

INTERSTATE COMMERCE COMMISSION
WASHINGTON

INVESTIGATION NO. 2461
THE BALTIMORE AND OHIO RAILROAD COMPANY
AND
THE CHESAPEAKE AND OHIO RAILWAY COMPANY
REPORT IN RE ACCIDENT
AT FOSTORIA, OHIO, ON
NOVEMBER 12, 1940

SUMMARY

Railroads: Baltimore and Ohio : Chesapeake and Ohio
Date: November 12, 1940
Location: Fostoria, Ohio
Kind of accident: Side collision
Trains involved: B. & O. passenger : C. & O. yard engine
Train numbers: 46 :
Engine numbers: 5233 : 227 and helper
engine 520
Consist: 6 cars : 121 cars
Speed: 10-15 m. p. h. : 3-10 m. p. h.
Operation: Automatic block- : Timetable, train
signal system orders and auto-
matic block-signal
system
Crossing governed by tilting-target
signal
Track: Double; tangent: : Double; tangent;
level 0.079 percent as-
cending grade
southward
Weather: Clear
Time: 3:15 a. m.
Casualties: 1 killed
Cause: Accident caused by failure of C. & O.
yard engine properly to observe and
to obey a crossing signal indication

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 2461

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

THE BALTIMORE AND OHIO RAILROAD COMPANY

AND

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

January 13, 1941.

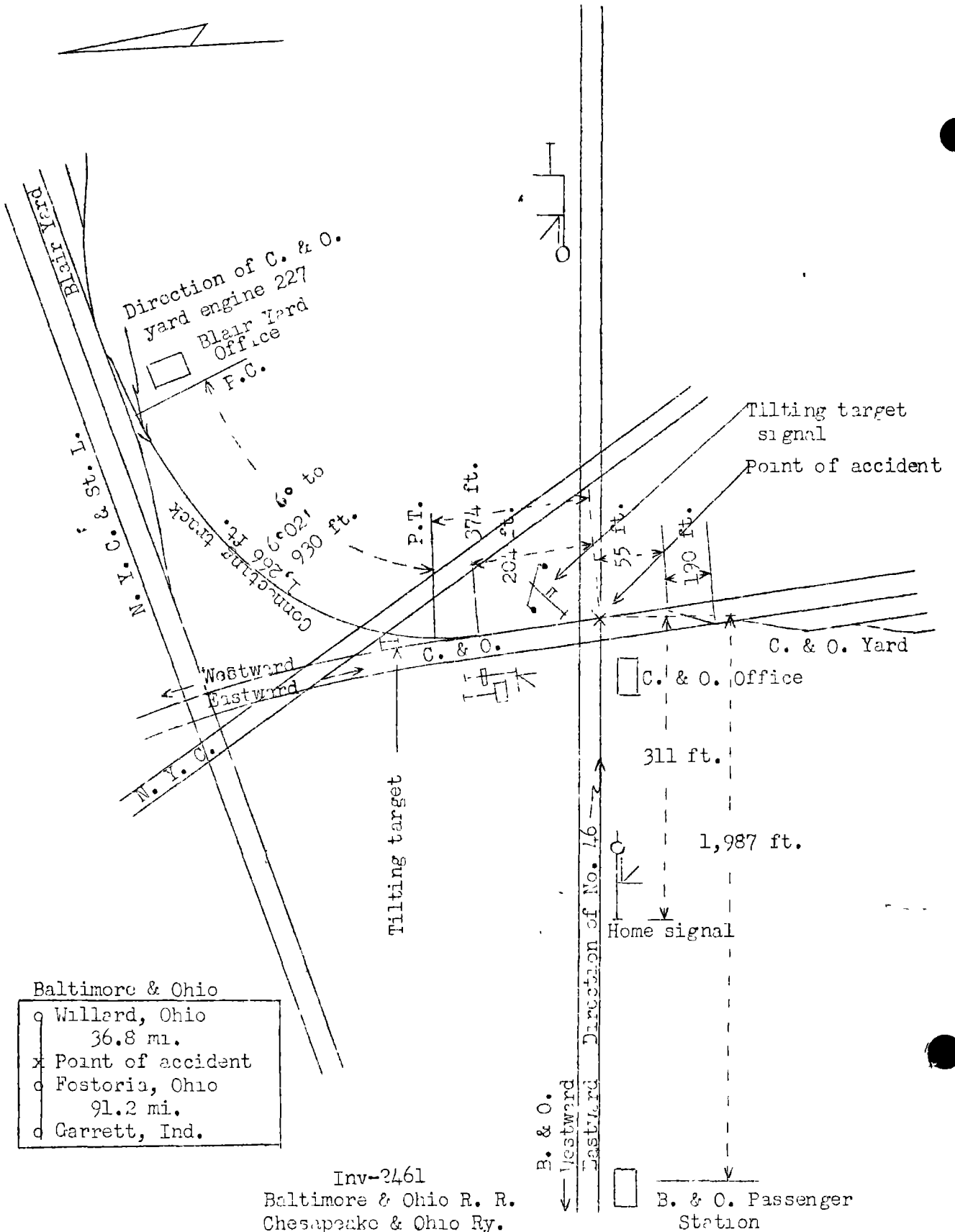
Accident at Fostoria, Ohio, on November 12, 1940, caused by failure of C. & O. yard engine properly to observe and to obey a crossing signal indication.

