

INTERSTATE COMMERCE COMMISSION  
WASHINGTON

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INVESTIGATION NO. 2646  
THE CHICAGO, BURLINGTON & QUINCY RAILROAD COMPANY  
REPORT IN RE ACCIDENT  
AT CHILLICOTHE, IOWA, ON  
NOVEMBER 2, 1942

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SUMMARY

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Railroad: Chicago, Burlington & Quincy

Date: November 2, 1942

Location: Chillicothe, Iowa

Kind of accident: Head-end collision

Trains involved: Light engine : Passenger

Train numbers: Extra 2057 East : 5

Engine numbers: 2057 : 4001

Consist: : 7 cars

Speed: 6 m. p. h. : 12 m. p. h.

Operation: Movements with current of traffic  
by automatic block-signal system;  
movements against current of  
traffic by train orders only

Track: Double; tangent; grade  
practically level

Weather: Clear

Time: About 1:25 a. m.

Casualties: 41 injured

Cause: Accident caused by Extra 2057  
East moving against current  
of traffic without authority

Recommendation: That the Chicago, Burlington &  
Quincy Railroad Company establish  
an adequate block system for move-  
ments against the current of traffic

INTERSTATE COMMERCE COMMISSION

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INVESTIGATION NO. 2646

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

THE CHICAGO, BURLINGTON & QUINCY RAILROAD COMPANY

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December 26, 1942.

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Accident at Chillicothe, Iowa, on November 2, 1942, caused  
by Extra 2057 East moving against the current of traf-  
fic without authority.

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REPORT OF THE COMMISSION

PATTERSON, Commissioner:

On November 2, 1942, there was a head-end collision between a light engine and a passenger train on the Chicago, Burlington & Quincy Railroad at Chillicothe, Iowa, which resulted in the injury of 28 passengers, 9 dining-car employees and 4 train-service employees. 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.



Location of Accident and Method of Operation

This accident occurred on that part of the Ottumwa and Creston Divisions which extends between Ottumwa and Creston, Iowa, a distance of 113.32 miles. This is a double-track line. Between Ottumwa and Maxon, a distance of 22.3 miles, trains moving with the current of traffic are operated by an automatic block-signal system, the indications of which supersede time-table superiority, and trains moving against the current of traffic are operated by train orders only. Between Maxon and Halpin, a distance of 5.62 miles, trains are operated by a centralized-traffic-control system and move in either direction by signal indications only. The accident occurred 7.8 miles west of Ottumwa and 14.5 miles east of Maxon on the westward main track at a point 254 feet east of the station at Chillicothe. Approaching from the east there are, in succession, a tangent 5,038 feet in length, a  $3^{\circ}18'$  curve to the left 1,177 feet and a tangent 295 feet to the point of accident. Approaching from the west there are, in succession, a tangent 2,035 feet in length, a  $0^{\circ}52'$  curve to the left 778 feet in length and a tangent 522 feet to the point of accident. At the point of accident the grade is practically level.

At Maxon a facing-point crossover designated as crossover 10 connects the eastward and the westward main tracks. Semi-automatic signal 9R governs movements on the eastward main track and movements from the eastward main track through crossover 10 to the westward main track. Signal 9R and the switches of crossover 10 are remotely controlled from the station at Albion, 1.79 miles west of Maxon. The control machine consists of 7 levers, of which 4 operate signals, 2 operate switches and 1 operates 2 electric switch-locks. Indication lights are provided to indicate track occupancy within interlocking limits, the position of controlled switches and the aspects displayed by semi-automatic signals. Switch lever 10 controls crossover 10 and signal lever 9 controls signal 9R. Lever 9 is located on the control panel approximately 2 inches above lever 10. When switch lever 10 and the switches of crossover 10 are set for a movement through the crossover, a light through an amber lens is displayed on the control panel. When signal lever 9 is placed in position for signal 9R to display stop, a light through a red lens is displayed on the panel. When signal lever 9 is placed in position for signal 9R to display other than stop, a light through a green lens is displayed on the panel. Signal 9R is of the two-unit, two-indication, search-light type, and is continuously lighted. The involved aspect and corresponding indication and name of this signal are as follows:

| <u>Aspect</u>   | <u>Indication</u>           | <u>Name</u>        |
|-----------------|-----------------------------|--------------------|
| Red-over-yellow | Proceed at Restricted Speed | Restricting Signal |

When crossover 10 is lined for movement from the eastward to the westward main track and signal lever 9 is moved to the R position, signal 9R displays a red-over-yellow aspect.

