

INTERSTATE COMMERCE COMMISSION  
WASHINGTON

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INVESTIGATION NO. 2508  
THE ALTON RAILROAD COMPANY  
REPORT IN RE ACCIDENT  
AT WILMINGTON, ILL., ON  
JUNE 23, 1941

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## SUMMARY

Railroad: Alton

Date: June 23, 1941

Location: Wilmington, Ill.

Kind of accident: Head-end collision

Trains involved: Freight : Passenger

Train numbers: 103 : 14

Engine numbers: 2977 : 5293

Consist: 42 cars, caboose : 5 cars

Speed: 4-5 m. p. h. : Nearly stopped

Operation: Timetable, train orders and an automatic block-signal and automatic train-stop system

Track: Single; 1°46'50" curve, 0.27 percent descending grade southward

Weather: Clear

Time: About 8:22 a. m.

Casualties: 23 injured

Cause: Accident caused by failure to obey an automatic block-signal indication, failure properly to control speed of train after forestalling operation of an automatic train-stop device, and failure of an inferior train to clear time of an opposing superior train and then to furnish flag protection

Recommendation: That the Alton Railroad Company take necessary measures to insure that its operating rules and its instructions concerning use of forestalling device of automatic train-stop system are properly enforced and observed, and advise the Commission accordingly

INTERSTATE COMMERCE COMMISSION

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INVESTIGATION NO. 2508

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

THE ALTON RAILROAD COMPANY

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August 21, 1941.

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Accident at Wilmington, Ill., on June 23, 1941, caused by failure to obey an automatic block-signal indication, failure properly to control speed of train after forestalling operation of an automatic train-stop device, and failure of inferior train to clear time of an opposing superior train and then to furnish flag protection.

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

PATTERSON, Commissioner:

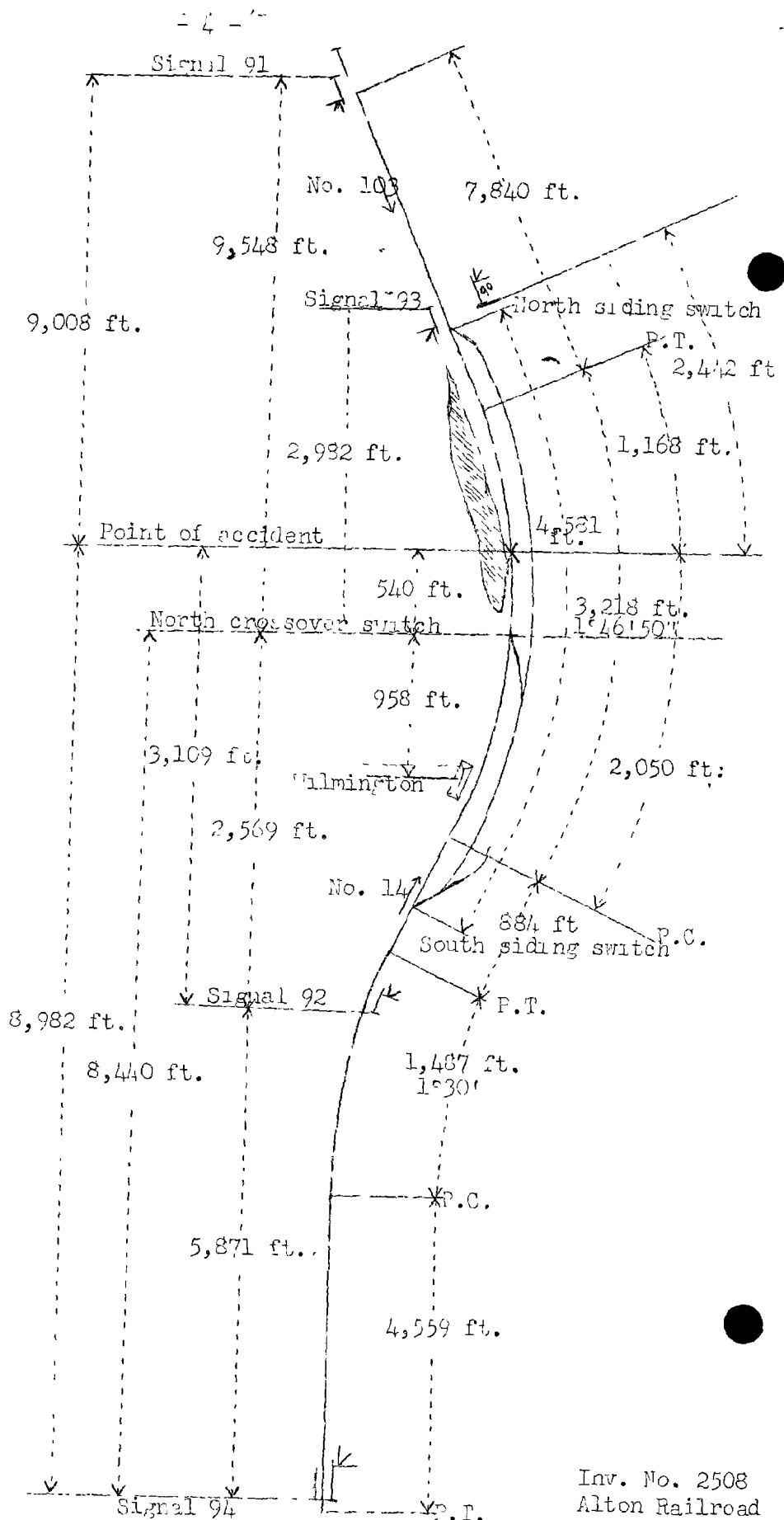
On June 23, 1941, there was a head-end collision between a freight train and a passenger train on the Alton Railroad at Wilmington, Ill., which resulted in the injury of 13 passengers, 1 railway mail clerk, 5 employees off duty, and 4 employees on duty. This accident was investigated in conjunction with a representative of the Illinois Commerce 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.

