Inv-2400

INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT OF THE DIRECTOR

BUREAU OF SAFETY

ACCIDENT ON THE

TERMINAL RAILROAD ASSOCIATION OF ST. LOUIS

EAST ST. LOUIS, ILL.

DECEMBER 25, 1939

INVESTIGATION NO. 2400

SUMMARY

Inv-2400

Railroad:	Terminal Railroad Association of St. Louis		
Date:	December 25, 1939		
Location:	East St. Louis, Ill.		
Kind of accident:	Rear-end collision		
Trains involved:	Passenger	:	Passenger
Train numbers:	Southern 2	:	Baltimore & Ohio 11
Engine numbers:	127	:	5209
Consist:	4 cars	:	6 cars
Speed:	3-5 m. p. h.	:	4-5 m. p. h.
Operation:	Timetable and train orders		
Track:	Double: tangent; 0.65 percent ascending grade westward		
Weather:	Fog and smoke		
Time:	7:15 a. m.		
Casualties:	3 injured		
Cause:	Failure to provide adequate flag protection for preceding train; failure to control the speed of the following train properly		

Inv-2400

February 9, 1940.

To the Commission:

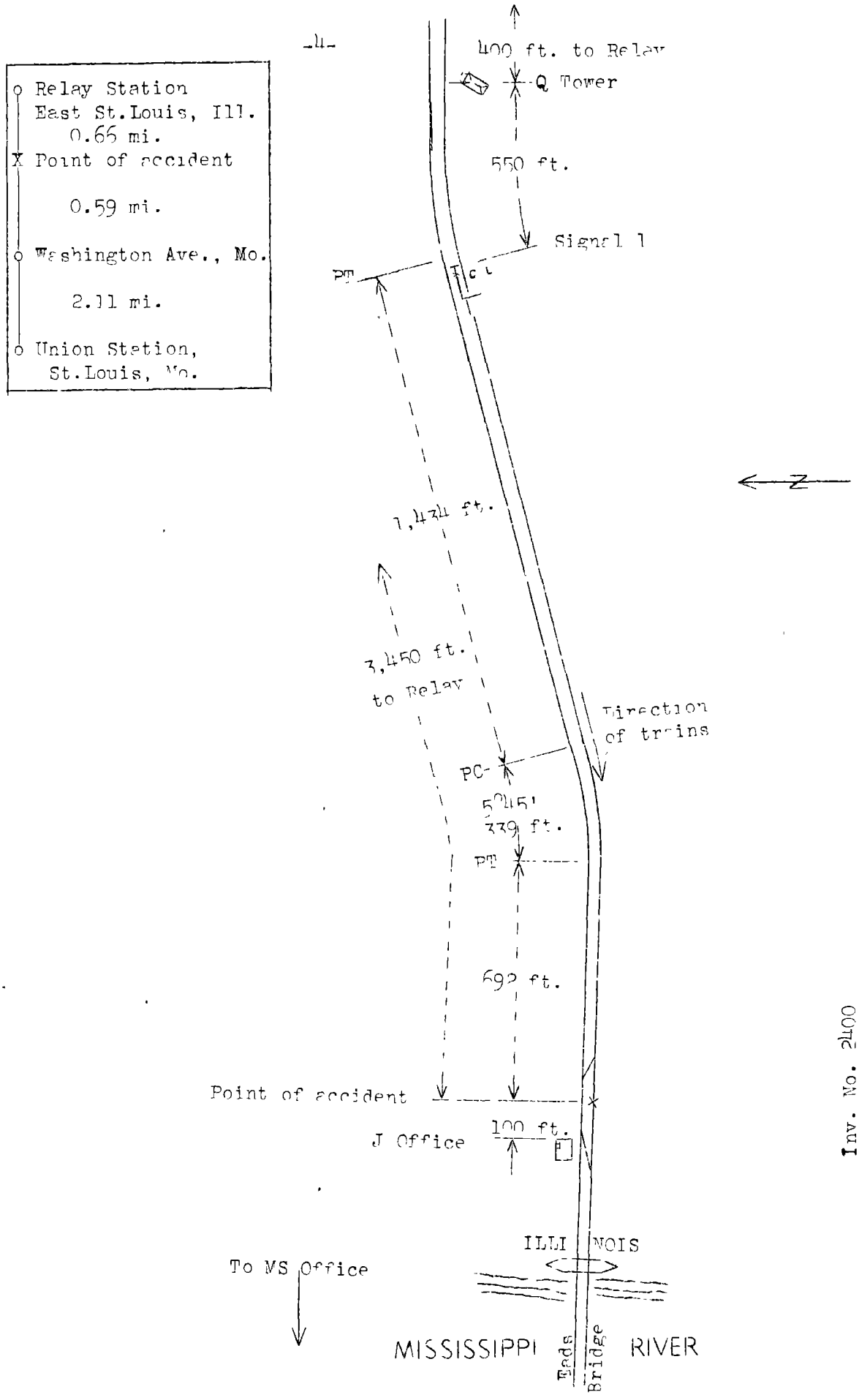
On December 25, 1939, there was a rear-end collision between a Southern Railway passenger train and a Baltimore & Ohio Railroad passenger train on the line of the Terminal Railroad Association of St. Louis, at East St. Louis, Ill., which resulted in the injury of 3 passengers. This accident was investigated in conjunction with representatives of the Illinois Commerce Commission.