REPORT OF THE COMMISSION¹

PATTERSON, Commissioner:

On November 12, 1940, there was a side collision between a Baltimore and Ohio Railroad passenger train and a Chesapeake and Ohio Railway yard engine at Fostoria, Ohio, which resulted in the death of one employee. This accident was investigated in conjunction with a representative of the Public Utilities Commission of Ohio.

¹ 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.



Baltimore & Ohio

- o Willard, Ohio
36.8 mi.
- x Point of accident
- o Fostoria, Ohio
91.2 mi.
- o Garrett, Ind.

Inv-2461
 Baltimore & Ohio R. R.
 Chesapeake & Ohio Ry.
 Fostoria, Ohio
 November 12, 1940

B. & O. Passenger Station

Location and Method of Operation

Hereinafter the Baltimore and Ohio Railroad, the Chesapeake and Ohio Railway, and the New York, Chicago & St. Louis Railroad will be referred to respectively as the B. & O., the C. & O. and the Nickel Plate. The accident occurred at the intersection of the E. & O. and C. & O. tracks. Fostoria is located on that part of the Akron-Chicago Division of the B. & O. designated as the Chicago Subdivision which extends between Garrett, Ind., and Willard, Ohio, a distance of 128 miles, and on that part of the Hocking Division of the C. & O. designated as the Toledo Sub-Division which extends between Mosel, Columbus, Ohio, and Rockwell Junction, Toledo, Ohio, a distance of 127.1 miles. Both are double-track lines. Trains are operated on the B. & O. by an automatic block-signal system, the indications of which supersede time-table superiority; trains are operated on the C. & O. by timetable, train orders and an automatic block-signal system. These lines intersect at an angle of $78^{\circ}58'$. Time-table directions on both railroads are east and west; however, according to compass directions, the westward and eastward tracks of the C. & O. extend, respectively, north and south, and the tracks of the B. & O. extend east and west. The crossing is located 1,987 feet east of the B. & O. passenger station.

The accident occurred within yard limits on the C. & O. The yard-limit signs are located 10,650 feet south and 20,927 feet north of the crossing involved. A C. & O. yard lies south of the crossing and parallels the C. & O. main tracks on the west. Blair yard of the Nickel Plate is located northeast of the crossing. Movements from Blair yard to the C. & O. yard are made, successively, over a connecting track 1,266 feet in length, which joins the westward main track of the C. & O. at a point 204 feet north of the crossing involved, over the westward C. & O. main track a distance of 259 feet, through a crossover to the eastward main track, and through a switch located 245 feet south of the crossing, which provides entry to the C. & O. yard. Yard operations of the C. & O. and the Nickel Plate are performed jointly, but the operating rules of each carrier govern movements on their respective tracks.