Chicago  
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- o Chicago, Ill.
- 32.5 mi.
- o South Joliet
- 7.3 mi.
- o Elwood
- 6.7 mi.
- o Wilmington
- (Point of accident)
- 4.8 mi.
- o Braidwood
- 69.3 mi.
- o Bloomington, Ill.

Bloomington  
↓

Inv. No. 2508  
Alton Railroad  
Wilmington, Ill.  
June 23, 1941

### Location and Method of Operation

This accident occurred on that part of the Eastern Division designated as Sub-Division No. 1, which extends between Bloomington and Chicago, Ill., a distance of 126.6 miles. In the vicinity of the point of accident this is a single-track line over which trains are operated by timetable, train orders and an automatic block-signal and automatic train-stop system. At Wilmington a siding 4,541 feet in length parallels the main track on the east; its north switch is 3,653 feet north of the station. A facing-point crossover for south-bound trains connects the main track and the siding; the north switch of the crossover is 958 feet north of the station. The accident occurred on the main track at a point 1,498 feet north of the station and 540 feet north of the north switch of the crossover. As the point of accident is approached from the north there is a tangent more than 1 mile in length, which is followed by a 1°46'50" curve to the right 1,168 feet to the point of accident and 2,050 feet beyond. As the point of accident is approached from the south there are, in succession, a tangent about 1 mile in length, a 1°30' curve to the right 1,487 feet, a tangent 884 feet, and the curve on which the accident occurred. The grade for south-bound trains is 0.27 percent descending at the point of accident.

At the north end of the curve involved the track is laid in a cut 2,860 feet in length. At the point of accident the east and the west walls of this cut are, respectively, 9.45 and 8.65 feet above the level of the west rail. The walls of the cut are covered with vegetation which rises to a height of about 4 feet.

