

IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE
MISSOURI, KANSAS & TEXAS RAILWAY NEAR CLIFTON

CITY, MO., JULY 28, 1918. Oct. 2, 1918.

On July 28th there was a head-end collision between a passenger train and a freight train on the Missouri, Kansas and Texas Railway, near Clifton City, Mo., resulting in the death of one person and the injury of seventeen persons. After investigation of this accident, the Chief of the Bureau of Safety reports as follows:

The Booneville division, on which the accident occurred, extends between Hokans, Mo. and Sedalia, Mo., a distance of 102 miles. It is a single track line, over which train movements are governed by time table and train orders transmitted by telephone, no block signal system being used.

Eastbound troop train running as 2nd No. 10, first-class, consisted of locomotive 645, 1 box car, 5 Pullman cars, 1 baggage car, 7 Pullman cars and a caboose, in the order named, in charge of Conductor Ferguson and Engineman Bristow. This train left Sedalia, Mo., at 4.00 p.m., 2 hours and 30 minutes late on its schedule, after receiving Form 31 order No. 85, reading as follows:

2nd and 3rd No. 10 ten run 2 two
hours 30 mins late Sedalia to
New Franklin.

and form 19 order No. 86, reading as follows:

2nd Second No. 10 ^{ten} Eng 645
at Willis until 4.20 p.m.
Harrison 4.53 p.m.

Pilot Grove 4.40 p.m.
 Prairie Lick 4.50 p.m.
 for 1st and 2nd No. 75 Seven
 Five Engs. 713 and 820.

This train passed Clifton City, Mo., the last open telephone office west of the point of collision, at 4.25 p.m., and at 4.28 p.m. collided with freight train 1st No. 75 at a point 2156 feet east of Mile Post 215, while running at an estimated speed of 30 miles per hour.

Westbound third-class freight train 1st No. 75, en route from Hokane, Mo. to Sedalia, Mo., consisted of locomotive 713, 30 loaded and 1 empty box car and a caboose, in charge of Conductor McKenzie and Engineer Clayton. It left New Franklin, Mo., a sub-division and junction point, at 3.10 p.m., 7 hours and 30 minutes late. At Booneville the crew received a copy of Form 19 order No. 86, previously quoted, the order being made complete 3.01 p.m. Willis is a blind siding 2 miles west of Pleasant Green and they were going to that point for 2nd No. 10 in accordance with this order. The train left Booneville at 3.20 p.m., and passed Pleasant Green, the last open telephone office east of the point of collision, at 4.11 p.m., 5 hours and 58 minutes late, where they received Form 19 order No. 91, the copy delivered to them reading as follows:

C & E 1st and 2nd No. 75:

2nd No. 10 run four hours and fifty
 mins. late Sedalia to New Franklin.

This order was made complete at 3.49 p.m. and gave train 1st 75 sufficient time to make Sedalia for 2nd No. 10. First No. 75 therefore passed Willis, stopped at Sweeney for water, and was proceeding from there when at 4.28 p.m. it collided head

on with 2nd No. 10 at a point 2156 feet east of Mile Post 215. The engineman on 1st No. 75 saw 2nd No. 10 approaching, applied the air, and at the time of collision his train had been brought almost to a stop.

Locomotive 712 was driven back a distance of 173 feet, both locomotives remaining on the track in an upright and interlocked position. The tank frame of locomotive 645 remained on the roadbed, but the tank cistern was thrown to the left of the frame, where it rested in an inverted position. The first car, a steel under-frame box car, also remained on the roadbed, but its wooden superstructure was torn from the bed of car and destroyed. The second car, a Pullman tourist car, with steel center sill and wooden vestibule, lay on its side to the right of and almost parallel with the track and about 10 feet distant from it; this car remained practically intact. The third car, a Pullman tourist car of wooden construction, came to rest in an upright position to the left of the track and almost parallel with it; this car had 30 feet of its rear end telescoped and the body torn away; most of the injuries occurred in this coach. The fourth car, Pullman tourist 3186, came to rest on its right side to the right of the track, with its head end almost in contact with the rear end of the second car, which lay on the same side of the track. The remaining cars of this train were not derailed or damaged. The first four cars of train 1st No. 75 remained on the track with the locomotive, but with their ends and drawbars shoved in. The fifth car, an oil

tank car, was turned over on its left side to the left side of the track; the following box car turned over to the right side of the track, parallel with it. The next box car was derailed, but remained on the roadbed; the remainder of this train was not derailed or damaged. The fourth, fifth, sixth and seventh cars of the freight train were either destroyed or badly damaged by fire of unknown origin.

