

In re Investigation of an accident which
occurred on the line of the Delaware &
Hudson Company, near East End,
N. Y., October 31, 1916.

November 24, 1916.

On October 31, 1916, there was a head end collision between a freight train and a work train on the line of the Delaware & Hudson Company, near East End., N. Y., resulting in the death of one employee and the injury of forty-seven employees. After investigation of this accident, the Chief of the Division of Safety submits the following report:

The point where this collision occurred is 16 miles north of Binghamton, N. Y., approximately half a mile north of East End station, and five miles south of Harpursville, N. Y. Between YO tower, Binghamton, and Harpursville the line is single track; trains are operated by time-table, train orders and automatic block signal indications. The station at Tunnel, N. Y., is located 15 miles north of Binghamton. A short distance north of Tunnel station there is a tunnel approximately a quarter of a mile in length. The passing siding at East End, approximately half a mile in length, extends from a point near the north end of the tunnel to a point north of the station. Near the north end of the passing siding signals 125.2 and 125.2A are located, being of the two-arm, two-position, lower quadrant, electro-gas, normal danger type, and mounted on a bracket pole on the east side of the track. From these signals northward the track is tangent for a distance of 1,590 feet; then there is a two-degree curve toward the left, or west, 517 feet in length. The point of collision is 360 feet from the south end of this curve, practically opposite milepost B-18. Farther toward the north the track is tangent for approximately 330 feet, this tangent being followed by a curve toward the east of four degrees, leading around a hill, the view from the north toward the scene of accident being limited to a maximum distance of approximately half a mile.

This accident resulted from an error on the part of the operator at YO tower in copying a train order. The order as issued gave extra 118 north right of track over train 494, a scheduled southbound freight train, from YO tower to Tunnel, but as copied by the operator at YO tower gave extra 118 right over train 494 to Harpursville.

Train 494 was en route from Mechanicsville, N. Y., to Binghamton, with Conductor Saxton and Engineman Brooks in

charge, and at the time of the accident consisted of a locomotive, 34 cars and a caboose, and a helping engine on the rear.

This train left Glens Bridge, just south of Oneonta Yard, at 5.47 a. m., and passed Harpursville, the last open telegraph office north of point of accident, at 7.18 a. m. The signals at Belden governing southbound movements were in the clear position; the train proceeded to the point of accident, and was running at a speed of eight or ten miles per hour when it collided with the northbound extra at about 7.40 or 7.45 a. m. At the time of the accident a dense fog prevailed.

Extra 118, a work train consisting of a locomotive, a combination car, a coach and a caboose, carrying laborers, left Binghamton at about 6.30 a. m., with Engineman Vogelien and Conductor Hartigan in charge. At Y0 tower order No. 16 was received, reading as follows:

"Engs. 118 and 825 run extra Y0 Cabin to Glens Bridge, take siding meet Extra 861 south at Port Crane, and have rights over Nos. 494 and 478 Y0 Cabin to Harpursville."

Extra 118 left Y0 tower at 6.57 a. m., arrived at Tunnel at 7.33 a. m., picked up sectionmen, and departed at 7.34 a. m. While this train was at Tunnel, extra 809 north was on the passing siding and the train order signal for northbound trains was in the clear position. The signal at the north end of the passing siding at East End was found in the stop position; extra 118 came to a stop, overrunning the signal about an engine length. It then proceeded, and while running at a speed of from 15 to 20 miles an hour collided with train 494.

Both locomotives and the first two cars of train 494 remained on the track and were not badly damaged. The third and fourth cars of train 494 were derailed, thrown at an angle across the track, and practically destroyed; the leading truck of the fifth car was derailed. The forward end of the first coach in extra 118 was crushed, and derailed, but the second coach and the caboose were only slightly damaged. The tender of locomotive 118 was badly damaged. The man who was killed was a brakeman on extra 118; he was crushed between the first coach and the rear of the tender.