The automatic block-signal system is of the overlap type and consists of intermediate signals between stations and double-location signals at sidings. The signals are of the 3-indication, color-light type, approach lighted. The aspects, indications and names are as follows:

<u>Aspect</u>	<u>Indication</u>	<u>Name</u>
Green	Proceed	Clear signal
Yellow	Proceed prepared to stop at next signal. Train exceeding medium speed must at once reduce to that speed.	Approach signal
Red	Stop; then proceed in accordance with automatic block signal rules.	Stop and proceed signal

Signals 94 and 92, governing northward movements, are located, respectively, 8,440 and 2,569 feet south of the north crossover switch, and signals 91 and 93, governing southward movements, are located, respectively, 9,548 and 2,982 feet north of this switch. The controls of the signals are so arranged that, when a north-bound train reaches a point 28,075 feet south of signal 93, signals 91 and 93 will display approach for a south-bound train entering its approach-lighting circuit and, when a north-bound train reaches a point 1,500 feet south of signal 92, signal 91 will continue to display approach and signal 93 will display stop-and-proceed for a south-bound train entering its approach-lighting circuit; when a south-bound train passes a point 23,418 feet north of signal 92, signals 94 and 92 will display approach for a north-bound train entering its approach-lighting circuit and, when a south-bound train passes a point 8,851 feet north of signal 92, signal 94 will continue to display approach and signal 92 will display stop-and-proceed for a north-bound train entering its approach-lighting circuit.

The automatic train-stop system is of the intermittent-inductive type. Track magnets are located between the rails adjacent to the signals. Engines are equipped with forestalling devices. If a signal displays a restrictive indication for a train, an application of the brakes sufficient to stop the train will occur unless the application is forestalled by the engineman. The rules provide that enginemen must not forestall application of the brakes until after signal indication has been observed and obeyed. When a brake application has been forestalled, the train may proceed under the control of the engineman in accordance with operating rules.

The timetable provides as follows:

Medium Speed- On--half the normal speed, not to exceed thirty (30) miles per hour.

Restricted Speed- Proceed not to exceed ten (10) miles per hour prepared to stop short of train, obstruction, or anything that may require the speed of a train to be reduced.

Rule 227 is revised to read- "On single track when a train is stopped by an automatic block, stop and proceed signal, it may proceed when a proceed indication is displayed. If a proceed indication is not displayed and there are no train orders or time table restrictions affecting its movement it may, after waiting one minute, proceed at restricted speed not exceeding ten (10) miles per hour to the next automatic block signal in advance in the direction in which train is moving expecting to find a train in the block, broken rail, obstruction or switch not properly set."

Rules of the Operating Department read in whole or in part as follows:

3. Watches of conductors, enginemen, firemen, brakemen \* \* \* must be compared, before starting on each trip, or going on duty, with a clock designated as a Standard clock. \* \* \*
  
87. An inferior train must keep out of the way of opposing superior trains and failing to clear the main track by the time required by rule must be protected as prescribed by Rule 99.  
\* \* \*
  
89. At meeting points between trains of different classes the inferior train must take the siding and clear the superior train at least five minutes,  
\* \* \*

#### Forms of Train Orders

Note: In the forms of train orders, the words and figures \* \* \* (underscored) are examples, indicating the manner in which the orders are to be filled out.

\* \* \*

Form E. Time Orders.

\* \* \*

Examples

\* \* \*

(3.) No. 86 Eng 361 wait at "H" until 3:00 P.M. for No. 117 Eng 35.

\* \* \*

Under (3), the train first named must not pass the designated point before the time given, unless the other train has arrived. The train last named is required to run with respect to the time specified, at the designated point or any intermediate station where schedule time is earlier than the time specified in the order, as before required to run with respect to the schedule time of the train first named.

\* \* \*

In the vicinity of the point of accident the maximum authorized speed for passenger trains is 70 miles per hour and for slow freight and local trains 30 miles per hour.

Because of the cut and track curvature, the view from either a north-bound or a south-bound engine of the point where the accident occurred is restricted to 600 feet.

