

INTERSTATE COMMERCE COMMISSION
WASHINGTON

REPORT OF THE DIRECTOR
BUREAU OF SAFETY

ACCIDENT ON THE
PENNSYLVANIA RAILROAD

VANPORT, PA.

SEPTEMBER 1, 1966

INVESTIGATION No. 2092

-2-

SUMMARY

Railroad:	Pennsylvania
Date:	September 1, 1936
Location:	Vanport, Pa.
Kind of accident:	Derailement
Train involved:	Freight
Train number:	CW-6
Engine number:	6861
Consist:	9 cars, caboose
Speed:	30-40 m.p.h.
Track:	Tangent
Weather:	Foggy
Time:	3 a.m.
Casualties:	2 injured
Cause:	Failure of arch bar truck

October 6, 1936

To the Commission

On September 1, 1936, there was a derailment of a freight train on the Pennsylvania Railroad near Vanport, Pa., which resulted in the injury of two trespassers.

Location and method of operation

This accident occurred on the Bayard Cut-off and River Branch of the Eastern Division, extending between Fairhope, Ohio, and Rochester, Pa., a distance of 68.7 miles, in the vicinity of the point of accident this is a double-track line over which trains are operated by time-table, train orders and an automatic block-signal system. The point of derailment was on the east-bound main track approximately 4,338 feet west of the station at Vanport; approaching this point from the west the track is tangent for a distance of 1,489 feet, then there is a 0°56' curve to the left 744 feet in length, followed by 541 feet of tangent to the point of accident and for a distance of about 445 feet beyond. The grade in this vicinity is slightly undulating, being level at the point of derailment.

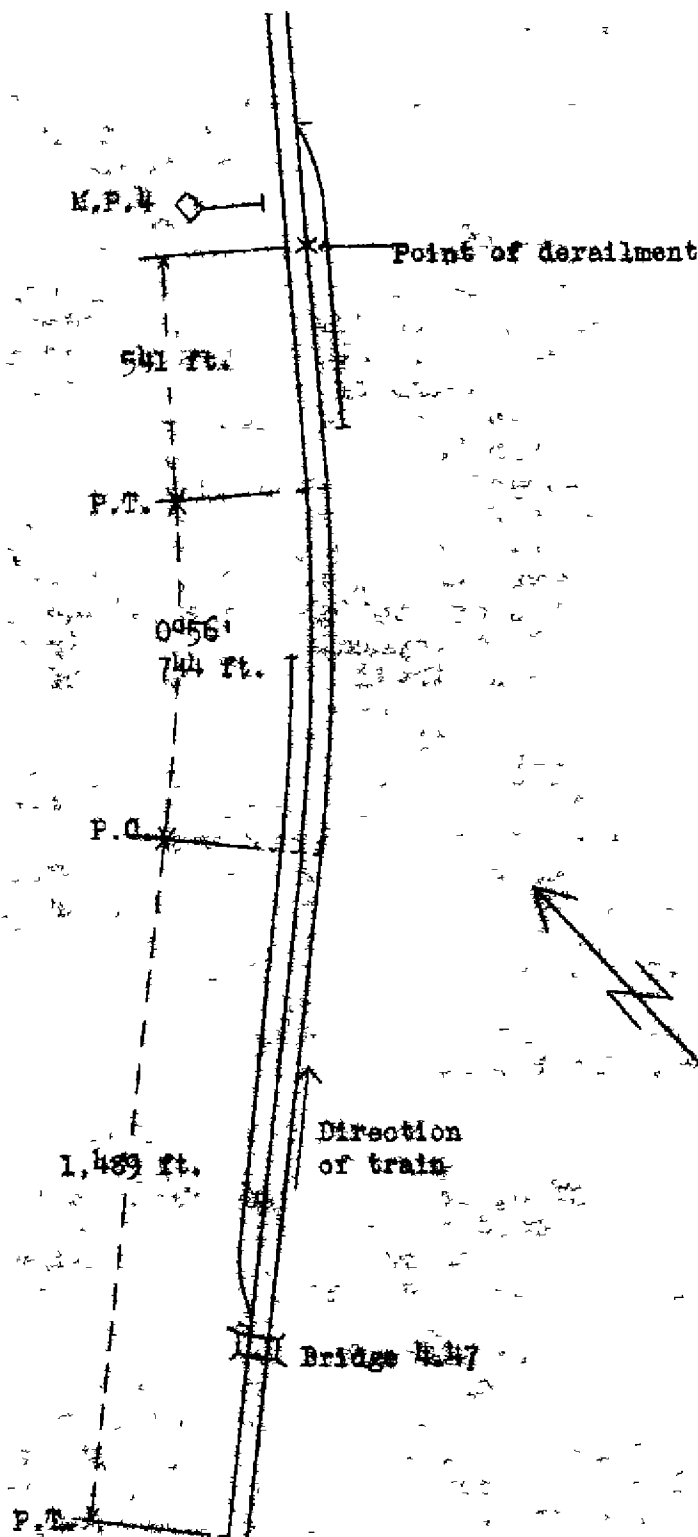
The track, laid on the north bank of the Ohio River, is composed of 130-pound, 30-foot cropped rail with 4-hole drillings, laid in 1929 and 1930, with 16 or 17 ties to the rail length, single-spiked on tangents and partly double-spiked on curves, tieplated, and ballasted with about 3 feet of slag and surfaced with about 6 inches of cinders, anti-creepers are used on grades. The track was poorly maintained. The speed of freight trains is limited to 40 miles per hour.

