

1920

INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY CONCERNING AN  
ACCIDENT ON THE LINE OF THE READING COMPANY AT MARTIN'S  
SIDING, PA., ON JULY 15, 1934.

September 12, 1934.

To the Commission:

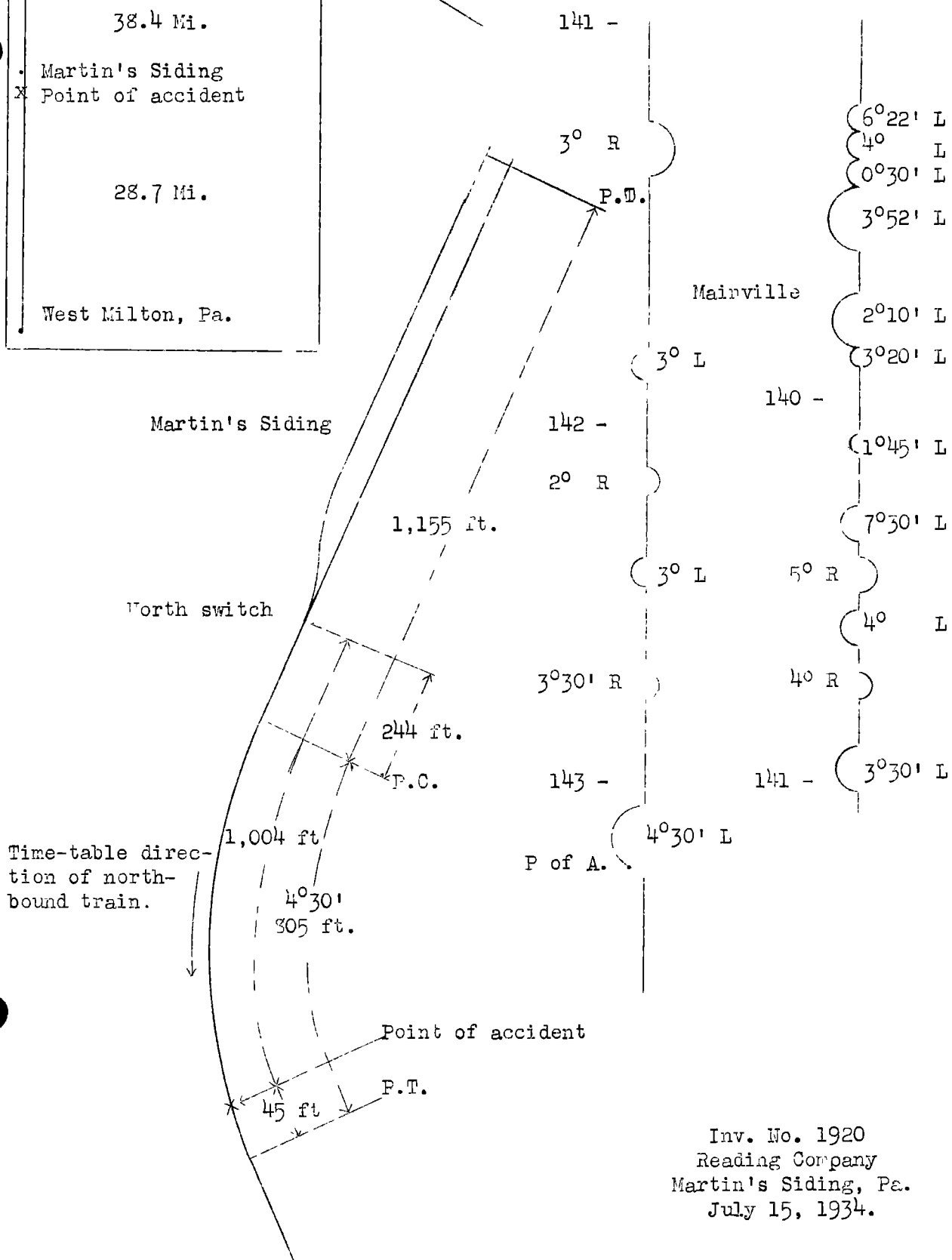
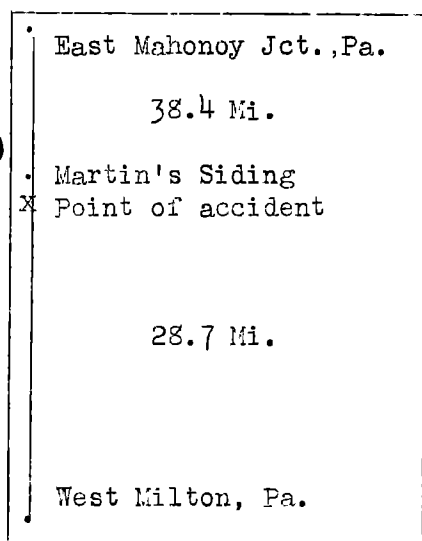
On July 15, 1934, there was a derailment of a freight train on the line of the Reading Company at Martin's Siding, Pa., which resulted in the death of 2 employees and the injury of 1 employee.

