INTERSTATE COMMERCE COMMISSION

WASHINGTON

INVESTIGATION NO. 2581

THE BALTIMORE AND OHIO RAILROAD COMPANY

REPORT IN RE ACCIDENT

NEAR PLYMOUTH, OHIO, ON

APRIL 15, 1942

SUMMARY

Railroad:	Baltimore and Ohio	
Date:	April 15, 1942	
Location:	Plymouth, Ohio	
Kind of accident:	Collision	
Trains involved:	Freight	: Freight
Train number:	93	: Rear portion of Extra 4079 East
Engine numbers:	4079-4517	
Consist:	57 cars, caboose	: 37 cars, caboose
Speed:	4-20 m. p. h.	: Standing
Operation:	Timetable, train orders and manual-block system	
Track:	Single; tangent; 0.77 percent descending grade westward	
Weather:	Clear	
Time:	About 1:15 a. m.	
Casualties:	1 killed; 6 injured	
Cause:	Accident caused by failure to control speed of train properly on account of train brakes not being operated from first engine and no headlight being displayed to front of train	

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 2581

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

THE BALTIMORE AND OHIO RAILROAD COMPANY

August 4, 1942.

Accident near Plymouth, Ohio, on April 15, 1942, caused by failure to control speed of train properly on account of train brakes not being operated from first engine and no headlight being displayed to front of train.

REPORT OF THE COMMISSION[1]

PATTERSON, Commissioner:

On April 15, 1942, there was a collision between a freight train and the rear portion of another freight train on the Baltimore and Ohio Railroad near Plymouth, Ohio, which resulted in the death of one employee and the injury of six employees. This accident was investigated in conjunction with a representative of the Public Utilities Commission of Ohio.

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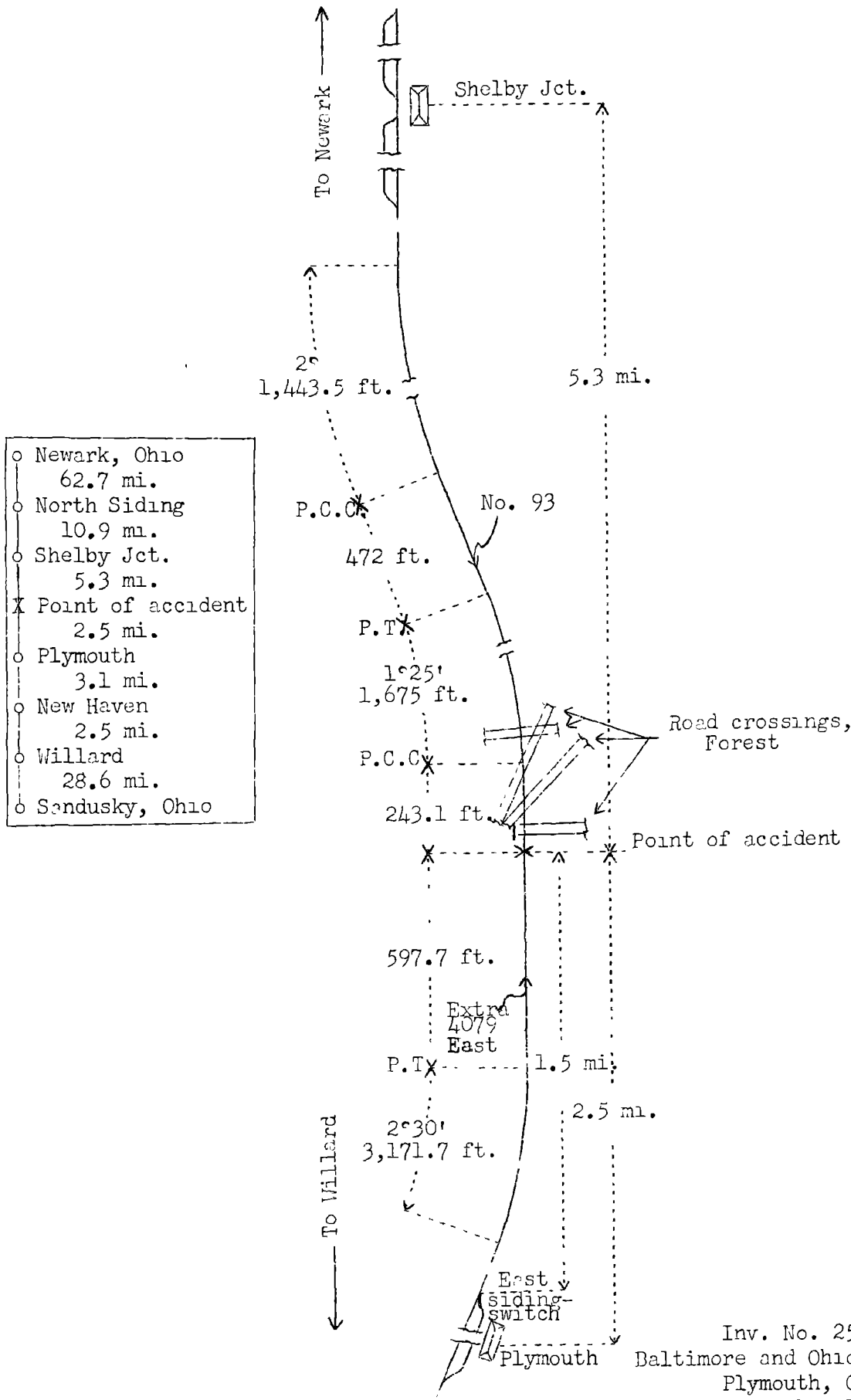
[1]Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Commissioner Patterson for consideration and disposition.



