

IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE
LINE OF THE UNION TRACTION CO. OF INDIANA, NEAR
CARMEL, IND., JUNE 13, 1919.

August 25, 1919.

On June 13, 1919, there was a head-end collision between two passenger motor cars on the line of the Union Traction Co. of Indiana, at St. Clair Stop, near Carmel, Ind., which resulted in the death of 2 passengers and the injury of 32 passengers. As a result of the investigation of this accident, which was held jointly with the Public Service Commission of Indiana, the Chief of the Bureau of Safety reports as follows:

The Indianapolis-Logansport Division of the Union Traction Co. of Indiana extends between Indianapolis, Ind., and Logansport, Ind., a distance of 79.76 miles, and is a single-track line, over which movement of trains is governed by time-table, train orders and automatic block signals.

The signals, which were installed in 1917, are located at about the middle of passing sidings and are approximately $2\frac{1}{2}$ miles apart. At each signal location a double, 3-light signal is installed, governing movements in either direction. Night indications are: red for stop, red over yellow, caution, and green for clear. An overlap of approximately 2,000 feet is provided for each block and may be at either end, depending upon local conditions, at the end of each overlap, either a distant signal or a block indicator is used to indicate the condition of a block in which trains are to meet. These block indicators show a white light when the block is occupied but

when the block is clear, no light is displayed.

When orders are issued by the dispatcher over the telephone to train crews at registering stations, they are transcribed by the train crews upon a duplicating machine containing a two-sided carbon and by means of which two copies of each order are made. The order is written while the forms are in the machine, after which the original and carbon copy are taken out of the machine and detached, the carbon remaining in the machine. The crank by which the duplicator is operated revolves in the forward direction only, so that the paper, once rolled forward, cannot be rolled back into the machine.

Approaching the point of accident from the Chicago, Indianapolis & Louisville Railroad crossing, the track is tangent for 1,703 feet, followed by an easement curve to the left of 1 degree, 180 feet in length, then there is a 2 degree curve to the left 1,650 feet long, which in turn is followed by another easment curve of 1 degree, 180 feet in length. The accident occurred about 795 feet from the south point of curve. Approaching from the north, the curve above mentioned is preceded by some 3,500 feet of tangent track. At the point of accident the grade is slightly descending for north-bound trains.

For a distance of about 500 feet on either side of the point of collision, the tracks of the Union Traction Co. of Indiana form the southern boundary to a dense woodland,

with scattering trees bordering the entire curve on the north, which obscures the vision in both directions. There is no speed restriction on the curve. The weather was clear and the sun was shining at the time of the accident.

The trains involved were southbound local passenger train No. 331 and northbound local passenger train No. 338, each consisting of 1 motor combination baggage-smoker-passenger car of wooden construction with reinforced steel underframe. Their scheduled meeting point is Grove, 12.73 miles north of Indianapolis, where they are scheduled to meet at 6.44 p.m. At Kinsey, 19.93 miles north of Grove, train No. 338 is scheduled by time-table to meet train No. 335 at 7.06 p.m.

Train No. 331, consisting of car No. 265, was en route from Logansport to Indianapolis, in charge of Conductor Clinton and Motorman Ross. It left Tipton at 5.53 p.m., 23 minutes late. At Miller, 6.47 miles south of Tipton, the crew received an order to meet train No. 338, car 269, at Hawk, which is 2.35 miles north of Grove. The train left Miller at 6.15 p.m., 30 minutes late, and on arrival at Hawk, the conductor called the dispatcher, asked about train No. 338, and was given order No. 47, reading:

"Train No. 331, car No. 265, at Hawk;
"Train No. 331, car No. 265, and train No. 338,
car No. 269, will meet at Grove instead of Hawk."

This order was made complete at 7.05 p.m., whereupon train No. 331 left Hawk 27 minutes late, and reached a point about one mile north of Grove when it collided with train No. 338 at 7.10

p.m., while running at a speed of about 5 miles an hour.

