

1915

INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY CONCERNING AN
ACCIDENT ON THE PENNSYLVANIA RAILROAD AT GRAYSTONE,
MD., ON JUNE 6, 1934.

July 28, 1934

To the Commission:

On June 6, 1934, there was a derailment of a passenger train on the Pennsylvania Railroad at Graystone, Md., which resulted in the death of 1 passenger and 2 employees.

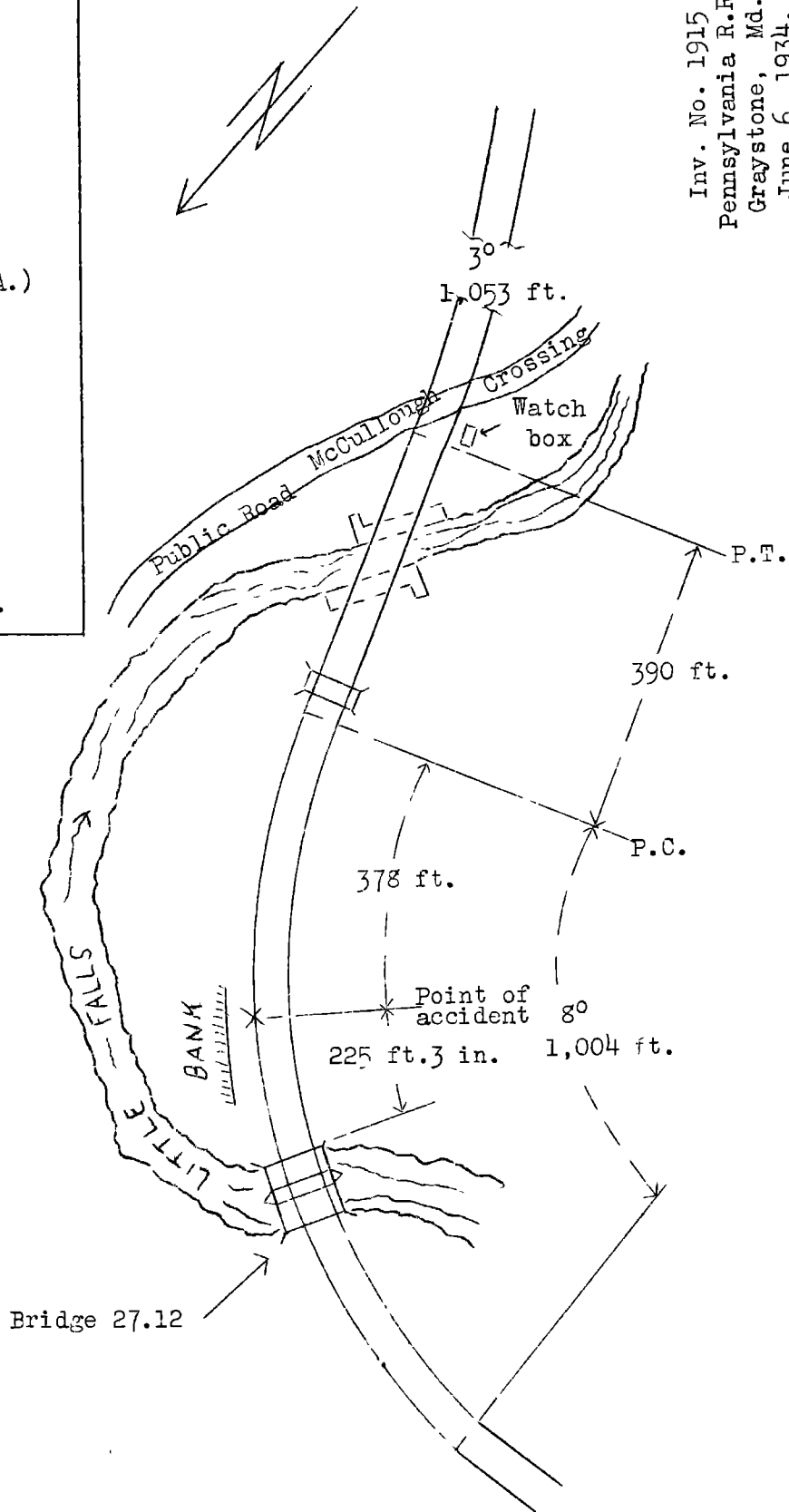
Location and method of operation

This accident occurred on that part of the Baltimore Division extending between Calvert Station, Baltimore, Md., and Wago Junction, Pa., a distance of 66.6 miles; this is a double-track line over which trains are operated by time table, train orders, and an automatic block and cab-signal system. The initial point of derailment was 225 feet east of bridge 27.12, which spans Little Falls River, and most of the derailed equipment stopped in the stream bed opposite the bridge. Approaching from the east there is a 3° curve to the right 1,053 feet in length and then 390 feet of tangent, followed by an 8° curve to the left 1,004 feet in length, the initial point of derailment occurring on this curve at a point 378 feet from its eastern end. The grade is ascending for westbound trains, varying from 0.09 to 0.81 percent, and is 0.35 percent across the bridge.

