

IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE
LINE OF THE DELAWARE & HUDSON COMPANY AT SCHOHARIE
JUNCTION, N. Y., ON NOVEMBER 15, 1919.

December 17, 1919.

On November 15, 1919, there was a head-end collision between two freight trains on the line of the Delaware & Hudson Company at Schoharie Junction, N. Y., which resulted in the death of 1 employee and the injury of 2 employees. After investigation of this accident the chief of the Bureau of Safety reports as follows:

The Susquehanna Division of the Delaware & Hudson Company, on which this accident occurred, is a double-track line extending from Binghamton, N. Y., to Mechanicsville, N.Y. There are also several sections of third track and the accident occurred at one of the points where double track and triple track connect. Trains are operated by time-table, train orders, and an automatic block signal system. South of Schoharie Junction signal station and for about 187 feet north thereof, the line is double-track, the easterly track being known as the northbound main and the westerly one as the southbound main. A third track leads off to the right of the northbound main track at a point 187 feet north of Schoharie Junction signal station and extends to Delanson, a distance of 8.5 miles. Where there are three tracks, the westerly track is known as track 1 and is used by southbound trains; the middle track is known as track 2 and is used by northbound trains and the most easterly track is known as track 4, also being used by northbound trains.

The point of collision was about midway between the switch point and the frog of the crossover switch leading from the northbound main to track 4. This crossover switch is 234 feet long and is pipe connected with an interlocking machine located in the upper part of the Schoharie Junction signal station and is provided with a facing point lock. Forty-nine feet north of the northern end of this crossover is located the south end of another crossover switch leading from track 2 to track 1, which crossover switch is 167 feet in length and is thrown by hand.

Opposite the Schoharie Junction signal station and west of the southbound main track, there is located a 2-arm semaphore train order signal, governing both north and southbound movements. At a point 76 feet north of the signal station is located a 3-arm, 5-position, upper quadrant semaphore signal, governing northbound movements, the top arm being for straight movements up track 2, the middle arm for movements up track 4 while the bottom arm is a calling on signal for slow speed movements up either track 2 or 4. These signals are operated by the interlocking machine in the signal station. Dwarf signal No. 7, which is pipe connected and operated in the upper quadrant, showing purple and yellow night indications, is located between tracks 2 and 4 at a point 12 feet north of the north end of the crossover leading from track 2 to track 4. This dwarf signal governs southbound movements running against the current of traffic on track 2. The switchstand at the north end of the crossover leading from track 2 to track 1 is

of the low Ramapo type displaying red and green indications, while at the south end of this crossover there is a high switchstand displaying like indications.

Approaching Schoharie Junction from the north there is a 3-degree 30-minute curve to the left 1,621 feet in length followed by a tangent 243 feet in length and a 4-degree curve to the right, the point of accident being on this last mentioned curve about 150 feet from its northern end. Beginning at Esperence, a station 4.4 miles north of Schoharie Junction, the grade is descending for southbound trains, the gradient varying from 1.16 per cent. to .13 per cent. At the point of accident it is .25 per cent. and the track at this point is laid on a 10-foot fill. At the time of the accident it was snowing slightly but not sufficiently to interfere with the view of signals.

Northbound freight train extra 886, in charge of Conductor Uszkurat and Enginemen Brush and Dietzel and consisting of locomotive 886, 2 loaded cars, locomotive 882, 40 loaded cars and a caboose, in the order named, left Oneonta, its initial station, at 8.25 p.m., November 14th. Approaching Schoharie Junction at about 12.17 a.m., November 15th, the train order signal was seen to be in the stop position and the train was brought to a stop with the leading locomotive at the south end of the signal station. The engineman of the leading locomotive and the head brakeman went into the telegraph office and received copies of Form 31 train order No. 204, which read as follows:

"To C. and E. northward trains.

Extra 837 south has right over opposing trains on track two, first crossover south of Delanson to Schoharie Junction, protection against yard engines within yard limits.'

After the crew of extra 886 received this order together with a clearance, the middle arm of the interlocking signal governing northbound movements over tracks 2 and 4 assumed the caution position and the train started, but before reaching the signal it changed to clear, giving the train a right to pass from the northbound main to track 4 and run on the latter track toward Delanson. At about 12.27 a.m., when the leading locomotive had reached a point midway between the switch point and the frog of the crossover leading from the northbound main to track 4, the train collided with southbound freight train extra 837, the speed of extra 886 at the time being estimated at about 4 miles an hour.

