

## INTERSTATE COMMERCE COMMISSION

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### REPORT OF THE CHIEF OF THE BUREAU OF SAFETY, COVERING THE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE ST. LOUIS-SAN FRANCISCO RAILROAD NEAR MARSHFIELD, MO., ON SEPTEMBER 17, 1918

NOVEMBER 27 1918.

#### *To the Commission*

On September 17, 1918, there was a head-end collision between a passenger train and a freight train on the St. Louis-San Francisco Railroad near Marshfield, Mo., which resulted in the death of 12 passengers and 3 employees, and the injury of 35 passengers and 5 employees. After investigation the following report is submitted.

The Lebanon subdivision of the eastern division of the St. Louis-San Francisco Railroad, upon which this accident occurred, extends between Newberg and Springfield, Mo., a distance of 120 miles. It is a single-track line over which trains are operated by time-table, and train orders transmitted by telephone, supplemented by an automatic block signal system.

The automatic signals are of the normal clear, three-position, upper quadrant type, the night indications being red, yellow, and green to indicate stop, caution, and proceed, respectively. The scheme of signal location provides for inbound and outbound signals placed at the switch at each end of a passing siding. Between sidings and depending on the distance, there are one or two pairs of signals, each pair being "staggered" about 3,300 feet, which is the normal length of a track circuit section. Signals governing movements in the same direction are from a mile and a third to two miles apart. Preliminary sections are provided in order that two trains may not pass under opposing signals simultaneously, and by this arrangement a signal is held at stop after a train leaves the block until it passes off of the track circuit beyond the first opposing signal. The signal operating mechanisms were installed in August, 1910, and are well maintained. Track circuits are direct current and the signals are controlled by line wires, a polarized relay being used to control the third position. Oil lights are used. All switches are equipped with switch boxes, which shunt the track circuit, but the control wires are not broken through these switch boxes. Pipe connected train order boards, one for each direction, are located in front of the

train order offices, these signals being two-position, lower quadrant semaphores with a circuit breaker box, clamped to the up-and-down rod, controlling the caution position of the automatic signal in the rear, so that when the order board is in the horizontal position the automatic signal indicates caution, provided the track circuit between that signal and the signal in advance is clear

The trains involved in this accident were eastbound passenger extra 1260, a troop train, and westbound freight second No 39

Extra 1260 was en route from Waco, Tex , to St Louis, Mo , and consisted of locomotive 1260, six Pullman sleeping cars, one baggage car, six Pullman sleeping cars, and a caboose, in the order named, all of wooden construction, except the second sleeping car from the engine, which had a steel underframe This train was in charge of Conductor Wrinkle and Engineman Douglas and left Springfield, Mo , at 6 55 p m , after the crew had received schedule train order No 115, fixing a schedule for that train from Springfield to Newberg, giving it right over all except first-class trains from Springfield to Newberg, and also providing that extra 1260 should not exceed a speed of 30 miles an hour At Strafford, 11 4 miles east of Springfield, the crew received a copy of train order No 123 stating that extra 1260 would run 15 minutes late Extra 1260 passed Marshfield, 25 8 miles east of Springfield, at 7 43 p m , and received train order No 127 while passing there, which read as follows

"No 9, engine 1069, meet passenger extra 1260 east at Conway "

Extra 1260 passed automatic signal No 2126, located 3,700 feet east of the depot at Marshfield, which was in the stop position, and collided head-on with second No 39 at a point about 3,860 feet east of automatic signal 2126, or 1 43 miles east of Marshfield and 13 5 miles west of Conway, at 7 45 p m , while running at a speed estimated to have been about 30 miles an hour

Second No 39 consisted of locomotive 56, four loaded and 60 empty cars, and was in charge of Conductor West and Engineman Beiseigle It left Newberg at 10 45 a m , and upon arrival at Lebanon, 62 7 miles west of Newberg, the crew received train order No 113, reading as follows

"Second 39, Engine 56, has right over No 32 to Marshfield and hold main line "

