INTERSTATE COMMERCE COMMISSION

WASHINGTON

INVESTIGATION NO. 2900

THE PENNSYLVANIA RAILROAD COMPANY

REPORT IN RE ACCIDENT

NEAR MILTON, PA., ON

JUNE 15, 1945

SUMMARY

Railroad:	Pennsylvania	
Date:	June 15, 1945	
Location:	Milton, Pa.	
Kind of accident:	Collision	
Trains involved:	Freight	: Passenger
Train numbers:	Extra 4491 East	: 575
Engine numbers:	4491	: 3847
Consist:	102 cars, caboose	: 13 cars
Estimated speed:	20 m. p. h.	: 60 m. p. h.
Operation:	Signal indications	
Track:	Double; tangent; 0.10 percent ascending grade westward	
Weather:	Cloudy	
Time:	1:05 a. m.	
Casualties:	19 killed; 48 injured	
Cause:	Derailed freight cars obstructing adjacent main track immediately in front of approaching train	

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 2900

IN THE MATTER OF MAKING ACCIDENT INVESTIGATION REPORTS UNDER THE ACCIDENT REPORTS ACT OF MAY 6, 1910.

THE PENNSYLVANIA RAILROAD COMPANY

July 20, 1945.

Accident near Milton, Pa., on June 15, 1945, caused by derailed freight cars obstructing an adjacent main track immediately in front of an approaching train.

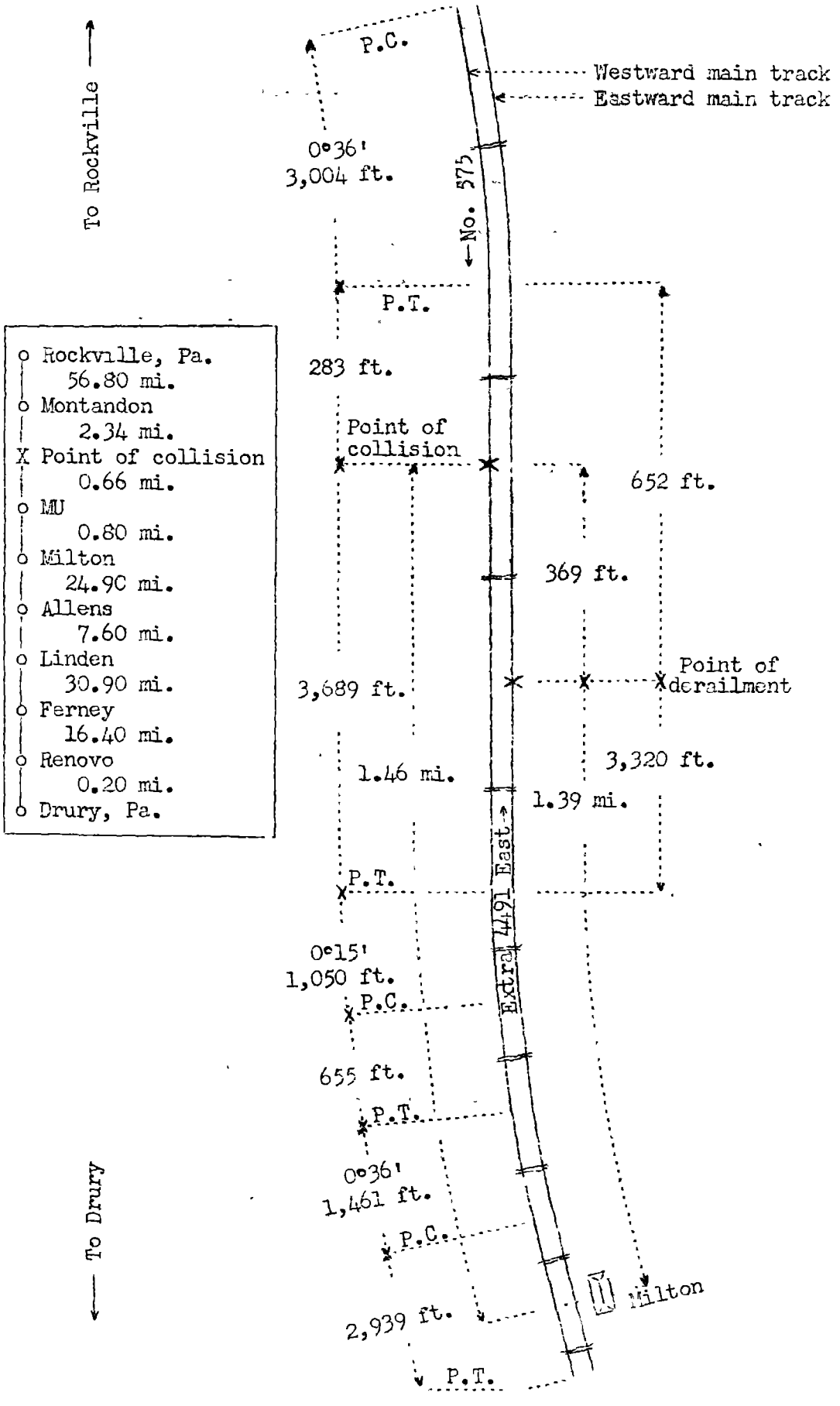
REPORT OF THE COMMISSION[1]

