Inv-2424

INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT OF THE DIRECTOR

BUREAU OF SAFETY

ACCIDENT ON THE

CHESAPEAKE AND OHIO RAILWAY

BARBOURSVILLE, W. VA.

MAY 2, 1940

INVESTIGATION NO. 2424

SUMMARY

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Railroad:	Chesapeake and Ohio	
Date:	May 2, 1940	
Location:	Barboursville, W. Va.	
Kind of accident:	Rear-end collision	
Trains involved:	Freight	: Freight
Train numbers:	Extra 2336 West	: Extra 1227 West
Engine numbers:	2336	: 1227
Consist:	59 cars and caboose	: 68 cars and caboose
Speed:	Standing	: 10-25 m. p. h.
Operation:	Automatic block-signal system; accident occurred within interlocking limits	
Track:	Double; tangent; 0.09 percent ascending grade westward	
Weather:	Light rain	
Time:	9:10 p. m.	
Casualties:	2 injured	
Cause:	Failure to operate following train in accordance with signal indications, and failure to provide adequate flag protection for preceding train	

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June 12, 1940.

To the Commission:

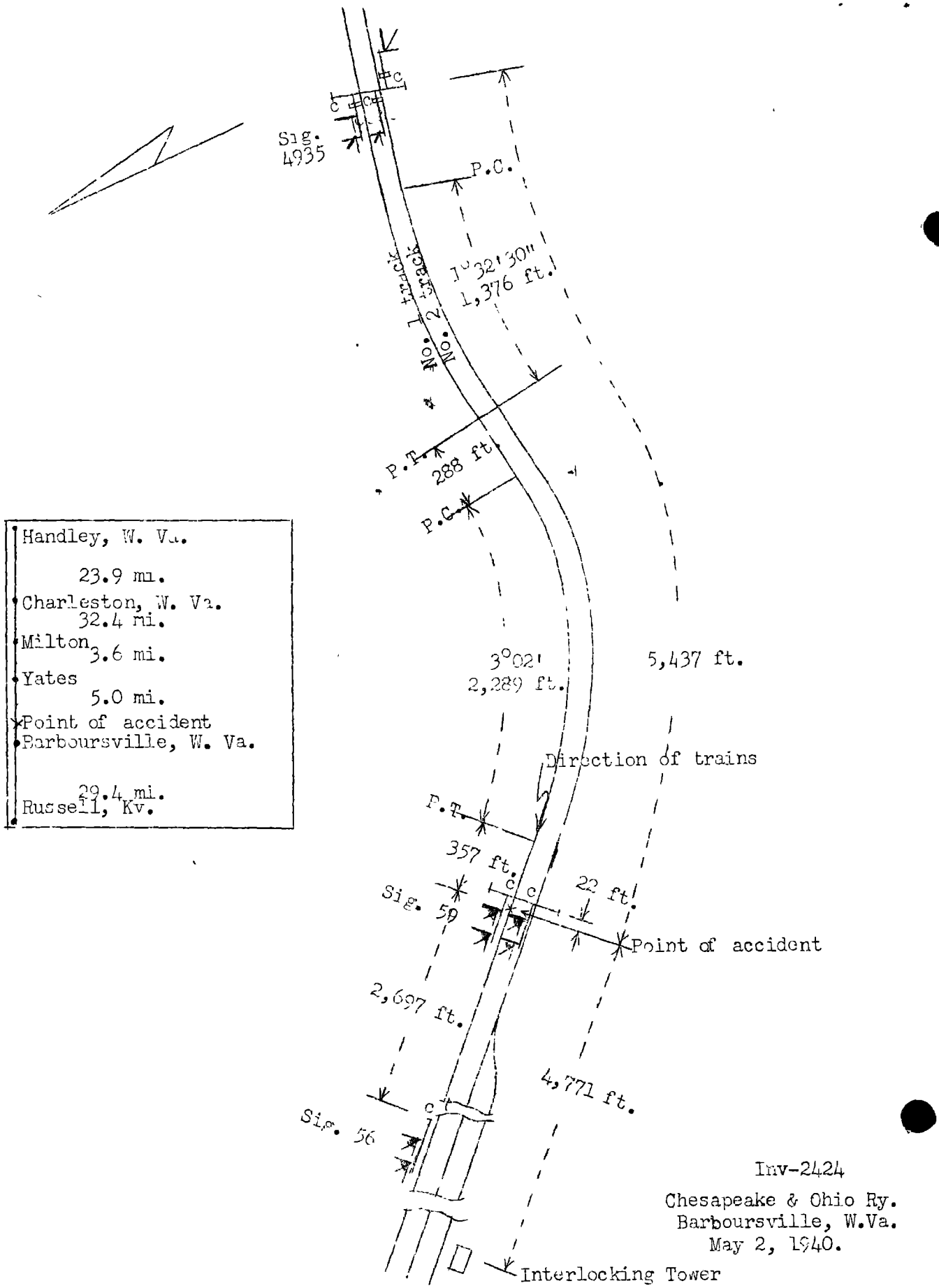
On May 2, 1940, there was a rear-end collision between two freight trains on the Chesapeake and Ohio Railway at Barboursville, W. Va., which resulted in the injury of two employees.