This train left Lebanon at 6 p m , passed Conway, 16 6 miles west of Lebanon and the last open train order office before reaching the point of accident, at 7 14 p m , passed automatic signal No 2103, located about 3 miles east of Marshfield, while that signal was in the caution position and collided with extra 1260 about 8,050 feet west of that signal while running at a speed of 12 or 15 miles an hour

The regular fireman, the student fireman, and head brakeman of extra 1260 were killed, and Engineman Douglas of that train was

seriously injured. The front ends of both locomotives were badly damaged, their cylinders broken, and the engine trucks demolished. The tender on locomotive 1260 was derailed, turned around, and stood upright, the wooden sleeping car immediately behind it and ahead of the steel underframe sleeping car was demolished, nearly all of the killed and injured soldiers being in that car, the steel underframe sleeping car had its front end badly damaged, but it was not derailed, the third, fourth, fifth, and sixth cars remained on the track, and were undamaged, while the baggage, or seventh car, was demolished and the sleeping car immediately behind it was damaged considerably on its front end. The other cars of extra 1260 were not damaged. The tender of second No. 39 was derailed and stood upright and partially on top of a box car on the south side of the track. Three of the cars on the head end of second 39 were derailed and practically demolished, but the remainder of the train sustained only slight damage.

Approaching the point of accident from the west, beginning at Marshfield, the track is straight for a distance of 1,590 feet, followed by a 2-degree curve to the right 1,060 feet long, then a tangent 3,645 feet long, then a 2-degree curve to the left 3,028 feet long, the accident occurring 1,270 feet from the west end of this curve. Beginning at a point about 3,650 feet west of the scene of accident, there is a descending grade varying from 0.2 to 1 per cent for a distance of 2,400 feet, then the grade is level for 500 feet, and then there is an ascending grade varying from 0.6 to 0.95 per cent for a distance of 750 feet to the point of accident. Approaching the point of accident from the east and beginning at automatic signal No. 2103, the track is straight for a distance of about 3,000 feet, then there is an 18-minute 22-second curve to the right about 2,900 feet in length, then about 400 feet of tangent, which leads to the curve upon which the accident occurred. There is an ascending grade varying from 0.7 to 0.92 per cent for westbound trains for over a mile, and then the grade descends at the rate of 0.95 per cent for about 1,700 feet to the point of accident. The engineman of second No. 39 had a clear view ahead for a distance varying from 500 to 800 feet until within about 1,000 feet of the point of collision, when the view extended to 1,450 feet. The view of the engineman on extra 1260 was limited to about 900 feet. At the time of the accident the weather was clear.

Conductor Winkle of extra 1260 stated that he received train order 115 before leaving Springfield, and delivered a copy of it to Engineman Douglas, who read it back to him. His train left there at 6:55 p. m., approached Marshfield at a speed of 25 or 30 miles an hour, and passed through there at a speed of about 20 miles an hour. He said he did not see the train-order board at Marshfield but asked

Brakeman Cairer about it and he said it was red, neither did he notice the position of the automatic signals west or east of Marshfield when his train passed them. He was in the rear car taking up transportation and did not notice the speed of the train after leaving Marshfield and had no intimation of the accident until the air brakes were applied in emergency, followed by the collision within a few seconds. Immediately after the collision he went to the front end of the train and saw Conductor Berseigle of second 39 who said he had no orders concerning extra 1260. He saw automatic signals 2126 and 2127 a short time after the accident and in his opinion they were operating properly. The weather conditions were not such as to prevent the engineman seeing them.

Rear Brakeman Cairer of extra 1260 stated that as his train approached Marshfield he was riding on the rear platform of the caboose, Conductor Wrinkle asked him about the train order board and upon looking at it he saw it was set at danger, at the time of the accident he was riding in the cupola of the caboose, he thought the speed of his train when it passed the east switch at Marshfield was 25 miles an hour and at the time of the collision it was 12 or 15 miles an hour. He said he rode in the cupola of the caboose nearly all the way from Springfield to the point of accident, saw most of the automatic signals, saw the automatic signal west of Marshfield in the caution position, but did not notice automatic signal 2126 east of Marshfield.