Starting from the west switch at Clifton City and approaching the scene of accident from the west, there is 4500 feet of tangent track, then a 5-degree curve to the left, 1800 feet long, the collision occurring 456 feet in on this curve, on a grade 1.3% descending. Approaching from the east there is a 3-degree curve to the right, 1747 feet long, followed by 2941 feet of tangent, then in on a 5-degree curve to the right, 1144 feet to the point of collision, on a grade 1.3% ascending. The range of vision of enginemen of eastbound trains is only about 100 feet, but from the fireman's side is unobscured for approximately 3,850 feet, for which distance also, enginemen of westbound trains have an unobstructed view ahead. The track is standard gauge, laid with 85-pound steel rails rolled and laid in 1916, with 20 oak ties to the rail section, single-spiked, tie plated on curves and ballasted with 12 inches of crushed stone with 11 inch shoulder. The track is in good surface and alignment and at the point of accident was on a 10-foot fill. Speed of all trains east on the curve where this collision took place is restricted to 40 miles per hour by a slow board located

near the east switch at Clifton City. The weather was fair and very warm.

Engineman Clayton of train 1st No. 75 stated that, in accordance with order No. 88, previously quoted, and which they had received at Boonville, they intended to take the siding at Willis for 2nd No. 10, but at Pleasant Green they received order No. 91, which was handed by the operator to the front brakeman, who was riding on the locomotive; the brakeman read the order and then handed it to him and he read it. He decided that this order gave them sufficient time to run to Sedalia to meet 2nd No. 10. Under Order No. 76 he had been given 4 hours on 3rd No. 10, and the order received at Pleasant Green gave him more time on 2nd No. 10 than he had been given on 3rd No. 10; this impressed him as singular, but he did nothing further than check the orders he had received. At Sweeney, where they stopped for water, the rear brakeman came forward to the engine and asked him if order No. 91 didn't read: "3rd No. 10," and he replied that there was no question as to its reading: "2nd No. 10." The engineman stated that it was his practice to set his brakes to decrease speed while descending the grade approaching the curve and that he was running about 20 or 25 miles per hour as he passed through the Rock Cut; as he emerged from this cut far enough to see around the curve, he first saw train 2nd No. 10, but it appeared to him to be on the siding east of Clifton City; his second glance disproved this and he first made a service application, followed imme-

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diately by an emergency and after sounding the whistle, jumped off. He said the brakes were in good working order and he did not think they had released when the collision occurred, and his train had been brought almost to a stop. He estimated the speed of train 2nd No. 10 at about 30 miles per hour at the time of the collision and did not see anyone on the locomotive of that train.

Conductor McKennie, of train 1st No. 75, stated that they had received order No. 85 at New Franklin, advising them that 1st and 2nd No. 10 would run 2 hours and 20 minutes late, at Booneville they received order No. 88, directing 2nd No. 10 to wait at Willis, and at Pleasant Green order No. 91 was delivered to them. He read the order, then handed it to the rear brakeman, who was in the caboose, and discussed it with him. Under order No. 76, received at Booneville, he had been given 4 hours on 3rd No. 10, and he remarked to the rear brakeman that he didn't like the order received at Pleasant Green because it gave him more time on the 2nd section of No. 10 than he had on the 3rd. He thought that, if the order was incorrect, inasmuch as it was addressed to the two sections of train 75, it would have been noticed by some of those trainmen. The accident occurred at 4.36 and he estimated the speed of his train at 15 miles per hour.

