to know than any other member of the crew, is of the positive opinion that the wheels on his engine were the first to leave the track and it is believed that had the tender of his locomotive derailed first, the apron in the gangway would have dropped down to such an extent that he could not have helped noticing it.

The engineman of the leading locomotive places the speed at the time of the accident at about 35 miles an hour which is the maximum speed permitted for passenger trains hauled by freight locomotives. His fireman estimates the speed at between 40 and 45 miles an hour, while the other members of the crew, with the exception of the engineman of the second locomotive, were unable to give any intelligent estimate of the speed. Engineman Miller, who succumbed to injuries received in the accident within 48 hours after its occurrence, is claimed to have stated to the superintendent and conductor shortly after the derailment that the speed recorder on his locomotive indicated that the train was running at a rate of 35 miles an hour, but that the recorder registered 5 miles slow and that the actual speed of the train

was therefore about 40 miles an hour. After the accident the tape of the speed recorder was removed by some unknown person and Engineman Miller's statements could not be confirmed.

All of the employees involved were experienced men. At the time of the accident, the crew of the leading locomotive had been on duty 3 hours and 40 minutes after an off-duty period of 10 hours and 40 minutes. The crew of the second locomotive had been on duty 4 hours after an off-duty period of 25 hours and 35 minutes, while the train crew had been on duty 3 hours and 5 minutes after an off-duty period of 28 hours and 30 minutes.

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