Dispatcher Case, who was on duty at the time of the accident, stated that when train 118 reported for orders at Y0 tower, on account of other train movements he was unable to fix definite meeting points between southbound trains 494 and 478 and northbound extra 118. For the purpose of starting the work train out of Binghamton, he called the operator

at Tunnel, told him to copy a "31" train order for trains 494 and 478, called the operator at Sanitaria Springs to copy for extra 851 south, and the operator at Y0 tower for extras 118 and 825 north. He then issued order No. 16, as follows:

"Eng. 118 and 825 run extra Y0 Cabin to Glens Bridge. Take siding, meet extra 851 south at Port Craine and have right over Nos. 494 and 478 Y0 Cabin to Tunnel"

The dispatcher stated that the operator at Tunnel gave an "X" response; the operator at Sanitaria Springs repeated the order and O. K. was given; the operator at Y0 tower also repeated the order as sent, and "complete" was given at 6.55 a. m. Some time later he called the operator at Tunnel and asked if extra 118 had arrived; he was informed by the operator that extra 118 had arrived and had pulled down to back in at the north end of the passing siding ahead of extra 809 to await the arrival of train 494. He then told the operator that he would have further help for extra 118 on train 478. It was not until after the accident had been reported by telephone from East End by a member of one of the train crews that he was aware of any discrepancy in order No. 16. He immediately called the day operator at Y0 tower and asked him to repeat the last part of order No. 16. It was then that he discovered the order delivered to extra 118 read "Harpersville" instead of "Tunnel."

Operator Lyke, who was on duty at Y0 tower, and received order No. 16, stated that he understood the dispatcher in issuing the order to say "Harpersville," and he so copied and repeated it. He admitted, however, in view of the fact that the other operators receiving the order understood it to read "Tunnel" and so copied it, that he must have made a mistake in copying the order. He is positive that he repeated it as copied. He stated that he heard Sanitaria Springs repeat the order, but he did not check it back as he was busy making out clearance cards. Operator Lyke also stated that it had been customary for extra 118 to be given help against trains 494 and 478 as far as Harpersville, and he is unable to account for his error in this instance in any way, except that probably having Harpersville fixed in his mind, he so interpreted and wrote the order sent by the dispatcher. He further stated that on the morning of the accident the telegraph wire was working poorly, which statement was corroborated by the other operators and the dispatcher.

Operator Robinson, who was on duty at Tunnel, stated that he copied the order "Tunnel," gave an "X" response and received an O. K. therefor. Then without waiting to hear the other operators repeat the order he began to sweep out the waiting-room. He stated that as order No. 16 was not ad-

dressed to him, he left his train order board for northbound trains in the clear position. When he saw extra 118 leave the station he assumed it was simply going down to back in at the north end of the siding ahead of extra 809 to be ready to pull out on the arrival of train 494, and he so informed the dispatcher. He admitted that when order No. 16 was issued to superior trains 494 and 478, restricting their rights at that point, he should have placed train order signals at stop for trains in both directions, as an additional precaution required by rule, but this he failed to do.

Operator Baird, at Sanitaria Springs, stated that he copied order No. 16 "Tunnel," and so repeated it; but as only the first part of that order affected the train addressed at his station he did not pay particular attention to the repeating of the latter part of the order at Y0 tower. However, he believes it was repeated "Tunnel," by the operator at Y0 tower, although upon this point he is not positive.

Engineman Brooks, of train 494, said that the fog was so dense that he could not see more than a car length, and when he caught sight of extra 118 immediately ahead of his engine he did not have time even to apply the brakes before the collision occurred.

Engineman Vogelie, of extra 118, stated that order No. 16 was delivered to him by one of the brakemen of his train at Y0 tower. Approaching the northbound signal at East End he found it in the stop position. He brought his train to a stop as soon as he could, and he then proceeded with caution. He saw train 494 when it was three or four car lengths distant and immediately made an emergency application of the brakes. He thought his train was running at a rate of 15 or 18 miles per hour when the collision occurred. He said the brakes on his train were working in a satisfactory manner.