Fireman Martin, of 1st No. 75, said he read order No. 91, received at Pleasant Green, and noted that it specified directions as to train 2nd No. 10. He estimated the speed of

train 2nd No. 10 at 20 or 25 miles per hour and said his engineman sounded several warning blasts of the whistle.

Rear Brakeman Bean of 1st No. 75 stated that as they came through Pleasant Green Conductor McKenzie picked up the order, read it and handed it to him and he read it. The conductor was under the impression that the order referred to 3rd No. 10; the brakeman said: "No, that's 2nd No. 10," and handed him the order, whereupon the conductor remarked: "I don't like that order; that will put 3rd No. 10 ahead of 2nd No. 10," to which the brakeman replied: "It don't look very good." They intended going on into Willis, but on reaching Willis, the brakeman saw it was not the conductor's intention to stop; he looked at the semaphore and remarked to the conductor that the board was clear, to which the conductor replied: "Yes." There is a telephone office at Willis and one at the water tank located between Willis and Clifton City, from which point it would have been possible for the conductor to have called up the dispatcher regarding the order. After leaving the water tank he went to the head end and asked the engineman to see his orders; they read them together, Brakeman Bean remarking that they were the same as the conductor's orders, as he observed they specified "2nd No. 10." He remarked to the engineman: "That would put the third section around the second." Head Brakeman Burkheimer remarked that the third section could not come around the second, they would first have to meet the second section. They concluded this order would give them plenty of time to get to

Sedalia. After coming through the cut Brakeman Bean said he noticed 2nd No. 10 about at the east switch at Clifton City, about 800 yards away. He and the other brakeman, the engineman and fireman got off when the locomotive was almost to a standstill and it did not run over a car length after they got off. 2nd No. 10 was then about 4 or 5 car lengths away, traveling at a speed of not over 6 miles per hour.

Head Brakeman Burkheimer, of 1st No. 75, stated that as they passed Pleasant Green he received order No. 91 from the operator and after reading it, handed it to his engineman, who also read it. He remarked to the engineman that: "2nd No. 10 must have fallen down considerably;" the engineman agreed, then got out his orders to see what was the next train to look out for and he told him it was No. 70. They concluded they had time to go to Sedalia. He was standing by the side of the engineman and as they emerged from the rock cut they saw 2nd No. 10 when it was about 10 telegraph poles distant; the engineman reversed his engine and sounded a warning whistle signal to 2nd No. 10. He stated he saw no one on the locomotive of 2nd No. 10 and it was his opinion that the crew of 2nd No. 10 did not see them but a short distance before the collision and that they had reduced speed to about 30 miles per hour on account of approaching the curve where the collision took place.

Fireman Crawshaw of 2nd No. 10 stated that their speed through Clifton City was about 25 or 26 miles per hour; about

$\frac{1}{2}$ mile east of Clifton City he saw train 1st No. 75 when about 700 feet away, the speed of their train at that time being about 30 miles per hour; he immediately called to his engineman to stop and the engineman reversed and applied the brakes in emergency; the braking power of his train was good and the air was working all right, but he did not think the speed was checked appreciably.

Conductor Ferguson, of 2nd No. 10, stated that the air brakes were tested at Sedalia and found in good condition. He was riding in the caboose at the time of the collision and estimated the speed of his train at the time at from 35 to 30 miles per hour. He noticed a reduction in speed when they were about one train length away.

Head Brakeman Smith, of train 2nd No. 10, stated that the brakes were tested before leaving Sedalia and were used only in slowing down the train at Beaman. He was riding in the first coach from the engine, on the right side. Passing through Clifton City and at the time of the collision he estimated their speed at 30 miles per hour. the engineman applied the air after they left the station while descending the grade and made an emergency application just before the collision.

Rear Brakeman Putrell, of 2nd No. 10, was in the caboose; he estimated their speed through Clifton City at 30 miles per hour; thereafter it was decreased and at the time of the collision was between 20 and 25 miles per hour.