#### Description

No. 14, a north-bound first-class passenger train, with Conductor Osborn and Engineman Brewer in charge, consisted of engine 5293, three baggage cars, one baggage-mail car and one coach, in the order named. The first and third cars were of steel-underframe construction and the remainder were of all-steel construction. This train departed from Bloomington, 74.1 miles south of Wilmington, at 6:10 a. m., according to the train sheet, on time. At Braidwood, 4.8 miles south of Wilmington, the crew received copies of train order No. 16, Form 19, which read as follows:

No. 14 Eng 5293 Wait at crossover in  
Passing track Wilmington until 8:20  
am for No 103 Eng 2977

This train departed from Braidwood at 8:06 a. m., 6 minutes late, and arrived at Wilmington at 8:13 a. m., where the crew received copies of a clearance card bearing the following information:

Block signal is at stop for train No  
14 wait at crossover until 8:20 a. m.  
for No 103.

No. 14 departed from Wilmington about 8:21 a. m., and about 8:22 a. m. it had reached a point 540 feet north of the crossover where it collided with No. 103.

No. 103, a south-bound third-class freight train, with Conductor Conroy and Engineman Childers in charge, consisted at the time of the accident of 27 loaded and 15 empty cars and a caboose. This train departed from South Joliet, 14 miles north of Wilmington, at 7:15 a. m., according to the train sheet, 30 minutes late. At Elwood, 6.7 miles north of Wilmington and the last open office, the crew received copies of train order No. 16, Form 19, previously quoted. This train departed from Elwood at 7:55 a. m., 40 minutes late, stopped at Prairie Creek Spur, about 2.46 miles north of Wilmington, at 8:03 a. m., according to statements of the crew, where switching service was performed, departed about 8:10 a. m., passed signal 91, which displayed approach, passed signal 93, which displayed stop-and-



proceed, and while moving at a speed variously estimated as 4 or 5 miles per hour it collided with No. 14.

Engine 2977 was derailed to the right, stopped on the roadbed and leaned to the right at an angle of 30 degrees. The smokebox, the pilot beam and the front-end engine frame were broken; the engine truck was demolished. The tender cistern stopped on top of the first car, which was destroyed. Both rails were overturned under engine 5293, which was derailed but stopped upright on the roadbed. The smokebox was crushed and the front-end deck casting was broken. The front truck of the first car was derailed. The front coupler of the first car and the front and the rear couplers of the second and third cars were broken. The center-sills of the third car were buckled.

The employees injured were the conductor of No. 14, and the engineman, the fireman and the flagman of No. 103.

#### Summary of Evidence

Engineman Brewer, of No. 14, stated that at Bloomington a terminal air-brake test was made, a running test was made after the train left that point and the brakes functioned properly en route. Before his train departed from Bloomington the conductor and he compared time; the variation was 5 seconds. At Braidwood he received train order No. 16 and the fireman and he read the order and understood that, in accordance with the provision that No. 14 must wait at the crossover at Wilmington until 8:20 a. m., his train was required to wait clear of the fouling point at the crossover at Wilmington until 8:20 a. m. unless No. 103 was into clear on the siding. As his train was approaching Wilmington, signals 94 and 92 displayed approach for his train. At each signal he forestalled an automatic application of the brakes. Because of the approach indications he thought that No. 103 was approaching Wilmington. The train-order signal at Wilmington displayed stop for his train and the operator delivered a clearance card bearing information that the train-order signal was at stop for No. 14 to wait at the crossover until 8:20 a. m. for No. 103. The engineman said that his train waited at the station until the time specified had expired and then departed about 8:21 a. m. As his train was approaching the point where the accident occurred the speed was about 10 miles per hour. The first he knew of anything being wrong was when the fireman informed him that he heard the sound of a whistle. The engineman immediately moved the brake valve to emergency position but the distance was too short to avert the collision. Because of the curve to the left he did not see No. 103 until that train was about 6 car lengths distant. His train was practically stopped at the time of the collision, which occurred about 8:22 a. m.