Location and method of operation

This accident occurred on the Catawissa Branch of the Shamokin Division, which extends between East Mahanoy Junction and West Milton, Pa., a distance of 67.1 miles. This is a single-track line over which trains are operated by time table, train orders, and a manual block-signal system. The accident occurred approximately 1,004 feet north of the north switch of Martin's Siding; approaching the point of accident from the south, the track consists of a series of tangents and curves, followed by 1,155 feet of tangent and then a  $4^{\circ} 30'$  curve to the left 805 feet in length, the accident occurring on this last-mentioned curve close to its leaving end. The grade for north-bound trains is generally descending, beginning at the south end of Martin's Siding the grade is 0.65 percent for a distance of 1,200 feet, 0.59 percent for 3,500 feet, 0.83 percent for 230 feet, 0.62 percent for 300 feet, and 0.56 percent to and beyond the point of derailment.

In the vicinity of the point of accident the track is laid with 100-pound rails, 39 feet in length, with 21 treated hardwood ties to the rail length, fully tieplated and spiked with two rail-holding spikes and two plate-holding spikes in each plate; no rail anchors are used, but most of the joints are slot spiked. The track is ballasted with cinders to a depth of about 2 feet. The general maintenance was good.

During the 6 days prior to the accident the maximum official temperatures at Catawissa, about 3 miles north of Martin's Siding, had ranged between  $82^{\circ}$  and  $88^{\circ}$ ; on the date of the accident the temperature reached a maximum of  $90^{\circ}$  at noon, dropping to  $80^{\circ}$  at 6 p.m. It was cloudy and threatening a storm at the time of the accident, which occurred at 5:15 p.m.



Inv. No. 1920  
Reading Company  
Martin's Siding, Pa.  
July 15, 1934.

### Description

North-bound freight train Extra 1718, Symbol PN-7, consisted of 27 loaded and 41 empty cars and a caboose, hauled by engine 1718, of the 2-8-3 type, and was in charge of Conductor Miller and Engineman Dougherty. This train departed from East Mahanoy Junction, 38.4 miles south of Martin's Siding, at 3:27 p.m., passed Beaver Valley, 10.9 miles south of Martin's Siding, at 4:50 p.m., and was derailed just beyond Martin's Siding while traveling at a speed estimated to have been about 25 miles per hour.

The engine, tender and first 22 cars were derailed. The engine stopped on its left side to the left of the track about 500 feet north of the first mark of derailment; the tender was also on its left side and remained coupled to the engine. The first 20 cars were piled up behind the tender within a distance of 200 feet, and 15 cars were practically destroyed. The twenty-first and twenty-second cars remained in general line with the track, while the balance of the train was not derailed or damaged. The engineman and fireman were killed and the brakeman was injured.

### Summary of evidence

Head Brakeman Weber, who was riding on the tender seat behind the engineman, stated that the engineman applied the air brakes at the usual points en route and he noticed nothing out of the ordinary until they reached the Mainville fill, Mainville being located about  $3\frac{1}{2}$  miles south of the point of accident; at this point the engine swayed several times, but this had occurred often on previous occasions and did not cause any of them to comment about it. The train was traveling at a speed of about 30 miles per hour when on reaching a point about opposite the center of Martin's Siding the engineman made a 10-pound brake-pipe reduction and the speed was reduced to about 25 miles per hour; he thought the speed was a little higher than usual in that vicinity. Inasmuch as there were quite a few loaded cars in the train it pushed a little harder on the down grades and he thought the speed was a little greater than with other trains, but he did not think that it exceeded the speed limit. In the vicinity of the north end of the siding or a little south of it, the engine again started to sway, the motion becoming greater each time, and after the second lurch the engineman stood up and applied the brakes in emergency. The engine made about six lurches in all, almost went over on its right side and then came back and very slowly overturned on its left side.