Train No. 338, consisting of car No. 269, was en route from Indianapolis to Tipton, in charge of Conductor Orr and Motorman Smith. It left Indianapolis Union Transfer Station at 6.00 p.m., on time, and at 6.43 p.m., arrived at Ripple, 7.7 miles north of Indianapolis, where Conductor Orr registered his train and reported by telephone to the dispatcher at Tipton. He was given order No. 46, reading as follows:

"Train No. 338, Car No. 269, at Ripple;
"Train No. 338, Car No. 269 and train No. X. S.
car No. 297 will meet at Akers.
"Train No. 338, Car No. 269 and train No. 335,
car No. U. K. will meet at Nobles.
"Disregard block at red and bad order Ripple to
Tipton."

Conductor Orr stated that when he was ready to receive the O.K. he read the order to the dispatcher, but on reaching that part of the order naming train No. 335 to be met at Noblesville, Conductor Orr claims that the dispatcher told him to "make '335' read '331'," and that he then altered the order by changing the numeral "5" in the number "335", and made the figure "1" over it. This change was explained by Conductor Orr to Motorman Smith, who was also required to read the order to the dispatcher before the complete could be given, and on reading the order, Motorman Smith testified that he substituted the number "331" for the number "335" and received complete from the dispatcher at 6.43 p.m. Train No. 338 then departed from Ripple at 6.44 p.m., 12 minutes late, stopped at Akers at 6.55 p.m., to meet train S. X. 297, leaving there 12 minutes late. Train No. 338 passed Grove, its scheduled meeting point

with train No. 331, and the next stop was the Monon Railroad crossing, where the day towerman was picked up. The train had proceeded beyond this crossing a distance of 2,558 feet when it collided with train No. 331 at St. Clair Stop, at 7.10 p.m., while running at a speed of about 15 miles an hour.

The forward end of car 269 was telescoped a distance of about 20 feet. The forward end of car 265 was crushed in as it overshot the floor of car 269 and demolished the front end for a distance of about 8 feet. None of the trucks of either car left the rails.

Conductor Orr, of train 338, stated that on arrival at Ripple at about 6.40 p.m., he went into the sub-station and called the dispatcher, who gave him order No. 46; the telephone line was very noisy when he took the order. Before the order had been made complete, he said he turned the handle of the duplicating machine, thereby running the paper partly out, in order more easily to affix his signature. After copying the order, he repeated it as originally given. "Train No. 338, car No. 269, and train No. 335, motor unknown, meet at Nobles," but when he reached the words: "meet No. 335, motor unknown, at Nobles," he stated the dispatcher said to him: "Train 331." Conductor Orr said he merely replied: "All right, 3 - 3 - 1." He said the order was still in the machine when he made the alterations, but it was after he had turned the handle which advances the paper through the opening at the top of the duplicator, so that the corrections had to be made separately on

each copy of the order, and that he then wrote the numeral "1" over the numeral "5" on each copy separately. He stated that when Motorman Smith stepped to the telephone to repeat the order he explained to the motorman that he had corrected the order to read "331" in accordance with the dispatcher's instructions, and that Motorman Smith then repeated the order that train No. 338 would meet train No. 331 at Noblesville and the motorman was then given complete to the order thus repeated. Conductor Orr said he took the carbon copy and gave the original to Motorman Smith, that they then proceeded to Akers, where he again called the dispatcher to inquire about extra south 297, which had not yet arrived, and was told by the dispatcher to remain at Akers until the arrival of that train, which they did, thereby being delayed 10 or 12 minutes. After extra south 297 passed Akers, train 338 backed out of the siding and proceeded to the Monon Railroad Tower, where they picked up the towerman. He said he had just entered the baggage compartment of his car to register fares and estimated his train was moving about 25 miles an hour when he looked up and saw train 331 approaching about 300 or 400 feet distant, felt the brakes being applied and jumped from the car. Conductor Orr admitted knowledge of Rule 210, providing that orders should bear no alterations, but denied that, in reporting the accident over the telephone to the dispatcher, he had admitted they had overlooked train No. 331. He said that when he left the scene of the accident he had turned over to Motorman Smith all the train orders he had received during the day.