Automatic signals N-2877 and N-2863, which govern westward movements on the westward main track, are located, respectively, 5,970 feet east and 1,230 feet west of the point of accident. These signals are of the one-unit, three-indication, search-light type, and are continuously lighted. The aspects and corresponding indications and names of these signals are as follows:

| <u>Aspect</u> | <u>Indication</u>                     | <u>Name</u>             |
|---------------|---------------------------------------|-------------------------|
| Green         | Proceed                               | Clear-Signal            |
| Yellow        | Approach next signal prepared to stop | Approach-Signal         |
| Red           | Stop; then proceed                    | Stop and Proceed-Signal |

Operating rules read in part as follows:

D-151. Where two main tracks are in service trains must keep to the right unless otherwise provided.

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FORMS OF TRAIN ORDERS

D-R

Providing for a Movement Against the Current of Traffic

- (1) No 1 has right over opposing trains on No 2, or eastward, track C to F.

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D-251. On portions of the road so specified on the timetable, trains will run with the current of traffic by block signals whose indications will supersede time-table superiority.

Time-table special instructions provide that Rule D-251 is in effect between Ottumwa and Maxon.

#### INTERLOCKING RULES.

605. Interlocking signals govern the use of the routes of an interlocking plant, and as to movements within Home Signal limits, their indications supersede the superiority of trains, but do not dispense with the use or the observance of other signals whenever and wherever they may be required.

The maximum authorized speed for passenger trains is 65 miles per hour and for light engines, 35 miles per hour.

#### Description of Accident

Extra 2057 East consisted of engine 2057. This train departed from Creston, 105.52 miles west of Chillicothe, on the eastward main track at 10:50 p. m., November 1, according to the dispatcher's record of movement of trains, passed Maxon at 1:04 a. m., passed signal 9R, which displayed red-over-yellow, moved through crossover 10 to the westward main track, proceeded eastward against the current of traffic and while moving at a speed of about 6 miles per hour it collided with No. 5 at a point 254 feet east of the station at Chillicothe.

No. 5, a west-bound first-class passenger train, consisted of engine 4001, two baggage cars, one chair car, one coach, one chair car, one dining car and one Pullman sleeping car, in the order named. The first three cars were of steel-underframe construction and the remainder were of all-steel construction. After a terminal air-brake test was made this train departed from Ottumwa on the westward main track at 1:12 a. m., according to the dispatcher's record of movement of trains, 7 minutes late, and while moving at a speed of about 12 miles per hour it collided with Extra 2057 East.

From an engine moving in either direction, in the vicinity of the point of accident, the view of an engine approaching from the opposite direction on the westward main track is restricted to a distance of approximately 1,500 feet, because of vegetation on the south side of the track and buildings on the north side, and track curvature.

The front wheels of the engine truck and the driving-wheel assembly of engine 4001, of No. 5, were derailed, and the front end of the engine was badly damaged. All cars except the seventh car were slightly damaged. The engine truck and the Nos. 1 and 2 pairs of driving wheels of engine 2057 were

derailed, the front end of the engine was badly damaged and the cab was demolished. The tender was considerably damaged and the front truck was moved backward.

It was clear at the time of the accident, which occurred about 1:23 a. m.

The train-service employees injured were the engineer and the fireman of No. 5 and the engineer and the fireman of Extra 2057 East.