Location and Method of Operation

This accident occurred on that part of the Huntington Division designated as the Kanawha Sub-division which extends between Handley, W. Va., and Russell, Ky., a distance of 94.3 miles. In the vicinity of the point of accident this is a double-track line over which trains are operated in either direction on both tracks by automatic signals, the indications of which supersede time-table superiority; traffic locking is provided. The tracks are numbered 1 and 2 from north to south. The accident occurred within interlocking limits on track No. 1 at a point 4,771 feet east of the interlocking tower at Barboursville. Approaching this point from the east there are, in succession, a tangent 3,807 feet in length, a 1°32'30" curve to the left 1,376 feet in length, a tangent 288 feet in length, a 3°02' curve to the right 2,289 feet in length, and a tangent 357 feet to the point of accident and 1,110 feet beyond. The grade is 0.09 percent ascending westward at the point of accident.

The signals which govern westward movements on track No. 1 are automatic signal 4935 and semi-automatic interlocking home signals 56 and 59; signals 4935 and 59 are located on signal bridges 5,437 feet and 22 feet, respectively, east of the point of accident; signal 56 is located 2,697 feet west of the point of accident. These signals are two-unit, color-light signals. The aspects, indications, and names of the signals involved and the corresponding rule numbers are as follows:

Aspect	Indication	Name	Rule No.
Green-over-red	Proceed	Clear	281
Yellow-over-red	Prepare to stop at next signal, train exceeding medium speed must at once reduce to that speed	Approach	285
Red-over-red	Stop	Stop	292



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Chesapeake & Ohio Ry.
Barboursville, W.Va.
May 2, 1940.

Medium speed is defined as one-half maximum authorized speed, but not to exceed 30 miles per hour.

The maximum authorized speed for the trains involved is 45 miles per hour.

Rules of the operating department read in whole or in part as follows:

> 55. The following signals will be used by flagmen:
>
> * * *
>
> Night signals - A red light,
> A white light,
> Torpedoes and
> Fusees
>
> 99. (a) 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, placing two torpedoes, and when necessary, in addition, displaying lighted fusees. When recalled and safety to the train will permit, he may return.
>
> When the conditions require he will leave the torpedoes and a lighted fusee. Except in emergency, * * * fusees and torpedoes will not be used by trainmen in automatic block signal territory.
>
> * * *
>
> 271. (a) On portions of the road so specified on the time-table (or by special instructions), trains will run in either direction on tracks so specified by block signals whose indications will supersede time-table superiority.

Rules I and J of the time-table general instructions read in part as follows:

I.- Rules 271 (a) to 276 (a) inclusive are in effect between Scott and D. K. Cabin * * *

J.- Trains may be started without orders and will run as extras -

Westward from Handley.

* * *

Scott and D. K. Cabin are located, respectively, 21.4 miles east and 6.7 miles west of Barboursville.

A light rain was falling at the time of the accident, which occurred about 9:10 p. m.

Description

Extra 2336, a west-bound freight train, with Conductor Harford and Engineman Lipscomb in charge, consisted of engine 2336, 24 loaded and 35 empty cars, and a caboose. This train departed from Charleston, 41.0 miles east of Barboursville, at 7:40 p. m., according to the evidence, passed Milton, the last open office, 8.6 miles east of Barboursville, at 8:21 p. m., according to the train sheet, passed automatic signal 4935 displaying a proceed indication, passed interlocking home signal 59 displaying an approach indication, and stopped about 8:38 p. m. at signal 56, which was displaying a stop indication, in order that the crew might inspect the train for a defective car wheel, and was standing with the rear end about 22 feet west of signal 59 when it was struck by Extra 1227 about 9:10 p. m.

Extra 1227, a west-bound freight train, with Conductor Meadows and Engineman Short in charge, consisted of engine 1227, 64 loaded and 4 empty cars, and a caboose. This train passed Milton at 9:05 p. m., according to the train sheet, passed automatic signal 4935 displaying an approach indication, passed interlocking home signal 59 displaying a stop indication, and, while moving at a speed variously estimated to have been between 10 and 25 miles per hour, struck the rear end of Extra 2336.