Motorman Smith, of train No. 338, stated that Conductor Orr had taken the order and repeated it to the dispatcher when he stepped in the door of the sub-station at Ripple and when the conductor handed him the order he explained to him why he had altered it, saying that he first understood the train number "335" and when he had repeated it to the dispatcher, the latter had said: "331" instead of "335." Motorman Smith stated Conductor Orr made the alterations when the order was still in the duplicator but turned about half way out of the machine. When the conductor handed him the order, he read it; he said the train number showed an alteration had been made, but there was no mistaking the number "331." He said he repeated it to the dispatcher, as altered, and the dispatcher gave him complete on it. He said it is their custom in repeating numbers to pronounce the numerals, but not spell them out. He stated he could not hear the dispatcher distinctly, as the line was very noisy. He did not recall signing the order himself. He said Conductor Orr gave him the original copy of the order and kept the carbon copy himself, and he had not seen the carbon copy since the conductor took it from the duplicator. It was his understanding when they left Ripple that they were to meet train No. 331 at Noblesville. When approaching Grove, the block signal 1,440 feet south of the Monon Railroad crossing showed green, indicating proceed, and the distant signal, south of Home Place, showed yellow; however, he held an order to disregard red and bad order block signals

between Ripple and Tipton, and proceeded without regard to that caution signal. When he was about 200 or 300 feet south of St. Clair Stop, running about 30 miles an hour, he saw a car approaching from the north; he immediately shut off current, set the brake in emergency and used sand. He remained on the car until the approaching car was within 10 feet of him, then jumped off. He thought he had reduced the speed of his car to about 18 or 20 miles an hour when the collision took place. His view was obscured by the trees. He identified the order submitted in evidence at the investigation as the order written by Conductor Orr and as the one he had repeated in the same form, bearing the alterations. When asked about the alterations, he said they had been made by Conductor Orr when the alleged mistake in the order was discovered at Ripple. Motorman Smith had been examined on rules and admitted knowledge of the rule providing that orders bearing erasures, alterations or interlineations shall not be accepted or acted upon.

Conductor Clinton, of train No. 331, stated that he had an order to disregard all red blocks and bad order signals from Tipton to Ripple, and was running 20 minutes late. Shortly after striking the curve on which the accident occurred, when they were traveling at about 20 miles an hour, the trolley came off from the wire, due to a defective hanger, but was replaced without stopping, although the speed was reduced to about 15 miles an hour. When about 100 feet from St. Clair Stop he felt the brakes go on, but did not see train No. 338 approaching.

Motorman Ross, of train No. 331, stated that order No. 47 was received at Hawk, changing their meet with train No. 338 to Grove, the regular meeting point. On leaving Hawk he said he ran under caution on account of red and bad order block signals to a point about 300 feet north on St. Clair Stop, where he slowed down his train to 15 miles an hour around the curve. There were some trolley wire hangers loose and the trolley came off, but was replaced without stopping, and he next saw train 338 approaching. He applied the brakes and reversed and believed he had reduced speed to about 5 miles an hour when the cars collided. He estimated the speed of train 338 when he first saw it at 30 miles an hour, but thought its speed had been reduced to about 20 miles an hour at the time of collision.

Dispatcher Salyer stated that because of a severe electric storm on the day of the accident, the block signals were not working properly and that orders had been issued to disregard them. Upon Conductor Orr's reporting to him at Ripple at 6.41 p.m., he stated that he issued order No. 46, as previously quoted; that after reading the order to Conductor Orr he did not make any correction, nor interfere in any manner with the reading as it was repeated to him correctly, just as he had given it. He said there was nothing wrong with the 'phone and he recognized the voices of Orr and Smith when they repeated the order. He said Conductor Orr repeated the order back to him just as he had given it and he then had Motorman Smith read the order to him; he said he had to ask Motorman

