

INTERSTATE COMMERCE COMMISSION.

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE LONG ISLAND RAILROAD AT LONG ISLAND CITY, N. Y., ON JULY 30, 1924.

September 20, 1924.

To the Commission:

On July 30, 1924, there was a derailment of a passenger train on the Long Island Railroad at Long Island City, N.Y., the derailed train colliding with an electric locomotive standing on an adjoining track, resulting in the death of 1 passenger and the injury of 50 passengers.

Location and Method of operation.

This accident occurred on that part of the line extending between the Pennsylvania Terminal, New York City, and Jamaica, L. I., a distance of 7.8 miles. In the vicinity of the point of accident the road is electrified and is an eight-track line over which trains are operated by time-table, train orders and an automatic block-signal system. There are four westbound and four eastbound tracks; the eastbound tracks from north to south are named, New Haven, North Shore, Express and Local. These tracks pass "H" tower, located 3.7 miles east of the Pennsylvania Terminal, on the north side; this tower controls the interlocking switches and signals between the dividing property line of the Pennsylvania and Long Island Railroads, which is 0.18 mile west of "H" tower, and signal bridge C-16, located 1,600 feet east of "H" tower. The Harold Avenue crossover connects the eastbound North Shore and Express tracks and is located 1,800 feet east of the tower or 200 feet east of signal bridge C-13. The accident occurred at the west switch of the crossover, which is a facing-point switch for eastbound trains running on the North Shore track, and is located at a point 20 feet east of signal bridge C-18; the east crossover switch, on the Express track, is 207 feet east of the signal bridge and is a trailing-point switch for eastbound trains.

The switch machines of the crossover switches are located between these two tracks and are Triplelock Switch Machines, Style 1-A; they are double-padlocked, and are electrically locked, the electric lock being controlled from "H" tower. The machines are equipped with two levers, an unlocking lever and an operating lever; the unlocking lever can not be operated until the electric lock has been released from the tower and must be operated before the

operating lever which controls the position of the switch points can be operated. The switches are also equipped with indicators showing whether the electric lock is locked or released. The locking circuits of the machines is entirely independent of other circuits, they are locked or unlocked by the same lever in the tower, and can be locked or unlocked regardless of the position of any signals or the location of any train in the vicinity. No signals are affected when the machines are unlocked by the operator in the tower but the switches themselves are connected with the automatic circuits and affect the automatic signals. The interlocking plant at "A" tower is a Union Switch & Signal Company electro-pneumatic machine of 47 levers, installed in 1910. The switch machines of the crossover were installed in February, 1922.

Eastbound steam trains of the Long Island Railroad are hauled from the Pennsylvania Terminal by Pennsylvania electric locomotives in charge of Pennsylvania employees to Long Island City and from Long Island City eastward by Long Island steam locomotives. The Herald Avenue crossover is used by the steam and electric locomotives in getting to and from the steam trains when the locomotives are changed. There is a telephone box on signal bridge G-18 from which engineers communicate with "A" tower to arrange for the crossover movements and for the unlocking of the electric locks of the switches. When the crossover switches are open an automatic signal A-5 on signal bridge G-18, governing movements on the North Shore track, is held in stop position.

Approaching the point of accident from the west the track is tangent for about 1,200 feet continuing to and beyond the point of accident. There is a 1.5 per cent ascending grade for 350 feet, followed by an ascending grade varying from 0.5 to 0.7 per cent to the point of accident, a distance of about 2,800 feet.

The track in the vicinity of the point of accident is laid in a shallow cut with 100-pound rails, 35 feet in length, single-sailed and tie plated, with an average of 16 ties to the rail length. The track is ballasted with crushed rock and is well maintained. The weather was clear at the time of the accident, which occurred about 5.57 p.m.

Description.

