

INTERSTATE COMMERCE COMMISSION

WASHINGTON

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INVESTIGATION NO. 3129

CHICAGO, SAINT PAUL, MINNEAPOLIS AND OMAHA  
RAILWAY COMPANY

REPORT IN RE ACCIDENT

AT ST. PAUL, MINN., ON

SEPTEMBER 20, 1947

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SUMMARY

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Railroad: Chicago, Saint Paul, Minneapolis  
and Omaha

Date: September 20, 1947

Location: St. Paul, Minn.

Kind of accident: Derailment

Train involved: Passenger

Train number: 209

Engine number: 503

Consist: 8 cars

Estimated speed: 15 m. p. h.

Operation: Timetable, train orders and  
manual-block system

Track: Single; 5° curve; practically  
level

Weather: Clear

Time: 11:15 p. m.

Casualties: 1 killed; 2 injured

Cause: Obstruction in flangeway of  
street grade crossing

INTERSTATE COMMERCE COMMISSION

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INVESTIGATION NO. 3129

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

CHICAGO, SAINT PAUL, MINNEAPOLIS AND OMAHA  
RAILWAY COMPANY

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October 30, 1947

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Accident at St. Paul, Minn., on September 20, 1947,  
caused by an obstruction in the flangeway of  
a street grade crossing.

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REPORT OF THE COMMISSION<sup>1</sup>

PATTERSON, Commissioner:

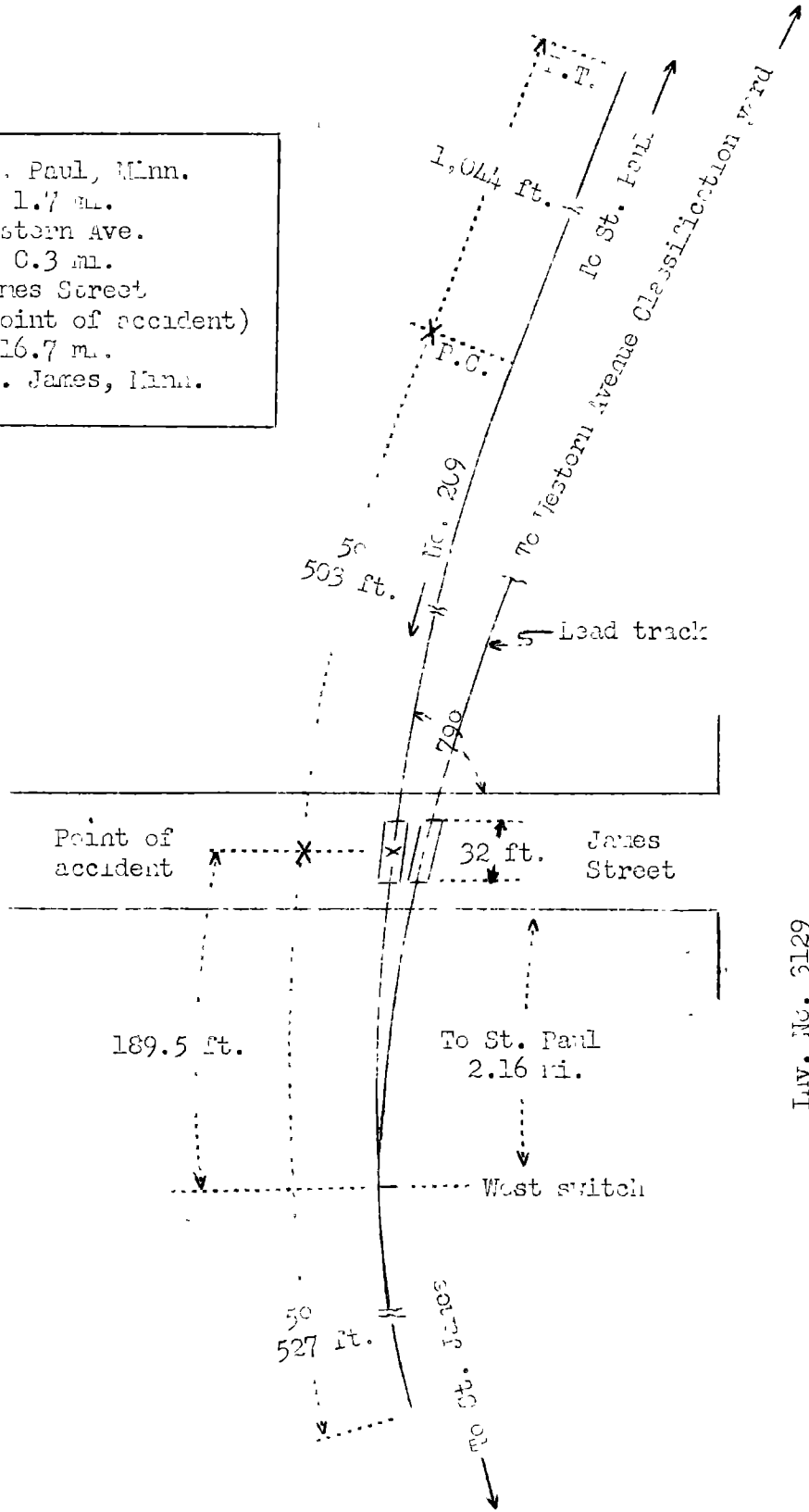
On September 20, 1947, there was a derailment of a passenger train on the Chicago, Saint Paul, Minneapolis and Omaha Railway at St. Paul, Minn., which resulted in the death of one employee, and the injury of one passenger and one employee. This accident was investigated in conjunction with a representative of the Minnesota Railroad and Warehouse Commission.