Operator Shinn, who was on duty at Pleasant Green, stated that he was employed as an operator in March of this year, that he had had very little or no experience in handling train orders previous to his being employed as operator and had had only about one week's experience as an operator prior to the day of the accident. He said he was hired by the Chief Dispatcher, then turned over to the Dispatcher's Chief Clerk for instructions. He filled out the usual examination blank form 231, but stated that the Chief Clerk to the Dispatcher dictated the proper answers to him in filling out this form. He stated further that he had not received a book of rules covering the handling of train orders, that he had never read the rules, and was given no verbal examination in addition to the written examination on the handling and transmission of train orders, either by the Dispatcher or Chief Dispatcher. His instruction in the handling of train orders was obtained principally from observing the agent at Clifton City take and repeat orders, but the agent gave him no instructions. He stated further that while he was employed at Harrison he made an error in the address of a 31 order, but the error was discovered by a conductor before delivery was made. Upon instructions of Operator Schweitzer, the regular operator at Pleasant Green, he relieved that operator the day he left, but was given no instructions by him; he understood the regular operator had secured the permission of the Chief Dispatcher and had advised that official that he was substituting for him. When he re-

received order No. 91 from Dispatcher Griffith, he understood him to say: "2nd No. 10," and he wrote the order to read: "2nd No. 10," and states positively that he repeated the order exactly as he had it copied. He said that in repeating the order to the Dispatcher, he did not spell out the word "second" and that he very seldom spelled out the names and numbers in repeating train orders to the Dispatcher, as is required by the rules. He was positive that he repeated the order to read: "Second number ten," just as he had copied it. He said the Dispatcher made no objection to his repetition of the order. He stated that Dispatcher Griffith ordered him to make five copies of Order No. 91, but in getting his train order pad, he got one containing only three sheets and wrote the order as sent by the Dispatcher on this pad; he then re-wrote the order on another pad, to get the required number of five copies, copying from the pad on which he had just written; in making the additional copies he did not trace the original copy or repeat the order to the Dispatcher after copying the additional copies, as is required by the rules. He did not hear the other offices repeating the order, as he was busy preparing the other copies specified. He said he did not make it a practice to listen to the other offices repeat orders to see if he had his copy correct, but as soon as he had his order written and repeated, would hang up the receiver. In delivering Order No. 91 to train 1st No. 75 he thought he delivered to them one of the re-written copies, but asserted that both copies read the same.

Dispatcher Griffith, on duty at Sedalia, and who issued

order No. 91, stated that the order was issued to Sedalia, Pleasant Green, Booneville and New Franklin simultaneously and was repeated correctly by all the offices addressed and is positive in his statement that the operator at Pleasant Green repeated order No. 91 to him as "third number ten." He specified five copies of the order to be made at Pleasant Green and the operator at that point was the last to repeat the order, all of the operators spelling out the words; "third," "ten," "four," "fifty," "Sedalia" and "New Franklin." He stated he has always insisted upon their spelling out the words when repeating orders and is positive that Operator Shinn complied with the rules in this case by spelling out all words required to be spelled on this particular occasion. He said he had seen the circular letter issued by the Superintendent of Telegraph, instructing all employees how to spell figures and names, which had been issued shortly after the telephones were installed in 1915. He stated further that, up until about the first of January or the middle of December, the rules required the spelling out of all words such as the time, engine number, train numbers, and section of the train, but this resulted in such long train orders that Superintendent Hickey and Trainmaster Moore amended the order so that dispatchers should spell out the words in transmitting, but the operators need not spell out the words in repeating orders to dispatchers; this amended order was not produced at the investigation. He stated that he was not aware of the fact that Operator Shinn was an inexperienced operator,

inasmuch as during the two days he worked with him on the wire he had never made any complaint about messages being too fast.

Operator Stewart, on duty at Booneville the day of the accident, stated that order No. 91 was issued to his station; he repeated the order to the Dispatcher and heard the other operators repeat it. Operator Stewart stated he heard Operator Shinn repeat the order and recognized his voice; he stated he did not know which operator repeated first, but thought Operator Shinn repeated first and that he followed him. He understood the operator at Pleasant Green to repeat it "third number ten," but could not say positively that he spelled it out. After the accident Operator Shinn insisted to him that he had repeated the order "second" and had not copied it over.