There was a dense fog at the time of the accident, which occurred about 5 a.m.

Description

Train CW-b, an east-bound freight train, consisted at the time of the accident of 9 cars and a caboose, hauled by engine 6861, and was in charge of Conductor Sloven and Engineman Wiegol. This train departed from Fairhope at 11 34 p.m., August 31, according to the train sheet, and on reaching Wellsville, 45.3 miles beyond, several cars were picked up, including Maine Centr 1 35020, a steel underframe box car, stops were made to set out cars at Jethro and Midsteel, located 4.2 and 11.4 miles, respectively, east of Wellsville. The train departed from Midsteel, the last open office and located 8.5 miles west of Vanport, at 2 45 a.m., September 1, according to the train sheet, and while approaching Vanport it was derailed while traveling at a speed estimated to have been between 30 and 40 miles per hour.

- o Rochester, Pa.
3.5 mi.
- o Vancott, Pa.
2 (Point of accident)
8.5 mi.
- o Hindsteel, Pa.
7.2 mi.
- o Jethro, Ohio
4.2 mi.
- o Wellsville, Ohio
8.8 mi.
- o New Salisbury, Ohio
5.4 mi.
- o Salineville, Ohio
3.2 mi.
- o Fairhope, Ohio



The only portion of the train to become derailed was the rear truck of M.C. 35020, the fifth car, the indications were that the lead pair of wheels of this truck became derailed to the right at a point 4,338 feet west of the station at Vanport and ran upon the ties on the south side of the rails for a distance of 186 feet until they encountered the turnout rails of a trailing-point spur track switch, where the derailed wheels crossed over to the north side of the main track rails and pulled the rear pair of wheels of this truck off the track, following which all four wheels ran along the ties on the north side of the rails for a distance of 2,088 feet until they encountered another trailing-point switch, leading to an industrial siding south of the east-bound main track. At this point the derailed truck was diverted northward off the end of the ties, and the train parted between the fifth and sixth cars causing the air brakes to become applied in emergency. The front portion of the train continued on the track and stopped 727 feet beyond, while the rear portion of the train stopped on the track 250 feet west of the head end. The injured trespassers were in a car loaded with ties in the rear portion of the train.

Summary of evidence

Engineman Wiegell stated that at different points en route he looked back along the train but saw nothing wrong. The headlight was burning brightly, the air brakes were tested and worked properly and there was nothing wrong with the riding qualities of the engine and the train handled satisfactorily. The automatic block signals displayed proceed indications and the speed of the train was about 40 miles per hour, the first intimation he had of anything wrong was when the train parted and the air brakes were applied in emergency. He went back and saw a broken arch bar on the rear truck, south side, of the fifth car in the train, which had apparently caused the accident. Fireman Lanz gave testimony similar to that of Engineman Wiegell, the fireman estimated the speed to have been between 35 and 40 miles per hour at the time of the accident.

