

**IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON
THE CENTRAL RAILROAD OF NEW JERSEY AT ASHLEY,
PA., ON FEBRUARY 22, 1919.**

May 2, 1918.

On February 22, 1918, there was a collision between a runaway freight train and a light engine in the yards of the Central Railroad of New Jersey at Ashley, Pa., which resulted in the death of 2 employees and the injury of 15 employees. After investigation the Chief of the Bureau of Safety reports as follows:

The Lehigh and Susquehanna division upon which this accident occurred is a double-track line, with the exception of nine miles between Penobscot and Mountain Park, which is single track, and trains are operated over this division by automatic block signals. From Penobscot to Ashley, a distance of 13.8 miles, the grade is level for the first 1.4 miles, then there is a 1% descending grade for 4.5 miles, which gradually increases to 1.9% to Ashley. Between Penobscot and Ashley the track is made up of a series of curves and tangents of varying lengths, while the curves vary from 1-degree to 9-degrees.

Westbound freight train, extra 764, consisted of 33 loaded cars, 7 empty cars and a caboose, hauled by locomotives 764 and 717, and was in charge of Conductor Ritzel and Enginemen Carey and McGroarty. It left Allentown, Pa. at 1.47 p. m. and arrived at Penobscot at 6.23 p. m. where the crew received train order No. 43 reading as follows:

**Engine 764 and L. V. engine 717 will run
extra Penobscot to Ashley.**

Locomotive 764 was uncoupled from the train and left Penobscot at about 6.35 p. m., and proceeded to Ashley. Locomotive 717 and the remainder of the train, running as extra 717 left Penobscot at about 6.40 p. m., passed Laurel Run, six miles distant, at 6.57 p. m., passed Mountain Park, 3.1 miles from Laurel Run, at 7.04 p. m., and collided with locomotive 764 at a point about 80 feet east of the yardmaster's office at Ashley, or 4.7 miles from Mountain Park, at about 7.08 p. m. while running at a speed of from 60 to 75 miles an hour.

Locomotive 717 stopped 280 feet west of point of collision and was lying on its left side crosswise the eastbound main track and seriously damaged. Thirty-one of the cars of extra 717 were wrecked, caught fire, and

together with their contents were destroyed; the nine rear cars of that train were derailed but remained upright, seven of which, however, received more or less damage to their trucks; the two rear cars and caboose were undamaged. Locomotive 764 stopped about 830 feet from point of collision and lay on its right side diagonally across the store room track which ran parallel with and to the right of the main track, and was also seriously damaged. There were five locomotives standing at various points in the vicinity of the roundhouse switch, located 800 feet west of the yardmaster's office, and these locomotives were struck and bunched and driven for a distance of 950 feet west of the roundhouse switch, two of them being damaged. The track and switches were badly torn up, two small wooden buildings which were occupied by the yardmaster, telegraph operator and other yard employees were damaged, and an automatic signal mast and two water standpipes were torn down. Brakeman Mohan of extra 717 and Engineman Carey of locomotive 764 were killed. The weather was cloudy with occasional flurries of snow.

Engineman McGroarty, in charge of locomotive 717, stated that locomotives 764 and 717 were coupled onto the train at Allentown with locomotive 764 in the lead; the air brakes were cut out on locomotive 717 and the air was handled by Engineman Carey on locomotive 764. The train left Allentown and made stops at the west end of Allentown yard and at Lockport, Mauch Chunk and White Haven. At White Haven both locomotives were cut off from the train and uncoupled from each other for the purpose of taking water. The train remained at White Haven about 30 minutes waiting for a pusher engine and after the locomotives were coupled onto the train he saw some of the crew coupling the air and assumed that they also opened the angle cock on the train line. He could not say whether the air brakes were tested before leaving there but said it was not customary to test them at that place. At White Haven locomotive 717 was coupled onto the train before locomotive 764 and he charged the train line with air from locomotive 717 and believes that the air was passing through all right, and when locomotive 764 was coupled to the train he cut the air out on locomotive 717, after which the train left there at 5.27 p. m., arriving at Penobscot without any unusual incidents. So far as he knew the air brakes were operating properly during the entire trip from Allentown. Upon arriving at Penobscot Engineman McGroarty cut the air brakes in on locomotive 717 and locomotive 764 was cut off from the train and took water, then coupled to the train again to help start it, then cut off again and proceeded to Ashley ahead of extra 717. He