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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.

o St. Paul, Minn.  
 | 1.7 mi.  
 - Western Ave.  
 | 0.3 mi.  
 X James Street  
 (Point of accident)  
 | 116.7 mi.  
 o St. James, Minn.



Inv. No. 3129  
 Chicago, Saint Paul, Minneapolis and Omaha Railway  
 St. Paul, Minn.  
 September 20, 1947

Location of Accident and Method of Operation

This accident occurred on that part of the Western Division extending between St. Paul and St. James, Minn., 118.7 miles, a single-track line in the vicinity of the point of accident, over which trains are operated by timetable, train orders and a manual-block system. In the vicinity of Western Avenue, St. Paul, the tracks of a classification yard parallel the main track on the south. The west switch of a lead track, which connects the main track and the yard tracks, is 2.16 miles west of the passenger station. This switch is trailing-point for west-bound movements. The accident occurred on the main track 189.5 feet east of the lead-track switch, where the main track and the lead track are crossed at grade by James Street, and the general derailment occurred at the turnout of the lead-track switch. From the east on the main track there are, in succession, a tangent 1,041 feet in length and a 5° curve to the left 503 feet to the point of accident and 527 feet westward. The grade is practically level.

The track structure consists of 100-pound rail, 39 feet in length, laid on an average of 24 treated hardwood ties to the rail length. It is fully tieplated, single-spiked, provided with 4-hole angle-bars, and is ballasted with gravel to a depth of 20 inches. At the point of accident the curvature was 5°, the gage was 4 feet 8-5/8 inches and the superelevation was 3-3/4 inches.

James Street intersects the railroad at an angle of about 79 degrees. The surface of the crossing between the rails of the main track and immediately outside each rail is 32 feet in width, and consists of planking 3-1/2 inches thick by 9-1/4 inches wide and 16 feet long. Flangeways 3-1/2 inches in width are provided. There is a space of about 1/2 inch between the abutting ends of the two planks immediately south of the north rail.

The maximum authorized speed for all trains moving in the vicinity of James Street crossing is 15 miles per hour.

Description of Accident

No. 209, a west-bound first-class passenger train, consisted of engine 503, a 4-6-2 type, five baggage cars, two coaches and one sleeping car, in the order named. All cars were of steel construction. This train departed from the passenger station at St. Paul at 11:05 p. m., 5 minutes late, passed Western Avenue, 0.3 mile east of James Street,

at 11:11 p. m., 4 minutes late, and while it was moving over the crossing at James Street at an estimated speed of 15 miles per hour the No. 1 pair of engine-truck wheels became derailed. These wheels continued in line with the track a distance of 128.5 feet to the north rail of the turnout of the lead-track switch, where all wheels of the engine, the tender and the first car, and the front truck of the second car were derailed.