### Discussion

The operating rules provide that movements against the current of traffic in the territory involved must be authorized by train order. All the employees involved understood these requirements.

Extra 2057 East was moving against the current of traffic on the westward main track when it collided with No. 5 at a point 254 feet east of the station at Chillicothe. No train order authorizing the movement of Extra 2057 against the current of traffic had been issued.

As No. 5 was approaching signal N-2877, located 5,970 feet east of the point where the accident occurred, the speed was about 65 miles per hour. The enginemen were maintaining a lookout ahead. Signal N-2877 displayed approach and the engineer made a service brake-pipe reduction to control the speed of his train in accordance with the signal indication. When the engine reached a point about 1,500 feet east of signal N-2865, the speed was about 30 miles per hour. The fireman observed simultaneously the indication of that signal change from red to yellow to green and the reflection of a headlight in the vicinity of the signal. Soon afterward the fireman observed that the approaching engine was on the westward main track and he called a warning to the engineer, who immediately moved the brake valve to emergency position. The speed of No. 5 was about 12 miles per hour when the enginemen jumped just before the collision occurred.

According to the statement of the operator at Albia, when he received information that Extra 2057 was approaching Maxon he intended to clear signal 9R for that train to proceed on the eastward main track, but he inadvertently moved switch lever 10 to reverse position and later moved signal lever 9 to the R position. He thought he had moved signal lever 9 only and was not aware that he had erroneously lined the route for Extra 2057 to move from the eastward to the westward main track until after the accident occurred. He was engaged in



clerical duties when he lined the route and failed to examine closely the indication lights on the control panel. Had the operator given proper attention to the matter of routing Extra 2057, this train would have proceeded on the eastward main track.

As Extra 2057 East was approaching Maxon on the eastward main track signal 9R displayed red-over-yellow and the crossover switches were lined for movement to the westward main track. Extra 2057 proceeded through the crossover and had moved a distance of 14.5 miles against the current of traffic on the westward main track when it collided with No. 5. The crew in charge of Extra 2057 consisted only of the engineer and the fireman. According to their statements, this train was moving at a speed of about 35 miles per hour as it approached Chillicotne. The first they knew of anything being wrong was when they saw the reflection of the headlight of the engine of No. 5 from a distance of about 1,500 feet. The engineer moved the brake valve to emergency position and the speed was reduced to about 6 miles per hour when the collision occurred. There was no condition of the engine of Extra 2057 that distracted the attention of the enginemen or obscured their vision. They knew that under the rules train-order authority was required for their train to move against the current of traffic, but because their train had been operated in accordance with signal indications in the centralized-traffic-control territory immediately west of Maxon they said they forgot that train-order authority was required to proceed east of Maxon against the current of traffic.

In the territory where this accident occurred a movement against the current of traffic is authorized by train order only, and the signal indication which was displayed for Extra 2057 at Maxon authorized that train to move only within the limits of the interlocking at that point. When the engineer of Extra 2057 found that the crossover was lined for movement to the westward main track he should have procured a train order authorizing the movement of his train against the current of traffic before his train proceeded. Had he requested such an order the fact that this train was being improperly routed would have been disclosed and this accident would not have occurred. However, under the method of operation which was in effect, the protection which was provided for a movement against the current of traffic was not equivalent to that which is normally provided for a movement with the current of traffic. In such a location, if there are frequent movements against the current of traffic, the block-signal system should be arranged to provide equal protection for movements in both directions. In locations where there are not sufficient

reverse-track movements to warrant this arrangement, a reverse-track movement, if permitted at all, should be made only under absolute block protection, and had such a method been in effect on this line additional authority to make a reverse-track movement would have been required and this accident would have been prevented.

Cause

It is found that this accident was caused by Extra 2057 East moving against the current of traffic without authority.

Recommendation

It is recommended that the Chicago, Burlington & Quincy Railroad Company establish an adequate block system for movements against the current of traffic.

Dated at Washington, D. C., this twenty-sixth day of December, 1942.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,  
Secretary.