The caboose and the five rear cars of Extra 2336 were derailed and stopped in various positions on each side of the tracks and across them; three of these cars were destroyed; the eleventh and twelfth cars from the rear buckled to the south and were destroyed, and three other cars were slightly damaged. Engine 1227 stopped about 218 feet west of the point of collision; the engine and the tender were derailed but remained upright and in line with the track; the front end of the engine was badly damaged. The first car of Extra 1227 was derailed; the eleventh and twelfth cars buckled to the south; the twelfth car was destroyed.

The employees injured were the fireman and the front brakeman of Extra 1227.

Summary of Evidence

Engineman Lipscomb, of Extra 2336, stated that an air-brake test was made at Hinton, W. Va., 137.4 miles east of Barboursville and at each point en route where cars were added to the train; the brakes functioned properly. When his train approached Barboursville a light rain was falling; signal 4935 displayed a proceed indication, signal 59 an approach indication, and signal 56 a stop indication. He stopped his train at signal 56 about 8:40 p. m. and signalled the flagman to protect the rear of the train. The front brakeman immediately telephoned the operator who informed him that the train should be inspected for a defective wheel. The brakeman then proceeded toward the rear to inspect the train, and, about 9:05 p. m., accompanied by the conductor, he returned to the front end. The conductor gave the engineman a signal to recall the flagman; about the same time signal 56 changed to display an approach indication. Engineman Lipscomb said that he recalled the flagman about 9:07 or 9:08 p. m. About 9:10 p. m. he felt a slight jar on the engine and informed the conductor and the front brakeman that the brake-pipe pressure was depleted; they proceeded to the rear of the train to ascertain the cause.

Fireman Richmond, of Extra 2336, corroborated the statement of Engineman Lipscomb.

Front Brakeman Kincaid, of Extra 2336, stated that after his train stopped at Barboursville he called the operator at that point on the telephone but as the latter was busy the operator at Milton instructed him to inspect his train for a defective car. Brakeman Kincaid proceeded toward the rear and inspected his train. He found hand brakes slightly applied on two cars about 25 cars ahead of the caboose; the wheels were warm but were not overheated. He met the conductor; they proceeded to the caboose, then walked to the front of the train, the conductor inspecting one side and he the other. The brakeman said that after the accident the flagman told him he had been back approximately 1,200 feet providing flag protection. Brakeman Kincaid said he considered this distance sufficient in view of the distance that the signals could be seen. He said that signal 59 could be seen about 50 or 60 car lengths. His understanding of the use of fusees as provided in Rule 99 was that the emergency provision was applicable only when providing flag protection on curves, or in other circumstances when visibility was restricted; if he thought a train was approaching too rapidly he would use a fusee.

Conductor Harford, of Extra 2336, stated that his train stopped at Barboursville at 8:40 p. m. and the engineman signalled the flagman to protect the rear of the train. The flagman started back immediately with flagging equipment and the conductor proceeded to a telephone and was instructed to inspect his train. After the train had been standing about 5 minutes the conductor and the front brakeman proceeded to inspect the train from the caboose to the engine. When leaving the caboose he saw that the flagman was then about 20 car lengths to the rear of the caboose and was still walking eastward. After inspecting the train the conductor reported to the operator at Barboursville that his train was ready to leave, and boarded the engine. At 9:10 p. m. he heard a noise which he thought might have been caused by automobiles colliding on the highway which parallels the tracks. He observed that the air gauge indicated the brake-pipe pressure was depleted. He proceeded to the rear of his train and met the flagman who told him that he had gone back a distance of 25 or 30 car lengths to flag. The conductor considered this distance sufficient under the existing conditions, as signal 59 could be seen across the curve a distance of about 1 mile.

Flagman Anderson, of Extra 2336, stated that immediately after his train stopped at Barboursville the engineman sounded the signal for the flagman to protect the rear of his train and he went back a distance of 25 or 30 car lengths, taking with him a red lantern, a white lantern, a fusee, and two torpedoes. He observed that both caboose markers were lighted and signal 59 was displaying a stop indication. He had been standing in that location about 25 or 30 minutes when he saw Extra 1227 approaching about 75 or 80 car lengths distant. He immediately gave stop signals with his red lantern. When the engineman of the approaching train failed to acknowledge his signals and when the train was about 10 or 15 car lengths from him and was moving at a speed of about 30 miles per hour, he lighted a fusee. As the engine passed, the engineman, who was sitting in the cab, appeared to be alert but did not acknowledge his signals; the engine was working steam and the brakes were not applied when the engine passed. After the first 7 or 8 cars had passed he observed that the air brakes were applied. He estimated that the speed of Extra 1227 was reduced to about 10 miles per hour at the time of collision. He understood the provisions of the flagging rule but did not believe it necessary in this instance to use torpedoes; he lighted a fusee only as an emergency measure after the engineman of the following train failed to acknowledge his signals. He thought that under the circumstances 25 or 30 car lengths was a sufficient distance to provide adequate flag protection.