PATTERSON, Commissioner:

On June 15, 1945, there was a collision between a passenger train and derailed cars of a freight train on the Pennsylvania Railroad near Milton, Pa., which resulted in the death of 16 passengers and 3 train-service employees, and the injury of 42 passengers, 2 railway-mail clerks, 1 express-messenger and 3 train-service employees. This accident was investigated in conjunction with a representative of the Pennsylvania Public Utility Commission.

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[1]Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Commissioner Patterson for consideration and disposition.



Inv. No. 2900
Pennsylvania Railroad
Milton, Pa.
June 15, 1945

Location of Accident and Method of Operation

This accident occurred on that part of the Williamsport Division extending westward from Rockville to Drury, Pa., 140.6 miles, a double-track line in the vicinity of the point of accident over which trains moving with the current of traffic are operated by signal indications. The freight train involved was being operated on the eastward main track, and the passenger train on the westward main track. The collision occurred on the westward main track 59.14 miles west of Rockville and 1.46 miles east of the station at Milton. From the west on the eastward main track there are, in succession, a tangent 2,939 feet in length, a 0°36' curve to the right 1,461 feet, a tangent 655 feet, a 0°15' curve to the right 1,050 feet, and a tangent 3,320 feet to the point of derailment and 652 feet eastward. From the east there is a 0°36' curve to the right 3,004 feet, which is followed by a tangent 283 feet to the point of collision and 3,689 feet westward. At the point of collision, the grade is 0.10 percent ascending westward.

At the point of accident the distance between the centerlines of the main tracks is 12 feet 2 inches. The track structure of the eastward main track consists of 131-pound rail, 39 feet in length, laid on an average of 21 ties per rail length. It is fully tieplated, single-spiked, provided with 4-hole angle bars, an average of 5 rail anchors per rail length, and is ballasted with crushed stone to a depth of 12 inches.

Operating rules read in part as follows:

> 76a. Engine and train crews as frequently as opportunity permits must observe engines and cars in their train, moving and standing, to detect any conditions that might interfere with the safe movement of trains.
>
> 77. So far as practicable and other duties permit, employes will observe passing trains for defects and should there be any indication of conditions endangering the train they must take necessary measures for its protection.
>
> Train and engine crews on moving trains will be on the lookout for signals when passing other trains and while passing stations, highway crossings where watchmen are on duty and points where trackmen and other employes are working and when practicable exchange hand signals with them.
>
> 102. When a train is disabled or stopped suddenly by an emergency application of the air brakes or other causes, adjacent tracks as well as tracks of other railroads that are liable to be obstructed must be protected at once in both directions until it is ascertained they are safe and clear for the movement of trains.

Instructions to highway crossing watchmen and gatemen read in part as follows:

> 11. They must observe passing trains for defects, and should there be any indication of conditions endangering the train, they must take necessary measures for its protection; where practicable, hand signals will be exchanged with train and engine crews.

The maximum authorized speed for passenger trains is 65 miles per hour, and for freight trains, 45 miles per hour.

