

IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED
ON THE ATCHISON, TOPEKA & SANTA FE RAILWAY
NEAR KIRKLAND, ARIZ. ON JULY 9, 1920.

On July 9, 1920, there was a head-end collision on the Atchison, Topeka & Santa Fe Railway near Kirkland, Ariz., which resulted in the death of 1 passenger and 1 employee, and the injury of 10 passengers and 9 employees. After investigation of this accident the Chief of the Bureau of Safety reports as follows:

This accident occurred on the Santa Fe, Prescott and Phoenix Lines, a single-track road extending between Ash Fork and Phoenix, Ariz., a distance of 194 miles. Trains are operated by time-table and train orders, no block-signal system being in use. Approaching the point of accident from the north, beginning at the station at Kirkland, the track is tangent for more than a mile, followed by a 4-degree curve to the right 550 feet in length, 895 feet of tangent and another 4-degree curve to the right nearly 600 feet in length; the accident occurred on this curve about two rail lengths from its southern end. Approaching this point from the south the track is tangent for about 1,700 feet, followed by a 5-degree curve to the right 413 feet in length and about 800 feet of tangent extending to the curve on which the accident occurred. The view is materially obscured by an embankment on the inside of the 4-degree curve on which the accident occurred. The grade varies from .6 to 1.5 per cent descending for southbound trains for a distance of about 3,500 feet and at the point of accident it was 1.3 per cent; for northbound trains it is about .7 per cent ascending for about 3,000 feet. The weather at the time of the accident was clear.

Northbound freight train extra 713-708 consisted of 24 cars and a coach, hauled by engines 713 and 708, and was in charge of Conductor Cooksey and Enginemen Kapser and Clark. On its arrival at Hillside, 14.8 miles from Kirkland, the crew of extra 713-708 received copies of train orders Nos. 17, 19, and 20, on form 31. Train order No. 19 was not involved in this accident; train orders Nos. 17 and 20 read as follows

Train order No. 17:

"No. 1 eng. 16 wait at Kirkland until six twenty 6.20 a.m. for cxa 713-708 north."

Train Order No. 20.

"Order No. 17 is annulled No. 1 eng. 16 meet cxa 713-708 north at Kirkland."

Extra 713-708 left Hillside at 5.43 a.m., and

at about 6.25 a.m. collided with train No. 1 at a point about 1-1/2 miles south of Kirkland while traveling at a speed estimated to have been between 20 and 25 miles an hour.

Southbound passenger train No. 1 consisted of engine No. 16, 1 combination car and 1 smoker both of wooden construction, 1 steel coach, and 1 steel underframe Pullman car, in charge of Conductor Dignan and Engineman Pentland. It left Ash Fork at 2.20 a.m., 40 minutes late, and arrived at Skull Valley, 6.7 miles from Kirkland, at 6.04 a.m., according to the train sheet. The train-order board was in the stop position, Conductor Dignan went into the telegraph office and signed for train orders 17, 18, 20, and 364, the last named being a slow order. Through an error, however, he did not receive a copy of train order No. 20 and was given a clearance card which showed that the only train orders for his train were Nos. 17, 18, and 364, all on form 31. Train No. 1 then proceeded to Kirkland, and not having received order No. 20 fixing a meeting at that point, left at 6.21 a.m., and collided with extra 713-708 while traveling at a speed estimated to have been about 30 miles an hour.

All three engines were badly damaged, while the smoking car of train No. 1 was demolished, and the first and third cars considerably damaged. Four refrigerator cars in extra 713-708 were demolished and another car was damaged.

The statements of the engine crew of train No. 1 indicated that extra 713-708 was first seen approaching by a flagman, who was riding on the engine, when the extra was then about 300 feet distant; the engineman immediately applied the air brakes in emergency and sounded two or three short blasts of the whistle. The engine crew of the leading engine of extra 713-708 saw train No. 1 when it was about 200 feet distant, the engineman immediately making an emergency application of the air brakes. The employee killed was a brakeman of extra 713-708, who was riding on the second engine.

Prior to the arrival of train No. 1 at Skull Valley, Operator Jameson had train orders Nos. 17, 18, 20, and 364, together with a clearance card covering these orders, ready to deliver to Conductor Dignan; at this time train order No. 20 as written by the operator was addressed only to train No. 1. She understood that order No. 20 annulled order No. 17, but as order No. 20 was addressed to train No. 1 she had prepared to deliver all four orders to that train. The Conductor signed the four orders and the operator transmitted his signature on the orders to the dispatcher. The dispatcher told the operator that train order No. 20 was also addressed to the operator. Operator Jameson first said

she understood he meant that train order No. 20 was annulled instead of train order No. 17. She wrote "annulled" across the face of order No. 20, made out a new clearance card covering train orders 17, 18, and 364, and delivered it to Conductor Dignan. Operator Jameson's explanation of her error was that she intended to write the word "annulled" on train order No. 17 instead of on train order No. 20; train No. 1 was late and she did not read this order at that time, but she said if she had read it then she would have discovered the error. She was unable to say definitely whether Conductor Dignan read the orders, although her statements indicated that he read some of them; she did not know who scratched out the conductor's signature on train order No. 20, but she thought that this was done by the conductor himself. Operator Jameson discovered her error just after train No. 1 had departed, she tried to catch No. 1 at a water tank just south of the station, but No. 1 did not stop there for water that morning. She then reported to the dispatcher that No. 1 did not get order No. 20.