As the crossing is approached from the west on the B. & O., the track is tangent and level. As the crossing is approached from Blair yard via the connecting track, there is a compound curve to the left consisting of 6° curvature a distance of 727 feet and $6^{\circ}02'$ curvature a distance of 203 feet, then a tangent 204 feet to the crossing and some distance beyond. Between Blair yard and the B. & O. crossing the grade varies from 0.35 to 1.10 percent ascending 1,000 feet, 0.093 percent descending a distance of 300 feet to the switch of the C. & O. westward

track, and then 0.079 percent ascending a distance of 204 feet to the crossing.

Movements over the crossing are governed by a tilting-target signal located in the northeast angle of the crossing. This signal is manually operated by use of a lever located in the C. & O. telegraph office, which is located in the southwest angle of the crossing. The blade of the target is 10 feet 9 inches long, is mounted on a mast, and is 31 feet 9 inches above the ground; the central portion, which is painted white, is 10 inches wide by 7 feet 7 inches long, and each end is 19 by 19 inches and is painted red. The target is equipped with a red electric light bulb at each end, for night signals. The aspects and indications of this signal are as follows:

	<u>Aspects</u>	<u>Indications</u>
	<u>Day</u>	<u>Night</u>
Vertical	Two red lights in vertical position	B. & O. trains may cross
Horizontal	Two red lights in horizontal position	C. & O. trains may cross
Diagonal	Two red lights in diagonal position	All trains stop

On the B. & O. movements over the crossing are governed also by semi-automatic signals. The signal governing eastward movements is located 311 feet west of the center-line of the crossing; it is a color-position-light signal, approach lighted. The control circuit for this signal is so arranged that the signal cannot display a proceed indication unless the tilting target is in vertical position. The operator can hold this signal in stop position even though the tilting target is in vertical position. The aspects and indications of this signal are as follows:

	<u>Aspects</u>	<u>Indications</u>
	Two red lights in horizontal position	Stop
	White light above two red lights in horizontal position	Stop and proceed
	Two yellow lights in diagonal position	Approach
	White light above two green lights in vertical position	Proceed

On the C. & O. movements over the crossing with the current of traffic are governed also by a three-position color-light automatic block-signal located 198 feet north of the crossing and a semi-automatic signal located 1,367 feet south of the crossing. These signals are controlled through a circuit controller connected to the tilting target so that the signals involved will automatically display a stop indication unless the tilting target is set for movement on the C. & O. track. The westward signal is controlled also through a circuit controller located in the telegraph office; the operator can place this signal in stop position regardless of the position of the tilting target. The westward signal will also automatically display a stop indication when the switch from the connecting track to the C. & O. westward main track is open.

Rules of the C. & O. Operating Rules read as follows:

34. All members of train and engine crews must, when practicable, communicate to each other by its name the indication of all signals affecting the movement of their train.

93. Within yard limits the main track may be used, protecting against third, fourth and fifth class and extra trains.

Third, fourth and fifth class and extra trains must move within yard limits prepared to stop unless the main track is seen or known to be clear.

98. Trains must approach * * * railroad crossings at grade, * * * prepared to stop, unless the switches are properly lined, signals indicate proceed, and track is clear. Where required by law, trains must stop.

Special Instruction No. 20 of the B. & O. timetable reads in part as follows:

In the state of Ohio at railroad crossings * * * not equipped with approved interlocking, trains or engines will stop not less than 200 feet nor more than 800 feet; * * * and they will not proceed until the route is clear, except at the C. & O. - N. Y. C. crossing Fostoria, Ohio, a clear route (vertical position of crossing target) will permit Eastward Baltimore and Ohio passenger trains after they have made station stop at Fostoria, to proceed over the crossing at a speed not to exceed 15 miles per hour. Eastward passenger trains that do not make the station stop, will make the statutory stop.