Bridge 27.12 located approximately 250 feet east of the station at Graystone, is a steel bridge of the deck-girder, open-floor type, having stone masonry abutments and a concrete center pier; its total length between back walls is 80 feet 4 inches and the depth from the base of the rail of the west-bound track to the bed of the stream is 26 feet. The track is laid with 130-pound rails, 39 feet in length, with an average of 22 ties to the rail length, fully tieplated and spiked on the curve with 2 spikes on the inside and 1 spike on the outside of each rail on each tie; four rail anchors per rail are also

Inv. No. 1915
Pennsylvania R.R.
Graystone, Md.
June 6, 1934.

- Calvert Station
(Baltimore, Md.)
13.5 mi.
 - Cockeysville
8.8 mi.
 - Corbett
2.7 mi.
 - Blue Mount
1.5 mi.
 - White Hall
0.7 mi.
 - * Graystone (P. of A.)
1.6 mi.
 - Parkton
37.8 mi.
- Wago Junction, Pa.



used, and the rail joints are staggered. The ballast is of trap rock, about 12 inches in depth, laid on a cinder subgrade. The track is well maintained. The superelevation of the outside rail on the 8° curve varies from 4 3/4 inches to 5 3/8 inches, while the gauge varies from 4 feet 8 5/8 inches to 4 feet 9 inches. Both the high and low rails of the curve showed fairly equal distribution of wear, and there was only slight flange wear on the high or outside rail. The speed limit for passenger trains in this territory is 55 miles per hour, while on the curve involved the speed is limited to 30 miles per hour.

The weather was clear at the time of the accident, which occurred about 8:18 p.m.

Description

West-bound passenger train Extra 1387 consisted of 1 coach and 1 combination passenger and baggage car, both of all-steel construction, hauled by engine 1387, of the 4-6-2 type, and was in charge of Conductor Morris and Engineman Bossom. This train left Cockeyville, 12.3 miles east of Graystone, at 8:02 p.m., stopped at Corbett, 7.4 miles beyond, to discharge a passenger, and while approaching Graystone was derailed while traveling at a speed estimated to have been at least 35 miles per hour.

Engine 1387, together with its tender and the coach, were derailed and plunged off the north side of bridge 27.12; the combination passenger and baggage car continued over the bridge and stopped upright on the roadbed with both trucks derailed and the eastern end of the car 44 feet west of the bridge or 350 feet west of the initial point of derailment. The engine and tender were on their left sides in the stream bed, headed southwest, and the coach was south of and opposite them, leaning at a slight angle and badly damaged. The employees killed were the engineman and fireman.

Summary of evidence

Approaching Graystone, Conductor Morris, Baggage-master Hofmann and Brakeman Unglaub were in the rear car talking about work to be performed on reaching Parkton, 1.6 miles west of Graystone, where they were to tie up until the following morning.

No comment was made among them about the way the train was handled prior to the accident and none of them was aware of anything wrong until just before the accident occurred. Conductor Morris said that the air brakes were tested at Baltimore and worked properly en route. Before departing he compared time and talked with Engineman Bossom, who appeared normal in every respect. The train departed at 7:25 p.m. He said the speed after leaving Cockeysville might have been as much as 55 miles per hour on straight track, but it did not exceed that at any point. At Corbett, 4.9 miles east of Graystone, where the stop was made to discharge the passenger, the train overran the station platform about one car length, but he thought this was due to the engineman misjudging the distance and not to any fault of the brakes. After the train rounded the curve at Blue Mount, located 2.2 miles east of Graystone, the engine worked steam, and passing through White Hall, 0.7 mile east of Graystone, the speed was about 50 miles per hour. Approaching Graystone and just before reaching the curve involved, the brakes were applied as usual to reduce speed while rounding the curve; Conductor Morris thought this was a light service application and that the speed was reduced to not more than 35 miles per hour. The brakes were still applied when the derailment occurred, no release having been made, and when the train parted the brakes applied in emergency. After the accident the conductor inspected the track by means of his hand lantern, but found nothing that could have caused the derailment. Conductor Morris further stated that he last inspected the train by looking out from both baggage car doors while rounding the curve at Corbett and that everything appeared to be all right; there was no indication of dragging equipment or a hot box; he said the engine whistle was sounded for White Hall and for road crossings. Baggage master Hofman said that a heavy service application was made as the train approached the curve and the speed was noticeably reduced before the derailment occurred, as much as 10 or 12 miles per hour, the speed being about 35 miles per hour when the accident happened. He was looking ahead and saw the car ahead rocking and dirt flying up between the two cars; the emergency application occurred very quickly after the service application was made. Brakeman Unglaub said that on his way back to flag immediately after the accident he examined the track and roadbed but saw no indication of dragging equipment.