Location and Method of Operation

Trains arrive at and depart from St. Louis, Mo., over the tracks of the Terminal Railroad Association of St. Louis, hereinafter referred to as the "Terminal." This accident occurred on the Eads Division, which extends between Relay Station, East St. Louis, Ill., and Union Station, St. Louis, Mo., a distance of 3.27 miles. In the immediate vicinity of the point of accident this is a double-track line over which trains are operated by timetable and train orders; there is no block system in use. The current of traffic is to the left. The tracks of the Terminal are virtually one continuous yard. Train movements are frequent and at irregular intervals. Trains are required to be operated under control and in accordance with operating rules and time-table rules and instructions.

The accident occurred about 3,450 feet west of Relay Station, on the east trestle-approach of Eads Bridge which spans the Mississippi River. Approaching this point from the east there are, in succession, a tangent 1,434 feet in length, a 5°45' curve to the right 339 feet in length, and a tangent which extends 692 feet to the point of accident and some distance beyond. The grade varies between 1.50 and 0.65 percent ascending westward a distance of 2,809 feet to the point of accident and is 0.65 percent at the point of accident. The open-deck trestle-approach of Eads Bridge begins about 1,535 feet east of the point of accident.

Q Tower is located about 400 feet west of Relay Station; MS Office is located about 5,225 feet west of Q Tower and at the west end of Eads Bridge. Signal 1, the leaving signal at Q Tower, governs westward movements; it is of nonautomatic, 2-indication, color-light type and displays a red aspect for stop, and a green aspect for proceed. The interlocking signals at Q Tower, including leaving signal 1, do not indicate track occupancy. West-bound trains pass no other signal until they reach MS Office.



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Terminal R.R. Association of St.Louis
East St. Louis, Illinois
December 25, 1939

When trains of the Southern Railway arrive at East St. Louis the engines are detached. Terminal engines are coupled to the opposite, or rear ends, and the trains are pulled backward over Eads Bridge.

Operating rules read in whole, or in part, as follows:

> 9. Day signals must be displayed from sunrise to sunset, but when day signals cannot be plainly seen, night signals must be used in addition.
> Night signals must be displayed from sunset to sunrise.
>
> 19. The following signals will be displayed, one on each side of the rear of every passenger train, as markers, to indicate the rear of the train: By day, green (or yellow) flags, or marker lamps (not lighted); by night, green (or yellow) lights to the front and side and red lights to the rear; * * *
> * * *
>
> 36. * * *
> Fusees must not be put on bridge or elevated structures.
>
> 51. In addition to markers on passenger trains by day and by night, a red light shall be conspicuously displayed at the rear of every train between Poplar Street, St. Louis, and "Q" tower, East St. Louis. * * *
>
> 99. When a train stops under circumstances in which it may be overtaken by another train, the flagman must go back immediately with flagman's signals a sufficient distance to insure full protection.
> * * *
>
> When a train is moving under circumstances in which it may be overtaken by another train, the flagman must take such action as may be necessary to insure full protection.
> When day signals cannot be plainly seen, owing to weather or other conditions, night signals must also be used.
> Conductors and enginemen are responsible for the protection of their trains.

