IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE SOUTHERN MICHIGAN RAILWAY AT LEEPER'S IND., ON MARCH 14, 1920.

May 14, 1920.

On March 14, 1920, there was a rear-end collision between two passenger trains on the Southern Michigan Railway at Leeper's near South Bend, Ind., resulting in the death of one passenger, and the injury of one employee and nine passengers, one of whom died afterwards. After an investigation of this accident the Chief of the Bureau of Safety reports as follows:

In the vicinity of the point of accident this is a single track line over which trains are operated by timetable, train orders transmitted by telephone, and an automatic block signal system. The signals are two-position upper-quadrant semaphore, style B, Union Switch and Signal Company, installed according to the train direction blocking plan, that is, with home signals governing all movements at passing sidings and intermediate signals governing movements in the same direction.

Interurban cars are operated on an hourly schedule between South Bend and Niles or St. Joseph, Mich. City cars are operated on a half-hourly schedule over that part of this line extending between South Bend and St. Mary's, 2.8 miles north of South Bend. Southbound interurban cars usually follow southbound city cars from St. Mary's to Leeper's at which point the city cars usually take siding and allow the interurban cars to pass for the purpose of avoiding delay and congestion in the city limits

Between St. Mary's and Leeper's there is one center-fed track circuit, the home signals being located at about the middle of the sidings at the stations. The intermediate signal governing southbound movements is located about 1,000 feet north of the center of the block; the northbound intermediate signal is located about the same distance on the opposite side of the center of the block. The control circuits are so arranged that the southbound home signal at St. Mary's clears behind a southbound train when that train has reached a point about 1,500 feet south of the southbound intermediate signal, the southbound intermediate signal clears when the train has cleared the block.

Approaching the point of accident from the north the track is straight for more than a mile, this tangent being followed by a 1 degree 24 minute curve, beginning 396 feet north of Leeper's and extending south of the siding. This curve is toward the east or left and trolley poles obscure the view to some extent. The siding at Leeper's is on the east side of the main track. At the point of accident the grade is .25 percent ascending for southbound trains. At the time of the collision the weather was clear.

Southbound city car No. 161, a one-man car in charge of Operator Ladd, was en route from St. Mary's to South Bend. It left St. Mary's at about 3.45 p.m., practically on time, and

proceeded to Leeper's, at which point it pulled into clear, but before the operator closed the switch the interurban car approached, entered the siding and collided with the city car.

Southbound interurban car No. 300 in charge of Conductor De Sonia and Motorman Young, was en route from St. Joseph to South Bend as train No. 118. It left St. Joseph at 2.30 p.m., on time. From St. Mary's to Leeper's it followed the city car at a distance of about three-quarters of a mile. At Leeper's it entered the siding and collided with the city car as above stated, the accident occurring at 3.52 p.m. The speed of the interurban car when approaching the siding was estimated by employees at about 15 miles an hour, but in view of the damage caused by the collision it is believed the rate of speed was fully as great as that estimated at the time of the impact, and considerably greater than that when approaching the siding.

The force of the impact drove the city car forward a distance of approximately 100 feet The rear vestibule of this car was demolished, the side windows were broken, and the longitudinal seats on one side crushed. The corner posts of the front vestibule of the interurban car were broken and the vestubule pushed back about 10 inches.

The home signal at St. Mary's was displaying a stop indication as the interurban car approached, but changed to clear before the car reached it. No stop was made at this point, or at the intermediate signal, which was displaying a stop indication when the car passed, the conductor did not see the signal, while the motorman thought it was out of order and therefore paid no attention to it. In the meantime the operator of the city car had run his car into clear on the siding and started back to close the switch. He was about 15 feet from the switch when he saw the interurban car at a distance from the switch estimated by him to have been about 20 feet, and at once gave a stop signal. The motorman of the interurban car said that he had twice whistled for a signal and that he interpretated the signal finally received as a proceed signal, and as he saw that the city car was into clear on the siding he applied the current. Shortly afterwards he saw that the switch points were open, applied the air brakes in emergency and reversed the power. He did not remember seeing the switchstand semaphore and was unable to estimate the distance between his car and the switch when he first saw that it was open

The motorman of the interurban car said that this particular intermediate signal had been out of order for some time, and that it was his custom to call the dispatcher each day and obtain verbal authority for passing the signal; he admitted that on this day he did not obtain this authority. The conductor, however, stated that if the reason for an intermediate signal being in the stop position was known as in the case of one car following another, it was the custom for the following car to pass the signal in the stop position witnout calling the dispatcher and

without stopping. The superintendent of overhead lines, who was in charge of the signals, stated that this intermediate signal had been out of order about two months previously, due to an accident at a point where the Michigan Central Railroad crosses the interurban line. This trouble had been traced to a broken bond wire, the wire was renewed and no further difficulty was experienced. According to the dispatcher the last report he had had of signals being out of order was about 10 days previously, when it was reported that the home signal at St. Mary's would not go to the clear position. He reported the matter to a signalman and heard nothing further about it. On the day of the accident he heard nothing from the crew of the interurban car after its departure from Niles, and knew nothing about its having passed the intermediate signal in the stop position.

This accident was caused by the failure of Motorman Young of interurban car No. 300 properly to observe and obey automatic block signal indication.

General rule 12 of the rules applying to automatic block signals reads as follows

> "When a train crew finds a signal set at 'Stop' they will immediately report to Dispatcher. If after waiting 10 minutes Dispatcher does not know reason for block being set at danger, he will give crew an order to proceed to next signal protecting. Crew will advance under this order to the next block at a speed not to exceed eight (8) miles per hour being prepared to stop within one-half of their range of vision expecting to find a train, open switch, broken rail or other obstruction in the block. At obscure curves or during foggy or rainy weather, conductor will proceed ahead of his train a sufficient distance to fully protect his train."

Although Motorman Young claimed that the signal was out of order, he admitted that he should not have passed it without authority from the dispatcher and that he failed to obtain this authority. Not only was he extremely negligent in this particular, but the evidence failed to support his opinion that the signal was out of order. The motorman did not say that he had seen the city car ahead of him, but it is possible that this may have been the case, and that in accordance with the custom said by the conductor to prevail passed the intermediate signal with the intention of closing up on the city car, but failed to have his car under sufficient control to enable him to bring it to a stop before the switch could be closed.

Motorman Young was employed as a motorman in April, 1915, and resigned in February, 1917. He was re-employed in December, 1919. His record was clear. The crew of the interurban car had been on duty about one and one-half hours, after a period off

duty of about 16 hours; the operator of the city car had been on duty about half an hour after about 16 hours off duty.

Observations made several days after the accident indicated that it was common practice for cars to disregard the stop indications of intermediate signals, several cars being seen passing these signals in the stop position without any reduction of speed. This indicates a very lax method of supervision on the part of the officials. One of the objects of a block signal system is to prevent such an accident as occurred in this case, and if future accidents are to be prevented the responsible officials of this railway should take immediate steps to see that the rules governing the operation of the block system are obeyed by all concerned.