Relief Crossing Watchman Matthews, at McCullough crossing, located 808 feet east of the initial point of derailment, stated that as the train approached his crossing and rounded the curve to the east the engine was rocking much more than on other trains and it continued to rock after it reached the straight track and until it passed him. The road crossing signal was sounded on the

engine whistle and he estimated the speed to have been about 40 miles per hour; he did not feel unduly concerned about the safety of the train, the only thing out of the ordinary that attracted his attention being the unusual rocking of the engine. As the engine passed he saw the engineman and fireman sitting on their respective seat boxes and the engineman waved his hand in salutation while the fireman nodded to him. He thought the brakes were not applied at this time as he did not hear any grinding of the brake shoes or the sound of escaping air such as occurs when the brakes are applied. After the train passed the crossing and when it was over a small bridge located about 150 feet to the west, he saw fire flying up over the train; he could not tell definitely whether it was the result of a brake application but he thought it came from the wheels. However, it was an unusual occurrence and he watched the train as it got farther away and the fire continued to fly and then he heard the noise caused by the derailment. He did not see any dragging equipment or notice any indication of a hot box.

Division Superintendent Smith, Division Engineer Fox and Supervisor of Track Montgomery arrived at the scene of the accident about $2\frac{3}{4}$ hours after its occurrence. Their inspection of the track disclosed that at a point 225 feet 3 inches east of the back wall of bridge 27.12 there was a light mark, apparently a flange mark, starting on the gauge side of the high rail of the curve and leading across toward the outside, crossing the top of the rail in approximately 4 feet; the mark was very light and it was not possible to ascertain where it started over the top of the rail, and when it passed off the outside of the head of the rail there was no corresponding mark on the ties. The next mark was about 18 feet westward, where a wheel had struck the top of a tie, leading away from the track about 12 inches outside of the high rail; this mark was not very heavy, but looked like a crushing of the top of the tie. Other marks appeared on a couple of ties beyond, both between the rails and outside of the high rail, apparently caused by wheel flanges striking more heavily on the ties, and from this point practically continuous wheel-flange marks appeared on the ties. Starting about 33 feet west of the first mark the track was moved slightly out of line and about 37 feet further west the track was kicked badly out of line; however, it was possible afterwards to line the track back into position by changing only one rail on the outside of the curve on the bridge.

The ties, while badly damaged from about 50 feet beyond the point of derailment toward the bridge, were still holding the track to fair gauge. On the bridge proper, the bridge ties had been bunched toward the west end of the east span. The guard rail was twisted around, but still in position; the guard timber on the north end of the ties was torn out for a distance of about 30 feet. The safety railing and walkway on the north side was torn away for nearly the full length of the bridge. The northeast corner of the north girder under the west-bound track on the east span had received a severe blow, as shown by markings on the cover plate and angles at the east end of the top of the girder. The center pier of the bridge at the north end and at the top of the coping, showed a glancing blow, which had broken away a small piece of concrete. The north wing wall of the east abutment had been scraped, but most of the stones of this wing wall were torn loose at the time the coach was pulled up the bank after the accident. Measurements were taken of the track starting at a point 135 feet east of the point of derailment and proceeding westward a distance of 320 feet. No change in superelevation more than $\frac{1}{4}$ inch in 33 feet was shown, and that gauge generally ran $\frac{1}{4}$ inch wide, being $\frac{1}{2}$ inch wide at one point. No irregularities of consequence were found, the track being in good line and surface. Opposite the point of initial derailment there is a bank on the north side of the tracks about 6 feet in height; about 67 feet west of the initial point of derailment a stone in this bank was scraped and about 20 feet beyond there was found a piece of yellow glass from the tender marker light, while between the end of the bank and the bridge, a distance of about 100 feet, coal had been spilled out of the tender. Examination of the engine as it lay on its side in the stream disclosed a part of the railing of the safety walkway of the bridge on the front of the engine; the spilled coal indicated that the tender was derailed before the engine, and that the tender tilted over far enough to scatter coal at least 75 feet east of where the safety railing stood at the east end of the bridge, while the position of the engine against the west bank of the stream with the tender behind it indicated that the tender swung the engine around and rolled it over. Furthermore, there were no broken parts back of where the broken marker glass was found on the bank and it appeared that when the tender jolted off the track it broke the glass and the train became uncoupled. There was no indication of dragging equipment and no track condition was found that would have caused or contributed to the accident. Superintendent Smith was of the opinion that the tender was derailed first, due to speed in excess of the permissible speed of 50 miles per hour on the 8° curve, particularly in view of the fact that after the rear car was derailed it followed the roadbed around the curve and across the bridge and stopped a distance of 350 feet west of the initial point of derailment.