Conductor Hartigan, of extra 118, stated that on arrival at Y0 tower he went into the telegraph office and the operator was at that time copying order No. 16. After the order had been copied and completed, he received two copies, sending one copy to the engineman by one of the trainmen. He stated that a stop was made at the signal at East End, and at the time the accident occurred the train was running about 20 miles per hour. He stated that the air brakes were working in a proper manner on the two coaches, but the brake on the caboose was out out on account of the brake going into emergency whenever an application was made. However, no report of this condition had been made, although the brake had been out out for about a week past.

This accident was caused by an error on the part of the operator at Y0 tower in receiving and copying a train order. While it can easily be understood how, under the circumstances,

Operator Lyke made the error, and copied the order "Harpursville," instead of "Tunnel," it seems highly improbable that having copied it "Harpursville" he should have repeated it "Tunnel;" it is therefore believed that the failure of Dispatcher Case to detect the error when the order was repeated was a contributing cause of the accident. A further contributing cause was the failure of Engineman Vogelin to exercise the degree of caution which should have been dictated by good judgment in the operation of his train, particularly under the weather conditions existing at the time of the accident, after receiving a stop indication displayed by an automatic block signal. Rule 504 reads as follows:

When a train is stopped by an automatic block signal, it may proceed when the signal is cleared. If not immediately cleared, train may proceed with caution."

Under this rule, it is the practice on this line, on both single and double track, for trains to proceed under a danger signal without sending a flagman ahead. But in this case the train was run at an estimated speed of at least 20 miles per hour, after receiving a danger signal indication, when the fog was so dense as to limit the view to a distance of three or four car lengths. It is apparent, therefore, that not only did Engineman Vogelin fail to obey that part of the rule requiring his train to be run with caution, but also in view of the weather conditions the requirements of safety were entirely disregarded.

Rule 715 provides that "meeting orders must not be sent for delivery to trains at the meeting point if it can be avoided. When it cannot be avoided, special precautions must be taken by the Train Dispatcher to insure safety." And rule 716, defining the duties of telegraphers, provides that, "When orders are sent for delivery to trains at the meeting point he must take special precautions to insure safety."

The investigation indicated that it is a common practice for the dispatcher to issue an order to a superior train, restricting the rights of that train at the point where the order was issued; and apparently it is not customary to take any special precautions, as required by the rules, when it is necessary to issue such an order. The rules also require that when practicable the dispatcher must issue an intermediate order, addressed to the operator at the meeting or waiting point, but this requirement frequently is not observed.

The train order records show that on the single track lines of this division, during the month of October, 1916, there were issued 1891 restrictive train orders. Of this number 48 were addressed to the operator at the meeting or waiting point, in compliance with the rule which prescribes the use of the intermediate order. Of the total number of orders issued, 62 were issued for delivery to the superior train at the point where its

rights were thereby restricted.

In this instance there were two other open telegraph offices where order No. 16 could have been issued to trains 494 and 478, and it was perfectly feasible and practicable to avoid issuing that order to those trains at the point where it became effective. It is believed that a greater degree of safety would have been afforded had the order been issued to those trains at a station farther north, and an intermediate order issued to the operator at Tunnel. The dispatcher knew of the unfavorable weather conditions, and should have provided every available precaution and safeguard.

The investigation also disclosed that while the rules require each telegrapher receiving an order to observe whether the others repeat it correctly, this practice is not properly adhered to. Had this requirement of the rules been obeyed in this instance by any of the operators involved, the error would undoubtedly have been discovered and the accident averted.

While in this instance the physical characteristics at the point of accident were such that if the weather had been clear both engineers would probably have been able to see the opposing trains in time to avert the collision, the practice of permitting a train to proceed on single track without flag protection, after receiving the stop indication of an automatic block signal, introduces an operating condition of grave danger which should not be permitted to exist. It is apparent that the purpose of this practice is to expedite and facilitate traffic; but that is done entirely at a sacrifice of safety in train operation.

Attention is called to the fact that one of the trains involved in this accident was operated with less than the minimum percentage of air brakes required by law.

All of the employees involved were experienced men, although the records indicate that none of these employees has been examined on the book of rules, which was placed in effect November 1, 1914, and, in fact, none of these employees had been re-examined on the rules since employed or since last promoted.