

INTERSTATE COMMERCE COMMISSION
WASHINGTON

INVESTIGATION NO. 2677
THE CENTRAL RAILROAD COMPANY OF NEW JERSEY
REPORT IN RE ACCIDENT
AT HIGH BRIDGE, N. J., ON
FEBRUARY 10, 1943

SUMMARY

Railroad: Central Railroad of New Jersey
Date: February 16, 1943
Location: High Bridge, N. J.
Kind of accident: Derailment
Train involved: Freight
Train number: Extra 931 East
Engine number: 931
Consist: 66 cars, caboose
Speed: 20 m. p. n.
Operation: Automatic block-signal system
Track: Double; tangent; 0.924 percent
descending grade eastward
Weather: Clear
Time: About 2:05 a. m.
Casualties: 1 killed
Cause: Accident caused by a damaged
switch as a result of dragging
equipment under a preceding train

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 2677

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

THE CENTRAL RAILROAD COMPANY OF NEW JERSEY

April 7, 1943.

Accident at High Bridge, N. J., on February 16, 1943, caused
by a damaged switch as a result of dragging equipment
under a preceding train.

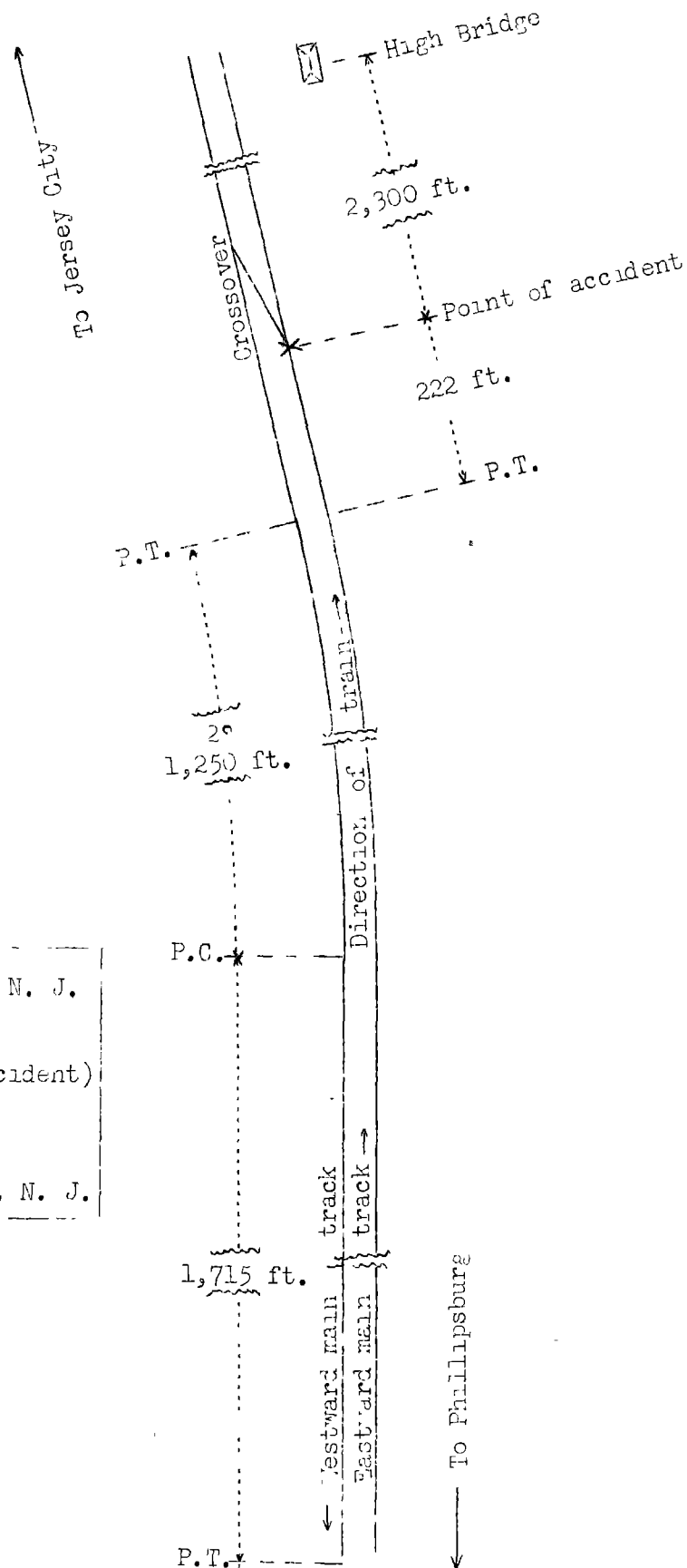
REPORT OF THE COMMISSION¹

PATTERSON, Commissioner:

On February 16, 1943, there was a derailment of a freight train on the line of the Central Railroad Company of New Jersey at High Bridge, N. J., which resulted in the death of one employee. This accident was investigated in conjunction with a representative of the New Jersey Board of Public Utility Commissioners.

¹Under 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.

o	Jersey City, N. J.
	52.16 mi.
X	High Bridge
	(Point of accident)
	4.43 mi.
o	Hampton
	15.53 mi.
o	Phillipsburg, N. J.



Inv-2677
 Central Railroad of New Jersey
 High Bridge, N. J.
 February 16, 1943

Location of Accident and Method of Operation

This accident occurred on that part of the Central Division extending between Phillipsburg and Jersey City, N. J., 72.12 miles. In the immediate vicinity of the point of accident this is a double-track line over which trains moving with the current of traffic are operated by an automatic block-signal system, the indications of which supersede time-table superiority. The accident occurred on the eastward main track at a point 2,500 feet west of the station at High Bridge. Approaching from the west there are, in succession, a tangent 1,715 feet in length, a 2° curve to the left 1,250 feet, and a tangent 222 feet to the point of accident and 1,573 feet beyond. The grade for east-bound trains varies between 0.05 and 0.924 percent descending throughout a distance of about 4 miles immediately west of the point of accident and is 0.924 percent at that point.

The track structure consists of 130-pound rail, 79 feet in length, laid in 1940 on 21 treated ties to the rail length; it is fully tieplated with double-shoulder centered tieplates, single-spiked, provided with 6-hole angle bars, and is ballasted with stone to a depth of 12 inches.

At a point 2,300 feet west of the station at High Bridge a facing-point crossover for movements with the current of traffic connects the eastward and the westward main tracks. This crossover is provided with No. 10 turnouts and is 193 feet in length. The west switch is arranged with a 4-1/2-inch throw and has switch points 20 feet in length connected by three switch-rods located 1 foot, 3 feet and 6 feet east of the west end of the points. This switch is equipped also with a facing-point switch lock. The derailment occurred about 22 feet east of the switch points.

Signal 572, which governs east-bound movements on the eastward main track, is located 1,447 feet west of the west crossover-switch.

Time-table special instructions read in part as follows:

AIR BRAKES

Freight Service

* * *

B. Retainers will be used between Hampton and White House as follows:

* * *

15 retainers on trains consisting of 51 to 75 cars

* * *

Hampton and White House are, respectively, 4.43 miles west and 7.97 miles east of High Bridge.

In the vicinity of the point of accident, the maximum authorized speed for freight trains is 30 miles per hour.

Description of Accident

Extra 931 East, consisting of engine 931, 66 loaded cars and a caboose, departed from Phillipsburg, 19.96 miles west of High Bridge, at 12:55 p. m., February 15, according to the dispatcher's record of movement of trains, passed Hampton, 4.43 miles west of High Bridge and the last open office, at 1:43 a. m., February 16, passed signal 572, which displayed proceed, and while moving at an estimated speed of 20 miles per hour it was derailed at the crossover located 2,300 feet west of the station at High Bridge. The brakes of this train had been tested and had functioned properly en route.

The rear trucks of the tenth and twelfth cars, the front trucks of the eleventh and thirteenth cars, and the fourteenth to thirty-second cars, inclusive, were derailed and considerably damaged.

It was clear at the time of the accident, which occurred about 2:05 a. m.

The employee killed was the front brakeman.

Mechanical Data

Examination of the engine and the first ten cars failed to disclose any condition which could have contributed to the accident. A section of flange 18 inches in length was broken out of the left No. 1 wheel of the front truck of the eleventh car. Tests of this flange disclosed that the metal was sound and within specifications.