> 109. A proceed signal, or a train order, does not insure an unobstructed track ahead, except through the tunnel. The tracks of these companies are virtually one continuous yard. Train movements are frequent but often irregular. Movements must be made with trains under control.
>
> 825. A flagman must ride on the rear of each passenger train, prepared to comply with Rule 99, if necessary, * * *

General rule 308 of the current timetable reads as follows:

> In fog or storm and when view is otherwise obstructed, enginemen and trainmen must be especially alert and move trains under such control as to insure stopping within a distance track is known to be clear. In case of accident, responsibility will rest with the moving train. * * *

Under time-table special rules and instructions applicable to the Eads Division, rule 321 reads in part as follows:

> Between Fourteenth Street, St. Louis, and Q interlocking plant, East St. Louis, trains must keep to the left, * * * Trains must run with the current of traffic unless otherwise directed by proper authority.

The maximum authorized speed in the vicinity of the point of accident is 15 miles per hour.

Fog accompanied by a thick blanket of smoke prevailed at the time of the accident, which occurred about 7:15 a. m.

Description

Southern No. 2, a passenger train, arrived at Relay Station at 7:05 a. m., according to the train sheet. The road engine was detached and Terminal engine 127 was coupled to the opposite end to pull the cars backward over Eads Bridge. This train, as then assembled, with Southern Railway Conductor Dickens and Terminal Enginemen Mank in charge, consisted of Terminal engine 127, one coach, one passenger-baggage car, one baggage-express car and one mail-baggage car. The coach and the second car were of steel-underframe construction and the last two cars were of all-steel construction. Southern No. 2 departed westward, passed Q Tower at 7:11 a. m., according to the train sheet, 16

minutes late, and, while moving on the east approach to the bridge at a speed estimated to have been between 3 and 5 miles per hour, its rear end was struck by Baltimore & Ohio No. 11.

Baltimore & Ohio No. 11, a west-bound passenger train, with Conductor Ross and Engineman Overbay in charge, consisted of engine 5209, one mail car, one baggage-express car, one coach and three sleeping cars; all the cars were of steel construction. This train arrived at Q Tower at 7:07 a. m., and, having received a proceed signal indication, departed at 7:12 a. m., according to the train sheet, 4 minutes ahead of its scheduled leaving time, and, while moving at a speed estimated to have been 4 or 5 miles per hour, collided with the rear end of Southern No. 2. Engine 5209 became coupled automatically to the last car in Southern No. 2, and as a result of the impact the front coupler of the car next to engine 127 was broken; the rear truck of the last car in this train was derailed.

Engine 5209 was damaged slightly and the Baltimore & Ohio train was separated between the first and second cars as a result of damage to the couplers.

Summary of evidence

Engineman Mank, of engine 127, stated that his engine hauled the cars of Southern No. 2 from Relay Station. When ascending the eastern approach to Eads Bridge the fog restricted visibility so that it was not possible to see farther than 25 or 30 feet. He was operating the train at a low rate of speed with the expectation of finding a train ahead. When approaching J Office, located about 3,100 feet west of Q Tower, he saw a preceding train, Illinois Central No. 16, about one-half car length distant. He further reduced speed and soon afterward Baltimore & Ohio No. 11 struck the rear end of his train. He did not observe a red light on the rear of the preceding train, but he said a light could have been there and obscured from his view by escaping steam from the steam-heat hose. It is not customary to display markers in this vicinity. The Terminal rules provide for the use of fusees. He believed that operation would be safer if the rules required the use of lighted fusees on rear ends of trains when moving under similar conditions, or if an adequate block system were installed. He said that when a train stops on the bridge it is customary for flagmen to provide proper protection.