Smith to repeat that part of the order relating to red and bad order blocks the second time, as he said to him: "I do not hear you repeat that." Motorman Smith then repeated that part of the order the second time, reading it back to him just as he had given it and as Conductor Orr had repeated it, whereupon the dispatcher gave Motorman Smith complete on the order at 6.43 p.m. Dispatcher Salyer stated that nothing was said about any mistake in receiving the order, no mention was made of train No. 331, and that at no time on that day had he put out an order to train No. 338 regarding train No. 331. He said he wrote the order in his order book as he was transmitting it. His order book was later submitted and order No. 46, contained in it, was identified as the order he had written as he was delivering it to Conductor Orr. He next heard from train No. 338 at Akers, at 6.50 p.m., when Conductor Orr called for orders on extra south 297, the dispatcher informing him that extra south 297 would meet them there. He said train No. 331 left Tipton with an order to disregard red and bad order block signals from Tipton to Ripple. At Miller, about 6 miles south of Tipton, he gave train 331 an order to meet train No. 338 at Hawk. When train No. 331 arrived at Hawk, as train No. 338 had not yet reported to him from Grove, nor called for any orders against train No. 331, he gave train No. 331 order No. 47 to meet train No. 338 at Grove instead of Hawk. Dispatcher Salyer further stated that at about 7.50 p.m., Conductor Orr reported to him from the Monon Interlocking Tower that a col-

lision had occurred and said: "What kind of an order did you give me?" The dispatcher said he replied: "It was a correct order I gave you: '338, car 269, and 338, motor unknown, meet at Noblesville.'" He said Conductor Orr replied: "I guess you're right; that's where we mixed up." Dispatcher Salyer said that had the crew of train No. 338 reported to him from Grove, the scheduled meeting point, as required by the rules, the accident would not have occurred.

Leverman Cain, on duty at Monon Interlocking Tower on the night of the accident, stated that at about 7.50 p.m., Conductor Orr came up in the tower, called the dispatcher over the telephone, reported the collision and then asked: "What kind of an order did you give me?" He could not hear the dispatcher's reply, but heard the conductor remark: "Well, I guess you did and that is where we made our mistake and we just overlooked train No. 331."

Dispatcher Cooper, who was on duty at the dispatcher's office at Tipton, stated that just prior to closing his day's work on the day of the accident, he heard Dispatcher Salyer give order No. 46 to train No. 338 at Ripple, at about 6.45 p.m. He said Dispatcher Salyer made no corrections whatever in the order.

Superintendent of Power Distribution Penniston attributed the failure of signals in the vicinity of the accident to electrical storms and variable power conditions at Anderson, where repairs were being made. He stated that all blocks had been repaired on the 25th of June.

Rule No. 210 of the operating rules of this road reads in part as follows:

* * * * * Train orders must be brief and clear, and in the prescribed form, when applicable, without erasure, alteration or interlineation."

The only copy of order No. 46 available at the investigation was the original copy, the one given Motorman Smith. As the duplicate copy of the order had been made with a two-sided carbon, the reversed writing on the back of the order should coincide with what was originally written on the front side. The front side of the original copy bore the alteration of the number "335" to the number "331," while with the aid of a mirror, the carbon impression of the number on the back was clearly discerned as "335." The statements of all employees concerned agree that Order No. 46 was originally transmitted and received in its correct form, and the question in dispute, therefore, is when the alteration was made and whether or not the alteration was made with the sanction of the dispatcher. The dispatcher's statements are substantiated by the original writing on the order itself, the entries in his train order book, and the testimony of Dispatcher Cooper, who overheard Dispatcher Salyer transmit the order in question. Dispatcher Salyer's statement that Conductor Orr admitted to him over the telephone that they had overlooked train No. 331, although denied by Conductor Orr, is corroborated by Leverman Cain, a disinterested witness, who overheard the conductor's part of this conversation. On the other hand, the dispatcher's account of what transpired leading up to the accident is called into question only by the

statements of Conductor Orr and Motorman Smith, the two trainmen who were responsible for the safety of their train and who were directly involved. If the testimony of Conductor Orr and Motorman Smith be accepted, then it must follow that there was a violation of Rule 210 by the dispatcher, in allowing a train crew to accept and act upon an order which bore an alteration, and a violation of the same rule by the train crew in accepting and acting upon an order bearing alterations. On the other hand, if the testimony of Dispatchers Salyer and Cooper be accepted, as there was nothing to warrant the alteration of the order at Ripple without the knowledge of the dispatcher, the order must have been changed subsequent to the accident in an effort to evade responsibility.

