INTERSTATE COMMERCE COMMISSION

WASHINGTON

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REPORT OF THE DIRECTOR

BUREAU OF SAFETY

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ACCIDENT ON THE

PENNSYLVANIA RAILROAD

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HARRISON, N. J.

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JUNE 2, 1939

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INVESTIGATION NO. 2357

SUMMARY

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Inv-2557

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| Railroad: | Pennsylvania | |
| Date: | June 2, 1939 | |
| Location: | Harrison, N. J. | |
| Kind of accident: | Rear-end collision | |
| Trains involved: | Passenger | : Light engine |
| Train number: | 05827 | |
| Engine numbers: | Electric multiple unit | : 3805 |
| Consist: | 5 cars | |
| Speed: | Standing | : 2-20 m.p.h. |
| Operation: | Timetable, train orders, and automatic block-signal system supplemented by automatic cab-signal system | |
| Track: | Four track; 3°40' left curve 1,060 feet; grade 0.68 percent ascending westward | |
| Weather: | Clear | |
| Time: | 11:29 a. m. | |
| Casualties: | 15 injured | |
| Cause: | Failure of No. 05827 to be adequately protected by flag, and by failure of light engine 3805 to be operated in accordance with signal indication. | |

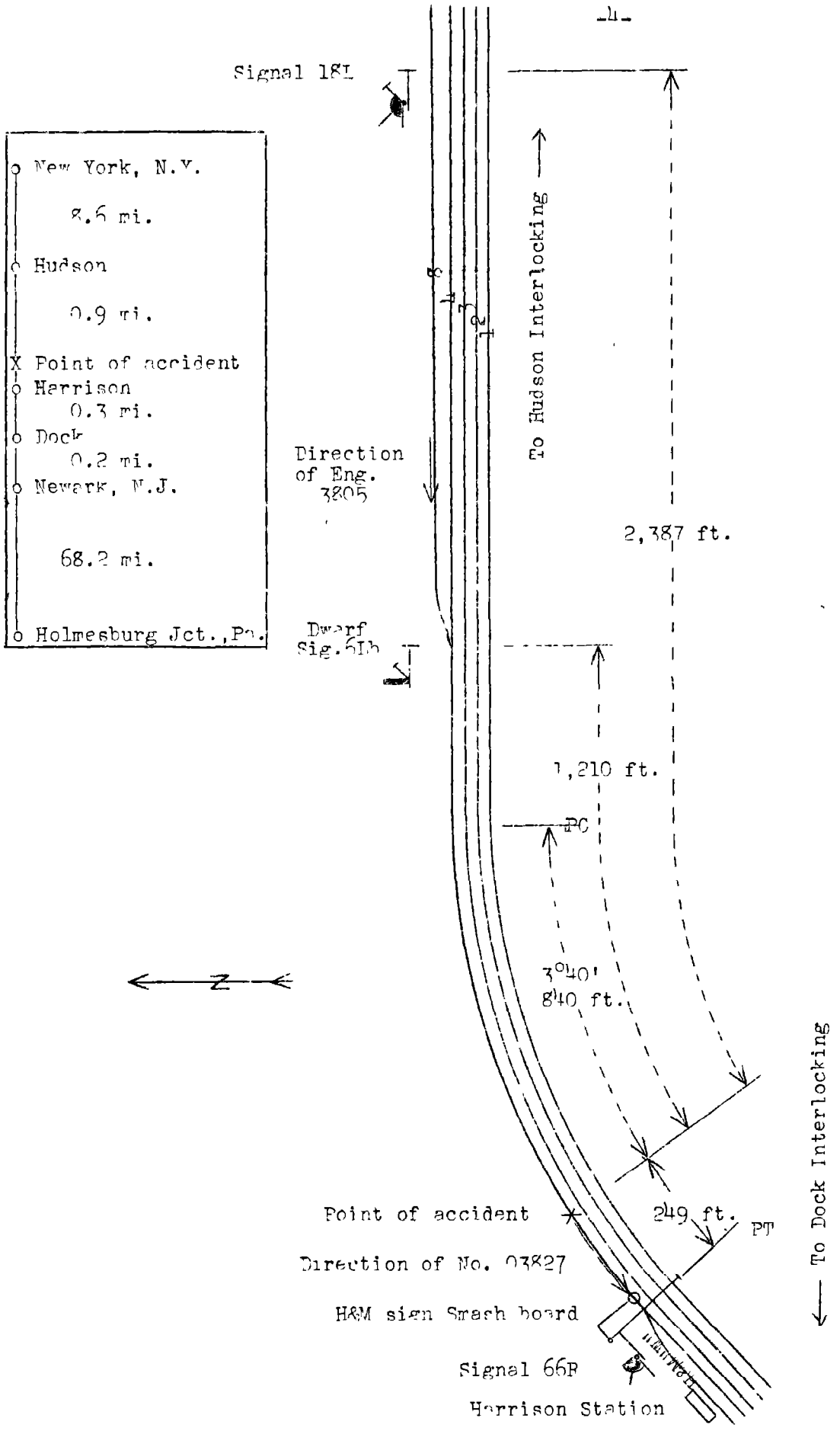
To the Commission:

On June 2, 1939, there was a rear-end collision between a passenger train of the Hudson and Manhattan Railroad and a light engine of the Pennsylvania Railroad on the line of the latter railroad at Harrison, N. J., which resulted in the injury of 15 passengers. The investigation of this accident was made in conjunction with the Public Utilities Commission of New Jersey.

## Location and Method of Operation

This accident occurred on that part of the New York Division which extends between New York, N. Y., and Holmesburg Junction, Pa., a distance of 78.2 miles. In the vicinity of the point of accident this is a 4-track line over which trains are operated by timetable, train orders, and an automatic block-signal system supplemented by an automatic cab-signal system; these tracks from south to north are numbered 1, 2, 3 and 4, track 4 being a westward passenger track and equipped with an electric third rail. The accident occurred on track 4 approximately 755 feet east of Harrison passenger station. Hudson interlocking and Dock interlocking are located approximately 4,000 feet east and 2,300 feet west, respectively, of the point of accident. The western limit of Hudson interlocking and the eastern limit of Dock interlocking are located, respectively, 704 feet east and 249 feet west of the point of accident.

Multiple unit electric trains of the Hudson and Manhattan Railroad, hereinafter referred to as the H. & M., are operated over the Pennsylvania Railroad, hereinafter referred to as the P. R.R., from Jersey City to Newark, N. J.; these movements are over the main line from Hudson interlocking to Newark, a distance of 1.4 miles. To provide a by-pass for H. & M. westbound trains through Harrison passenger station, a track designated as H. & M. track "W" diverges to the north from track 4 approximately 500 feet east of the station and parallels it through the station. Engine track 8 parallels track 4 on the north. Entry to track 4 from track 8 is made through a trailing-point switch, for westward movements, located 1,210 feet east of the point of accident. Approaching from the east there is a tangent 700 feet long followed by a $3^{\circ}40'$ curve to the left 840 feet to the point of accident and 220 feet beyond. The grade at the point of accident is 0.68 percent ascending westward.




Inv. No. 2357
Pennsylvania R.R.
Harrison, N. J.
June 2, 1939

Signal 66R, which governs movements from track 4 to track "W", is a two-unit, position-light, interlocking home signal, located on a signal bridge immediately east of the entrance to track "W", and is operated from Dock interlocking. When this signal is displayed for a movement to track "W" there also are displayed a sign marked "H. & M." and a smash-board which drops over track 4 at a height that permits H. & M. trains to pass under it; other trains accepting this signal will contact and break the smash-board and set into operation an audible whistle at the signal. Signal 6Lb, which governs movements from track 8 to track 4, is a dwarf signal, located about 230 feet east of the switch at the entrance to track 4, and is operated from Hudson interlocking. The automatic cab-signal system is of the continuous type and displays indications conforming with the indications of the wayside signals. It is so arranged that when a train enters an occupied block a caution-slow-speed indication is displayed.

Operating rules provide in part as follows:

Rule 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, placing two torpedoes, and when necessary, in addition, displaying lighted fusees.

* * *

"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. By night, or by day when the view is obscured, lighted fusees must be thrown off at proper intervals.

* * *

"Flagman's signals:

Day signals - A red flag,
Torpedoes and
Fusees.

* * *"

Rule 273: "Indication - proceed at not exceeding 15 miles per hour with caution prepared to stop short of train or obstruction. Name - Caution-slow-speed-signal."

Rule 818: "He (fireman) must * * * see fixed signals affecting the movement of his train, assist the engineman in keeping a lookout on the track for obstructions and other signals; * * *"

The weather was clear at the time of the accident which occurred about 11:29 a.m.

## Description

No. 03827, a west-bound H. & M. multiple unit electric passenger train, consisted of five all-steel passenger cars and was in charge of Conductor Cohen and Motorman Nagle. This train passed Hudson interlocking at 11:25 a. m., according to the train sheet, and, while standing at signal 66R waiting to enter track "W", was struck by P. R.R. light engine 3805.