Fireman Finn, of engine 127, corroborated the statement of the engineman except he estimated that the speed of his train was about 3 or 4 miles per hour at the time of the accident and said that during 15 years of service he never saw trainmen provide flag protection in this vicinity.

Flagman Curry, of Southern No. 2, stated that at Relay Station he uncoupled the Southern road engine, placed the back-up hose in position, set a lighted red lantern in the middle of the east end-door of the mail car and left fusees in that end of the car. He coupled the Terminal engine to the opposite end of the train and connected the air-brake and train-air signal hose. No markers were placed on the rear end of his train. He said that after departing from Relay Station the conductor assumed the duties of the flagman, so that the flagman could assist passengers off the train at Washington Avenue and Union Station. The flagman was in the coach when the impact occurred. He said that it is not customary to use markers on the rear ends of trains in this vicinity; it was his understanding that a lighted red lantern placed on the rear of a train was sufficient and complied with the rules. He understood that protection depended upon the requirement of rule 308 that trains be moved under such control as to insure stopping within a distance the track is known to be clear. He said a lighted red fusee displayed at the rear of his train might have prevented the accident.

Baggageman Mutch, of Southern No. 2, stated that the accident occurred at 7:15 a. m. He estimated that the speed of his train was not more than 4 or 5 miles per hour.

Conductor Dickens, of Southern No. 2, stated that at the time of the accident he was acting in the capacity of flagman. A lighted red lantern was displayed in the end-door enclosure at the rear of his train. He was stationed in the mail car, which was the rear car, and there was no place for him to ride outside on the rear end. The east end-door, which contained no window, was closed; he opened it once and looked out. He did not know that a train was following and he said his only opportunity to see out was from the partly opened side door. In the dense fog visibility was restricted to less than 30 feet. The speed was about 3 or 4 miles per hour and the first intimation he had of danger was when the following train struck the rear of his train. At the time of the impact he was near the east end of the car and was going from the side door to the rear door. He had fusees but did not use them because the rules prohibit putting fusees on bridges or elevated structures. He was not aware of any Terminal rule requiring the use of lighted fusees on rear ends of trains. The use of markers in this locality was not customary and he understood that a lighted red lantern displayed at the rear end met marker requirements. He had operated over the Terminal tracks into St. Louis for the last 10 or 12 years and had been assigned for 2 years past to this run and came into St. Louis on alternate days but never had occasion to use flagging equipment in this territory. He had been examined last on the Terminal rules in July, 1939. The method of operation, in his opinion, was reasonably safe and his train was protected properly, according to the rules. While his train was moving he

depended entirely upon rule 308 for protection and was expecting following trains to be moving under such control that following engine crews could see the lighted red lantern at the rear of his train in time to stop. He did not think that under the existing conditions a lighted red fusee at the rear of his train would have afforded additional protection.

Engineman Overbay, of Baltimore & Ohio No. 11, stated that when the proper signal indications were received his train departed from Relay Station and passed leaving signal 1, which was displaying a proceed indication. He was using the drifting valve only and the speed on the grade was not in excess of 5 miles per hour. He was maintaining a vigilant lookout and through the dense fog saw the rear end of a preceding train. He immediately applied the air brakes in emergency but it was too late to avert the accident. He saw only the upper half of the rear car and did not see a lighted red lantern on its rear end. He had operated over this bridge for the past 25 years and during that period he had never been flagged from the bridge, but occasionally he had seen a lighted fusee on the rear end of a train. He attended a Terminal rules examination on May 25, 1939. In clear weather it was customary for flagmen to flag from the rear end of the preceding train. He was complying with the requirements of rule 308 to the best of his ability and he said that if he had operated his train more slowly on the incline the engine would have stalled. He said that if ample warning of the proximity of the preceding train had been given in accordance with the requirements of rule 99, or had this portion of the line been equipped with an adequate block system, probably the accident would not have occurred. The air brakes on his train functioned properly.