East out steam train No. 42 consisted of 1 combination car and 11 passenger coaches hauled by Pennsylvania electric locomotive 41, and was in charge of Conductor Robinson and Fireman Glassey. This train departed from the Pennsylvania Terminal, New York City, at 5.28 p.m., on time, passed

through the eastbound Pennsylvania tube and moved east on the Pennsylvania track to a point 515 feet west of "H" tower, where it entered upon the Long Island eastbound Express track and proceeded to a point just west of Harold Avenue crossover, stopping at that point at 5.34 p. m., en vive. The electric locomotive was uncoupled from the train and moved east to clear the east switch of the crossover preparatory to backing through the crossover so as to permit Long Island steam locomotive 18, which was standing a short distance east of the switch, to back onto the train, and while standing at this point the electric locomotive was struck by the derailed equipment of train No. 466.

Eastbound electric train No. 466 consisted of 9 multiple unit and trailer cars, all of all-steel construction, and was in charge of Conductor Markland and Motorman, Sporing. This train left the Pennsylvania Terminal at 5.28 p.m., three minutes late, passed through the eastbound Long Island tube and entered upon the Express track at a point 1,062 feet west of "H" tower; it was crossed over to the North Shore track, 300 feet east of the tower at 5.35 p.m., and about two minutes later was derailed at the west switch of the crossover while traveling at a speed variously estimated to have been between 8 and 33 miles an hour.

The first six cars of train No. 466 stopped several hundred feet east of the switch, none of this equipment being derailed. The seventh car was derailed and came to rest with its forward end a few feet east of electric locomotive 41 and was badly damaged, the rear truck of this car having been derailed at the switch causing the rear end to swerve to the right and strike the rear of electric locomotive 41; the forward truck of the eighth car was derailed and the car came to rest in an upright position with its head end to the north of the express track and about 75 feet east of the east switch of the crossover, with the rear truck on the rails of the North Shore track; the ninth car was not derailed.

Summary of evidence.

The south switch point of the West Crossover switch bore the first mark of derailment which was a chipped spot about 5 inches long, $1\frac{1}{2}$ inches wide and $\frac{1}{4}$ inch deep, located on the running surface of the switch point about 5 feet from the point of the switch, which piece was found after the accident.

Otherwise the switch was not damaged and while the rails of the crossover were slightly spread, the only damage to the track and third rail was from the east switch of the crossover to the point where the electric locomotive came to rest. The east crossover switch had been run through and the switch machine was damaged.

Motorman Sporing, of train No. 466, said that approaching "4" tower he saw train No. 42 ahead of him and having passed a caution signal in caution position he proceeded slowly to the home signal which was at stop but which cleared before his train reached it and he applied the electric power until he was about to pass the rear end of train No. 42 when he shut off power and allowed the train to drift. He saw signal A-6 on signal bridge C-18, which was at caution, but the signal went to clear when his train was about two car lengths from it. Approaching the crossover he noticed the helper of the electric locomotive cross the track ahead of his train and saw him standing at the west switch but did not notice him thereafter. After passing the steam locomotive east of the east crossover switch he again began to use power but the power soon afterward left him and he noticed that the air pressure was going down and he placed the brake-valve handle in lap position and the train stopped in two or three car lengths. Motorman Sporing said he was familiar with the instructions restricting the speed of trains passing other trains at the crossover to 10 miles an hour and further said that he complied with the instructions and estimated that the speed of the train had increased to about 12 miles an hour at the time of the derailment. The air brakes on his train had been tested before leaving the Pennsylvania Terminal and the inspector told him that they were working on all of the cars.

Conductor Martland said he was standing in the doorway of the forward car in the train on the right side and when passing train No. 42 he saw a man who was standing at the west crossover switch stoop down and then saw one of the rear cars lurch to the right and before he could reach the emergency cord the brakes were applied in emergency and the train came to a stop. To the end Brakeman Johnson estimated the speed of the train to have been about 10 miles an hour. Ticket Collector Malone said that at the time of the accident he was about to step into the seventh car when it started to rock and he stepped back into the sixth car and pulled the emergency cord just as the seventh car broke from the train, at which time the speed was about 8 or 10 miles an hour and he said the train ran about five car lengths before coming to a stop. Brakeman Fisher and Ticket Collector Linnart thought the train was travelling at about its usual rate of speed at the time of the accident.