said that Brakeman Mohan advised him at Fenobscot that all the retainers on the train were turned up and he therefore did not try the brakes before leaving there for the reason that with all the retainers on the train turned up, any application of the air brakes would very likely stall the train, making it necessary to turn all the retainers down in order to release the brakes. Approaching Mud Cut, about four miles west of Fenobscot, the speed of the train was about 18 miles an hour and he made a 10-pound reduction but the brakes did not apply, whereupon he placed the brake handle in release position, and then made another reduction of about 15 pounds and the speed was reduced to 12 or 13 miles an hour, indicating that the brakes were operating properly. He released the brake and recharged the train line to 80 pounds, and approaching Laurel Run, 4 miles west of Fenobscot, he made a 15-pound reduction, and that reduced the speed to about 18 miles an hour, the train line pressure then being 80 pounds. He then released the brakes and recharged the train line to 80 pounds. When the train reached a point about 20 car lengths beyond Laurel Run he noticed that its speed was increasing and made a 20 or 25-pound reduction, and when that did not check the speed he made several further reductions, but when the speed continued to increase he released the brakes and recharged the train line to 70 pounds and then made an emergency application of the brakes at Rock Cut, 2.5 miles west of Laurel Run, which practically depleted the train line without checking the speed of the train, which at that time was about 25 miles an hour. He then sounded the whistle for hand brakes and Brakemen O'Connell and Mohan and the fireman went on top of the train and began setting the hand brakes. The speed of the train continued to increase, however, and it was running 60 or 70 miles an hour, or more, when it reached Ashley. He said he had applied the straight air brakes on the locomotive and turned on the sand when the speed of the train began to increase west of Laurel Run and he saw fire flying from the locomotive and tender wheels, indicating that these brakes were applied. He said he had frequently handled trains on this grade and had had no difficulty in controlling their speeds.

Conductor Ritzel of extra 784 stated that when he took charge of the train at Allentown the yardmaster advised him that the air brakes had been tested, but he informed the yardmaster that he desired to test the brakes before leaving there. The train was then backed up and the brakes applied. Conductor Ritzel said he did not look the train over to see if all the brakes applied but a

brakeman looked at the brakes while walking along the side of the train. He stated he got into the caboose and by that time the air gauge registered 70 pounds and the engineman signaled for brakes. The brakes were then released, and he signaled all right and the train departed, at which time the air gauge in the caboose showed 80 pounds pressure. The brakes operated properly en route to Fenobscot and no difficulty was experienced in controlling the speed or in making the necessary stops. Upon arriving at Fenobscot locomotive 784 was cut off from the train and he advised Engineman McGrearty of locomotive 717 that the train consisted of 33 loads and 7 empties, weighing 1700 tons, and for him to be careful in handling the train down the mountain grade. He said he was riding in the caboose when the train left Fenobscot and the first application of the air brakes he noticed was when it approached Mud Cut, which properly checked the speed of the train, the gauge in the caboose showing 80 pounds air pressure at that time. The second application was made at Laurel Run, and the brakes on the rear end operated properly and checked the speed of the train, and he thought two more applications were made between Laurel Run and Rock Cut, both of which apparently brought the train under control, but at Rock Cut he noticed that the speed was rapidly increasing, looked at the air gauge and saw that it registered 80 pounds air pressure. He at once applied the air brakes by means of the conductor's valve. This application set the brakes on the rear end of the train, but when the train had reached Mountain Park and its speed was still increasing, he saw that the air pressure was exhausted, and with Brakemen Lehman began setting hand brakes. On account of the high speed of the train and the difficulty in going over the gondola cars they returned to the caboose and were riding there when the collision occurred. Conductor Ritsel was unable to advance any reason why the air brakes did not hold but thought it might have been caused by an angle cock in the train line having become closed or some part of the air brake apparatus having become frozen.

Fireman Ichter stated that he did not know how many applications of the air brakes Engineman McGrearty made before reaching Laurel Run, but after passing that place the train began to pick up speed and the engineman made three applications of the brakes in succession and about that time Brakemen O'Connell and Mahan commenced setting hand brakes.

Brakeman O'Connell stated that before leaving Allentown the engineman applied the air brakes and he noticed that

the brakes applied on the caboose but he did not go over the train to see whether all the brakes were applied. Upon arrival at Penobscot locomotive 764 was cut off and Engineman McGroarty cut the air in on locomotive 717 but he could not recall that he made any application of the air brakes before leaving there. He said he turned up the retainers on the front half of the train at Penobscot and Brakeman Mohan told him that he had turned them up on the rear half. Leaving Penobscot he was riding in the cab and he thought Engineman McGroarty made about three applications of the air brakes between there and Laurel Run, all of which seemed to hold the train properly, but when it had about reached Rock Cut he noticed that it was running faster than usual and the engineman asked him to set some hand brakes. He stated that he set the brakes on the first 12 or 13 cars and by that time the speed of the train was so great he was compelled to lie down on the top of the car in order to keep from falling off, and rode there until the collision occurred.

