

IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE
SHORE LINE ELECTRIC RAILWAY, AT WATERFORD, CONN.,
JUNE 21, 1919.

August 12, 1919.

On June 21, 1919, there was a head-end collision between two passenger trains on the Shore Line Electric Railway near Gswegatchie Station, in the town of Waterford, Conn., which resulted in the injury of 2 employees and 49 passengers. After investigation, the Chief of the Bureau of Safety submits the following report:

This accident occurred on the Crescent Beach and New London sub-division of the western Division, a single track electric line 12.6 miles in length, over which trains are operated by time table and train orders, transmitted by telephone. No block signals are in use and no provision is made for train superiority by direction. Meeting points are fixed by time table or train order, and trains meet or pass in accordance with special time table rules Nos. 2 and 5, which read as follows:

2. Eastbound trains of the same class may hold main track at meeting points. Conductors of all eastbound trains holding main track must adjust switch for opposing train, remaining in charge of same until the opposing trains have fully cleared the main track.

5. Trains of the same class in either direction have no superior right over trains in the opposite direction and will meet as per time-table unless otherwise ordered by the dispatcher.

Beginning at a point about 2300 feet west of the point of accident there are two short tangents followed by slight curves, then a tangent 350 feet in length, followed by a curve to the left of 62 degrees 25 minutes, about 150 feet in length,

this sharp curve being where the track passes around a street corner. The accident occurred about 25 feet east of the western end of this curve. About 50 feet west of the curve is the east switch of a turnout located on the right side of the track; the west switch of this turnout is about 300 feet farther west and is normally lined up against eastbound movements. The passenger landing at the stop known as Oswegatchie is located just east of the east turnout switch, on the left side of the street. Approaching the scene of accident from the east there is a tangent about 775 feet in length, followed by the curve on the western end of which the accident occurred. Beginning at a point about 1400 feet west of the point of collision there is a 400-foot descending grade of about .65 per cent, then for nearly 700 feet it is from 3 to 4 per cent descending, and then for about 350 feet to the point of accident it is about .7 per cent descending. Approaching the point of accident from the opposite direction the grade is practically level for a distance of over 1000 feet. There are no lights or indicators at the turnout. The weather was clear.

Westbound passenger train No. 137 consisted of motor No. 6, en route from New London to Crescent Beach, and was in charge of Conductor Tibbatts and Motorman Brown. It left New London at 10.55 p.m., 10 minutes late, and at about 11.22 p.m., as it was rounding the curve preparatory to stopping at Oswegatchie station, 5.83 miles from New London, it was struck by eastbound passenger train No. 134.

Eastbound passenger train No. 134 consisted of motor No. 8, en route from Crescent Beach to New London, and was in charge of Conductor Cadieux and Motorman Caruffell. It left Crescent Beach at 10.57 p.m., 12 minutes late, and after receiving a train order at Flanders Junction, 4.48 miles from Crescent Beach, departed from that point at about 11.18 p.m., 13 minutes late, en route to its next stopping point, Oswegatchie, a distance of 2.3 miles, at which point train No. 134 had a timetable meet with train No. 137. Train No. 134 approached Oswegatchie at a high rate of speed, entered the turnout at the west switch, ran through the turnout, out onto the main line at the east switch, passed the passenger landing and had started around the curve when it collided with train No. 137.

Both vestibules were crushed, while but little damage was sustained by the cars back of the vestibule partitions. The wreckage caught fire, however, resulting in both cars being destroyed.

Motorman Caruffell of train No. 134 was found unconscious between the turnout and the main track at a point nearly 250 feet west of the point of collision. He afterwards stated that he left Flanders Junction at 11.18 p.m. and proceeded, without any stop, toward the regular meeting point with train No. 137 at Oswegatchie. There is a requirement that approaching a meeting point a signal, four bells, will be given by the conductor indicating the fact, and while he first stated that he did not recall receiving this signal, later he recalled answering the signal as he came through the west switch. He

stated that on two occasions previous to the accident he had some trouble with the controller. The first time when he started to shut off the power the controller stuck and he had to hit it with his hand before it worked. At that time he received an electric shock, but it was very slight. When approaching the point of accident but before reaching the west switch he shut off the controller, but this failed to shut off the power; he reached up to throw the overhead switch, his brake in the meantime being in release, when he became unconscious, this being the last he recalled in connection with the accident. He did not know whether he received an electric shock when he reached for the overhead switch nor did he recall any sensation whatever. He was in good physical condition and he did not believe that he became unconscious as a result of any electric shock, nor could he account for that condition. He admitted that if he struck the switch point at a speed of 20 miles an hour and he was standing on the platform, the resulting lurching of the car would certainly throw him out of the car if his door was open, as it was on this occasion. He stated that he was as familiar as most motormen are with the construction of controllers, and he thought that one of the fingers had become loose or that there were bubbles between two of the fingers. In approaching Oswegatchie it had been his practice to apply the brake when within about a hundred feet of the top of the hill, making sure that the power was entirely off, and regulating the speed by a gradually increasing application of the brakes

until the car nearly came to a stop at the point of the switch, the speed when entering the siding being about 2 or 3 miles an hour. He afterwards said that he answered the conductor's signal as he was going through the switch and also that he did not reverse the power.