The engine and the tender stopped on their right sides north of the main track and at an angle of 40 degrees to it, with the front end of the engine 232 feet west of the crossing and 37 feet north of the centerline of the main track. The rear of the tender was on the roadbed. The first car stopped upright and in line with the track, with its front end against the rear of the tender. The engine truck and the right side of the engine were considerably damaged. The first car was slightly damaged.

The engineer was killed, and the fireman was injured.

The weather was clear at the time of the accident, which occurred about 11:15 p. m.

#### Discussion

No. 209 was moving at an estimated speed of 15 miles per hour on a 5° curve to the left, in territory where the maximum authorized speed was 15 miles per hour, when it was derailed. As the train was approaching the point where the accident occurred the headlight was lighted brightly, and the enginemen were maintaining a lookout ahead. The members of the train crew were in various locations throughout the cars of the train. Prior to the time of the accident the engine and the cars had been riding smoothly. The fireman said that the first he knew of anything being wrong was when he felt a sudden lurch of the engine as it was moving on the crossing at James Street. Then he called a warning to the engineer, who immediately moved the brake valve to emergency position, but the derailment occurred before the speed was materially reduced. The brakes of this train had been tested and had functioned properly en route. The engineer was killed.

Examination after the accident disclosed no defective condition of the engine or cars which could have contributed to the cause of the accident. The throttle lever was in drifting position, the reverse lever was in position for short cut-off in forward motion, the automatic brake valve was in emergency position, and the independent brake valve was in application position. Examination of the main track throughout a considerable distance eastward from James

Street disclosed that the surface, alinement and gage were well maintained for the maximum authorized speed. There was no indication of dragging equipment or defective track. The first mark on the track structure was an indentation on the gage side of the north, or high, rail at the centerline of the crossing. At its maximum dimensions this mark was 1/16-inch deep, 3/16-inch wide and 1/4-inch long. Immediately opposite this mark the east end of the west plank adjacent to the flangeway inside the north rail was scarred as though some metallic object had been held within the space between the abutting ends of the planking. About 4 feet west of the first mark a flange mark appeared on the top surface of the north rail and continued a distance of 15 feet to the point where a wheel dropped to the tie outside the north rail at a point 3 feet west of the west end of the crossing. Directly opposite the first mark on the north rail and continuing westward a distance of 16 feet, the plank side of the flangeway inside the south rail was scarred by pressure of the inside surface of a wheel. The west end of the south planking was broken, which indicated that the south wheel had veered to the north suddenly as it cleared the west end of the flangeway. At a point about 3 feet west of the west end of the planking, a single flange mark appeared on the top of a tie about 8 inches inside the south rail. Single flange marks appeared on the tops of ties at points about 8 inches inside the south rail and on the tops of ties at intermittent locations about 9 inches outside the north rail throughout a distance of 105 feet westward to the point where the south wheel struck the north rail of the lead-track turnout. The action of the engine and abrasion marks on the engine-truck assembly indicate that the No. 1 pair of engine-truck wheels were the first to be derailed. This truck was designed with journal boxes inside the wheels. The right No. 1 journal box slid on the north rail and the right No. 1 wheel was suspended so that the flange was in contact with the ties only at intermittent locations.

Examination of the right No. 1 engine-truck wheel disclosed an indentation about 1-1/8 inches long and 3/8 inch wide at a point about the center of the tread, and at a slight angle from perpendicular to the flange of the wheel. The brake system of engine 503 is arranged so that braking force is not applied against the wheels of the engine truck, therefore, the mark was not caused by the sliding of the wheel. The master mechanic said that, in his opinion, the indentation was a result of the wheel having struck a metallic object. The marks on the north rail, on the planking and on the tread of the right No. 1 engine-truck wheel indicate that some metallic object was crosswise of the flangeway and against the north rail.

Apparently, this object was of sufficient size to raise the right No. 1 engine-truck wheel, which was bearing heavily against the high rail because of track curvature to the left, high enough for its flange to clear the gage side of the rail. Then this wheel dropped to the top surface and moved in that position until the companion wheel was free of the flangeway. An unsuccessful search was made for the object that obstructed the flangeway.

Cause

It is found that this accident was caused by an obstruction in the flangeway of a street grade crossing.

Dated at Washington, D. C., this thirtieth day of October, 1947.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. FARTEL,  
Secretary.