Fireman Smith, of No. 14, stated that the engineman and he read train order No. 16. The fireman understood that his train was required not to pass the fouling point of the crossover at Wilmington before 8:20 a. m. unless No. 103 was in the clear on the siding. Signals 94 and 92 displayed approach for his train and he called the indications to the engineman, who responded. The fireman understood that No. 103 was in the overlap circuit but was not certain that No. 103 would proceed to Wilmington to enter the siding since there was one other point north of Wilmington in the same circuit where No. 103 could clear. At Wilmington his train waited at the station until 8:20 a. m. As his train was approaching the point where the accident occurred the speed was about 15 miles per hour and he was maintaining a lookout ahead. The first he knew of anything being wrong was when he heard an engine whistle being sounded, and then he saw No. 103 approaching. Because of the cut and the track curvature his view of the approaching train was restricted. He warned the engineman, who immediately applied the air brakes in emergency but it was too late to avert the accident, which occurred immediately afterward. His train was practically stopped when the accident occurred.

Conductor Osborn, of No. 14, stated that at Bloomington a terminal air-brake test was made and the brakes functioned properly en route. When he compared his watch with the standard clock at Bloomington he found that his watch was 5 seconds slow. He read train order No. 16 and understood that his train was required not to pass the fouling point of the crossover at Wilmington before 8:20 a. m. unless No. 103 was in the clear on the siding. He observed from the coach vestibule that signal 92 displayed approach for his train. At Wilmington he received a copy of a clearance card, which contained information that No. 14 would wait at the crossover until 8:20 a. m. for No. 103. The station work was completed about 8:18 a. m. but his train did not depart until 8:20:50 a. m. As his train was approaching the point where the accident occurred the speed was about 20 miles per hour. The first he knew of anything being wrong was when a heavy application of the brakes reduced the speed considerably. His train was practically stopped when the accident occurred. The weather was clear at the time of the accident, which occurred about 8:23 a. m.

Flagman Glaser, of No. 14, corroborated the statement of his conductor.

Fireman Welchman, of No. 103, stated that before his train departed from South Joliet the engineman and he compared time and the variation between watches was 10 seconds. At Elwood a copy of train order No. 16 was received. The fireman read the order and understood that if his train proceeded to Wilmington

it was required to be clear of the main track at 8:15 a. m. He remarked to the engineman that maximum effort would be required for No. 103 to proceed to Wilmington and clear No. 14 as required. The fireman said that after he read the order he did not look at his watch again until after the accident occurred. At Prairie Creek one car was set out and two others were added to the train. Signal 93 displayed approach for his train and the engineman forestalled an automatic application of the brakes, then reduced speed to about 15 miles per hour. Signal 91 displayed stop-and-proceed and the engineman forestalled and reduced speed to about 8 miles per hour. The fireman understood that it is permissible for a train to pass a stop-and-proceed indication without stopping and to proceed under control to the siding where an opposing train is to be met. The first he knew of anything being wrong was when he observed No. 14 about seven or eight car lengths distant. At that time the speed was about 4 or 5 miles per hour and the engineman placed the brake valve in emergency position and placed the reverse lever in position for backward motion, but the distance was too short to avert the accident. The fireman said that his train was about stopped and he jumped from the engine just before the collision occurred. He understood that the rules require an inferior train to clear the time of an opposing superior train not less than 5 minutes, and that when an inferior train fails to clear by the time required it is necessary to provide flag protection against the superior train; however, it is customary for an inferior train to proceed against a superior train even though there is insufficient time for clearing the time of the superior train 5 minutes. The fireman said that in this instance he was not alarmed when flag protection against No. 14 was not provided.