Engineman Douglas of extra 1260 stated that the speed of his train was approximately 30 miles an hour after leaving Springfield, that he reduced speed to about 20 miles an hour while passing through Marshfield, increased the speed to about 30 miles an hour and was proceeding at that speed when he applied the air brakes in emergency just before the collision occurred. He said that as he approached Marshfield the signal west of there was in the caution position, and upon looking at the train-order signal he saw it was set at danger. After receiving the order he looked at signal 2126, located about 3,700 feet east of that point, and it was in the clear position, but he did not notice it after that. He had no difficulty in seeing the signal, he stated he saw the blade and it was in the clear position, but he does not remember whether the signal light was burning. He was sure he saw the signal governing eastbound movements and did not confuse it with the signal governing westbound movements. Engineman Douglas stated that between the time he received the train order at Marshfield and passed signal 2126 he read the order, gave it to the brakeman, looked at the lubricator, read his schedule and running orders, turned on the headlight, and hooked up the engine.

Conductor West, of second No. 39, stated that his train arrived at

Lebanon at 5 25 p m and after finishing the work there he called for and received the necessary orders and left there at 6 p m, arriving at Phillipsburg at 6 30 p m. He said he held an order giving extra 1066 rights over all trains, as that train was due at Phillipsburg at 6 38 p m, he called the dispatcher and asked him about it, he was told it would be 17 or 18 minutes late, and he waited until that train arrived, leaving there at 7 p m. He said he received a copy of train order 113 at Lebanon. He was riding in the cupola of the caboose of his train and the speed was about 20 miles an hour when it approached signal 2103. He saw signal 2103 when about 50 car lengths away and it was then at caution, and when the engine and seven or eight cars had passed it, it changed to stop. He was riding in the cupola of the caboose on the side next to the station when his train passed Conway, about 7 15 p m. He said the train order board there was clear the station was lighted up, but he did not see the operator or anyone else there.

Engineman Beiseigle of second No 39 stated he received train order No 113 at Lebanon, his train met extra 1066 at Phillipsburg, 12 1 miles west of Lebanon, and its speed was 25 or 30 miles an hour when it reached signal 2103, which was in the caution position. The fireman remarked that No 32 was over at Marshfield heading in, he was of the same opinion and did not shut off steam when he saw the signal in the caution position, although being on an ascending grade the speed of the train was reduced considerably before the collision occurred. The first intimation he had of the approach of extra 1260 was the reflection of its headlight on the rails, and that train came within view almost immediately about 300 or 400 feet away. He shut off steam, applied the air brakes in emergency, and he and the two firemen jumped off, there being about 10 seconds between the time he applied the brakes and the occurrence of the collision. He said he had received no orders concerning extra 1260 and knew nothing about that train until he saw it approaching. He stated that the operating rules require trains to be run under control after passing a caution signal, and said the speed of his train was such that he could have stopped it within his range of vision, but could not state how fast his train was running at the time of the collision.

Fireman Wilfong of second No 39 stated that when his train reached signal 2103 it was in the caution position, the engineman partially shut off steam, and his train passed it at a speed of about 18 miles an hour. When the train had passed the signal about a half train length the engineman made a light application of the air brakes. Train was drifting at a speed of about 12 miles an hour when he saw smoke ahead, he did not think it was an approaching train, but thought it was train 32 at Marshfield.

Freeman Mack of second No 39 stated that when he saw signal 2103 in the caution position he thought it was in that position because train 32 was heading in on the passing track at Marshfield. He said the engineman shut off steam and made a light application of the air brakes after passing the signal, and thought the speed of his train was about 10 miles an hour when the air brakes were applied in emergency.

Rea Brakeman Sater of second 39 stated that he was riding in the cupola of the caboose on the left-hand side of the train, and noticed the train-order boards at Phillipsburg, Conway, and Niangua were in the clear position. He thought the speed of his train was about 20 miles an hour until it reached signal 2103, when the engineman applied the air brakes and reduced the speed to about 12 miles an hour, but thought the speed had been reduced to about 5 miles an hour when the collision occurred. He said they had received no orders concerning extra 1260.