Description of Accident

Extra 4491 East, an east-bound freight train, consisted of engine 4491, 102 cars loaded with iron ore, and a caboose. This train passed Allens, 24.9 miles west of Milton and the last reporting station, at 11:48 p. m., passed MU Tower, 0.8 mile east of Milton, and while it was moving on the eastward main track at an estimated speed of 20 miles per hour the rear truck of the thirty-fifth car, the thirty-sixth to forty-ninth cars, inclusive, and the sixty-first to sixty-fourth cars, inclusive, became derailed at a point 1.39 miles east of the station at Milton. The engine and the first to thirty-fifth cars, inclusive, remained coupled and stopped with the rear of the thirty-fifth car standing 844 feet east of the point of derailment. Immediately after the derailment occurred, the thirty-eighth and fortieth cars, which fouled the westward main track, were struck by No. 575.

No. 575, a first-class west-bound passenger train, consisted of engine 3847, one storage-mail car, one express car, one mail car, one passenger-baggage car, three coaches and six Pullman sleeping cars, in the order named. All cars were of steel construction. This train passed Montandon, 3.8 miles east of Milton and the last open office, at 1:02 a. m., 5 minutes late, and while moving on the westward main track at an estimated speed of 60 miles per hour it collided with the derailed freight cars. The engine and the first seven cars were derailed.

Engine 3847 was derailed to the north and stopped practically upright, 195 feet west of the point of collision, about 25 feet north of the westward main track and practically parallel to it. The cab was demolished. The tender was torn loose and stopped at the rear of the engine and at right angles to it. The first car stopped across the top of the tender and the second car stopped across the cab of the engine. Both of these cars were at right angles to the tracks. The third car stopped with its front end 28 feet north of the track and about 40 feet west of the engine. The fourth car stopped on top of

the fortieth and forty-first cars of the freight train. The fifth car stopped under the fourth car and practically parallel to the tracks. The sixth and seventh cars were derailed but remained upright and practically in line with the westward main track. The first to third cars, inclusive, were badly damaged. The fourth car, which was a passenger-baggage car, and the fifth car, which was a coach, were demolished. The sixth and seventh cars were slightly damaged.

It was cloudy at the time of the accident, which occurred about 1:05 a. m.

The engineer, the fireman and the assistant baggageman of No. 575 were killed. The conductor, the baggageman and the front brakeman of No. 575 were injured.

The thirty-fifth car of Extra 4491 East was Pennsylvania 747047, a steel quadruple-type hopper car, built in November, 1912, and rebuilt in March, 1944. It is 42 feet long over end sills, 10 feet 2-1/4 inches wide and 10 feet 6-1/2 inches high. Its light weight, capacity and load limit are, respectively, 51,000 pounds, 140,000 pounds and 159,000 pounds. At the time of the accident it was loaded with 158,700 pounds of iron ore. The trucks were of the 4-wheel type, having 6-inch by 11-inch journals, pressed-steel journal boxes, and four coil springs and one snubber spring on each side of each truck. The journal boxes were last packed on March 8, 1944.

Discussion

As Extra 4491 East was moving on the eastward main track at a speed of about 20 miles per hour in territory where the maximum authorized speed for freight trains is 45 miles per hour, the rear truck of the thirty-fifth car, the next 14 cars, and the sixty-first to sixty-fourth cars, inclusive, became derailed at a point 1.39 miles east of the station at Milton. The thirty-eighth and fortieth cars fouled the westward main track. The first that the members of the crew were aware of anything being wrong was when the brakes became applied in emergency as a result of the derailment.

As No. 575 was approaching the point where the accident occurred, the speed was about 60 miles per hour. The members of the train crew were stationed in various cars throughout the train. The speed was not reduced and no brake application was felt immediately prior to the accident. The first that any surviving member of the crew of this train knew of anything being wrong was when the collision occurred. The brakes had been tested and functioned properly en route. Both enginemen were killed in the accident, therefore, it could not be determined when they first became aware that the westward main track

was obstructed. Apparently a lookout was being maintained from the cab of the engine of No. 575, as the engineer of Extra 4491 said the headlight of the engine of No. 575 was dimmed as the engines approached each other. The engine of the passenger train passed the engine of the freight train before the front portion of the freight train stopped.

Under the rules, the crew of Extra 4491 was required to protect adjacent tracks in both directions when the train was stopped by an emergency application of the brakes. However, the collision occurred only a few seconds after the freight train was derailed, and there was not sufficient time in which to provide protection for No. 575.