Track Data

After the accident, measurements of the eastward track taken between points 202 feet west and 1 foot east of the switch points were as follows:

<u>Distance west of point of accident</u>	<u>Surface</u>	<u>Gage</u>
202 feet	level	4'8-1/2 inches
181 "	South rail 1/4 inch high	" " "
163 "	" " 1/2 " "	" " "
142 "	" " 1/2 " "	" " "
124 "	" " 3/8 " "	" " "
103 "	" " 1/8 " "	" " "
85 "	" " 1/8 " "	" " "
64 "	" " 1/4 " "	" " "
52 "	" " 1/8 " "	" " "
36-1/2 feet	" " 1/8 " "	" " "
29 feet	" " 1/8 " "	" " "
20-1/2 feet	" " 1/8 " "	" " "
4 feet	" " 1/4 " "	" " "
1 foot east of P.S.	" " 1/4 " "	" " "

Discussion

Extra 931 East was moving on tangent track at a speed of 20 miles per hour in territory where the maximum authorized speed is 30 miles per hour when the tenth to thirty-second cars, inclusive, were derailed at a facing-point crossover. The last automatic signal displayed proceed for this train. There was no indication of defective condition of the track or of any condition of the engine and first ten cars which could have contributed to the cause of the accident.

As Extra 931 was approaching the point where the accident occurred the speed was about 20 miles per hour and the enginemen were maintaining a lookout ahead. Brake-pipe pressure of 90 pounds was being maintained and retaining valves were set for use on the first 15 cars. The front brakeman was stationed on a car in this portion of the train to observe if any wheel became overheated. The engine was riding smoothly and the first any surviving member of the crew was aware of anything being wrong was when the brakes became applied in emergency and the train stopped abruptly. The fireman had looked back along the train when it moved on curves to the left and saw no indication of defective equipment or an overheated wheel.

After the accident flanges were found broken on all wheels of the front truck of the eleventh car and an 18-inch piece of the flange of the left No. 1 wheel of this truck was found at the heel of the north switch point. Tests disclosed that this flange was of sound metal and that it had been broken by impact. Pieces of flange were broken from three other pairs of wheels of the derailed equipment; however, none of the wheels disclosed indications of defective metal or overheating. There was no condition of the equipment of the rear truck of the tenth car that might have caused the derailment.

Examination of 202 feet of track immediately west of the point of accident disclosed that the greatest variation in surface between two adjacent stations 21 feet apart was 1/4 inch. There was no variation in gage. The north switch-point fitted

tightly against the stock rail and the switch lever was latched and locked. Throughout a distance of about 1 mile immediately west of the crossover, the ties in the eastward main track were marked intermittently about 18 inches inside the north rail. Similar marks continued east of the crossover a considerable distance. About 18 inches inside the north switch-point the No. 2 switch-rod bore a mark of a severe impact and the rod was bent eastward 2-1/2 inches. There was a mark on the right clip of the No. 1 switch-rod. The switch-plate under the end of the south switch-point was marked heavily 3-7/8 inches inside the south rail and there was a light mark on the end of the point. Other switch-plates were marked less heavily inside the south rail. The south switch-point and the south rail of the crossover were torn loose, moved 4 feet eastward and stopped in the center of the track. All the right switch-rod clips were broken off. Starting at a point 22 feet east of the switch-points, both the north and the south rails were canted outward throughout distances of 57 and 42 feet, respectively. There were flange marks in the web of the north rail and on the frog. East of the frog the eastward main track was torn up 300 feet.

The marks on the track structure indicate that dragging equipment had damaged the west switch of the crossover, and, as a result of vibration caused by the engine and the front portion of the train, the right switch-point moved toward the south rail. Apparently the right No. 1 wheel of the front truck of the eleventh car engaged this point and closed it against the south rail. This pair of wheels moved on the switch points until the gage narrowed, then the lateral pressure exerted by the narrowed gage snapped the left No. 1 flange, and the general derailment followed. The rear truck of the tenth car was derailed by the lateral pull of the eleventh car. Marks on the frog indicate that the rear trucks of several cars became re-railed after having been derailed. Since no dragging or defective equipment was found in the front portion of Extra 931 and since marks on the track structure appeared east of the point where the front of this train stopped, it is apparent that the damage to the track was a result of dragging equipment of a preceding train. The defective equipment which damaged the switch had not been found at the time the investigation of this accident was completed.

Cause

It is found that this accident was caused by a damaged switch as a result of dragging equipment under a preceding train.

Dated at Washington, D. C., this seventh day of April, 1946.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. PARTEL,
Secretary.