Southbound freight train extra 837 consisted of locomotives 837 and 828, 41 loaded cars and a caboose and was in charge of Conductor Boswell and Enginemen Roby and Mann. This train left Mechanicsville at 9.30 p.m.; at Schoenectady a car of milk was picked up and placed between the two locomotives. The crew received copies of train order No. 204 at Delanson on a "19" form. Approaching Schoharie Junction the speed of extra 837 was reduced, the train passed the crossover switch leading from track 2 to track 1, passed dwarf signal No. 7 in the stop position and collided with extra 886 while running at a speed estimated at about 10 miles an hour.

As a result of the accident the front ends of the

leading locomotives of both trains were badly damaged. The milk car between the two locomotives of extra 837 was demolished and two cars buckled a distance of about 10 car lengths back in the train. In extra 886 a box car loaded with coal between the two locomotives was badly damaged and thrown to the east. About 27 cars back of the locomotive a car of coal was derailed and thrown partly down the bank. Fireman McDonald of extra 837 was killed while Engineman Mann of the same train and Brakeman McGrath of extra 886 were injured.

Train Dispatcher Sexton stated that train order No. 204 was the first order he issued when he went on duty on the night of the accident and that he issued this order for the purpose of getting extra 837 around southbound extra 900, which was disabled on track 1 near Leperence. He intended that extra 837 should use track 2 against the current of traffic only as far as the crossover leading from track 2 to track 1 north of Schoharie Junction signal station, which was the first crossover available, and in his opinion the order gave the crew rights over track 2 to that point only. He said that in view of the fact that there is but one crossover at Schoharie Junction leading from track 2 to track 1, he did not consider it necessary to specify in the train order the exact crossover to be used and that he was not aware of the fact that Chief Rules Examiner Moore had instructed that in orders of this nature the specific crossover to be used must be mentioned. He further stated, however, that in case there is more than one crossover at a station it is the custom to specify in the

train order which particular crossover is to be used.

Operator Sullivan on duty at Schoharie Junction stated that extra 886 arrived at that point about 12.17 or 12.18 a.m., at which time the train order signal was in the stop position, the crossover leading from track 2 to track 4 was set for track 4, and dwarf signal No. 7, governing southbound movements on track 2 was in stop position. He said the lights on the signals were all burning brightly. He thought train order No. 204 gave extra 837 the right over track 2 to dwarf signal No. 7, but thought that the train would stop at the crossover leading from track 2 to track 1 and then cross to track 1. He further stated that he could not remember just what conversation he had over the telephone with the flagman of extra 886 but that when train order No. 204 was signed by the head brakeman of that train, he thought it was being signed by the conductor. On learning differently immediately afterwards he did not require the conductor to sign the order as he wanted to get the train moving.

Engineman Brush of extra 886 stated that when his train arrived at Schoharie Junction at 12.15 or 12.20 a.m., he found the train order signal as well as all three interlocking signals governing northbound movements in the stop position. He brought his train to a stop and upon entering the office found train order No. 204 giving extra 837 right over opposing trains on track 2 to Schoharie Junction. He said that this order had already been signed and his head brakeman gave him a copy. He understood from a conversation he

heard Operator Sullivan engaged in over the telephone that the conductor had given the head brakeman permission to sign the train order. In his opinion the order gave extra 837 right on track 2 only to the crossover leading from track 2 to track 1 north of Schoharie Junction, and he expected that extra 837 would stop at that point and cross to track 1. When Engineman Brush returned to his locomotive the middle arm of the interlocking signal changed from the stop position to the caution position and he started his train ahead. Before reaching the signal the middle arm cleared, giving him the right to enter track 4. His train had moved only a short distance when he saw extra 837 approaching on track 2 and saw it pass by the crossover leading from track 2 to track 1 at a speed estimated by him at 15 miles an hour. He had only time to close the throttle and jump before the collision occurred and he stated that his own train was running at a speed of about 4 miles an hour at that time, while he did not believe the speed of extra 837 had been materially reduced from 15 miles an hour.