Examination after the accident disclosed that the left front journal of the rear truck of the thirty-fifth car of Extra 4491 was broken off, and that it had been overheated. This car was loaded at Erie, Pa., 275 miles west of Milton, on June 13, 1945, and was last inspected by the mechanical forces at Renovo, Pa., 79.8 miles west of Milton, upon its arrival from Erie on June 14. At that time the journal boxes were supplied with lubricating oil, and no defective condition was found. This car departed from Renovo in Extra 4491 about 8:18 p. m., June 14. The train stopped for water at Ferney and Linden, respectively, 63.4 miles and 32.5 miles west of Milton, and stopped short of the station at Milton about 12:50 a. m., June 15, because a west-bound passenger train was standing at the station. Members of the crew said that during these stops and throughout the trip they made frequent observations of the equipment, and they did not see any condition indicating the presence of an overheated journal. The first indication of overheating was observed by a crossing watchman about 6.37 miles west of the point of derailment. Three crossing watchmen stationed at points, respectively, 6.07 miles, 1.42 miles, and 0.92 mile west of the point of derailment, observed the overheated condition of the journal. The four watchmen said they gave hand signals with lighted lanterns as the caboose passed them, and three of them sounded warning signals with their whistles to attract the attention of the members of the crew in the caboose, but received no response. However, both the conductor and the flagman said they neither observed nor heard any warning signals as their train passed over these crossings. Furthermore, the conductor said he was stationed on the rear platform when the caboose passed several of these points. An assistant trainmaster who was on No. 581, a west-bound passenger train which departed from Milton just before Extra 4491 East passed that point, said that he observed the blazing journal as the trains were passing each other. The flagman of No. 581 said that he observed the blazing journal, and gave hot-journal signals with a lighted white lantern but received no response from the rear of Extra 4491.

The investigation disclosed that the wheels mounted on the axle in question were worn in contour but in serviceable condition. The axle was in conformity with the A. A. R. mounting gauge specifications. The break in the journal was irregular and measured between 8 and 9 inches inward from the collar. The outer portion was worn from its original shape and size on a taper inward from the end collar which varied in diameter from 5-15/16 inches at the collar to 5-5/8 inches at the fracture. There was no evidence of cutting on the outer portion, but the end of the journal remaining attached to the wheel assembly was ground to an oval-shape stub by contact with the journal wedge. The journal box was broken as a result of the derailment. At the time the investigation was completed, no portion of the journal bearing had been found. According to data submitted by the carrier, the journal involved was last fitted with new bearing and wedge on March 8, 1944. According to a report of the Engineer of Tests of the Pennsylvania Railroad, the axle was first mounted in 1916. Analysis and test indicate that the metal of the axle and journal complied with the carrier's specifications of 1916. Those specifications compare favorably with the present A. A. R. specifications, except that the amounts of manganese and silicon are somewhat less than called for in present A. A. R. specifications. However, the drop-test requirements were higher than the present A. A. R. requirements. The results of Brinell hardness tests compared favorably with the tensile properties. The report stated that the structure of both journals and the axle was composed of ferrite and pearlite. The ferrite of the companion journal was partly broken, but had a needle formation. On the outer portion of the failed journal, the ferrite near the surface was finely broken up and the structural change extended to a depth of 7/8 inch below the surface, which condition indicated that this outer band had been heated to not less than 1,400 degrees F. In conclusion, the report stated that the immediate cause of the failure of the journal was overheating, but analysis of the various members of the journal assembly failed to develop anything which would cause overheating.

The investigation disclosed that the conditions which resulted in the failure of this journal developed between Renovo, 79.8 miles west of Milton, where the journal boxes were supplied with oil and no defective condition was discovered, and a highway crossing approximately 5 miles west of Milton, where a crossing watchman saw the blazing journal box. In the last 6 miles west of the point of accident several railroad employees saw the blazing journal box but were unable to attract the attention of members of the train crew. No member of the crew of Extra 4491 East discovered the hot box before the accident occurred. The car on which it was located was the thirty-fifth car behind the engine and the sixty-eighth car ahead of the caboose.

Cause

It is found that this accident was caused by derailed freight cars obstructing an adjacent main track immediately in front of an approaching train.

Dated at Washington, D. C., this twentieth day of July, 1945.

By the Commission, Commissioner Patterson.

W. P. BARTEL,
Secretary.

(SEAL)