Operator Payton, on duty at Sedalia, stated that he copied order No. 91 and repeated it to the Dispatcher, spelling the word "third;" he heard the operator at Pleasant Green repeat the order the same as it was given and as he had copied it, but could not say for sure that he spelled the word "third."

Operator Feldman, on duty at New Franklin, stated that at first the rules required the spelling of all words; about in July, 1917, a bulletin was issued by Superintendent of Telegraph Hall, requiring only the spelling of train and engine numbers, although this bulletin did not change the instructions contained in the book of rules. He said the bulletin was not complied with in the transmittal of order No. 91. He stated that Dispatcher Griffith never puts out an order without spelling it; in the repetition of the orders by operators he re-

quires the spelling of numerals and names, train and engine numbers and the time, but not the name of the station; if they do not spell out the time, they must repeat it. He received order No. 91 simultaneously with the other offices to whom it was addressed and immediately repeated the figures to the Dispatcher, who accepted his repetition of the order without his spelling it, although he does not make a practice of so doing. It appeared to him that the Dispatcher seemed to be hurried or crowded in his work on that particular day. He heard all of them repeat the order and carefully checked the order as he had copied it; he understood the operator at Pleasant Green to repeat it "third number ten," but could not say for sure that he spelled the word "third."

Chief Dispatcher Otten, in charge of the district east of Sedalia, stated that, in such capacity, he has direct charge of the employment of operators and their examination; his Chief Clerk is an operator and the Chief Dispatcher had implicit confidence in him; it is the practice for the Chief Clerk to conduct their examinations and report the results to him. In the employment of Operator Shinn, the regular form of examination was given by the Chief Clerk and he was not aware that in his case the Chief Clerk had dictated the answers to the examination. It is his custom to personally caution new operators to be careful in the handling of train orders and to insist upon their admission to the Dispatcher of any inability to get all of an order. He considered Operator Shinn suffi-

ciently experienced in handling train orders to justify his being placed in position as an operator and no complaint as to his inability had been made to him. He said the rules of the company prescribe that an operator be furnished with a book of rules at the time he is employed and he supposed this was done in the case of Operator Shinn. He made arrangements with Operator Shinn to relieve the agent at Pleasant Green and instructed him to assume the duties.

Chief Dispatcher's Clerk Snapp stated that before giving an applicant the examination he is asked if he is familiar with the book of rules; if he is, he is given the form to fill out; if not, the examination is postponed. He was not certain that Operator Shinn was asked this question. He said Operator Shinn had a book of rules which he had given him at the time he filled out his application and which was returned by him when he turned in his examination papers. He said he was aware that train service employees are required to have a book of rules, but was not aware that operators were required to have one. He admitted that, in conformity with the clause in the examination providing for the acknowledgment of receipt of a book of rules, Operator Shinn should have been furnished with a copy, and, in passing on this examination, he did not furnish him a copy in accordance therewith, although most always they give an operator a book of rules when employed. He stated that it is their custom, in conducting examinations of operators if, in his judgment their replies are not proper, he asks them

to correct them; if their answers are unsatisfactory, he refers them to the Chief Dispatcher. Clerk Snapp denied that he dictated all or nearly all of the answers to Operator Shinn and stated he did not give him assistance on more than five questions; his remembrance was that there were but three questions requiring his corrections: -on these Operator Shinn asked his advice; he advised him, and Operator Shinn filled them out at the time. In addition to this, he asked him several questions not embodied in the written examination, to satisfy himself as to his proficiency. He answered satisfactorily the question referring to the proper method of copying train orders in case additional copies are required for delivery. He understood Operator Shinn was a student, but from his examination he judged he was familiar with the work. He passed on Operator Shinn's examination papers, after reviewing them carefully, pronounced them O. K. and signed the Chief Dispatcher's name to them.