Engine 3805, a west-bound P. R.R. light engine, was in charge of Engineman McCabe. A caution-slow-speed indication displayed by signal 6Lb was received and this engine passed from track 8 to track 4 at 11:27 a. m., according to the train sheet, and while traveling at a speed variously estimated to have been from 2 to 20 miles per hour collided with the rear end of No. 03827 at a point 1,210 feet west of the switch.

The impact shoved No. 03827 ahead about 10 feet; the rear truck of the rear car was derailed, the coupler was broken off, and the body was considerably damaged; the center sills of the third and fourth cars were buckled at points about 6 inches from each end. The front end of engine 3805 was slightly damaged.

## Summary of Evidence

Motorman Nagle, of No. 03827, stated that he received an approach indication at signal 18L, located 2,636 feet east of signal 66R. He reduced speed from 35 to about 15 miles per hour and when 300 or 400 feet east of signal 66R he observed that it displayed a stop indication and he sounded four blasts on the whistle. The signal was then displayed for track "W",

but before he could reach the controller the signal was again changed to display a stop indication and he stopped his train at the signal about 11:27 a. m. He asked the conductor to telephone Dock interlocking, but before communication could be established with that office the signal was displayed for a through movement on track 4, and shortly thereafter the accident occurred. He estimated that his train stood at signal 66R about 2 minutes before being struck.

Conductor Cohen, of No. 03827, stated that he was in the head car when approaching Harrison and thought that they stopped at signal 66R about 11:28 a. m. He said that immediately after stopping, he alighted on the right side and walked to the telephone located on the signal bridge, but had not established communication with Dock interlocking when the collision occurred; it moved his train ahead about 10 feet. He thought that the accident occurred about 2 minutes after stopping at the signal. Because of track curvature he would have to look from the left side of the train to see the flagman, but it did not occur to him to do so; he thought that the flagman could have gone back 300 feet in the 2 minutes that were available.

Flagman Branda, of No. 03827, stated that when the train reduced speed after passing distant signal 18L he was standing in the rear end of the rear car and was conversing with passengers. When the train stopped at signal 66R he immediately secured flagging equipment, including lamps, and descended from the train through the left door of the rear vestibule, which was on the inside of the curve. He saw the light engine approaching in the distance and working steam. He waved a red flag, first on the fireman's side and then on the engineman's side and ran toward the engine but he received no acknowledgment. He thought that the collision occurred about 2 minutes after No. 03827 stopped and that he had gone out about 200 feet or more when the engine passed him at a speed of about 20 miles per hour. He could see the engineman on the seat-box as he passed but did not believe that the engineman heard his shout of warning as he observed neither an application of the brakes nor a reduction of speed before the impact. After stating that he got off immediately after stopping, he then stated that it was probably 10 seconds later, and in a further statement he said that it might have been 30 seconds after the stop and that he did not have lamps with him. He stated that he went back as far as possible in the time available.

Carman Yeo, of No. 03827, thought that it was about 30 seconds after stopping at signal 66R that he saw Flagman Branda walking back at a point about 30 feet from the rear of his train.

The statements of Carman Scullin, Collector Towey and Guards White and Schilling, the latter three of whom were deadheading, brought out nothing additional of importance.

Engineman McCabe, of light engine 3805, stated that the brakes and the cab signals were tested before leaving Meadows roundhouse and they functioned properly en route. He observed No. 03827 pass on track 4 before his engine entered that track on a caution-slow-speed indication, which required him to restrict his speed so as to be able to stop short of train or obstruction; this aspect continued to be displayed by the cab signal until the collision occurred. Approaching the point of accident the speed of his engine was 6 or 7 miles per hour, which he thought would enable him to comply with the requirements of rule No. 278. He heard a shout of warning from the fireman and immediately applied the brakes in emergency, and then at a point 40 or 50 feet distant he saw No. 03827, and glancing down saw the flagman beside the cab of the engine. He estimated the speed at the time of accident at 2 or 3 miles per hour.

Fireman Skidmore, of light engine 3805, stated that they followed No. 03827 on a caution-slow-speed indication displayed by signal 6Lb, which required them to run expecting to find an obstruction or a train in the block. He said that he was required to observe closely the track on curves where the engineman's view is obscured. Approaching the point of accident at a speed of 10 or 12 miles per hour, he was putting in a fire and did not notice the indication displayed by the cab signals, although he was aware that the indication had not changed. Then looking ahead he saw the rear of No. 03827 only 30 or 40 feet distant; he shouted a warning to the engineman who applied the brakes in emergency. He estimated that the speed at the time of the collision was 6 or 7 miles per hour. After the accident when he was getting off to go back to flag he first saw the flagman walking in a westward direction past the engine.