Engineman Short, of Extra 1227, stated that several stops were made en route and the air brakes controlled the speed of the train properly. When his train was approaching Barboursville the speed was 40 miles per hour. He closed the throttle before his engine reached signal 4935, which displayed an approach indication. When the engine passed signal 4935 he made a 10-pound brake-pipe reduction. After the engine proceeded a short distance around the curve, he looked across and saw through the trees what appeared to be an approach indication at signal 59, and released the brakes; the speed at that time was about 30 miles per hour. After the train had proceeded about 4 or 5 car lengths farther, or about 35 or 40 car lengths from signal 59, he observed that signal 59 was displaying a stop indication and made a 10-pound brake-pipe reduction. After the train had moved an additional distance of 4 or 5 car lengths, he saw the caboose and placed the brake valve in emergency position. When his engine was about 12 or 15 car lengths distant from the caboose of the preceding train he saw its flagman about 8 or 10 car lengths to the rear of the caboose, moving toward Extra 1227. The engineman said that he did not see a burning fusee and did not hear any torpedo exploded. He reversed the engine and opened the sanders before passing the flagman, who called to him as he passed. The engineman thought that the brakes would have been more effective if he had applied them in emergency immediately instead of first making a service application. The speed was reduced to 20 or 25 miles per hour at the time of the collision. He understood that an approach signal indication required him to reduce the speed of his train to one-half the maximum authorized speed and to prepare to stop at the next signal. He said that he was misled by thinking that the next signal in advance had changed to display an approach indication. He thought that if the flagman of the preceding train had lighted a fusee when Extra 1227 was in the vicinity of signal 4935, he could have seen the reflection in time to take action to avert the accident.

Fireman Hanifen, of Extra 1227, stated that the air brakes were tested at Hinton and at Charleston and they controlled the speed of the train properly at all points where used en route. Both he and the front brakeman called the approach indication at signal 4935 to the engineman, who repeated it and immediately closed the throttle to drifting position. At that time the train was moving at a speed of about 40 miles per hour. The fireman said that signal 59 cannot be seen from the left side of the cab until the engine reaches a point 10 car lengths from it and, as the engineman did not call the indication, he crossed over to the right side when the engine was about 30 car lengths

east of signal 59 and saw that it was displaying a stop indication; at the same instant he saw the caboose of the preceding train. He warned the engineman, who started to make a service application of the air brakes, and when the fireman told him to apply the brakes in emergency, the engineman did so. The fireman saw the flagman of the preceding train giving stop signals with a red lantern and a lighted fusee about 15 car lengths to the rear of his caboose. The engineman, who was looking ahead, appeared to be normal and alert. Fireman Hanifen jumped off the engine when it was within 6 car lengths of the caboose and when his train was moving about 20 or 25 miles per hour. The fireman stated that the engineman did not make an air-brake application when the train passed signal 4935.

Front Brakeman Johnson, of Extra 1227, stated that when his train was approaching Barboursville the speed was 40 or 45 miles per hour. Both he and the fireman were on the left seat-boxes and called an approach indication when the engine was about 1,200 feet distant from signal 4935. The engineman closed the throttle to drifting position; however, he did not apply the brakes in emergency until after the fireman crossed over to the right side to observe signal 59. Brakeman Johnson said that because of track curvature signal 59 could not be seen from the left side of an engine until it was approximately 15 or 20 car lengths distant from the signal. When he first saw signal 59 it was displaying a stop indication and his train was moving at a speed of 30 or 35 miles per hour. He estimated that the speed was reduced to 20 miles per hour at the time of collision. After the accident he saw the flagman of Extra 2336, who had a red and a white lantern but did not have a fusee.

Conductor Meadows, of Extra 1227, stated that the air brakes were tested at Hinton and at Charleston and they functioned properly en route. When his train was approaching Barboursville it was moving at a speed of between 40 and 45 miles per hour. When the rear of his train passed signal 4935 he observed that a 12-pound brake-pipe reduction was made. Soon afterward the train lurched and the brake-pipe pressure slowly dropped to 5 pounds. He thought that his train moved about 68 car lengths from the time the first reduction was made until the train stopped. The accident occurred about 9:15 p. m. It was drizzling but visibility was unrestricted.