The maximum authorized speed for C. & O. and B. & O. trains over the crossing involved is 15 miles per hour.

It was dark and the weather was clear at the time of the accident, which occurred at 3:15 a. m.

Description

C. & O. yard engine 227, of the 0-8-0 type, in backward motion, with Conductor Fillhart of the C. & O. and Engineman Fawcett of the Nickel Plate in charge, was hauling 121 cars, with helper engine 520 coupled to the rear; it departed from Blair yard from a point 1,300 feet north of the B. & O. - C. & O. crossing between 3:05 and 3:10 a. m., proceeded over the connecting track and southward on the C. & O. westward main track, passed the tilting-target signal, which displayed a stop indication for C. & O. movement, and, while moving at a speed estimated to have been between 3 and 10 miles per hour, collided with B. & O. No. 46 at the crossing.

No. 46, a B. & O. east-bound first-class passenger train, with Conductor Thomas and Engineman Worman in charge, consisted of engine 5233 of the 4-6-2 type, one mail car, one baggage car, one coach, one Pullman sleeping car, and two coaches, in the order named. This train left Garrett, Ind., 91.2 miles west of Fostoria, at 1:13 a. m., according to the train sheet, 11 minutes late, passed WN Tower, the reporting station at Fostoria, located 3,138 feet west of the passenger station, at 3:06 a. m., 8 minutes late, and stopped at the passenger station. Several minutes later it proceeded and passed the home signal, which displayed a proceed indication, and at the C. & O. crossing, while moving at a speed estimated to have been between 10 and 15 miles per hour, it collided with C. & O. engine 227.

The left end of the pilot beam of the B. & O. engine struck the left rear corner of the end sill of the tender of engine 227. The tender was derailed and stopped at an angle to the crossing with its rear end fouling the B. & O. westward main track; the left rear corner of the cistern of the tender was badly damaged. One pair of driving wheels of engine 227 was derailed. No. 46 stopped with its fifth car on the crossing. The tilting-target signal was knocked down.

The employee killed was the conductor of the C. & O. yard engine.

Summary of Evidence

Engineman Fawcett, of C. & O. yard engine 227, stated that before his engine left Blair yard a terminal air-brake test was made and the brakes were reported as functioning properly. The engine was standing near the yard office when the conductor boarded the engine and told him that everything was clear and that the B. & O. passenger trains had gone. The yard engine left about 3 a. m. The conductor sat on the fireman's seatbox and faced the rear of the cut of cars; the window on that side of the cab was closed and the storm curtains were down. It was cold and the wind was from the southwest. Engineman Fawcett said his own window was open and he was watching the street crossings. At a distance of about 650 feet he saw the proceed indication displayed by the tilting target at the New York Central Railroad crossing, hereinafter referred to as the N. Y. C. crossing, located 482 feet north of the B. & O. - C. & O. crossing, but he did not call its indication as this signal is handled by a member of his crew. When his engine was in the vicinity of Columbus Street, 747 feet north of the B. & O. - C. & O. crossing, he observed that the tilting-target signal at that crossing was displaying a proceed indication for his engine. He called "Clear block," and the fireman, who was tending the fire, answered "Clear." The conductor did not call the signal indications at any time. As his engine passed the N. Y. C. crossing, the water in the boiler of his engine started to foam. As his engine was working hard he thought the helper engine had been cut off. He opened the cylinder cocks but on account of the location of the cylinder-cock lever it took him a little time to do so; however, he saw the red light of the main-track switch when his engine was about 250 feet from it, although he did not see the target signal then or at any time after he first saw it when he was in the vicinity of Columbus Street. There was nothing to obstruct his view except the headlight of a C. & O. engine south of the crossing and it interfered with his view to some extent. He observed the red lights of the cross-over switches south of the B. & O. - C. & O. crossing. As the tender of his engine began to foul the crossing the conductor called a warning and the engineman immediately applied the air brakes in emergency and stopped his engine. He estimated that the speed of his engine was between 4 and 6 miles per hour when it entered upon the C. & O. main track, and about 3 or 4 miles per hour when he made the emergency application. He thought that between 5 and 8 minutes elapsed from the time he first saw the tilting target until the time the accident occurred. He was positive that he had seen the lights of the tilting target at the B. & O. - C. & O. crossing in horizontal position, and was certain that he did not have this signal confused with the one at the N. Y. C. crossing, as the lights of the latter signal are in vertical position when it is displaying a proceed indication for his engine. He can see the lights of the N. Y. C. crossing signal soon after he leaves