Fireman Hastings, of Baltimore & Ohio No. 11, stated that when his train was approaching the point of accident he was maintaining a lookout through the open front storm-window. Visibility was restricted by dense fog to a distance of 20 or 30 feet in front of the engine. When about 25 or 30 feet from the preceding train he saw part of the end of its rear car. He immediately called a warning of danger and simultaneously the engineman applied the brakes in emergency. He estimated that the speed was 4 or 5 miles per hour at the time of the accident. He did not see a lighted red lantern on the rear of the Southern train, and he had no knowledge of a preceding train. If his train had moved more slowly on the incline the engine would have stalled, therefore, he thought that under the existing weather conditions rule 308 was inadequate for proper protection. Previously he had been flagged on Eads Bridge by a lighted fusee from the rear of a preceding train, and he thought that had there been a lighted fusee or markers displayed on the rear of the preceding train this accident might have been averted. He had attended Terminal rules examination during May, 1939.

Conductor Ross, of Baltimore & Ohio No. 11, stated that for about 6 years past he had been working on trains which were operated over the tracks of the Terminal, and he was familiar with the method of operation in the vicinity of the point of the accident. He had last been examined on the Terminal rules on May 8, 1939. Although the weather was foggy the day of the accident, he was not alarmed at the manner in which his train was being operated just prior to the collision. He said that undoubtedly a lighted fusee displayed from the preceding train would have prevented the accident. His engineman appeared to be normal.

Flagman Lamb, of Baltimore & Ohio No. 11, stated that he was in the rear car of his train at the time of the collision. In the dense fog visibility was restricted to about one coach length, therefore, as an extra precaution, he stuck a lighted fusee in some snow that had blown on the rear platform. He estimated that the speed was about 5 miles per hour at the time of the accident and said that as a result of the impact he was knocked down. Soon afterward using a lighted fusee he flagged a following train. Markers and a lighted red lantern were displayed at the rear of his own train but he thought that the Terminal rules required the display of only a lighted red lantern. As an added precaution while passing over the bridge during foggy weather he followed the practice of displaying a lighted fusee at the rear of the train.

Baggageman Buckley, of Baltimore & Ohio No. 11, added nothing of importance.

Train Director Flaherty, at Q Tower, stated that he saw a lighted red lantern on the rear of Southern No. 2 when it passed his tower. He knew of no exception to the rules requiring that markers and a red light be displayed at the rear of passenger trains, but he considered that a red light at the rear of a train was sufficient. It was foggy when Baltimore & Ohio No. 11 departed from Relay Station, 1 minute later than Southern No. 2, and at a slightly higher rate of speed. Although the rules require enginemen to look out for trains ahead, also that flag protection be afforded on the bridge, he thought that probably a safer method of operation would be provided by spacing trains 5 minutes apart.

Passenger Trainmaster Perry, of the Terminal, stated that prior to the accident trains that were pulled backward over Terminal tracks were not required by practice to display markers; but since this accident, all trains were required to display markers. He said that lighted fusees could be displayed from the rear ends of trains operating over the Eads Division, either by holding them or by fastening them to the drawbars.

Signal Engineer Hix stated that movements under close headway are made from Q Tower to MS Office and that the spacing between trains is approximately 1,000 feet. He said that the value of automatic signals in this territory was questionable. If automatic signals were installed many trains stopped by the display of stop indications would be unable to start on the ascending grade. If trains were admitted into the same territory under a call-on signal they would then move under conditions as covered by rule 99. In all cases movements are made under conditions commonly encountered in yards, and the territory in question is so classified. Aside from the doubtful value of automatic signals at this location it would be difficult, if possible, to maintain track circuits because the rails on the bridge creep from 30 to 33 feet per month.

Subsequent to the accident the superintendent of the Terminal issued a circular, dated December 28, 1939, addressed to the Illinois Central Railroad, the Southern Railway and the Mobile & Ohio Railroad, which reads as follows:

> Effective at once, please arrange to have markers displayed on the rear of your passenger trains operating between Union Station and Relay Depot. This is in addition to red light required by Rule 51.

