

INTERSTATE COMMERCE COMMISSION  
WASHINGTON

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INVESTIGATION NO. 3127  
CHICAGO GREAT WESTERN RAILWAY COMPANY  
REPORT IN RE ACCIDENT  
NEAR SHANNON CITY, IOWA, ON  
SEPTEMBER 19, 1947

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SUMMARY

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Railroad: Chicago Great Western  
Date: September 19, 1947  
Location: Shannon City, Iowa  
Kind of accident: Derailment  
Train involved: Passenger  
Train number: 12  
Engine number: 929  
Consist: 8 cars  
Estimated speed: 40 m. p. h.  
Operation: Timetable, train orders and  
automatic block-signal system  
Track: Single; tangent; 0.38 percent  
ascending grade eastward  
Weather: Clear  
Time: 8:04 p. m.  
Casualties: 1 killed, 8 injured  
Cause: Broken rail

INTERSTATE COMMERCE COMMISSION

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INVESTIGATION NO. 3127

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

CHICAGO GREAT WESTERN RAILWAY COMPANY

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October 21, 1947

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Accident near Shannon City, Iowa, on September 19, 1947,  
caused by a broken rail.

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

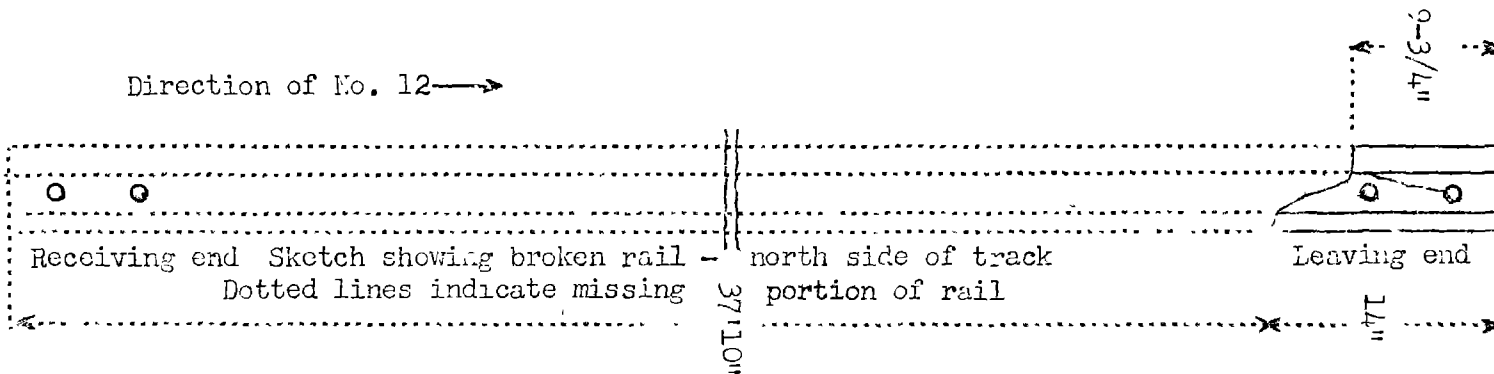
PATTERSON, Commissioner.

On September 19, 1947, there was a deraiment of a passenger train on the Chicago Great Western Railway near Shannon City, Iowa, which resulted in the death of one train-service employee, and the injury of four passengers, two railway-mail clerks, one baggage-express messenger and one train-service employee. This accident was investigated in conjunction with a representative of the Iowa State Commerce Commission.