Blair yard office. He has been working in the Fostoria yard for the past two or three months and is thoroughly familiar with the signals. He understood that a movement from one yard to the other is governed by signal indications, and he realized that the target signal at the B. & O. - C. & O. crossing could be changed between the time he first saw it and the time his engine was nearing the crossing.

Fireman Hendricks, of C. & O. yard engine 227, but a Nickel Plate employee, stated that his engine with the cut of cars left Blair yard about 3:05 a. m. He heard the conductor tell the engineman that the route was clear for their movement, the conductor having been advised by the operator at the B. & O. crossing. After the engine left the yard the fireman did not see either a signal indication or a switch, on account of track curvature and because he was tending the fire. He heard the engineman call "Clear block," which indicated that the switches and the target signals were lined for their movement; he repeated "Clear block," but he did not check the signal indications, although he knew that he was required to do so. The conductor did not call the signal indications at any time. When his engine was about two car lengths from the B. & O. - C. & O. crossing, he heard the engineman open and close the cylinder cocks and then he heard the conductor call a warning; he looked out and saw the B. & O. train about 150 feet from the crossing. The engineman immediately applied the air brakes in emergency, and the engine moved about one-half car length and stopped. The accident occurred about 3:15 a. m.

Front Brakeman Dillon, of C. & O. yard engine 227, stated that after his engine had pulled one cut of cars from Blair yard to the C. & O. yard he remained south of the B. & O. - C. & O. crossing to tend the switches. He was at the telegraph office when his conductor called the operator and said they were ready to make the second movement. The operator told the brakeman that he could line the switches for their movement, but that another B. & O. train would pass over the crossing before the yard engine would be admitted. Brakeman Dillon then proceeded to the N. Y. C. crossing and placed the target in vertical position for the movement of his engine, opened the switch on the C. & O. westward main track north of the crossing, opened the cross-over switch south of the crossing, opened No. 1 switch to the yard and was preparing to line the switch to track No. 2 when the accident occurred. During this time he did not observe the position of the target lights at the B. & O. - C. & O. crossing. His reason for not observing them was that he knew the crossing would be used by a B. & O. train before his own engine would use it.

Flagman Spangler, of C. & O. yard engine 227, stated that he was in the yard office when his conductor called the operator, about 3:05 a. m. He heard the conductor tell the yardmaster about various yard movements, but the conductor did not say anything about the route being clear for their movement. The flagman said he understood that movements are governed by target indications, that any information received from the operator at the B. & O. - C. & O. crossing does not supersede signal indications, and that it is necessary to get permission before a train leaves the yard. He was standing in front of the yard office at the time the yard engine left, which was at 3:10 a. m. The yard engine was moving at a speed of about 8 or 10 miles per hour when the air brakes became applied in emergency and it stopped within a distance of about a car length.

Engineman Johnson and Fireman Master, of helper engine 520 which was coupled to the rear of the yard cut, stated that the brake-pipe air hose were not coupled between the cut of cars and their engine. They had moved a distance of about 1,000 feet and had attained a speed of 8 or 10 miles per hour when the air brakes on the cars became applied in emergency. They understood that permission to leave the yard does not supersede signal indications of the target involved. The engineman stated that it is not the custom to call the target indications to the fireman; the fireman, however, stated that he calls the indication of the target at the N. Y. C. crossing, but that he is unable to see the target at the B. & O. - C. & O. crossing. The fireman said that he does not make a practice of repeating signal indications unless he can see them.