Front Brakeman Jepsen, of No. 103, stated that he did not compare his watch with that of any other member of the crew or with the standard clock before his train departed from South Joliet. At Elwood he read train order No. 16. In his opinion No. 103 was not required to be in the clear at Wilmington before 8:20 a. m. His train departed from Prairie Creek at 8:10 a. m. and as it was approaching the point where the accident occurred he was in the right gangway maintaining a lookout ahead. He observed that it was 8:18 a. m. and then he observed No. 14 approaching at a short distance. The collision occurred soon afterward. He did not discuss the provisions of train order No. 16 with either the engineman or the fireman. The brakeman was last examined on operating rules in 1941.

Middle Brakeman Flener, of No. 103, stated that before his train departed from South Joliet he failed to compare his watch with the standard clock. At Prairie Creek he read train order No. 16, which had been received at Elwood. He understood that

if his train proceeded to Wilmington to clear for No. 14, it was not required to be into clear before 8:20 a. m. His train departed from Prairie Creek at 8:10 a. m. and the engineman remarked that sufficient time remained to proceed to Wilmington and to clear for No. 14. As his train was approaching the point where the accident occurred the brakeman was in the cab of the engine. The front brakeman called a warning and Brake-man Flener jumped off the engine about three car lengths from the point of the collision. He was last examined on operating rules in 1940.

Conductor Conroy, of No. 103, stated that before his train departed from South Joliet he compared his watch with the standard clock and his watch was 10 seconds slow. He did not compare watches with the engineman, nor did he converse with him concerning the work to be performed. The front brakeman delivered the clearance and the train consist to the engineman. At South Joliet a terminal air-brake test was conducted by the car inspectors, who reported the brakes to be functioning properly. At Elwood the conductor received a copy of train order No. 16. In his opinion if his train proceeded to Wilmington to clear for No. 14, it was not required to be clear of the main track before 8:20 a. m. His train departed from Prairie Creek at 8:10 a. m., at which time the brake-pipe pressure was 70 pounds. He was not alarmed that his train would fail to be into clear on the siding at Wilmington by 8:20 a. m. He said that it is customary for an inferior train to clear an opposing superior train at the time specified but not 5 minutes prior to the specified time. In this instance his train would not have had sufficient time to proceed against No. 103 if it was required to be clear 5 minutes prior to the time specified. He expressed the opinion that train order No. 16 provided protection against No. 14 until 8:20 a. m. and it was not necessary to provide flag protection before 8:20 a. m. As his train was approaching the point where the accident occurred the speed was about 4 miles per hour and he was in the caboose. The first he knew of anything being wrong was when he felt an emergency application of the brakes and the collision occurred immediately afterward at 8:18 a. m.

The statement of Flagman Lambert added nothing of importance.

Because of injuries sustained by Engineman Childers, of No. 103, as a result of the accident, a statement could not be obtained from him at the time of the investigation.

Operator Stone, at Wilmington, stated that he copied train order No. 16, which was addressed to the operator. He displayed his train-order signal at stop and when No. 14 arrived at 8:13 a. m. he delivered copies of a clearance card, which contained

the same information as order No. 16, to the crew; however, since it is not customary to deliver to crews copies of orders addressed to the operator he did not do so in this instance. According to the clock in the station, No. 14 departed at 8:20:10 a.m.

Dispatcher Denman stated that usually he issues an order establishing a meeting point between Nos. 14 and 103. In the instance involved he expected No. 103 to be delayed by a preceding extra train and, therefore, he issued train order No. 16, which restricted the schedule time of No. 14 at Wilmington by 10 minutes. The usual running time of No. 103 between Prairie Creek and Wilmington is 8 or 10 minutes. He expected that No. 103 would clear for No. 14 either at Stone Siding or Porter Siding, 5.05 and 2 miles, respectively, north of Wilmington, but No. 103 could have proceeded to Wilmington and then returned to Prairie Creek to perform work after No. 14 had departed.