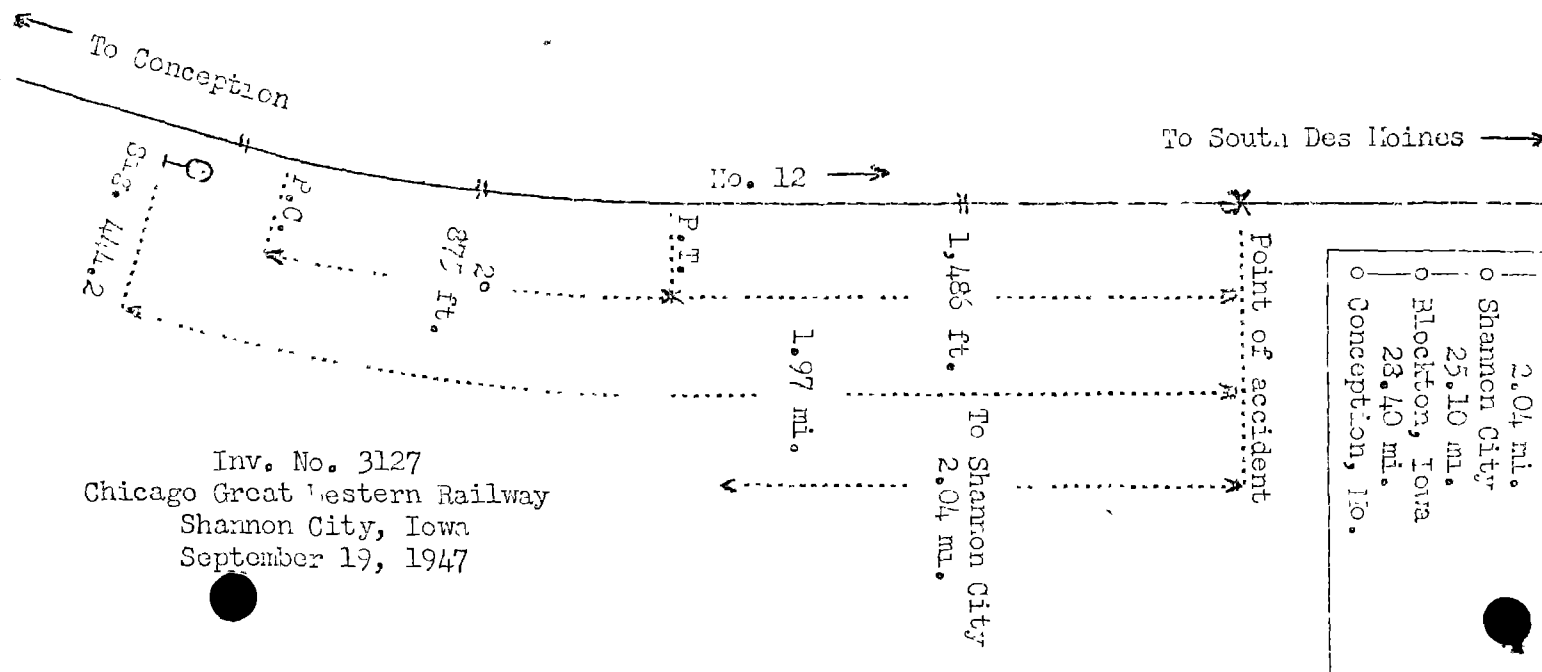
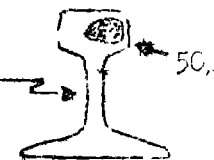
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<sup>1</sup> Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Commissioner Patterson for consideration and disposition.

Direction of No. 12 →



Sketch of end view showing location of transverse fissure



Inv. No. 3127  
Chicago Great Western Railway  
Shannon City, Iowa  
September 19, 1947

Location of Accident and Method of Operation

This accident occurred on that part of the Iowa Division extending between Conception, Mo., and South Des Moines, Iowa, 119 miles, a single-track line, over which trains are operated by timetable, train orders and an automatic block-signal system. The accident occurred on the main track 55.54 miles east of Conception and 2.04 miles east of the station at Shannon City. From the west there is a 2° curve to the left 875 feet in length, and then a tangent 1,486 feet to the point of accident and a considerable distance eastward. The grade is 0.38 percent ascending eastward.

In this vicinity the track structure is laid on a 25-foot fill, and consists of 90-pound rail, 39 feet in length, laid during 1928, on an average of 23 hardwood ties to the rail length. It is single-spiked, tieplated at scattered locations, provided with 4-hole angle bars 24 inches in length, and an average of 4 rail anchors per rail length, and is ballasted with cinders to a depth of 8 inches. The rail at the point of derailment was manufactured by the Illinois Steel Company during 1928.

Automatic signal 444.2, governing east-bound movements, is 1.97 miles west of the point of accident. The rail-bond wires are about 58 inches in length and are attached to channel posts in the web of the rails outside the limits of the angle bars.

The maximum authorized speed for the train involved was 50 miles per hour.