Engineman Worman, of B. & O. No. 46, stated that an air-brake test was made before his train left Garrett and the brakes functioned properly en route. As his train approached the station at Fostoria he could see the target lights at the B. & O. - C. & O. crossing displaying a proceed indication for his train. He made the station stop, and then the train proceeded at a low rate of speed. He called the indication of the semi-automatic signal, which displayed a proceed indication, and called the indication of the target signal. His train was moving at a speed of 10 or 11 miles per hour when he heard a crash. He made a service application of the air brakes and stopped his train with the fifth car on the crossing. He did not see the yard engine prior to the collision. The accident occurred at 3:15 a. m.

Fireman Mortorff, of B. & O. No. 46, stated that as his train approached the station at Fostoria he saw the lights of the target at the B. & O. - C. & O. crossing in vertical position, and the target was displaying a proceed indication when he last saw it; at this time his engine was about 200 feet from the crossing. He saw the yard engine about 200 feet north of the crossing and it appeared to be standing. He observed that

the headlight on the front of the engine was burning but he did not see a headlight on the rear of the tender, although it was possible that it was burning and he could not see it on account of the reflection of his own headlight. He then left his seat-box and was tending the fire when the accident occurred. The engineman immediately stopped the train by a service application of the air brakes. He estimated that the speed of his train at the time of the accident was 10 or 12 miles per hour.

Conductor Thomas, of B. & O. No. 46, stated that his train stood at the station at Fostoria 2 or 3 minutes. He did not see the target lights at the B. & O. - C. & O. crossing, but he did see the proceed indication displayed by the semi-automatic signal, which indicated that the crossing was clear for the movement of his train. He estimated that the speed of his train at the time of the accident was 10 or 12 miles per hour.

Front Brakeman Van Vlerath, of B. & O. No. 46, stated that while his train was at the station he looked ahead and observed that both the semi-automatic signal and the tilting target at the crossing displayed proceed indications for the movement of his train.

The statement of Flagman Stutzman, of B. & O. No. 46, added nothing of importance.

Operator Ballanger, at the B. & O. - C. & O. crossing, stated that when the conductor of the yard crew called him about 2:40 or 2:45 a. m. he told the conductor that the yard movement could be made as soon as three B. & O. passenger trains had passed, but he did not state when the crossing would be clear for the yard movement. The last C. & O. movement over the crossing involved prior to the time of the accident was made about 2:55 a. m. About 2:56 or 2:57 a. m. he placed the target in the vertical position for the passage of B. & O. trains, and the target remained in vertical position until after the accident occurred. Two west-bound B. & O. trains passed; the latter of these trains cleared the crossing at 3:03 a. m. and No. 46 arrived at the crossing at 3:15 a. m. He saw the yard engine approaching; it was working steam and the headlight on the rear of the tender was burning. There was not sufficient time for flagging, but he went to the window facing the yard engine and tried to attract the attention of the crew by giving stop signals and by calling to them. He estimated that the speed of No. 46 at the time of the accident was 10 or 15 miles per hour. Operator Ballanger stated that he gave the brakeman permission to line the switches for the yard movement. He said that while permission is required for a yard cut to leave Blair yard, it does not assure the crew that the crossing will be lined for their movement. Movements are made by target indications only. The

signal was in good condition and he had not experienced any difficulty with its operation.

Special Officer Frey, of the C. & O., stated that when he entered the telegraph office about 3 a. m. the operator was seated at his desk looking out the window. When the yard engine approached, the operator remarked about it and said that it would surely stop. The operator then went to the window and waved a light which was suspended from a lamp cord and he shouted warnings through the open window. The special officer said that at no time while he was in the office was there any change made in the signal levers

Assistant Yardmaster Fox, of the Nickel Plate, stated that permission for a cut of cars to leave Elair yard and to pass over the crossing involved does not supersede signal indications.