Engineman Dietzel of the second locomotive of extra 886 confirmed the statements of Engineman Brush relative to the indications of the signals at Schoharie Junction on the night of the accident. He also stated that had he been the engineman in charge of extra 837 and had received a train order worded like train order No. 204, he would have ascertained from the operator who delivered it to him whether he should

stop at the crossover north of Schoharie Junction or whether he should proceed to the train order signal at the station. He said that train orders of this kind usually mention the particular crossover intended to be used and he thought that in the absence of such information extra 837 should not have passed the crossover leading from track 2 to track 1 north of Schoharie Junction.

Head Brakeman McGrath of extra 866 stated that he rode in the cab of the leading locomotive from Oneonta to Schoharie Junction and upon arrival at the latter point he went into the office to see what orders the operator had for the train. He stated the operator told him that if he would sign the orders a clearance would be issued and the movement of the train would be facilitated. He therefore signed Conductor Uszkurat's name to the order, a complete was given him, and he gave copies of the order to both enginemen of his train. Brakeman McGrath further stated that Operator Sullivan was aware of the fact that he was not the conductor and told the flagman in his telephone conversation with him that the head end would sign the order and that a copy would be handed on the rear end as it passed the office.

Conductor Uszkurat of extra 886 stated that when his train stopped at Schoharie Junction he was in the caboose. The flagman got off and after looking reported to him that the train order signal was out for a "31" order. The flagman then went to a telephone box near-by and a few minutes later was recalled by the engineman's whistle. The flagman returned to

the caboose and told Conductor Uszkurat that there was an order at the office which gave extra 837 rights over opposing trains on track 2 between Delanson and Schoharie Junction. The conductor stated that he was getting ready to get off and go to the head end of the train when the train started and shortly afterwards collided with extra 837. In his opinion train order No. 204 gave extra 837 the right on track 2 as far as the train order signal at Schoharie Junction providing all signals were clear, but he stated that had he been in charge of extra 837 he would have stopped the train north of the crossover leading from track 2 to track 1 to save backing up in case the crossover was to be used. He further stated that he did not sign train order No. 204 and did not receive a copy of it until after the accident occurred. He said it was not his practice to allow someone else to sign his name to train orders and that this was the first time it had been done.

Flagman Lurenz of extra 886 stated that when his train stopped at Schoharie Junction he went to the telephone box about 7 or 8 car lengths from the rear end of his train and called up the operator at Schoharie Junction to find out why the train order signal was displayed for a "31" train order. The operator told him that the train order was one giving southbound extra 837 rights over track 2 from Delanson to Schoharie Junction and that his train would take track 4. The operator also told him that the head end had signed the order and that a copy would be handed on to the rear end as it passed the office.

Flagman Lurenz said that when he finished the conversation he was recalled and upon his return to the train he told Conductor Uszkurat of the conversation he had had with the operator.

Engineman Roby of the leading locomotive of extra 837 stated that he was familiar with the signals and track layout at Schoharie Junction, but did not know whether the crossover leading from track 2 to track 1 was operated by hand or by the interlocking machine. He stated that brake tests were made on his train before it left Mechanicsville on the night of the accident and he was notified they were operating properly. At Delanson Conductor Boswell gave him a copy of train order No. 204 and remarked to him that they were to take the northbound track to Schoharie Junction. In the opinion of Engineman Roby the train order gave his train the right on track 2 as far as dwarf signal No. 7 and he intended to stop before passing that signal. He thought possibly that upon his arrival at Schoharie Junction he would be given further orders to continue on the southbound track. He stated that approaching Schoharie Junction he made a 10-pound brake pipe reduction, after which the brake pipe was recharged to normal; after traveling about a mile farther he made a second 10-pound reduction, the train at that time being about one-fourth mile from the crossover leading from track 2 to track 1 and the speed of his train being about 15 or 18 miles an hour. As the train neared the crossover he made another 10-pound reduc-

tion and at that time thought he could bring his train to a stop before passing dwarf signal No. 7. When he realized that the service application would not stop the train in time he applied the brakes in emergency, but failed to bring the train to a stop. He said the signal lights on the switch-stands of the crossover were displaying green indications and were burning brightly and that the light on dwarf signal No. 7 was displaying purple. He attributed his passing the dwarf signal in the stop position to his failure properly to control the speed of the train rather than to any failure of the air-brake system.