Conductor Slaven, Brakeman Franz and Flagman Cowden were in the caboose and were not aware of anything wrong prior to the accident. Conductor Slaven said that when M.C. 35020 was picked up at Wellsville, both he and the brakeman inspected it, but they did not see anything wrong with the truck involved, while looking over the train en route they did not see fire flying or any indication of dragging equipment. After the accident they saw the broken arch bar truck. Brakeman Franz estimated the speed to have been between 30 and 40 miles per hour when the accident occurred.

Car Foreman Forsythe arrived at the scene of the accident about 1 hour after its occurrence and found the rear truck, south side, of M.C. 35020 broken down and the bottom tie bar, bottom arch bar and the L-3 journal box were missing. The L-4 journal box, containing the journal, was in the corner step of the car. The bottom tie strap was lying along the track just east of the frog of the spur track switch and the journal box was east of that point; the bottom arch bar was about 200 feet east of the journal box and was broken off at the top bend and bent back in a loop. One column-bolt nut, with part of the bolt, was found in the frog of the switch; the other nut, with part of the bolt, was down the bank, and one journal box wedge was found near the edge of the river bank. The two box bolts of the L-3 journal box were still in the arch bar, with the bottom broken off and the nuts missing. The two box bolts from the L-4 journal box could not be located, nor could the short section of the arch bar, that was broken off the bottom arch bar at the L-3 journal box location, be found. The top arch bar at the L-3 journal box was bent. The location of the bottom nuts of the column bolts in the switch-frog, indicated that the column bolts did not fail first, but that they were newly broken at the frog. Maine Central 35020 was a 40-foot steel-underframe box car of 80,000 pounds capacity, load limit 95,500 pounds, light weight 40,500 pounds, built in October, 1918, with arch bar trucks having $1\frac{1}{2}$ " x 5" bars. At the time of the accident the car was loaded with 68,100 pounds of clay. Car Foreman Forsythe said that in his opinion the broken arch bar caused the accident.

Car Inspector Wilson stated that he inspected this car at Jethro about August 27, at which time the car was empty and he marked it OK for clay loading; he inspected the trucks, brake rigging, arch bars, etc., but found nothing wrong, saying that cars with arch bar trucks were given special attention. He was provided with a mirror for inspecting the inside of arch bar trucks, but he did not use it on this car.

Section Foreman Poldinto, who was assigned to the section on which the accident occurred, stated that his section was about $5\frac{1}{2}$ miles in length. He considered the track to be in fair condition only; about 300 ties had been replaced during this year. There were a large number of bad spikes in the track, and originally the ballast was slag, but later this was covered with about 6 inches of cinders.

The Commission's inspectors examined the parts of the failed truck of M.C. 35020; the spring plank was bent downward slightly at the south end and the bottom at that end showed marks of scoring; the tie strap was twisted to a right angle and the top arch bar was also bent; the bottom arch bar was bent into a complete loop at the east or forward end, the

top of the bar forming the interior of the loop. About 14 inches was broken from the east end of the bottom bar and was not found, the break appeared new although slight marks of blows or rubbing appeared on the face of the bar, which occurred at the bend at the L-3 journal box location. The metal of this arch bar showed no evidence of corrosion or of other breaks and, except for some elongation of the column bolt holes, appeared to be in good condition. The bar measured $1\frac{1}{2}$ " x 5". The column bolts, $1\frac{1}{2}$ inches in diameter, were newly broken, as were two of the box bolts. No defects were apparent in the examination of the wheels and they were later used in assembling the repaired truck. Slight damage was done to the steel superstructure in the A-end of the car.