Conductor Miller stated that the speed of their train was about as usual and did not exceed the speed limit of 30 miles per

hour. The brakes were used several times in controlling speed at restricted points, and there was no unusual slack action in the train. He last noticed the air brakes being applied when the caboose was at the south end of Martin's Siding; he thought this was about a 10-pound brake-pipe reduction and he did not think the brakes had been released when the accident occurred, the speed at that time having been reduced to 25 miles per hour. Shortly after this application he felt three slight bumps and looking at the air gauge he observed that it first dropped to 45 pounds and then to 15 pounds and he thought an air hose had burst. Conductor Miller considered Engineman Dougherty a very good engineman and when talking with him before leaving their initial terminal the engineman appeared to be in normal condition. The statements of Flagman Stahler practically corroborated those of the conductor.

Section Foreman McCarthy, in charge of the section on which the accident occurred, stated that shortly after the rear portion of the train was pulled back, he made a careful inspection of the track and found it badly kinked and the spikes on the gauge side of one rail were raised on 8 or 9 successive ties. This in his opinion was caused by severe pressure against the gauge side of the rail, sufficient to tip the rail and raise the spikes, the rail afterward returning to normal position under the pressure of the wheels. While it was possible for a train to have passed over the track in the condition it was found, from his experience as a trackman he thought the kinked track was a result of the derailment. On July 12 work was performed at the south end of the curve on which the accident occurred, consisting of raising two joints and a little lining of the track, and on the day before the accident he went over his section twice but found nothing irregular. He further stated that while the temperature for the 17 days preceding the accident had been continuously above normal, he did not at any time find kinked track or tight joints.

Division Engineer Crosley arrived at the scene of the accident about 2 hours after its occurrence and found that the track south of the wreckage was out of line for a distance of 230 feet, varying from  $1\frac{1}{4}$  to 5 or 6 inches. The first point at which he found kinked track was 966 feet north of the north switch of Martin's Siding, where the track was out of line about  $1\frac{1}{4}$  inches to the right, and from that point to the wreckage it was out of line both to the right and left. At a point 38 feet north of the first kink there was a groove cut on the inside of the head of the left or inside rail of the curve; the head was rolled out, having on top a fin or feathered edge extending beyond the normal head on the gauge side, and this edge was not cut. The groove itself was 6 feet in length and the spikes on the inside of this rail were raised for a total of 9 ties, and it appeared as though

the rail had started to turn over; the rail in seating itself again had come down on top of several spikes. At a point 115 feet north of this groove the outside angler bar on the right rail was marked; one bolt was sheared off and the nut of another was marked. Three feet beyond this joint there were marks on the gauge side of the left rail where something had struck the heads of the spikes and at the next joint in the left rail two nuts were sheared off on the inside, while 10 feet beyond this joint the rolled-over edge of the rail had been cut, something having sheared it off on the gauge side. There were then slight marks on the base of the gauge side of this rail; these appeared to be flange marks, from 16 to 18 inches in length, with intervening points which showed no marks. Division Engineer Crosley stated that he then went back over the track as far as the turnout at the north end of the siding and found nothing to indicate there had been anything dragging. In his opinion there were no irregularities in the track in the vicinity of the accident sufficient to have caused any such rocking as was described by Head Brakeman Weber for the speed permitted on this branch, and in his experience with sun-kinked track it had never acted in the manner shown in this case, inasmuch as the heat would move the track on a curve outward, in the path of least resistance, and it was his opinion that the kinks found in the track after the accident were brought about as a result of the accident; while such a condition could have caused a rolling motion of the engine as described, he did not think that the engine would have traveled as far as it did beyond the kinked track if this condition had existed prior to the accident.