Engineman Mann of the assisting locomotive of extra 837 stated that at Delanson the conductor gave him a copy of train order No. 204 and he understood the order to mean that the train was to cross back to track 1 at the crossover north of Schoharie Junction; it did not occur to him that there might be any misunderstanding as to which crossover the train was to use. He said the brakes on the train were controlled by the leading locomotive and approaching Schoharie Junction his engine was shut off. As far as he knew the brakes were in good condition. He did not realize that the train was not going to stop at the crossover until the leading locomotive had reached it. He further stated that the speed of the train as they passed the crossover was about 10 miles an hour and was about the same when Engineman Roby applied the brakes in emergency just before the collision occurred. He did not notice the indication displayed by dwarf signal No. 7 until

after the accident occurred and then noticed that it was displaying purple and the light was burning brightly. He also stated that in a conversation with Engineman Roby after the accident, the latter told him that it was his impression that they had another block to go before reaching the crossover.

Fireman Reynolds of the second locomotive of extra 837 stated that he was busy with his fire just before the accident occurred. He estimated the speed at the time of the collision at from 10 to 15 miles an hour.

Head Brakeman Conrad of extra 837 stated that approaching Schoharie Junction he was riding on the left side of the cab of locomotive 837 and asked Engineman Roby whether the crossover at Schoharie Junction was thrown by hand or from the tower, Engineman Roby replying that he did not know. When the train neared the crossover he was putting on his coat and gloves preparatory to getting off to throw the switch and expected the train to stop before passing the crossover.

Middle Brakeman Fay of extra 837 stated that he expected the train was going to cross back to track 1 at the crossover north of Schoharie Junction. He had been on trains several times previously that had made this movement and they had always stopped at the crossover north of the station. He estimated the speed of the train at about 35 miles an hour at the time the emergency application of the brakes was made.

Conductor Boswell of extra 837 stated that at Delanson

he received train order No. 204 and gave copies to both Engineman Roby and Engineman Mann, telling the former that the order directed them to run on track 2 to Schoharie Junction on account of another train being in trouble on track 1. He thought Engineman Roby understood clearly the movement to be made.

Conductor Boswell stated that he did not think the train exceeded a speed of 25 miles an hour at any point between Delanson and Schoharie Junction; approaching the latter point, the train slowed down and he thought it was going to stop north of the crossover leading to track 1. As the train proceeded he realized that the leading locomotive must be beyond the crossover and he concluded that someone had set the switch for them and that the train was pulling through the crossover. All of a sudden the train stopped and he thought a car had become derailed while going through the crossover. He estimated the speed at the time of the collision at 8 or 10 miles an hour. After the accident Engineman Roby told him that he "misjudged" the crossover. Conductor Boswell further stated that he had made a similar movement previously and his understanding was that the train order gave his train right over track 2 only as far as the crossover to track 1 north of Schoharie Junction.

Flagman Patterson of extra 837 stated that leaving Delanson Conductor Boswell read order No. 204 to him and told him that the train would use track 2 as far as the crossover north of Schoharie Junction where it would cross to track 1. The flagman estimated the speed at the time of the accident at not more than 8 miles an hour.

Train Dispatcher Knowles stated that he had no recollection of any instructions being given requiring crossovers to be mentioned in train orders, but in issuing orders involving the crossover at Schoharie Junction he has on his own initiative specified "the crossover north of Schoharie Junction." He considered this to be the safer method although not necessary.

Chief Train Dispatcher Hunt stated that it has been the practice of the dispatcher to specify in orders the particular crossover to be used only in instances in which there is more than one crossover at a station. He was not aware of any instructions, either verbal or otherwise, given by Chief Rules Examiner Moore requiring the location of the crossovers to be stated in train orders similar to No. 204.