Description of Accident

No. 12, an east-bound first-class passenger train, consisted of engine 929, a 4-6-2 type, two baggage cars, one baggage-mail car, two express-refrigerator cars, one coach, one club-sleeping car and one sleeping car, in the order named. The fourth and fifth cars were of steel-underframe construction, and the remainder of the cars were of all-steel construction. This train passed Blockton, the last reporting station, 25.1 miles west of Shannon City, at 7:18 p. m., 25 minutes late, passed Shannon City, passed signal 444.2, which displayed proceed, and while it was moving at an estimated speed of 40 miles per hour the engine and tender and the first seven cars were derailed.

Separations occurred at each end of the first three cars. The engine overturned to the left and stopped on its left side, down the embankment and practically at right angles to the track, with the front end on the track structure and 473 feet east of the point of derailment. The cab was demolished, steam pipes within the cab were broken, the engine truck was torn loose, and the engine was otherwise badly damaged. The tender, remaining attached to the engine, stopped upside down, near the foot of the fill at a point 48 feet north of the centerline of the track and at an angle of 30 degrees to it. The first and second cars stopped on their sides and parallel to each other, on the embankment and at right angles to it, with their front ends practically on the track structure and about 100 feet west of the engine. The third car stopped on its left side, down the embankment and at an angle of 15 degrees to it, with its front end against the second car and 60 feet north of the centerline of the track. The fourth and fifth cars stopped down the embankment, at the rear of the third car and in line with it, with the front end of the fourth car 30 feet north of the track and the rear end of the fifth car about 5 feet north of the track. These cars leaned to the north at angles of 30 to 45 degrees. The sixth car stopped at the rear of the fifth car, about 5 feet north of the track and parallel to it, and leaned to the north at an angle of 30 degrees. The seventh car stopped practically upright, with its front end about 5 feet north of the track and its rear end on the roadbed. The first and second cars were badly damaged, and the third to seventh cars, inclusive, were more or less damaged.

The fireman was killed, and the engineer was injured.

The weather was clear at the time of the accident, which occurred about 8:04 p. m.

#### Discussion

No. 12 was moving on tangent track at a speed of about 40 miles per hour, in territory where the maximum authorized speed for this train was 50 miles per hour, when the derailment occurred. As this train was approaching the point where the accident occurred the headlight was lighted brightly, and the enginemen were maintaining a lookout ahead. The conductor and the brakeman were in the sixth car. The last automatic signal west of the point of accident displayed proceed for No. 12. Prior to the time of the accident, the engine and the cars had been riding smoothly and there was no indication of defective equipment or track, nor of any

obstruction having been on the track. The first that any member of the crew knew of anything being wrong was when the engineer felt the right trailer-truck wheel drop from the rail, and he immediately moved the brake valve to emergency position, but the engine overturned and the general derailment occurred before the train could be stopped. The brakes of this train had been tested and had functioned properly en route.

After the accident a piece of a broken rail was found down the embankment at a point 50 feet east of the point of derailment and 30 feet north of the track. This piece of rail was identified as having been a portion of a rail in the north side of the track at the point of derailment. The break through the head was square and at a point 9-3/4 inches west of the east end of the rail, about 1 inch west of the No. 2 angle-bar bolt hole and east of the west bond-wire connection. This break extended 4-1/4 inches diagonally downward and westward and at an angle of about 45 degrees through the web and the base. Starting in the fillet immediately below the break through the head, a crack extended diagonally eastward at an angle of about 15 degrees and terminated in the No. 1 angle-bar bolt hole. The break through the head of the rail was a result of a transverse fissure, which covered 50 percent of the cross-sectional area of the head of the rail and was mostly contained in the half of the gage side of the head. It extended to the top surface and to a point about 1/32 inch inward from the gage side. The remainder of the break was new. Because of displacement of the track structure as a result of the derailment, the remainder of the rail involved had not been recovered at the time the investigation was completed.

Marks on the left No. 1 engine-truck wheel, the bottom surface of the base of the pilot, and a flange mark on the receiving end of the head of the rail at a point about 1-1/2 inches inward from the gage side and on the edge of the top surface indicate that the left No. 1 engine-truck wheel was the first wheel to be derailed.

The track in this vicinity was last tested by a detector car on December 15, 1946, and no defective condition of the rail in question was indicated. The track was last inspected by the foreman in charge of the section on September 16, and it was inspected from a track motor-car by the foreman of an adjacent section about 28 hours before the accident occurred. During these inspections no defective condition of the rail was observed.

Cause

It is found that this accident was caused by a broken rail.

Dated at Washington, D. C., this twenty-first day of October, 1947.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,  
Secretary.