Examinations of the track, in the vicinity of the point of accident, were made by the Commission's inspectors on September 3 and 8. The first pronounced mark appeared on the guard plank on the south side of bridge 4.47, located 2,350 feet west of the point of derailment. This mark extended the full length of the bridge and seemed to have been made by a sliding object. The outer edge of this mark was uniformly $14\frac{1}{2}$ inches from the gauge side of the south rail. East of this point, cinder ballast at 5 private crossings was somewhat disturbed outside of the south rail and a mark, $1\frac{1}{2}$ inches in width, appeared intermittently on the ends of 83 ties about 10 or 11 inches from the gauge side of the rail. At the point of derailment a mark 13 feet 10 inches in length, ran diagonally from north to south across the ball of the south rail. Flange and wheel tread marks appeared south of the north rail from that point, for a distance of 186 feet, to the location of the frog of the trailing-point switch. From that point to the next switch, 2,088 feet distant, marks measuring $1\frac{1}{2}$ to 2 inches in width and varying to 1 inch in depth were found on nearly all ties about $17\frac{1}{2}$ inches north of the gauge side of the north rail. There were also slight marks on each seventh or eighth tie, 22 inches north of the gauge side of the south rail. Immediately east of the base of the latter switch point, the marks between the rails followed a line $6\frac{1}{2}$ inches south of the north rail while the marks on the ends of the ties north of the north rail disappeared, but the condition of the grading between the two main tracks indicated that it had recently been leveled. Between mileposts 4 and 7 the east-bound track was about $\frac{1}{2}$ inch out of alignment and surface and from 2 to 15 ties per 100 needed replacement, 10 angle bars were found with missing bolts and approximately 15% of the joints had one or more loose bolts. About 25 ties were not tieplated, 2 tieplates were missing at rail joints and 9 tieplates were broken. Approximately 10% of the spikes were in poor condition, many of which were worn or corroded until the cross section measured but $\frac{3}{8}$ " x $\frac{3}{8}$ " while some were less than $\frac{1}{4}$ " x $\frac{1}{4}$ ", many spikes were loose and could

be pulled out by hand, in some places there were no spikes in the tieplates and at many places the heads of the spikes were from $\frac{1}{2}$ inch to $1\frac{1}{2}$ inches above the base of the rail, at one point the spike heads were $\frac{1}{2}$ inch or more above the base of the rail on 18 consecutive ties. Between mileposts 4 and 5 the track was gauged at 28 points within a distance of 105 feet, and was found to vary from $9/16$ inch wide to $1/8$ inch narrow. The majority of the rail joints were approximately $\frac{1}{4}$ inch or more low over the entire distance the track was inspected, and at several points the ties and tieplates were $\frac{1}{2}$ inch below the rail.

Discussion

Maine Central 35020 was last inspected by a car inspector at Jethro, 15.7 miles west of Vanport, about August 27 at which time the car was empty, and it was approved for clay loading. The car was moved empty to New Salisbury, 13 miles, on August 27-28, where it was loaded with clay, and moved to Salineville, 5.4 miles, on August 31; it then moved from Salineville to Wellsville, 14.2 miles, loaded with clay, on August 31. Train CW-6 picked the car up at Wellsville, 12.9 miles west of Vanport, about 2 a.m. September 1, at which time the conductor and brakeman inspected it, but they did not see anything wrong with the truck involved. The weather was foggy and it was dark, however, members of the crew looked over the train at various points after leaving Wellsville and while rounding curves, but did not see fire flying or any indication of dragging equipment. Track conditions were bad and as the train approached Vanport at a speed estimated to have been between 30 and 40 miles per hour the rear truck of the fifth car failed due to the bottom arch bar breaking near the L-3 journal box location, lead wheel, south side, A-end, resulting in the derailment of this truck, which constituted the only derailed equipment in the nine car train, and the train parted, which caused the air brakes to become applied in emergency. The car involved had moved approximately 51 miles between the time it was last inspected and the time it became derailed.

It is not known to what extent track conditions may have contributed to this accident, but apparently they were such as to cause greater shock and strain than usual to the trucks, while traveling at, or near, the maximum authorized speed of 40 miles per hour for freight trains, and it appears probable that track conditions contributed to a more rapid development of the fracture after it had once started.

Conclusion

This accident was caused by a broken arch bar.

Recommendations

The recommendations made in previous reports are hereby repeated.

1. That arch bar trucks be removed from service at the earliest practicable date.

2. That until arch bar trucks can be eliminated from service, a reduction sufficient to guarantee safety of operation should be made in the permissible load limit on cars equipped with such trucks.

3. That inflammables, explosives or other dangerous articles should not be transported in cars which are equipped with arch bar trucks.

4. That provision be made in interchange rules whereby a receiving line may refuse to accept from a connecting line any car equipped with arch bar trucks.

It is also recommended that the railroad company promptly take necessary steps to improve track conditions on this line and that pending such improvement the maximum authorized speed limits for trains be materially reduced.

Respectfully submitted,

N. J. PATTERSON

Director.