Chief Rules Examiner Moore stated that he has general supervision of all train rule examinations of employees connected with the movement of trains on the system and that he is an authority on train rule interpretation. He stated that in his classes and examinations he instructs that in issuing train orders requiring trains to run over opposing track, the specific crossovers to be used must be mentioned, except where such crossovers are located exactly in front of the station. It was his opinion that train order No. 204 conferred upon extra 837 the right to proceed on track 2 as far as dwarf signal No. 7, but that the conductor and engineman should have called up the train dispatcher and found out the meaning of the order

before they acted upon it. He believes that this instance is one in which the specific crossover to be used should have been mentioned. He also believes that Train Dispatcher Sexton was aware of his instructions on this subject and must have heard of them at the time of his examination and during the instruction classes which he attended. He further stated that he has on more than one occasion sent memoranda to Chief Train Dispatcher Hunt calling his attention to instances in which the train dispatchers under his supervision had issued this form of train order without specifying the exact crossover to be used.

The cause of this accident was the failure of Engineman Roby to bring his train to a stop before passing dwarf signal No. 7 which was in the stop position.

Engineman Roby admitted that he knew the location of the switches and signals at Schoharie Junction; the weather conditions were not such as to obscure the signals; the signals were displayed in the proper position, and the brakes were in good working order. The cause of this accident therefore resolves itself into a question of proper judgment on the part of Engineman Roby in controlling the speed of his train approaching the dwarf signal. While there is a divergence of opinion as to the interpretation placed upon the rights conferred on extra 837 by train order No. 204, the order admittedly did not authorize extra 837 to disregard the indication of the dwarf signal, and had the train stopped at dwarf signal No. 7 where Engineman Roby intended to stop as required by the rules,

this accident would not have occurred.

This accident also undoubtedly would have been averted if there had been a proper understanding between Dispatcher Sexton and Engineman Koby concerning the movement of extra 837 and the rights conferred upon it by Order No. 204. The north switch of the crossover between tracks 2 and 1 is located approximately 200 feet north of dwarf signal No. 7, and had Engineman Koby brought his train to a stop at that point as evidently the dispatcher intended he should do, the accident would not have occurred.

The investigation of this accident disclosed that there is a diversity in the interpretation between the officials issuing train orders and the employees who execute them. Under the instructions of the Chief Rules Examiner, extra 837 had a right under order No. 204 to proceed on track 2 to dwarf signal No. 7 and in instances of a similar nature the particular crossover to be used should be specified in the train order, while according to the statements of the Chief Train Dispatcher and the Train Dispatchers, they had no knowledge of such interpretation or instructions and they believed that under this order the rights of extra 837 on track 2 ceased at the crossover leading from track 2 to track 1 north of Schenarie Junction and that it was not necessary to specify the particular crossover to be used. This indicates a lack of co-ordination between the examining and operating departments. A close co-ordination between these two branches of the service is absolutely essential to the safety of train

operation.

An examination of the records shows that during the period from January 1, 1919, to the day of the accident, there have been 14 instances in which similar movements have been made and in each of these instances the designation in the train order has been "Schoharie Junction" without mentioning the particular crossover. In each instance the movement was executed in the manner intended by the train dispatcher who issued the order. In issuing train orders, however, the practice should conform to the theory as laid down by those having the responsibility of interpreting the rules and it is believed that a greater degree of safety would be provided if the particular crossover to be used were specified.

While not responsible for the accident, the investigation also disclosed an irregularity in the manner in which train order No. 204 was handled by Operator Sullivan for extra 886. The practice of permitting other members of the crew than the conductor to sign and receive train orders can not be too strongly condemned.

Not only would it be in the interests of safety if all of the switches in the vicinity of Schoharie Junction were connected with the interlocking plant and operated by the signalman, but if in this instance the crossover between tracks 2 and 1 had been so operated the routes intended to be provided for both trains could have been lined up in advance and both trains could have simultaneously passed through the interlocking at this point in perfect safety.

Engineman Roby entered the service of the Delaware & Hudson Company as fireman in November, 1900, and was promoted to engineman in September, 1905. His record shows that he has been suspended for two weeks on five different occasions for various reasons and that in May, 1916, he was suspended for 30 days for responsibility in connection with a side collision, this being the last entry on his record.

at the time of the accident the crew of extra 837 had been on duty 4 hours and 57 minutes and the crew of extra 886 3 hours and 27 minutes. Previous to going on duty all of the employees involved had had off-duty periods of at least 10 hours.

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