Inv. No. 2581
Baltimore and Ohio Railroad
Plymouth, Ohio

Location of Accident and Method of Operation

This accident occurred on that part of the Newark Division designated as the Lake Erie Sub-Division and extending between Sandusky and Newark, Ohio, a distance of 115.6 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 a manual-block system. At Plymouth a siding having a capacity of 77 cars parallels the main track on the south. At Shelby Jct., 7.8 miles east of Plymouth, there are two sidings. The westward siding, which has a capacity of 53 cars, parallels the main track on the north and the west switch is east of the train-order office. The eastward siding is west of the train-order office and parallels the main track on the south. The accident occurred on the main track at a point 1.5 miles east of the east siding-switch at Plymouth. As the point of accident is approached from the east there are, in succession, a compound curve to the left 1,443.5 feet, the maximum curvature of which is 2°, a tangent 472 feet, a compound curve to the right 1,675 feet, the maximum curvature of which is 1°25', and a tangent 243 feet to the point of accident. The grade for west-bound trains varies between 0.075 and 0.86 percent descending throughout a distance of 3,606 feet to the point of accident and is 0.77 percent at the point of accident. Throughout a distance of 828 feet east of the point of accident the track is laid in a cut, the maximum depth of which is 10 feet. The cut is 8 feet in depth at the point of accident. Highway grade crossings are located at points 880.5 feet, 1,326.5 feet, 2,617.5 feet and 3,605.5 feet east of the point of accident.

Operating rules read in part as follows:

14. ENGINE WHISTLE SIGNALS.

Note.--The signals prescribed are illustrated by "o" for short sounds; * * *

(a) o Apply brakes. Stop

17. The headlight will be displayed to the front of every train by night * * *

* * *

When an engine is running backward a white light must be displayed by night on the rear of the tender.

201. For movements not provided for by rule or time-table, train orders will be issued by authority of the Superintendent and over the initials of the train dispatcher originating them, and only contain information or instruction essential to such movements.

* * *

220. Train orders once in effect continue so until fulfilled, superseded or annulled. * * *

* * *

317. * * *

A train must not be admitted to a block which is occupied by an opposing train or by a passenger train except * * * by train order. A train may be permitted to follow a train other than a passenger train into a block under permissive indication or Clearance Form A.

* * *

930. When a train has more than one engine the requirements of the rules apply alike to the engineman of each engine, except that the use of the * * * air brake shall be limited to the leading engine except in emergencies. * * *

Instructions governing the operation of air brakes read in part as follows:

114. When two or more locomotives are coupled together or to any part of a train, the brake must be connected to the leading locomotive, and the brake operated from that locomotive. * * *

In the vicinity of the point of accident the maximum authorized speed for engines moving in backward motion is 20 miles per hour on tangents and 15 miles per hour on curves.

Description of Accident

Extra 4079 East, an east-bound freight train, consisted of engine 4079, 24 loaded and 43 empty cars and a caboose. Before this train departed from Willard, 5.6 miles west of Plymouth, a terminal air-brake test was made, and the brakes functioned properly. At Willard the crew received a clearance Form A which granted block authority to Shelby Jct., and, among others, copies of train order No. 393, Form 19, which read as follows:

NO. NINETY THREE 93 ENG. 4517 MEET EXTRA
4079 EAST AT WESTWARD SIDING SHELBY JCT.

This train departed from Willard at 10:50 p. m., April 14, according to the dispatcher's record of movement of trains, and stalled on a grade at a point 2.5 miles east of Plymouth about 11:38 p. m. The first 30 cars were detached and placed on the eastward siding at Shelby Jct., 7.8 miles east of Plymouth, about 12:10 a. m., April 15. The rear portion was left standing on the main track with the front end 1.5 miles east of the east siding-switch at Plymouth.