Conductor Dignan saw four orders addressed to his train, together with a clearance card with four numbers on it; he did not notice if any of the orders were addressed to the operator, neither did he notice her add an address to any of the orders. He signed three orders and had about completed signing the fourth order, which he supposed was train order No. 20, when Operator Jameson took the order and said it had been annulled, scratched out his signature and wrote the word "annulled" across the face of the order, following which she made out a new clearance card covering train orders Nos. 17, 18, and 364. Conductor Dignan said he also scratched out his signature after this had been done by the operator. He did not know what was contained in train order No. 20 and did not ask any questions concerning it. He did not think he read any of the orders to the operator, although he said he might have done so. It was not very light inside the office and he did not actually know what his orders were until he went outside. He said that he went at once to the engine and gave copies of the orders to the enginemen, to read them to him. Conductor Dignan said that frequently operators get complete on orders, leave them on table, and the train crews go in, sign up for the orders and take their copies. His statements also indicated that the rule requiring orders to be read to the operator by the conductor is seldom obeyed. Orders which are annulled before being delivered or completed are often handled in the same manner as in this case, and he did not think it was a violation of any rule for the operator to withhold the order, notwithstanding he had signed it.

Brakeman Stinson of train No. 1 went into the telegraph office with Conductor Dignan and saw what he thought were four orders on the operator's table. He said Conductor Dignan read train orders Nos. 17 and 18 to the operator,

following which Brakeman Stinson went outside for a moment and when he returned he heard the operator remark "you don't get this order," but he did not know to which order she was referring. He then saw Conductor Dignan scratch his name off the order and the operator put it to one side, making out a new clearance covering train orders Nos. 17, 18, and 364, and delivering it to the conductor.

Dispatcher Haskell said that train order No. 20 as issued by him was addressed to train No. 1 and to the operator, the operator seeing the "X" response and shortly afterwards ^{repeating} the order, this being at 5.43 a.m.; the dispatcher thought the operator repeated the address correctly; the copy of the order held by the crew of the extra also shows that it was addressed to train No. 1 and to the operator. According to the dispatcher, Operator Jameson twice transmitted the conductor's signature to the orders. The first time she transmitted signatures to train orders 364, 17, 18 and 20; he then told her that Conductor Dignan did not get train order No. 17 as it was annulled by train order No. 20, following which the operator held the key open for a second and then transmitted her own signature for train order No. 20, held the key open again, and then signed for orders Nos. 364, 18, and 20. He was positive that Operator Jameson transmitted Conductor Dignan's signature for train order No. 20, that he made the order complete at 6.06 a.m., and that he did not give complete on train order No. 17. Dispatcher Haskell said that as train order No. 17 had been annulled, and therefore did not concern the conductor, it was not necessary that the conductor should receive a copy of it or know anything about it. When Operator Jameson reported that train No. 1 did not get order No. 20, he and the operator as well as the night chief dispatcher called Kirkland in an effort to stop train No. 1 there, but they received no response, there being no operator on duty at Kirkland at that time.

Chief Dispatcher West said that after train order No. 20 had been issued, train order No. 17 should have been annulled to the operator; he understood that this was accomplished in train order No. 20 by addressing the order to train No. 1 and to the operator, although he thought the better way to have handled the matter would have been to annul the order to the operator. This opinion of the chief dispatcher is in conformity with Form L, of the forms of train orders of this railroad, the instructions concerning which read in part as follows:

"If an order which is to be annulled has not been delivered to a train, the annulling order will be addressed to the operator, who will destroy all copies of the order annulled but his own, and write on that: 'Annulled by order No. '."

This accident was caused by the failure of Operator Jameson to deliver to train No. 1 a copy of train order No. 20, which established a meeting point for that train with extra 713-708. Conductor Dignan is also at fault for not reading his orders to the operator as required by the rules, and for allowing one of the orders bearing his signature to be taken from him without knowing its contents.

The evidence indicates that as originally issued train order No. 20 was addressed to train No. 1 and to the operator at Skull Valley, but that the operator copied the order as being addressed only to train No. 1, adding the words "& opr" after the arrival of train No. 1 and at about the time she was transmitting the conductor's signature to the orders.

According to the dispatcher's statement, he told Operator Jameson that Conductor Dignan did not need order No. 17 as it was annulled by order No. 20, and that order No. 20 was "to the operator". The investigation disclosed that the operator then either overlooked the fact that order No. 20 was also addressed to train No. 1, or she picked up order No. 20 and wrote "annulled" across its face mistaking it for order No. 17. In any event she completed and delivered order No. 17 in error, and failed to deliver order No. 20 to Conductor Dignan, allowing train No. 1 to depart without having received this order fixing a meeting point for that train.

Rule 210 outlines the manner of handling train orders on Form 31 and requires that after the operator has repeated the order to the dispatcher, those to whom the order is addressed must sign it, the operator then sending their signature, preceded by the number of the order, to the dispatcher. Rule 210-A provides that "on receiving orders, conductor must read them aloud to the operator." Conductor Dignan did not comply with this rule and his statements indicated that it was customary to pay but little attention to this rule. Bulletin 305, dated March 8, 1920, quoted this rule and instructed all engineers and conductors to see that it was strictly adhered to.

Had Conductor Dignan read his orders aloud to the operator, the operator's mistake in delivering the writ order to him instead of the meet order might have been discovered by the operator. Had Conductor Dignan read Order No. 20 which, according to his own statement, he knew was addressed to his train and which he had signed, he would in all probability have discovered the operator's error and the accident would then have been prevented. There can be no excuse for such extreme carelessness as was exhibited in this case in handling train orders vital to safe train

operation.

Operator Jameson was employed as a clerk in December, 1917, and as an operator in July, 1918. Conductor Dignan had been in the service of the Santa Fe, Prescott and Phoenix Lines as a conductor since 1904. Both of these employees had clear records. Operator Jameson had been on duty about 6-1/2 hours after 16 hours off duty; Conductor Dignan had been on duty about 4 hours after being 9 hours off duty.