Noblesville is 11.44 miles north of Grove, the scheduled meeting point for trains 331 and 338, where they are due to arrive at 6.44. The scheduled time for train 338 at Noblesville is 7.16 p.m., while for train 331 it is 6.15 p.m., therefore, if train 338 was on time and the meet was made at that point, train 331 would have been more than an hour late. Under the rules of this company a train 60 minutes late loses its time-table rights and can only proceed as authorized by orders from the train dispatcher. In response to questions, Motorman Smith stated that this had not occurred to him.

The weight of evidence in this case leads to the conclusion that Conductor Orr and Motorman Smith, of train No. 338, overlooked train No. 331, and passed the scheduled meeting point where they should have waited until train No. 331

arrived.

The direct cause of this accident was the failure of Conductor Orr and Motorman Smith, of train No. 338, to wait at Grove Siding as provided by time table, and meet train No. 331 at that point. A contributory cause was the failure to maintain in proper condition the block signals governing movement of trains, for which the officials of the Union Traction Co. of Indiana are responsible.

Had the automatic block signals on this line been in proper operating condition and had the indications of these signals been heeded, the accident would undoubtedly have been averted. Between Ripple and Tipton, a distance of about 32 miles, there are 45 signals, but the crews of both of the trains involved in this accident held orders to disregard all red and bad-order signals on that portion of the line. The investigation disclosed that it was common practice to issue such orders to disregard signals. The dispatcher's order book was examined for instructions to disregard red and bad order blocks on the day of the accident, and showed a total of 59 such orders; these failures were said to have been due to bad power conditions and electrical storms. On June 26, the number of "disregard" orders issued was 37; on June 27, the number was 31; on these dates there were no storms of any kind. Trips were made by the Commission's inspectors on the dates of June 17, 18, 25, 27 and 30. Notwithstanding the fact that on these dates the weather conditions were good, one or more signals were designated "bad order" and "disregard" orders were

issued train orders. Only one signal maintainer is employed and his duties require the maintenance of 122 signals covering about 99 miles of track in three sections. The signals at Hawk, nearest the scene of the accident, were in poor condition at the time they were inspected, and a review of the reports of signal failures indicates that, as a factor of safety, the efficiency of the signals on this part of this road is very low. In the interests of safety and to prevent the recurrence of accidents of this character, the block signal system of the Union Traction Co. of Indiana should be thoroughly overhauled and maintained in proper operating condition.

The investigation of this accident disclosed that Rule No. 210, previously quoted, was not being enforced. Several train orders were discovered on file in the dispatcher's office at Tipton which bore alterations in both serial and car numbers and which had been executed by train crews, although none were found bearing an alteration as serious as the one involved in this accident. While record was kept of altered orders, no provision was made to define the extent of alteration which would render an order void. The fact that some orders bearing erasures and alterations were found, which apparently had not been questioned, indicates lax methods and practices which should not be permitted to continue. While in this case it is believed the order was changed subsequent to the accident for the purpose of evading responsibility therefor,

the practice of allowing orders to be altered is liable at any time to produce conditions which may lead to an accident. The rule quoted is essential to safe operation, and the Union Traction Co. of Indiana should take measures to insure that its requirements are fully complied with.

All the employees involved had good service records. The crew of train No. 338 had been on duty nearly 8 hours, after a rest period of 9 hours and a half, while the crew of train No. 361 had been on duty 13 hours and 30 minutes, after a rest period of 10 hours.

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