Engineman Glassey, of train No. 42, said that upon arriving at the crossover he brought the train to a stop and while the locomotive was being uncoupled from the train Helper Moore went to the telephone box on signal bridge G-18 to call the tower for orders. Engineman Glassey moved the locomotive to a point just east of the east crossover switch and a short distance behind Long Island steam locomotive 19 and had just brought the locomotive to a stop when it was struck by the derailed equipment of train No. 466 and driven ahead about 20 feet. He also said he had noticed Helper Moore unlock the switch just before train No. 466 arrived and also noticed the rear end of the train as it passed but was unable to estimate its speed. He said he talked with Helper Moore before and after the accident and that he appeared to be perfectly normal in every way and in reply to his question Helper Moore stated that he had thrown the switch under the train.

Helper Moore said that while the locomotive was being uncoupled from the train he went to the telephone box and called the tower for orders and was told to wait until a train passed on the North Shore track, then cross over and come back and wait for train No. 19. He then saw the train approaching, heard the electric lock engage over to the west crossover switch and unlocked the padlock on the machine about the time the train came along; about the time the train passed the switch he heard the electric lock release, then stooped and threw the unlocking lever, and as the fifth or sixth car passed over the switch he threw the switch lever under the seventh car; he estimated the speed of train No. 466 to have been about 30 or 35 miles an hour when the derailment occurred. Helper Moore said he was familiar with the operation of the crossover switches and had operated them before, but that this was the first time he had operated the switch when a train was approaching on the North Shore track. Helper Moore further said that he was in full possession of his faculties at all times and while he had been troubled with high blood pressure he had passed a physical examination on May 10, 1934. Helper Moore was unable to say why he had thrown the switch under the train.

Brakeman Scharif said that when the train stopped at the crossover he uncoupled the electric locomotive and followed it about 10 or 15 feet east of the train and while standing there called to the helper that he would throw the west switch but that the helper apparently did not hear him. When train No. 466 approached a short time later the helper was standing at the switch and as the fifth or sixth car passed the switch the helper threw the unlocking lever and almost immediately afterwards threw the switch lever between the forward and rear trucks of the seventh car. Both Brakeman Scharif and Conductor Robinson estimated the speed of the train to have been about 15 miles an hour at the time of the derailment.

Telegrapher Antonna, at "H" tower, said that Helper Moore called on the telephone for orders about $\frac{1}{2}$ minute before train No. 466 passed the tower and that he told the helper to wait until an eastbound train passed on the North Shore track before crossing over and then to come back and wait for train No. 19, which order the helper acknowledged. He also said that he was familiar with the instructions to the effect that orders to make a back-up movement against the current of traffic were not to be given if the switches and signals were cleared for a North Shore movement until after the train had passed the crossover, positive instructions then to be given to proceed against the current of traffic. He further said it had not been the practice to observe these instructions and he had never required members of engine crews to wait and again call the tower after the opposing train had passed. Telegrapher Antonna said that being familiar with the movement about to be made he had issued the order without consulting the towerman in order to expedite the movement of traffic which was particularly heavy at that time of the day.

Towerman Hunt said he heard the telegrapher give the order to cross over after the train had passed on the North Shore track and saw the head end of train No. 466 pass the west crossover switch, and although he observed the indicator light on lever 58 was not burning, indicating that the train had not cleared the switch, he pushed the lever controlling the electric switch lock to release position. Towerman Hunt was of the opinion that when the electrically locked switches were installed at the crossover, replacing hand-thrown switches, that the instructions relative to withholding permission to use the crossover until after the opposing train had passed ceased to be effective. Towerman Hunt was unable to assign any reason for having unlocked the switch before the train had cleared it.