Superintendent Houston, of the C. & O., stated that the movement of the yard engine involved against the current of traffic from the connecting-track switch to the crossover south of the crossing was governed by Rule 93, and the movement over the crossing was governed by Rule 98.

Observations of the Commission's Inspectors

The Commission's inspectors observed that an engineman in the cab of an engine moving backward on the connecting track toward the crossing involved could see the tilting-target signal at a point 908 feet from it; it remained in view a distance of 25 feet, then was obscured from view a distance of 136 feet by a building and an advertising sign, and then was in view throughout a distance of 747 feet to the crossing.

Inspection of the lever in the telegraph office disclosed that it was in full right position, which is for B. & O. movement over the crossing; this lever could not be moved from this position because it had become jammed as a result of the signal having been damaged in the accident. It was apparent that prior to the accident the signal was in position for B. & O. movement over the crossing.

Discussion

According to the evidence, the C. & O. yard engine was proceeding southward in backward motion at a speed of 5 to 10 miles per hour and the B. & O. train was proceeding eastward at a speed of 10 or 15 miles per hour when the left end of the pilot beam of the B. & O. engine struck the left rear corner of the end sill of the tender of the yard engine

The crossing involved was protected by a target which was so arranged that when it displayed proceed for one route it displayed stop for the other. During a period of about 18 minutes immediately prior to the time the accident occurred the target was displaying proceed for B. & O. movement. The engineman of the yard engine was the only witness who said that the target was displaying proceed for C. & O. movement some time during this 18-minute period. When the engineman made this observation he was 747 feet from the crossing. If the yard engine proceeded throughout this distance at an average speed of 5 miles per hour, not more than 2 minutes would be used in covering this distance. Apparently the engineman was confused concerning the indication displayed by the target as the evidence is conclusive that during the last several minutes immediately prior to the time the accident occurred the signal involved displayed proceed for the B. & O. and not for the C. & O. Because of the curvature of the connecting track in the vicinity from which the engineman observed the signal, his view of the signal was at a considerable angle to the normal line of vision for which the signal was arranged. In addition, there was a similar signal between the point at which the engineman made the observation and the signal involved, but he was certain that he did not confuse the first signal for the second one.

Of the three employees on the yard engine, the conductor was the only one to observe the approach of the B. & O. train, but when he gave warning the rear of the tender was beginning to foul the crossing and there was insufficient time to prevent the accident. Why the conductor did not take action to comply with the indication of the target is not known, as he was killed in the accident. The fireman was tending the fire and did not observe the indication displayed by the target. When the yard engine was nearing the crossing, the engineman was engaged in opening the cylinder cocks; he observed switch lights both north and south of the crossing but failed to see the target lights, which were about 32 feet above the level of the track, even though there was nothing throughout the last 747 feet traversed to obstruct this signal from his view.

The only member of the crew of the B. & O. train who observed the yard engine was the fireman, who thought it was standing about 200 feet north of the crossing when his own engine was about 200 feet west of the crossing; he then proceeded to tend the fire and was thus engaged when the collision occurred. The engineman of the B. & O. train was not able to see the yard engine because it was approaching from the left of his train.

Under the rules governing operation over this crossing, the yard engine was required to approach the crossing prepared to stop unless the signal indicated proceed and the track was clear. Since the target displayed stop, the yard engine was required not to foul the crossing until the signal displayed proceed.

All the employees of the yard crew had had considerable experience in the territory involved and were familiar with the various tracks, signals, and operating rules involved.

Cause

It is found that this accident was caused by failure of the yard engine to observe and to obey a crossing signal.

Dated at Washington, D. C., this thirteenth day of January, 1941.

By the Commission, Commissioner Patterson.

SEAL

W. P. BARTEL,

Secretary.