Dispatcher Chronister, on duty at Springfield, stated that he assumed his present duties on August 23, 1918, after having had several years' experience on other roads, he came on duty at about 4 p. m. on the day of the accident, and shortly thereafter he was advised that extra 1260 was on the road and would arrive at Springfield at about 6 20 p. m. He then began to make arrangements to move that train against all opposing trains, and prepared train order No 115, he commenced telephoning it to the stations concerned about 6 or 6 02 p. m., and, as the order was quite long, it had to be transmitted slowly. He said the order was delivered to extra 1260 at Springfield and completed at 6 42 p. m., and it was transmitted to Conway for second No 39, repeated and made complete from that office at 6 08 p. m. He could not say what person repeated the order from Conway, except that it was the second-truck operator there. He stated that he did not intend to let extra 1260 pass Conway before the arrival of second No 39, but did not instruct the operator there to place the train-order board against extra 1260 or issue any order to hold that train there, neither had he taken steps to hold second No 39 at Conway other than by order No 115. He admitted that if second No 39 had been delayed between Lebanon and Conway until after the time shown on the schedule for extra 1260 and the means of communication with Conway had failed, there would have been nothing to prevent a collision between the two trains east of Conway. He said that he called first upon those offices to repeat the order where he wanted trains to move first so as not to delay those movements, and would have the operators repeat only that part of the order that was essential for that particular office. Dispatcher Chronister stated that he was not familiar with the code of dispatching as

prescribed by the Frisco rules, but was familiar with the general practice as prescribed by the standard rules. He stated that the Frisco book of rules had not been delivered to him, but he had seen the book and looked up the form of train orders shown in it. Since the accident a bulletin had come to his knowledge which made it imperative that the record of train numbers and train-order numbers be repeated by operators from clearances, and the personal sign of the operators be made a record in the train dispatcher's book. He said he endeavored, as a matter of self-protection, to check the clearances of all trains, but did not get the operator's sign in all cases, as they did not all give it.

Operator Foster stated that he was on duty at Conway from 3 to 11 p. m. on the day of the accident, and was absent from the office from 5:40 or 5:45 p. m. until 6:15, or 6:20 p. m., having been excused by the dispatcher for the purpose of going home to supper, and the depot office was locked while he was gone. He said he had no undelivered-train orders in the office when he left it to go to supper and the train-order signal was in the clear position. He said he was in the office when second No. 39 passed Conway at 7:14 p. m., and he immediately reported that train to the dispatcher, asked about train No. 9 and was told that it was late. He said he had no other conversation with the dispatcher before the collision and received only one train order while working his trip and that was completed at 9:06 p. m. When told that the dispatcher's record showed that train order No. 115 was transmitted to Conway and completed at 6:08 p. m. he stated that he was not in the office at that time and positively denied that he had ever received that order. He made an affidavit to that effect. Later the dispatcher informed him of the wreck and asked him if he had given second No. 39 order 115 and he replied that he never received that order, and the dispatcher replied that the order was completed as to Conway at 6:08 p. m., and there was no further conversation between them concerning it.

H. G. Heiston, an insurance agent, stated that he was in Conway on the day of the accident, met Operator Foster on his way back to the station and walked back with him, arriving there probably about 6:30 p. m. Upon arrival at the station he went inside with him and talked to him for some little time concerning a ticket.

Operator Windle, on duty at the north side freight terminal yards, Springfield, stated that the dispatcher called him to take order 115, heard the dispatcher call Conway, and the order was delayed waiting for that station to answer. He thought someone answered and the dispatcher gave the order to all the operators concerned and he heard several repeat it, but could not say whether Conway repeated it, but thought he did.

Operator Henion, at Dixon, stated that he heard the dispatcher trying to call the operator at Conway preparatory to transmitting order 115, but could not say whether he received any response.

Operator Robertson, at Lebanon, stated that he received train order 115, heard several of the offices repeat the order, but could not say whether Conway received or repeated it. When he received the order second 39 was out in the yards, having previously been cleared. After the accident he heard the dispatcher call Conway, ask the operator what he did with train order 115 and heard the operator reply that he never had it.

Operator Hathaway stated that he was on duty at Richland from 3 to 11 p. m. and did not receive a copy of train order No. 115.