No. 93, a west-bound third-class freight train, departed from Newark, 81.4 miles east of Plymouth, at 8:55 p. m., April 14, according to the dispatcher's record of movement of trains, 1 hour 55 minutes late. At North Siding, 18.7 miles east of Plymouth, the crew received copies of train order No. 396, Form 31, which read as follows:

NO. NINETY THREE 93 ENG 4517 MEET EXTRA 4079 EAST AT WESTWARD SIDING SHELBY JCT. ORDERS NO. THREE HUNDRED NINETY FIVE 395 AND THREE HUNDRED NINETY THREE 393 ARE ANNULLED.

After some cars were set off and others added, this train, consisting of engine 4517, 39 loaded and 18 empty cars and a caboose, departed from North Siding at 12:07 a. m., 1 hour 21 minutes late, and stopped on the main track at Shelby Jct. at 12:43 a. m. At Shelby Jct. the crew of No. 93 received copies of clearance Form A, which authorized it to enter an occupied block, and copies of train order No. 303, Form 19, which read as follows:

NO. NINETY THREE 93 ENG 4517 RUN AHEAD OF NO. FORTY FIVE 45 ENG 5117 SHELBY JCT. TO NEW HAVEN.

New Haven is located 10.9 miles west of Shelby Jct. Engine 4079, of Extra 4079 East, in back-up position, was coupled to the front end of engine 4517 of No. 93. This train departed from Shelby Jct. at 1:04 a. m., and while moving at a speed variously estimated from 4 to 20 miles per hour it collided with the rear portion of Extra 4079 East.

The force of the impact moved the rear portion of Extra 4079 backward about 60 feet. Both engines were derailed but remained upright and stopped, badly damaged, across the track and at angles of 45 degrees to it. The cab of engine 4079 was destroyed, the boiler head was moved inward and various steam pipes were broken. The tender was torn loose and stopped, headed westward and against the left side of the smokebox. The tender was destroyed. The cab of engine 4517, of No. 93, was crushed. The tender was torn loose from the engine and stopped, badly damaged, at the rear of the engine and across the track. The first three cars of No. 93 were derailed and stopped, badly damaged, at various angles across the track. The third car was destroyed. The first and second cars of the rear portion of Extra 4079 were destroyed, and the third car was damaged. The wreckage was contained within a distance of 160 feet.

It was clear at the time of the accident, which occurred about 1:15 a. m.

The employee killed was the conductor of Extra 4079 East, who was on engine 4079, and the employees injured were the engineer, the fireman and the front brakeman of Extra 4079 East, and the engineer, a student fireman and the conductor of No. 93.

According to the timetable, No. 45, a west-bound first-class passenger train, was due to leave Shelby Jct. at 1:14 a. m.

The block involved extends between Willard and Shelby Jct., a distance of 13.4 miles.

Data

After the accident, inspection of 52 cars of No. 93 disclosed that the brake-cylinder piston travel varied between 6 and 10 inches, except on the forty-second car, which had a brake-cylinder piston travel of 12 inches. There were 19 cars equipped with AB valves.

Discussion

The operating rules on the line involved require that when movements are not provided for by rule or timetable, train orders containing information or instructions necessary for the intended movements will be issued by the dispatcher. Train orders continue in effect until fulfilled, superseded or annulled. The manual-block rules specify that a train must not be admitted to a block that is occupied by an opposing train, except when lines of communication have failed, or by train order. When two or more engines are coupled together, the train-brake system must be controlled from the first engine, except in an emergency.

The crew of No. 93, a west-bound third-class train, and the crew of Extra 4079 East held copies of train orders establishing a meeting point between these trains at the westward siding at Shelby Jct. Extra 4079 East was required to enter the west switch of the westward siding to meet No. 93, and No. 93 was required to stop on the main track short of the fouling point of the west switch of the westward siding unless Extra 4079 was in the clear. All surviving members of both crews involved understood these requirements.