Superintendent Car Department Koppelman stated that he personally examined each unit of equipment as it was removed from the wreckage and found nothing that would have caused or contributed to the accident.

Assistant Superintendent of Motive Power Borell, Master Mechanic Spangler, Road Foreman of Engines Reeder, and Engine House Foreman Wyld made a careful examination of the engine as it lay on its side, after it was retracked, and again after it had been moved to Catawissa, and nothing was found that could have caused or contributed to the accident. Engine House Foreman Wyld and Road Foreman of Engines Reeder noted on their arrival at the scene of the accident that the automatic brake valve was in lap position, the independent brake valve in release position, throttle and sand valve closed, reverse lever in the twelfth notch from full forward motion, and the firebox door latched open at the first notch. Road Foreman of Engines Reeder stated that in his experience in running engines of the class involved over the Catawissa Branch it was not unusual for them to shimmy slightly at speeds not exceeding 30 miles per hour, but he had never noticed any roll. Master Mechanic Spangler stated that

this type of engine is in constant use on the Catawissa Branch and he had never received any complaints from the engine crews with respect to unusual rocking or shimmying. The maximum speed permissible for this type of engine is 50 miles per hour.

Engineman Fink and Flagman Wise, of Train No. 54, the last train to pass over the track involved prior to the accident, noticed no irregular track conditions when they passed over the track early in the afternoon.

Examination of the track by the Commission's inspectors disclosed marks substantially as described by Division Engineer Crosley. They also confirmed the examination of the track made by the track department from the north end of Martin's Siding to the point of accident, in which it was found that the rail on the high side of the curve was slightly curve-worn and that the low rail was slightly rolled out on top. The elevation was fairly uniform, with a maximum of  $4\frac{1}{2}$  inches, and the gauge varied from 4 feet  $8\frac{1}{2}$  inches to 4 feet  $9\frac{3}{8}$  inches; at the point where the spikes had been raised the elevation was 3 inches and the gauge was 4 feet  $9\frac{5}{16}$  inches. There was no condition south of the first marks that would indicate a possible cause for the same.

Engine 1718 is of the 2-2-2 type, with a driving wheel base of 16 feet 6 inches and a total wheel base of 35 feet; the weight of engine and tender loaded was 575,087 pounds. This engine last received repairs in March, 1934, and since that time its approximate mileage was 15,000 miles. Careful examination subsequent to the accident failed to disclose any defective condition that could have contributed to the cause of the accident, although the brightly burnished outer rim of the left front driving wheel and the dents and abrasions on the inside of the right wheel indicated that the front pair of driving wheels had been derailed to the right for some distance and had run tightly against the rails. There were no tire marks on the ties prior to the general derailment. This close hugging of the rail by the derailed wheels explained the absence of marks on the ties, as the wheels were held in suspension above the ties and seldom reached the base of the rail, but did leave marks on the angle bars by shearing off the exposed ends with nuts and hammering the less exposed heads or button ends.

#### Conclusions

The cause of this accident was not definitely determined.

After the accident the track was found to be out of line, first to the right and then to the left, for a distance of 230 feet south of the wrecked equipment, and the first mark found on

the track was 38 feet north of the point where the track was first out of line, this mark consisting of a groove cut on the gauge side of the head of the low rail while the spikes on the same side of this rail had been pulled up on 8 successive ties, apparently due to the rail having rolled toward the left. North of this point, angle-bar bolts had been marked or sheared off on the outside of the high rail and on the gauge side of the low rail, possibly by the front pair of driving wheels, the marks on which indicated that they had been derailed to the right and then had run along for some distance close to the rails. Members of the train crew stated that approaching the point of accident a brake application was made which reduced the speed to about 25 miles per hour at the time of derailment; it appears that this train was being operated at a rate of speed closely approaching the maximum permitted for trains of this character on this line although there was no positive evidence that the prescribed speed limit was exceeded. There was nothing discovered about the engine or other equipment which could have contributed to the occurrence of the accident, while the track appeared to have been maintained in good condition. For many days prior to the occurrence of the accident, the weather had been unusually hot for this territory and it is possible that it resulted in the joints becoming tight and the track starting to kick out of line under the engine, causing it to rock to such an extent as to result in the derailment.

Respectfully submitted,

W. J. PATTERSON,

Director.