Flagman Burton, of Extra 1227, stated that when his train was approaching Barboursville it was moving at a speed of between 20 and 25 miles per hour; he felt an application of the air brakes at a point about 10 car lengths before the train stopped.

Section Foreman Jones, at Yates, located about 5 miles east of Barboursville, stated that he observed Extra 2336 when it passed his home and heard a noise similar to that made by a broken wheel; he saw fire flying from the wheels of a car near the middle of the train. He reported this condition to the operator at Barboursville.

Operator Mallory, at Barboursville, stated that after the section foreman had reported the defective condition of Extra 2336, he notified the dispatcher who instructed him to stop Extra 2336 at Barboursville. The front brakeman informed him of the accident about 9:20 p. m.

Assistant General Superintendent Taylor stated that on the night of the accident, in the presence of Road Foreman of Engines Callahan and himself, Engineman Short and Flagman Anderson marked the locations on the ground at the points where each believed that the flagman was standing when he flagged Extra 1227; the point indicated by Engineman Short was 587 feet to the rear of the caboose and the point indicated by Flagman Anderson was 1,094 feet to the rear of the caboose.

Superintendent Webb stated that a record of 6 efficiency tests conducted between June, 1937, and the date of the accident disclosed that Engineman Short complied with rule 285 in all instances; a record of 9 efficiency tests conducted between April, 1937, and February, 1940, disclosed that Flagman Anderson complied with rule 99 in all instances.

Observations of the Commission's Inspectors

Observations made by the Commission's inspectors from an engine of the same type as engine 1227 disclosed that signal 4935 could be seen from the right side of a west-bound engine a distance of 2,939 feet and from the left side of a west-bound engine a distance of 3,430 feet. Because of track curvature and trees intervening, the first view of home signal 59 from the right side of a west-bound engine was restricted to a distance of 2,855 feet and it could then be seen continuously a distance of 267 feet when it became obscured a distance of 863 feet, then it was again in view a distance of 1,725 feet to the signal. The view of signal 59 from the left side of a west-bound engine was restricted to 486 feet.

Discussion

According to the evidence, Extra 2336 West stopped at Barboursville about 8:58 p. m., with its rear end standing 22 feet west of home interlocking signal 59, in order that its crew might inspect for a defective wheel, and its rear end was struck by Extra 1227 West about 9:10 p. m.

The flagman had gone back to a point about 1,000 feet to the rear of his train, according to his statement, and only about 600 feet, according to the statements of the engineman and the fireman of the following train, when the following train passed him. Under the rules the flagman was required to go back immediately with flagging equipment a distance sufficient to insure full protection. The flagman was not required to use fusees or torpedoes when flagging in automatic block-signal territory, except in case of emergency. Because of track curvature and trees on the inside of the curve to the north of the tracks, an engineman of a west-bound train has a restricted view when approaching the point of accident. Extra 2336 had been standing about 30 minutes; had the flagman proceeded back a distance of about 4,000 feet to tangent track his signals could have been seen a distance of 4,200 feet farther, which would have provided a total stopping distance of about 8,200 feet for a following train. Even though the flagman was back a distance of only 600 to 1,000 feet, had he lighted a fusee when he first became aware of the approach of the following train, no doubt the engineman would have been warned in sufficient time to take action to avert the accident.

Under the rules, because of the approach indication at signal 4935, the following train was required to reduce to one-half the maximum authorized speed, or 22-1/2 miles per hour, and prepare to stop at the next signal; however, according to his statement, the engineman released the brakes soon after passing signal 4935 when the speed was 30 miles per hour. He said that he was misled because of an incorrect reading of the indication at signal 59, which he saw through the trees across the curve to the right. When he reached a point where he had an unrestricted view of signal 59, at a distance of about 1,700 feet east of the signal, he saw that the signal was displaying a stop indication; the speed was about 30 miles per hour and he immediately made a service brake-pipe reduction of 10 pounds, then placed the brake valve in emergency position, but it was too late to avert the accident. According to the evidence, the

brakes functioned properly en route. Had the engineman properly controlled the speed of his train after passing signal 4965 until he had an unrestricted view of signal 59, this accident would have been averted; had he made an emergency application of the brakes immediately upon seeing that signal 59 was displaying a stop indication, probably the train would have stopped short of the preceding train.

Conclusion

This accident was caused by failure to control the speed of the following train in accordance with signal indications, and by failure to provide adequate flag protection for the preceding train.

Respectfully submitted,

S. N. MILLS,

Director.