This accident was caused by an error in receiving and copying a train order to read: "second number ten" instead of "third number ten," resulting in an inferior train occupying the main track on the time of a superior train, for which Operator Shinn was responsible.

Rule 206 of the operating rules of this company reads as follows:

"206. Regular trains will be designated in train orders by their numbers, as "No. 10" or "2nd No. 10," adding engine numbers if desired. ***** All numbers and time will be spelled and also stated in figures."

Rule 209 reads:

"209. Operators receiving train orders must write them in manifold during transmission and if they can not at one writing make the requisite number of copies, must trace others from one of the copies first made."

Operator Shinn violated Rule No. 209 by making the additional copies of the order required without tracing the additional copies from one of the copies first made. While the rules do not specifically provide for the repetition to the Dispatcher of an order copied but not traced, inasmuch as Operator Shinn did not trace the order, had he repeated his second copying of the order to the Dispatcher, the error might have been discovered by the Dispatcher and the accident averted. Operator Shinn claims he repeated the order as he had copied it, but his statement is refuted by the Dispatcher and the three other operators who copied this order. The correct repetition of the order to the Dispatcher by Operator Shinn, is, therefore, a question of veracity between these employees; while it can be understood, how, under the circumstances, the operator made the error and copied the order to read "second number ten" instead of "third number ten," it seems improbable that, having copied it "second," he should have read it "third."

Rules 228 (a) 228 (b) of Rules for the Government of Dispatchers and Operators in the handling of Telephone Train Dispatching System read as follows:

"228 (a). In transmitting or repeating train orders or messages, all numerals, including order number, train number, engine number and time, must first be pronounced and then spelled letter by letter, the receiving operator's record to show such numerals both written and spelled out."

"233 (b). Station names must first be pronounced and then spelled out."

The Dispatcher stated that all of the four operators to whom this order was addressed, in repeating the order to him, spelled out the word "third," but only one of the operators stated that he spelled out the word "third" in accordance with the rules, the others merely repeating it. It is apparent that the provisions of the rule which requires the spelling out of words in train orders is not properly enforced.

This investigation disclosed lax methods of examining and instructing prospective employees on the Booneville Division of this road. Applicants for positions as operators were examined and employed by a Dispatcher's Chief Clerk; the only examination given was very perfunctory, consisting merely of filling in answers to questions contained in a printed form; these answers were supposed to be checked over by this clerk and to be supplemented by such explanations or instructions as he might give. No rules examiner was employed on this division. In the case of Operator Shinn, the facts brought out at the investigation disclosed that he was employed as a relief operator at Pleasant Green with only a very limited experience in the handling of train orders, covering a period of less than one month. He had been furnished with a book of rules only for the purpose of assisting him to pass the examination and had been given very little instruction as to his duties. On account of his lack of training and experience, it is doubtful if he was competent to assume the important duties of operator

and to receive, copy and deliver train orders. The operating officials on the Beansville Division of the Missouri, Kansas & Texas Railway are commendable for employing in a responsible position a man without training or experience and particularly without proper instruction or examination. If the circumstances surrounding this accident give any indication of conditions and practices existing on that portion of the Missouri, Kansas & Texas Railway, there is urgent need for the adoption of some systematic method of instructing and examining employees and of exercising necessary supervision over them.

There was apparently a doubt in the mind of Conductor McKensie concerning the form of order No. 91, due to the fact that it gave his train more time on 2nd No. 10 than it had on the 3rd section of that train. This point was discussed between him and Brakeman Bean, and by the latter was called to the attention of Engineman Clayton, and it appears to have been talked over on the engine by Brakeman Bean and Burkheimer and Engineman Clayton. Train 1st No. 75 passed two telephone stations between the place where order No. 91 was received and the point of collision, from either of which the dispatcher could have been called and the order verified. Under the circumstances this course should have been pursued, and had it been done the accident would not have occurred.

None of the employees involved in this accident were on duty in excess of the statutory period, one train crew having been on duty at the time of the accident only 53 minutes,

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the other crew 8 hours and 57 minutes, all having had periods of rest ranging from 12 to 24 hours.

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