Fireman Hulise, of engine 19, said that at the time of the accident his engine was standing from 150 to 175 feet east of the east switch of the crossing waiting to back onto the train after the electric locomotive had cleared the crossover. He estimated that the forward portion of train No. 466 ran by the derailed equipment about 600 feet before coming to a stop. Fireman Robinson estimated the speed of train No. 466 to have been about 20 or 25 miles an hour and estimated the distance from the derailed cars to the rear end of the train to have been about 600 feet.

Air Brake Inspector McGovern said he inspected the air brakes on train No. 466 before the train left the Pennsylvania Terminal and found no defects. Trainmaster Wisley expressed the opinion, considering the distance the derailed equipment traveled after the derailment together with the distance the forward portion of the train traveled before

coming to a stop, that the train was moving at a speed of about 25 miles an hour when the accident occurred and also expressed the belief that the full emergency effect of the air brakes was not obtained due to the interval of time that intervened between the time of the breaking of the train line and the placing of the brake valve in lap position.

Conclusions

This accident was caused by a switch being thrown between the forward and rear trucks of the seventh car in the train, for which Helper Moore is responsible. Towerman Hunt by his action in releasing the electric switch lock before the train had cleared the switch shares in the responsibility, while Telegrapher Antonna should not have issued the instructions until after train No. 466 had passed.

The evidence indicates that when train No. 42 stopped at the crossover Helper Moore went to the telephone box to call the tower for orders and was told by Telegrapher Antonna to wait until a train on the North Shore track had passed, then to cross over, back up, and wait for train No. 19. Train No. 466 was then approaching on the North Shore track and Helper Moore, instead of waiting until the train had cleared the switch, unlocked the padlock and when Towerman Hunt prematurely released the electric lock Helper Moore threw the unlocking and operating levers in rapid succession under the train, causing the wheels of the rear truck to enter the crossover, followed by the general derailment. Helper Moore was familiar with the operation of the switches and there was testimony to the effect that he was in full possession of his faculties immediately prior to the accident; he was, however, unable to offer any explanation for this action.

Towerman Hunt by his failure to wait until the train has passed the switch before releasing the electric switch lock contributed to the occurrence of this accident. He was in charge of the tower and although he overheard Telegrapher Antonna give the order over the telephone to Helper Moore for the crossover movement before the opposing train had passed, instead of requiring that the helper call the tower for orders after the train had passed, he silently acquiesced in the action of the telegrapher; he is also at fault for his own action in releasing the electric lock of the switch, thus permitting it to be operated by the helper, when the indicator light showed that train No. 466 had not cleared the crossover switch.

In this connection, however, it should be stated that there is no rule definitely covering this particular point.

From the testimony, and considering the distance at which the derailed equipment came to rest beyond the initial point of derailment, together with the distance traveled by the forward portion of train No. 466, it is believed that the train was being operated in excess of the maximum speed of 10 miles an hour permitted by the time-table, and the fact that the equipment involved was of all-steel construction doubtless prevented greater casualties.

It was further developed at the investigation that the employees in the tower were not fully or correctly informed as to the rules and instructions pertaining to the operation of the crossover switches and the placing of orders in making crossover movements. The danger of the misunderstanding of rules or laxity in their observance is plainly apparent and as in the instant case the result is obvious. Steps should at once be taken by the proper supervisory officials to remedy this condition.

It is probable that had these switches been interlocked and operated from the tower, this accident would not have occurred. It is believed that the traffic conditions on this road at this point amply justify the recommendation that these switches be made interlocking and their operation controlled from "H" tower.

Helper Moore entered the service of the Pennsylvania Railroad as a fireman on July 20, 1900, was made an engine-man June 15, 1907, and was demoted to helper on December 16, 1923, although it does not appear from the records that he was examined and qualified as a helper until March, 1934. Towerman Hunt entered the service of the Long Island Railroad as a signalman on March 14, 1908, and had been a towerman at "H" tower for six years.

At the time of the accident none of the members of the crews involved had been on duty in violation of any of the provisions of the hours of service law.

Respectfully submitted,

J. P. BORLAND.

Director.