

IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE  
LONG ISLAND RAILROAD NEAR AUTUMN AVENUE, LONG ISLAND,  
ON FEBRUARY 13, 1921.

March 26, 1921.

On February 13, 1921, there was a side collision between two passenger trains on the Long Island Railroad near Autumn Avenue, Long Island, which resulted in the injury of 23 passengers and 1 employee. This accident was investigated in conjunction with the Public Service Commission of New York, 1st District, and as a result of this investigation the Chief of the Bureau of Safety reports as follows

Location.

This accident occurred on that part of the Atlantic Division extending between Jamaica and Flatbush Avenue, Brooklyn, N. Y., a distance of 9.3 miles. Passenger trains are operated by electric power. At CN Tower, just west of Autumn Avenue Station, the line changes from a 4-track to a double-track line, trains are operated by time-table, train orders, and an automatic block-signal system. On the 4-track section the inside tracks are known as express tracks and the outside tracks as the local tracks. At the west end of this 4-track section there is an interlocking plant controlling a crossover by means of which westbound trains pass from the local track to the express track, which track is used by all westbound trains on the double-track section west of CN Tower. The east switch of this crossover is a few feet west of CN Tower. The accident occurred at the point where this crossover fouls the ex-

press track, approximately 100 feet west of CN Tower.

The automatic signals are two-arm, two-position, lower quadrant semaphore signals, night color indications are red, yellow and green, for stop, caution and proceed, respectively. Between Woodhaven Junction and CN Tower there are three automatic signals governing the movement of trains on the express tracks, but there are no automatic signals on the local tracks. The westbound crossover is protected by interlocking signals 2L and 4L, located opposite CN Tower, on a bridge, over the local and express tracks, respectively. These signals consist of single semaphores, the circuits are so arranged that it is impossible for both signals to display clear indications at the same time. The distant signals for westbound home signals 2L and 4L are located 1,628 feet east of CN Tower, on a bracket pole, the right or outside mast carrying the distant signal for signal 2L, this distant signal is always in the caution position, the motor having been removed, the inside mast carries two semaphores governing movements on the express track, the top semaphore being a block signal and the lower a distant signal for interlocking signal 4L, controlled by the track circuit and by signal 4L at CN Tower.

Approaching the point of accident from the east the track is tangent for several miles, and for  $\frac{1}{2}$  mile the grade is ascending, the maximum gradient being about .6 per cent. The weather was clear

Description.

Westbound local passenger train No. 3653, consisting of 7 passenger cars, of all-steel construction, in charge of Conductor Dunne and Motorman Costello, was en route from Jamaica to Flatbush Avenue. It left Jamaica at 9.24 p.m., passed Woodhaven Junction Tower, the last reporting station at 9.32 p.m., 1 minute late, stopped for Autumn Avenue Station with its head end only a short distance east of the signal bridge at CN Tower, and departed at 9.37 p.m., on time. Shortly afterwards, while passing through the crossover leading from the local track to the express track, at a speed estimated to have been about 10 miles an hour, the side of the third car was struck by westbound train No. 2755.

Westbound express passenger train No. 2755, consisting of 5 cars, of all-steel construction, in charge of Conductor Brower and Motorman Moore, was en route from Hempstead, L. I., to Flatbush Avenue. It left Hempstead at 8.57 p.m., on time, passed Woodhaven Junction Tower at 9.37 p.m., 4 minutes late, and while running at a speed estimated to have been about 30 miles an hour struck the side of the third car of train No. 3653.

The head end of the leading car in train No. 2755 was crushed, while the side of the car in train No. 3653 with which it collided was torn out and the car considerably damaged. Three cars in train No. 2755 and two in train No. 3653 were derailed.

Summary of evidence.

Signalman Small, on duty on CN Tower, said a westbound express train was the last train to pass prior to the occurrence of the accident, he did not change the route after that time, and signal 2L did not display a clear indication at any time after train No. 3653 left Woodhaven Junction. Train No. 3653 was coming into the station when he cleared signal 4L for train No. 2755, which was then leaving Woodhaven Junction. Signalman Small saw train No. 3653 departing from the station, no attention being paid by its motorman to the stop indication of signal 2L, while the indicator in the tower showed that the switch was lined for the movement of train No. 2755. These statements as to the position of the signals were verified by Signal Maintainer Shaw, who was in CN Tower at the time, by Towerman Greenfield, who was off duty and was waiting for a train on the station platform, and also by Crossing Watchman Rossa.

Motorman Costello, of train No. 3653, said signal 2L was displaying a clear indication when his train arrived at the station at Autumn Avenue. A bulletin had been issued requiring that when this signal is displaying a stop indication trains will stop east of the Autumn Avenue crossing in order to avoid blocking it, while when the signal is displaying a clear indication trains may block the crossing in order to place the train in a better position at the platform. Motorman Costello said that in accordance with these instructions he brought his train to a stop with

the head end about 2 car-lengths beyond the station platform; he estimated this to have been about 100 feet east of the signal. Upon receiving a train signal to start he glanced up at the interlocking signal and said he observed it as displaying a proceed indication. He was quite sure that such an indication was being displayed when he last saw it, and thought that if it was displaying a stop indication it must have been changed after that time.

Motorman Moore, of train No. 2755, stated that he could see the signals at CN Tower for a distance of about 1 mile and that signal 2L was red and signal 4L was green. As his train approached Autumn Avenue Station at a speed of about 55 miles an hour, he noticed the local train standing at the platform, but supposed it was waiting for his train to pass. He next saw signal 4L change from green to red, due to train No. 3753 fouling the circuit, and applied the air brakes in emergency. He thought the speed of his train had been reduced to about 20 miles an hour at the time of the accident.

Under the arrangement of the signal circuits in this vicinity it is possible for the towerman to change the route at any time until the approaching train has reached a point directly under the signal bridge at CN Tower, or within approximately 100 feet of the fouling point of the crossover and the express track. In this particular case, however, the evidence is conclusive that the route was not changed and that the signals were displaying the same indications at the

time of the accident as when each of the two trains involved approached Autumn Avenue Station, while thorough tests of the signals failed to disclose anything which could have caused them to display an improper indication.

#### Conclusions.

This accident was caused by the failure of Motorman Costello, of train No. 3653, properly to observe and be governed by signal indications.

The evidence is clear that a stop indication was displayed by signal 2L, governing movements from the local track to the express track, at the time train No. 3653 approached Autumn Avenue Station and also at the time the train departed from that point, and that in some manner this indication was misread by Motorman Costello.

All of the cars involved in this accident were of all-steel construction. None of them was very badly damaged and it seems probable that to their substantial construction is due the comparatively small number of casualties which resulted.

Motorman Costello was employed as a fireman in 1906 and promoted to engineman in 1912, his record was good. None of the employees involved had been on duty in violation of any of the provisions of the hours of service law.