REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE RAPID RAILWAY SYSTEM, DETROIT UNITED LINES, AT EDMORE, MICH., ON AUGUST 28, 1923.

October 15, 1923.

To the Commission:

On August 28, 1923, there was a rear-end collision between two passenger trains on the Rapid Railway division of the Detroit United Railway, at Edmore, Mich., which resulted in the death of 1 employee, and the injury of 14 passengers and 1 employee.

Location and method of operation.

The Rapid Railway division of the Detroit United Railway is an electric line extending between Detroit and Port Huron, Mich., a distance of 64.67 miles; in the vicinity of the point of accident this is a single-track line over which trains are operated by time-table and train orders, no block-signal system being in use. The accident occurred on the main track at a point approximately 896 feet north of the south passing-track switch at Edmore, approaching this point from the south the track is tangent for 2,784 feet, following which is a 2-degree curve to the right 797 feet in length, the accident occurring on this curve at a point 360 feet from the southern end. The grade for more than 2,000 feet approaching the point of accident from the south is practically level. The passing track at Edmore is 1,768 feet in length, a telephone booth is located midway between the north and south switches. The normal position of the spring switch at the south end of the passing track is for the main track while the north switch normally is lined for the passing track. Under ordinary circumstances northbound trains use the main track and southbound trains use the passing track.

Poles and shrubbery on the inside of the curve approaching the point of accident from the south restrict the view of the track ahead to about 360 feet, but a partial view of a car standing at the telephone booth can be had for a distance of about 1,300 feet. The weather was clear at the time of the accident, which occurred at about 11:13 a. m.

Description.

Northbound passenger train first No. 205 consisted of car 7531, and was in charge of Conductor Kline and Motorman Rood, it left Canfield, 25.25 miles from Edmore, at 10:26 a.m., on time, and stopped on the main track opposite the telephone booth at Edmore, a regular meeting point with an

opposing limited train, at 11:11 a. m., two minutes before its scheduled departing time. About two minutes after this train had been brought to a stop, it was struck by train second No. 205.

Northbound train second No. 205 consisted of motor car 7536 and was in charge of Conductor Moss and Motorman Heath It left Marine City Junction, 3.42 miles from Edmore, at 11:03 a. m., one minute late on the schedule of train No. 205, and struck the rear end of train first No. 205 at Edmore while traveling at a speed variously estimated to have been from 15 to 35 miles an hour.

Neither car was derailed and they were only slightly damaged as a result of the accident, however, a fire broke out shortly after the collision and practically destroyed motor car 7536. These cars had steel underframes and sides, with wooden roofs and interiors. The employee k killed was the conductor of the second section.

Summary of Evidence

Conductor Kline, of the first section, said that after coming to a stop at Edmore, he called the dispatcher from the telephone booth regarding the opposing train; just as he was about to hang up the receiver Motorman Rood called to him and before he could leave the booth the second section crashed into the rear of his train. He said he did not see the second section until it was about a car length away, at which time the wheels appeared to be sliding and fire was flying from under them, the motorman of the approaching train also sounded the whistle at about this time. Conductor Kline estimated the speed of the second section at that time to have been about 30 miles an hour Motorman Rood said he followed the conductor to the telephone booth, while standing in the doorway he turned and saw the second section about 150 feet distant, approaching at a speed which he thought to have been about 30 or 35 miles an hour. He noted that the motorman had his hand on the sand lever and thought the motor was in reverse. The wheels were sliding and fire was flying from under the car. He called a warning to Conductor Kline, the collision occurring immediately afterwards.

Motorman Heath, of train second No. 205, stated that upon reaching Canfield shops he overtook the first section and caught sight of it again as it was leaving Marine City Junction. He said his train was traveling at a speed of about 40 miles an hour as it approached the south switch of the passing track at Edmore, from which point it is approximately 900 feet to where the first section had stopped Motorman Heath was familiar with the fact that an opposing train had to be met at this point and said he saw the first section and made a service application of the air brake before his car reached the switch, and while his statements

as to just what he did then were somewhat conflicting, it appears that after making the first application and obtaining no effect, he then placed the brake valve in the emergency position, then released the air brakes and reversed the power, shortly after which he sounded several blasts on the whistle. None of these various efforts at stopping the car had as much effect as he expected, although he said the speed was finally reduced to 15 or 20 miles an hour at the time of the collision. He was unable to explain how it was that he did not get the desired results. Motorman Heath further stated that he had not noticed the air gauge at any time between the last stop and the time of the collision, but that previous to that time he has been able to show down for curves and the brakes seemed to be in good working order.

Superintendent of Shops Savage said that cars of this type are equipped with straight and automatic air brakes which can be applied both ways with the same valve. The brake valve has straight air, automatic lap, automatic service and emergency positions. He said that cars of this type are braked at 120 per cent of the total light weight of the car, and that the brake adjustments are inspected after every 120 miles of travel. Motor car 7536 was geared to 50 miles an hour. He also stated that motormen are not prohibited from using the reverse if in their judgment it will be of any assistance in making a stop, they are instructed, however, that the air brakes are the most reliable means of stopping a car under any circumstances or condition if the brakes are in proper working order.

Motor car 7536 was carefully inspected after it had been removed to the shops, no defects in the brake levers, rods, beams, or attachments were found, but on account of the damaged condition of the car, caused by the fire, it was impossible to test or judge the efficiency of the air brakes.

Conclusions.

This accident was caused by the failure of Motorman Heath properly to control the speed of his train approaching a meeting point.

According to Motorman Heath's statements, the speed of his car approaching the south passing-track switch at Edmore was about 40 miles an hour, and he made the first air-brake application when his car was near the switch points. Within the distance he had in which to bring his

car to a stop, at least 900 feet, he made two applications of the air brakes, then went to full release, and finally reversed the motor. In shifting from one action to another in rapid succession, it is not to be expected that proper results will be obtained. While Motorman Heath claimed that the air brakes on his car suddenly failed, the evidence indicates that they were working properly a short time before the accident and that fire was flying from under the car and that the wheels were sliding just prior to the collision, which indicates either that the reverse was functioning or else that the air brakes were operative. As previously stated, the efficiency of the air brakes could not be determined, but under rule 188 of the Rules and Regulations for the Government of Employees, applicable to interurban lines, all trains are required to approach meeting points under full control, and had Motorman Heath properly controlled the speed of his car approaching the meeting point, the distance from the south passing-track switch to the point of collision would have been sufficient for him to bring his car to a stop even had the brakes been inoperative.

Conductor Moss and Motorman Heath had been on duty 5 hours and 53 minutes, after an off-duty period of 16 hours, Conductor Kline and Motorman Rood had been on duty 57 minutes, after having been off duty 14 hours and 16 minuted and 42 hours and 14 minutes, respectively.

Respectfully submitted,

W. P. Borland,

Director.