Extra 4079 East stalled about 5 miles west of Shelby Jct. at 11:38 p. m. The first 30 cars were taken to Shelby Jct. and placed on the eastward siding at 12:10 a. m. The front end of the rear portion stood at a point 1.5 miles east of the east siding-switch at Plymouth and 5.3 miles west of Shelby Jct. After the front portion arrived at Shelby Jct., the conductor was informed that No. 93 would soon arrive at Shelby Jct. No. 45, a west-bound first-class train, was due to leave Shelby Jct. at 1:14 a. m. Instead of bringing the rear portion of Extra 4079 to Shelby Jct., to comply with the provisions of the meet order with No. 93, the employees involved, with the knowledge and consent of the dispatcher and the chief dispatcher, decided to back the rear portion into the siding at Plymouth to let No. 93 by. No. 93 received a train order authorizing it to run ahead of No. 45 from Shelby Jct. to New Haven, 3.1 miles west of Plymouth, and No. 45 was directed by train order to follow No. 93 at restricted speed. For the purpose of expediting the movement of No. 93, engine 4079 was coupled to the head end of this train for the movement from Shelby Jct. to the point where the rear portion of Extra 4079 had been left. Engine 4079 was headed eastward, the two engines were coupled pilot to pilot, and as thus arranged the air-brake hose could not be coupled between them. To avoid delay No. 93's engine was not placed ahead and as a consequence the train brakes were controlled from the second

engine. The rear end of engine 4079 was not equipped with a headlight, and during this movement no headlight was in use at the front end of this train. The conductor of Extra 4079 informed the engineer of No. 93 of the intended movements and instructed him to control the train. He told the engineer where the rear end of Extra 4079 was located but, although the front brakeman of No. 93 who overheard the conversation correctly understood the location, the engineer of No. 93 understood that the front end of the rear portion of Extra 4079 was about 1,800 feet west of its actual location.

This train departed from Shelby Jct. at 1:04 a. m., and as it approached the point of accident the speed was about 25 miles per hour. The engineer, the fireman, the front brakeman and the conductor of Extra 4079 were on the first engine. The throttle of engine 4079 was closed but engine 4517 was using steam. The engineer of engine 4079 sounded the engine-whistle signal for the brakes to be applied and then sounded a road-crossing signal. The speed of the train was not reduced and he again sounded the signal for the brakes to be applied, moved the independent brake valve to application position and opened the sander valve. At this time the train was passing over a road crossing located about 1,300 feet east of the point of accident. Both the conductor and the front brakeman of Extra 4079 were giving stop signals from the left side of the cab of engine 4079 to the engineer of engine 4517. The fireman of engine 4079 stationed himself on the right steps and by means of a flashlight attempted to determine the exact location of the front end of the rear portion. The engineer of engine 4079 said that the speed was being reduced gradually and he did not become alarmed until his fireman jumped off just before the collision occurred, and at that time the speed was about 9 miles per hour. The engineer of engine 4517 said that when his engine was about 1,300 feet east of the point where the accident occurred he closed the throttle and made a light brake-pipe reduction. Soon afterward he heard the engine whistle of engine 4079 sound the signal to apply the brakes and he immediately placed the automatic brake valve in service position. The brake-pipe exhaust had not ceased when the collision occurred. He did not hear the engine-whistle signal sounded more than once. He said that he observed the lantern signals which were given from engine 4079 but he interpreted them as ordinary stop signals, and he did not place the brake valve in emergency position. It was very dark and since no headlight was lighted he was unable to estimate the speed at any point between Shelby Jct. and the point of accident. The classification lights on engine 4079 interfered with his vision. The fireman of engine 4517 estimated the speed as 4 miles per hour at the time of the collision, but the conductor of No. 93 said that the speed was about 20 miles per hour.

The investigation of this accident disclosed that a number of operating rules were involved. Train order No. 396 had not been fulfilled, superseded or annulled when No. 93 passed the meeting point; however, the trainmaster said that the order was

superseded by No. 93 moving under flag protection to Plymouth to meet Extra 4079 East at that station instead of Shelby Jct. The block extending from Shelby Jct. to Willard was occupied by the rear portion of an opposing train when No. 93 was ready to depart from Shelby Jct. The trainmaster said that the operation of No. 93 against an opposing movement in the block was avoided by the coupling of No. 93 to engine 4079. Engine 4079 with No. 93 coupled to it was operated from Shelby Jct. to the point of accident without a headlight in use at the front end of the train, and with the train brakes controlled from the second engine instead of from the first engine as required by the rules. No member of the crew of Extra 4079 who knew the location of the standing cars was on the engine from which the brakes were controlled and operated. No flag protection was provided for the front end of the standing cars, and no light was provided to indicate their location. A proper air-brake test was not made of the cars added to No. 93 at North Siding, but the brakes functioned properly; however, the train left that station without the crew knowing the condition of all the brakes in their train.

Cause

It is found that this accident was caused by failure to control speed of train properly on account of train brakes not being operated from first engine and no headlight being displayed to front of train.

Dated at Washington, D. C., this fourth day of August, 1942.

By the Commission, Commissioner Patterson.

W. P. BARTEL,

(SEAL) Secretary.