Enginehouse Foreman Myers stated that engine 1387 was inspected before going out on this trip and found to be in good condition.

Master Mechanic Steins stated that engine 1387 received class 3 repairs at Altoona and was turned out on May 25, 1934; on May 31st it arrived light at Orangeville enginehouse, Baltimore, and at that time the prescribed work reports of the engineman and inspectors were made out, the engineman's report consisting principally of parts running hot, which is not unusual with new bearings after class repairs. No major work items were reported by either the engineman or the inspectors. After the accident he made a careful examination of the engine, tender and both cars, but nothing was found that would have caused or contributed to the accident. Master Mechanic Steins was unable to definitely determine whether the tender or the first car in the train was the first to be derailed.

West-bound Train No. 8033 passed over the track where the accident occurred about 40 minutes prior thereto and members of that train crew noticed nothing unusual.

The Commission's inspectors made careful inspection of the track at the point of accident and for a considerable distance east thereof, but no indication was found of dragging equipment and the alignment and surface of the track were good; thorough inspection made of the engine after it was removed from the stream bed and placed on the track and later at the enginehouse in Baltimore disclosed no defect that would have caused or contributed to the accident.

Conclusions

It is believed that this accident was due to excessive speed on a sharp curve.

The investigation brought out considerable evidence that the train involved in this accident was being operated at an excessive rate of speed. The crossing watchman at McCullough Crossing stated that as the train approached and passed his crossing the engine was rocking far more than usual. Although this crossing is located only 430 feet east of the beginning of the curve on which the accident occurred the statement of the crossing watchman indicates that the brakes were not applied until the rear end of the train had passed some distance beyond that crossing. His statement also indicates that a heavy application of the brakes was then made as he saw fire flying from the wheels.

The train involved in this accident left Cockeysville at 8:02 p.m., made one station stop and was derailed at about 8:18 p.m. It therefore traveled a distance of 13.3 miles in 16 minutes, making one stop en route, indicating an average speed of approximately 45 miles per hour with no deduction for the station stop. Members of the train crew estimated that at times the train was being operated at speeds closely approximating the maximum speed authorized of 35 miles per hour, the speed being reduced at curves where speed restrictions were in effect. Conductor Morris estimated that the train traveled 10 miles in 13 minutes, and thought the speed was about 50 miles per hour at a point less than a mile east of the scene of the accident. According to Baggage-master Hofmann a heavy service application of the brakes was made as the train was closely approaching the curve on which the derailment occurred. His attention was attracted by the sudden and severe application of the brakes and looking ahead he knew by the movement of the first car and flying dirt that something was wrong; apparently the application of the brakes was made only a very short interval before the derailment occurred. The point of initial derailment is only 378 feet from the eastern end of the curve. The speed limit on this curve was 30 miles per hour; members of the train crew estimated the speed at the time of the accident at about 35 miles per hour.

The engine, tender and first car were thrown clear of the track. The momentum of the third car carried it 350 feet beyond the initial point of derailment, notwithstanding that this car was derailed and the obstructions which it encountered en route set up considerable retardation.

Although a thorough investigation was made there was no evidence of dragging or otherwise defective condition of equipment, and the track in both directions from the scene of the accident was substantially constructed and well maintained.

It therefore appears that the train involved in this accident approached the curve at relatively high speed and that the brakes were not applied soon enough properly to reduce its speed before entering upon the curve.

Respectfully submitted,

W. J. Patterson,
Director.