Interlocking Operator Simpson, of Hudson interlocking, stated that No. 03827 passed that point at 11:25 a. m., at which time he reported it to Dock interlocking and a moment later, after giving engine 3805 the route from track 8 to track 4, he reported engine 3805 to Dock interlocking as following No. 03827.

Train Director Hagerty, of Dock interlocking, stated that he received the report of No. 03827 from Hudson interlocking, and also the report of engine 3805 as following them, and, being under the impression that No. 03827 had already passed from track 4 to track "W" he ordered that the slow release be operated and the route changed to track 4 for light engine 3805.

Operator Fisher, of Dock interlocking, whose duty it is to receive the reports of approaching trains and report them to the train director, stated that he informed Train Director Hagerty of the movements of No. 03827 and engine 3805 but was not certain whether he told him that No. 03827 was already in or coming into Harrison station.

Leverman Thompson, of Dock interlocking, stated that he lined the track and signals for movement of No. 03827 from track 4 to track "W" upon advice of Train Director Hagerty, who, a moment later, advised him to restore the stop indication, to operate the time release, to re-line the route, and then to display the signal for a main-track movement.

The statement of Leverman Boland, of Dock interlocking, brought out nothing additional of importance.

## Observations of the Commission's Inspectors

Observations of the Commission's inspectors at the scene of the accident on June 7, disclosed that from the fireman's side of an engine identical with that involved in the accident the rear end of a train could be seen continuously from signal 6Lb to the point of accident, and by leaning out in normal position through the side window on the engineman's side it could be seen at a point 212 feet east of the point of collision, and through the front window on the engineman's side it could be seen at a point 111 feet from the point of collision.

## Discussion

According to the evidence, as No. 03827 approached, signal 66R was displaying an indication for movement to track "W" which was the proper route for this train. The signal changed to display a stop indication when the train was a distance of 300 or 400 feet from it. After the train stopped, the signal was again changed to display an indication for a through movement on track 4 which was the route for the light engine. The changing of the signal indications was because there was an uncertainty on the part of the personnel in Dock interlocking as to the positions of No. 03827 and light engine 3805.

After passing a signal located 2,636 feet east of signal 66R the speed of No. 03827 was reduced from 35 to 15 miles per hour. Under the rules the flagman was required to take such action as was necessary to insure full protection, but he took no action until from 10 to 30 seconds after the train stopped, at which time he said he proceeded to the rear with flagging equipment and had reached a point at least 200 feet to the rear of his train when the light engine passed him without acknowledging his stop signal. The flagman said he went back as far as he could in the time available to him, which was about 1½ minutes from the time he started back until he met the light engine. Had he proceeded, however, at a rate of 4 miles per hour he could have reached a point 528 feet to the rear of his train within 1½ minutes. From this it is apparent that he did not go back as far as possible in the time available to him. On the other hand, the engineman of the light engine said that the flagman was only 40 or 50 feet to the rear of No. 03827. The fireman said that shortly after the accident he saw the flagman walking westward beside the cab of the light engine. Had the flagman taken the proper action before his train stopped and then gone back as far as possible, no doubt this accident would have been averted.

According to the engineman of the light engine, the brakes and cab signals of his engine were functioning properly. He said he approached under a caution-slow-speed indication, which he understood required him to stop short of train or obstruction, and that he approached at a speed of 6 or 7 miles per hour, also that the speed at the time of the accident was 2 or 3 miles per hour. On the other hand, considering the damage to equipment, it is apparent that the speed was considerably in excess of 2 or 3 miles per hour. The fireman thought that the speed at the time of the accident was 6 or 7 miles per hour and the flagman said that when the engine passed him the speed was 20 miles per hour. From the time the light engine left track 8 the fireman could have continuously seen the preceding train but he said that he was firing during this time; nevertheless, under the rules he was required to assist the engineman in keeping a lookout for obstructions and signals. The engineman said that he saw No. 03827 only 40 or 50 feet distant. Even though the engineman was on the outside of the curve, had he observed the track ahead by leaning out of the side window he could have seen the preceding train a distance of 212 feet which should have been a sufficient distance to enable him to stop short of the train ahead even though traveling at a considerably higher rate of speed than that which he estimated. If the engineman had controlled the speed in compliance with the signal indication this accident would not have occurred.

## Conclusion

This accident was caused by the failure of No. 03827 to be adequately protected by flag, and by the failure of the light engine to be operated in accordance with the signal indication displayed for it.

Respectfully submitted,

W. J. PATTERSON,

Director.