A statement of traffic density over Eads Bridge covering the 30-day period prior to the accident disclosed a movement of 1,956 passenger trains, 1,205 freight trains, and 1,813 light engines, or a total daily average of 165.8 movements.

Discussion

According to the evidence, a dense fog prevailed in the vicinity of the point of accident. The rules of the Terminal require a train to be operated in fog or storm under such control as to insure stopping within a distance the track is known to be clear.

Southern No. 2, departed from Relay Station at 7:11 a. m. and was proceeding on the bridge approach at a speed of 3 to 5 miles per hour; it had reached a point about 3,450 feet west of Relay Station when it was struck by the following train, Baltimore & Ohio No. 11.

Baltimore & Ohio No. 11 departed from Relay Station at 7:12 a. m., 4 minutes in advance of its schedule leaving time. The Terminal has no rule prohibiting a train leaving in advance of its schedule. All members of its crew were agreed that the

speed at the time of accident was not in excess of 5 miles per hour. Both members of the engine crew stated that the rear of the preceding train was not seen until only about 25 or 30 feet ahead of their engine. The brakes were applied immediately, in emergency, but too late to avert the accident. The engineman, corroborated by the fireman, stated that there were no markers displayed at the rear of the preceding train and the lighted red lantern could not be seen. No attempt had been made by the crew of the preceding train to flag them.

The conductor of Southern No. 2 was acting in the capacity of flagman at the time of the accident. His train was being pulled backward over the bridge and the markers were not transferred to that end of the train, which was its rear end at the time of the accident. He said that he was familiar with the rules of the Terminal, and that he had been examined recently on the rules, but he thought that a red lantern displayed at the rear fulfilled the requirements of rules 19 and 51. His reasons for non-compliance with the requirements of rules 99 and 825 were that he believed a lighted fusee would have been useless, and that in this instance it was impossible to station himself at the rear of the train because the rear car was a mail-baggage car without a rear platform. He said that he could not maintain a constant lookout from the rear door as it had no window, but did not explain why the door could not have been left open in order to provide himself with necessary knowledge of a following movement.

The rules require that in foggy weather all trains must be operated under such control that will insure stopping within a distance the track is known to be clear. All members of the crew of the following train agreed that its speed was not in excess of 5 miles per hour; the estimated speed of the preceding train, which was closely following another train, was 3 to 5 miles per hour. In view of the damage sustained by both trains involved, apparently the speed of the Baltimore & Ohio train was in excess of that estimated by the members of its crew and also in excess of that in which it could be operated in compliance with the rules.

Various members of both crews involved expressed the opinion that a lighted red lantern at the rear of a train met the requirements for markers. The train director said that it was his understanding that a red lantern met marker requirements on the Terminal tracks. The trainmaster said that prior to the accident when a train reversed its direction markers were not required, and that a lighted red lantern was considered sufficient; however, since the accident a bulletin has been issued by the Terminal which requires all trains operating over the Terminal to display markers and a lighted red lantern at the rear end.

The investigation disclosed that even though most of the employees involved had been examined recently on the operating rules, they did not appear to have a common understanding of them. The investigation also disclosed that a trainmaster of the Terminal knew that trains being pulled backward over the territory involved were not required by practice to display markers. These facts indicate lax supervision and improper enforcement of the rules.

According to the signal engineer, the only spacing of west-bound trains in the territory between Q Tower and MS Office, a distance of about 1 mile, is done at the leaving signal at Q Tower. Trains are permitted to follow each other from the leaving signal at a distance of about 1,000 feet, but no provision is made to give crews information concerning track occupancy. There is nothing to prevent trains closing up to each other at any point before reaching MS Office. Considering the density of traffic and the circumstances and conditions involved in this accident, it is apparent that additional protection is needed.

Conclusion

This accident was caused by failure to provide proper protection for the preceding train, and by failure to control the speed of the following train properly.

Recommendation

In view of the density of traffic on this division, it is recommended that operating officials immediately give consideration to the necessity for additional protection.

Respectfully submitted,

S. N. MILLS,

Director.