Brakeman Lehman stated that he was riding in the caboose of his train as it left Penobscot, looked at the air gauge and noticed that it registered 80 pounds. Between Penobscot and Laurel Run the engineman made four or five applications of the air brakes, all of which properly checked the speed of the train. Approaching Rock Cut he noticed that the train was running unusually fast, saw that the air gauge registered 80 pounds and at that time the conductor applied the brakes by means of the conductor's valve. He then went out on top and set about three hand brakes, but the speed was so great he came back into the caboose and was riding there when the collision occurred.

General Air Brake Inspector Sandhas stated that he examined the air brake apparatus on locomotive 717 after the accident and found the straight air brake valve in application position, the automatic air brake valve in release position, and the cut off cock under the brake valve open, while the reverse lever was in the reverse position. He also examined the tires and brake shoes and found burnt spots on them indicating that the brakes had been applied. He removed the feed valve and air gauges and tested them and found them all in good condition. He said locomotive 717 was equipped with two 11-inch air pumps and three reservoirs, and in his opinion the air brake apparatus on this locomotive was in good condition. He thought the accident was caused by some stoppage in the brake valve which might have been due to the angle cock becoming closed by something coming loose and striking against the angle cock. He said that enginemen are carefully instructed in the operation of the air brakes before being permitted to

operate trains over these grades and he considered Engineman McGroarty thoroughly competent to handle the train he was handling on the day of the accident.

The direct cause of this accident was a freight train getting beyond control evidently caused by the failure of Engineman McGroarty properly to manipulate the train brake system to control the speed of his train down the mountain grade.

While it was not possible to ascertain with certainty just what caused Engineman McGroarty to lose control of the train, it is believed that by frequent applications of the air brakes after the train departed from Penobscot the train line pressure was so exhausted that it became impossible to secure an application of the brakes sufficient to control the speed of the train. While Engineman McGroarty claimed that the train line pressure was 80 pounds just before reaching Laurel Run, that he made several unsuccessful applications of the brakes after passing that place, and then released and recharged the train line to 70 pounds and made an emergency application, in view of the fact that these applications had little if any effect in applying the brakes, it is believed that the train line pressure had been practically exhausted when the train reached Laurel Run.

All of the evidence indicated that the air brakes on this train were operating properly prior to the time it began to run away, as all of the crew testified that no difficulty had been experienced in making the desired stops from the time it left Allentown and in controlling its speed on this grade until it reached Laurel Run. The conductor and rear brakeman also stated that the air gauge in the caboose registered 80 pounds pressure after leaving Penobscot, all of which indicates that there was no obstruction in the train line to prevent the free passage of air to the rear of the train, such as would have been the case had an angle cock been turned. However, as practically all of the equipment in this train was destroyed, it was impossible to ascertain whether the retainers on this train were turned up or whether any of the angle cocks in the train line had been closed.

The rules of the Central Railroad of New Jersey governing the making up of trains and testing of air brakes, issued April 1, 1894, provide in part as follows:

After the engineman has charged the train with air, he must then be signaled to apply the brakes. When he has done so, the brakes of each car must be examined to see if they are properly applied. When it is ascertained that each brake is applied, the engineman must be signaled to release the brakes.

This rule was not complied with by the crew of extra 764 at Allentown. The air brake test at Allentown consisted only in the engineman applying the brakes and when the brakeman saw that they applied properly on the caboose he gave the engineman a signal to release them, and apparently there was no effort made to find out whether the brakes on all the cars applied.

The importance of terminal tests as an element of safety in railroad operation can not be overestimated, and any test which consists solely of ascertaining whether or not the air is working throughout the train line provides no adequate information as to the efficiency of the individual brakes on the train and in this instance no one had any definite knowledge as to the number of cars in this train that had their air brakes in operation.

This investigation developed the fact that it was not the custom or practice to make tests of the air brakes, at Penobscot to determine their efficiency before descending this mountain grade; no test of the air brakes on extra 717 was made there on the day of the accident, nor is there any rule that requires such tests to be made there. In the interest of safe train operation there should be definite rules requiring proper tests of air brakes at Penobscot on all trains before permitting them to descend the grade west of there, especially when the control of the air brakes has been changed from one engine to another as was done on the day of the accident.

All of the employees involved in this accident were experienced men with good records and had been on duty about 12 hours when the accident occurred.

J. O. T.