Rules Examiner Burdette stated that at a meeting point between trains of different classes the inferior train must be in the clear 5 minutes before the superior train is due to leave that point; if the inferior train fails to clear an opposing superior train 5 minutes in advance of its leaving time the inferior train must provide flag protection. According to the provisions of train order No. 16, No. 103 was required to be clear at the crossover at Wilmington not later than 8:15 a. m., and No. 14 was required to wait at the crossover until 8:20 a. m. unless No. 103 was in the clear on the siding.

#### Discussion

According to the evidence, the crew of No. 14, a first-class train, and the crew of No. 103, a third-class train, held copies of a train order which required No. 14 to wait at the crossover in the siding at Wilmington until 8:20 a. m. for No. 103. The collision occurred 540 feet beyond the switch where No. 14 was required to wait. According to the statement of the operator at Wilmington and the crew of No. 14, No. 14 did not leave the station, about 900 feet to the rear of the fouling point at the crossover, until after the waiting time had expired; on the other hand, two members of the crew of No. 103 stated that the accident occurred about 2 minutes before the expiration of the waiting time.

No. 103 was proceeding to Wilmington to clear for No. 14 and, under the rules, was required to be into clear at Wilmington not later than 8:15 a. m., or to furnish flag protection after that time. No attempt was made to comply with these requirements of the rules. Although he was an employee of long experience, the conductor of No. 103 said his train was not required to be clear of the main track at Wilmington before 8:20 a. m., that it

is customary for an inferior train to clear an opposing superior train at the time specified in the order but not 5 minutes prior to that time, and that in this instance his train would not have had sufficient time to proceed to Wilmington against No. 14 if it was required to be clear 5 minutes prior to the time specified in the wait order. Because of injuries, no statement was obtained from the engineman of No. 103, but statements of other employees indicated that the procedure followed in this case was common practice. From this investigation it is apparent that employees and officials did not have a common understanding of the requirements of the rules and that there was laxness both in the observance and in the enforcement of rules which are essential to safety.

No. 14 received approach indications at the last two automatic signals which it passed. These indications required No. 14 to proceed at a speed not in excess of 30 miles per hour and to be prepared to stop at the next signal, which was located 2,442 feet beyond the point where the accident occurred. The evidence is that No. 14 did not exceed a speed of 20 miles per hour between the station and the point of accident. No. 103 received an approach indication at the signal located 9,546 feet north of the point where the accident occurred, and the engineman forestalled an automatic train-stop application of the brakes and reduced speed to about 15 miles per hour. A stop-and-proceed indication was received at the southward signal located 2,442 feet north of the point where the accident occurred, and the engineman again forestalled an automatic application of the brakes and reduced speed to about 8 miles per hour. Under the rules, No. 103 was required to stop before it passed this signal and then to proceed at a speed not in excess of 10 miles per hour and to move expecting to find a train in the block, a broken rail, an obstruction or a switch not properly set. According to the statements of the employees involved, No. 14 was nearly stopped and the speed of No. 103 had been reduced to 4 or 5 miles per hour when the accident occurred; however, from the damage that resulted from the accident, it is obvious that the speed was underestimated by one or both of the crews of the trains involved.

This accident again directs attention to the use of a forestalling device in connection with an automatic train-stop system. Under the rules the engineman after forestalling an automatic application of the brakes was required to operate his train in conformity with signal indications but he failed to do this. Unless effective measures can be provided to insure safety of operation under such circumstances, further consideration will be given the question whether forestalling devices shall be continued as a part of an automatic train-stop system on this line.

Cause

It is found that this accident was caused by failure to obey an automatic block-signal indication, failure properly to control the speed of a train after forestalling operation of an automatic train-stop device, and failure of an inferior train to clear the time of an opposing superior train and then to furnish flag protection.

Recommendation

It is recommended that the Alton Railroad Company take necessary measures to insure that its operating rules and its instructions concerning the use of the forestalling device of the automatic train-stop system are properly enforced and observed, and advise the Commission accordingly.

Dated at Washington, D. C., this twenty-first day of August, 1941.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,  
Secretary.