Charles E. Williams, foreman of the wrecking crew, stated that he overheard some of the soldiers remark that they had been riding in the second coach of extra 1260, and they said the signal at the passing track switch east of Marshfield was red before the engine of that train reached it. He was unable to ascertain the names of the soldiers who claimed to have seen the signal.

F. E. Richardson, in charge of the pump house, stated that he resided about 700 feet west of the east switch at Marshfield and was home when extra 1260 passed. He said he looked at automatic signal 2126 when the engine and one car had passed it and it showed red. He had not noticed the signal prior to this.

R. D. Dailey made an affidavit to the effect that on the day of the accident he was standing a short distance west of signal 2126 at Marshfield about 7:45 p. m. and saw extra 1260 approaching that signal. Upon looking at the signal he saw that the signal blade was in the horizontal or stop position and the light on the signal showed red. He thought the train would back in on the siding when it ran past the signal, but it continued on its way and had gone about 100 yards when he heard the crash.

The direct cause of this accident was the failure of Dispatcher Chromister to transmit train order 115 to the operator at Conway for delivery to train second No. 39, and the failure of Engineman Douglas to observe and obey the stop indications of automatic signal 2126.

Dispatcher Chromister claims that he transmitted train order 115 to the operator at Conway and received a complete on it at 6:08 p. m., while Operator Foster, on duty at Conway, is equally positive that he did not receive that order. The statement of Operator Foster that he had been excused by the dispatcher for the purpose of going to supper and was absent from the office from 5:40 or 5:45 p. m. until 6:15 or 6:20 p. m., and the statement of Mr. Heiston that he walked back to the station with Mr. Foster, arriving there sometime near 6:30 p. m., would indicate that Operator Foster was not in the office



at Conway at the time Dispatcher Chronister claims he transmitted the order to him. In view of this evidence it is believed that Dispatcher Chronister failed to transmit that order to the operator at Conway, and to that extent he is responsible for this accident.

The distance between automatic signals 2126 and 2103 is 11,910 feet, and extra 1260 ran a distance of 3,860 feet past signal 2126, while second No. 39 ran a distance of 8,050 feet past signal 2103 before the collision occurred. A westbound train sets signal 2126 in the stop position when 15,586 feet, or nearly 3 miles east of that signal, and second No. 39 ran a distance of 11,359 feet, or a little more than 2 miles, under that protection, before colliding with extra 1260. Signal 2134 is located about 434 feet west of the station at Marshfield, or about 4,000 feet west of signal 2126, and the evidence indicates that this signal was in the caution position when extra 1260 passed it, and the train-order signal at Marshfield was in the stop position, which, of itself, would cause signal 2134 to assume the caution position, this indication would also be caused by a train in that track section immediately east of signal 2103, at which time signal 2110, located 8,986 feet east of signal 2126, and signal 2126 should have been in the stop position. A very careful examination was made of signals 2126 and 2103 and nothing was found to indicate that they were not working properly at the time of the accident. Notwithstanding the statement of Engineman Douglas that signal 2126 was in the clear position when extra 1260 passed it, in view of the statements of Mr. Richardson and Mr. Dailey, as well as the fact that nothing was found to be wrong with the signal mechanism, it is believed that signal 2126 was in the stop position when extra 1260 passed it.

This accident is another example of that class of accidents which could be prevented by the use of an automatic train-control device. As has been frequently pointed out in previous reports of this bureau, such devices are available for use. Until they are adopted and used by railroads for the purpose intended, accidents, caused by the failure of enginemen to obey signal indications, may be expected to occur.

All of the employees involved were experienced men with good records. Dispatcher Chronister was employed by the St. Louis & San Francisco Railroad on August 23, 1918, but he claims to have had several years' experience as an operator on other roads. Engineman Douglas was employed as a fireman in 1905, and promoted to engineman on February 12, 1918. Dispatcher Chronister had been on duty 3 hours and 45 minutes, Operator Foster, 4 hours and 45 minutes, the crew of extra 1260, 2 hours and 15 minutes, and second No. 39, 11 hours and 5 minutes.

Respectfully submitted

W. P. BORLAND,  
*Chief, Bureau of Safety*