Conductor Cadieux stated that the order received at Flanders Junction was completed at 11.18 p.m. and they immediately proceeded eastward, making no stops up to the point of accident. When about four or five hundred feet from the turnout near Oswegatchie station, he gave the motorman the signal indicating that they were approaching a meeting point. He thought the speed was then 35 miles an hour. The motorman made the proper response to the signal, but did not make an immediate application of the brakes. The application when made was light at first, but as the car neared the switch there was a jar as if the motorman had reversed the power, followed by a stronger jar as the car reached the switch. As the car struck the switch, running at a speed of 20 or 25 miles an hour, the trolley came off the wire, causing the lights to go out, while the speed was so great that the car surged and rolled and he was thrown down in the center of the car, where he had been standing, talking to a passenger about a transfer; he thought it probable that it was at this time that the motorman was thrown out of the vestibule. This was his fourth trip for the day, and he stated that he found the brakes in good working order on all previous occasions, and that the motorman had controlled the car

properly. Conductor Cadieux further stated that he gave the four-bell signal in the right place, but that by the time he realized the car was approaching the switch too rapidly, it was too late for him to go forward to the front vestibule, which he would have had to do in order to stop the car, there being no conductor's valve of any kind. He did not recall having signaled the motorman to stop, as required by rule when approaching the switch.

Motorman Brown of westbound passenger train No. 137 stated that as he approached Oswegatchie the conductor gave him the signal of four bells, and as he came around the curve he got a signal to stop, which he was preparing to do when he saw some large black object coming toward him. His speed then was about four or five miles an hour, and he had just turned off his arc headlight in order that the motorman of train No. 134 might be able better to see the switch, when that train came into view. He did not sooner make out what the object before him was because the lights on train No. 134 were out when it entered the switch, but they came on when the car was half way out upon the main track, probably due to the trolley pole striking the wire. Motorman Brown said he then reversed the power and jumped.

Dispatcher Watrous stated that he issued the train order to train No. 134 at Flanders Junction to run as a second section of No. 134 from Waterford car house, east of Oswegatchie, to New London. This was at 11.16 p.m., and he heard nothing further from them until after the collision. He stated that there is no superiority of movement by reason of direction and that

there is no specific rule requiring a train to take the siding at a meeting point. So far as the switch at Oswegatchie is concerned, that is normally set for the main line for westbound movements, and an eastbound train would therefore have to take the siding.

Superintendent of Transportation McCain stated that there is no specific rule limiting the speed of trains, this matter being governed by time table and also by a bulletin cautioning motormen against making up lost time in all cases. He said that the time table shows the meeting points and that the train to take the siding is the one for which the switch is set for a diverging movement.

Master Mechanic Meller stated that after the wreck he inspected the controller of motor No. 8 and found it to be three points ahead, indicating a speed of 10 miles an hour on level track.

The cars involved were not high speed cars, but the ordinary closed-vestibule type of electric car, of wooden construction, 41 feet in length, with a total weight of 23 tons. They were equipped with hand brakes of the wheel type and Westinghouse straight hand controllers. The power brake, which is straight air, with no automatic features, consists of a Westinghouse D-1-E-G compressor, a Westinghouse National straight air brake valve, and has a single 6x12 cylinder with a main reservoir 15x46 inches, carrying a reservoir pressure of 80 pounds. The compressor and reservoir are connected by a $\frac{3}{4}$ inch pipe, and the reservoir and brake cylinder by a $\frac{1}{2}$ inch pipe.

That the speed between Flanders Junction and the point of accident was excessive is evident from the fact that while the time table allows ten minutes between these points, the testimony indicates that the distance was covered in about four minutes, or at the rate of $34\frac{1}{2}$ miles an hour. Furthermore, the fact that the trolley came off the wire and that when it took the siding the car surged and rolled sufficiently to throw the motorman from the vestibule and to throw the conductor to the floor of the car, establishes beyond doubt that the speed was excessive.

The statement of Motorman Caruffell himself that the brake valve was in release position when he reached up to throw the overhead switch indicates that he did not make proper use of the facilities at hand for controlling the speed of his train. While his statement is somewhat vague as to the location of the train at that time, the rate of speed was undoubtedly such that an application of the brakes should have been made at once. As the cars were destroyed by fire following the accident, it was not possible to determine the condition of the controller which Motorman Caruffell's statement indicates was not in proper operating condition, although the shop records show that the controllers on this car were inspected and cleaned the preceding day. While Motorman Caruffell stated he could remember nothing after reaching up to throw the overhead switch, this statement was made several days after the accident, during which time he was suffering from a fractured skull sustained as a result of being thrown from his train. There was no evidence of an electric shock having rendered him unconscious, and

notwithstanding his failure to recall anything which occurred between the time of closing the overhead switch and being thrown from the train, it is quite possible that he did not lose consciousness until after being thrown off the car. In that event there can be no possible excuse for his failure to apply the brakes and bring his train to a stop before passing through the siding and out upon the main line again.

This accident was caused by eastbound passenger train No. 134 running past its meeting point, as a result of excessive speed and failure to control the car in approaching and entering the siding near Oswegatchie station.

Under Rules 325 and 409 of the operating rules of this railway, conductors and motormen are equally responsible for the safe movement of their trains. Under these rules, Conductor Cadieux is to be blamed for his failure to pay closer attention to the operation of his car. Had he done so, he undoubtedly would have realized that it was being operated by Motorman Caruffell at an unsafe rate of speed and possibly would have been able to bring it under control before entering the switch.

Motorman Caruffell and Conductor Cadieux had been on duty about 7½ hours, after about 15 hours off duty. Motorman Caruffell entered the service of the company February 5, 1919, and his record shows that he had once been cautioned about running too fast over a switch. Conductor Cadieux entered the company's service December 6, 1918, and has a good record.

H.F.