REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY CONCERNING AN ACCIDENT ON THE CHICAGO & ERIE RAILROAD NEAR LIMA, OHIO ON DECEMBER 21, 1932.

February 10, 1933.

To the Commission:

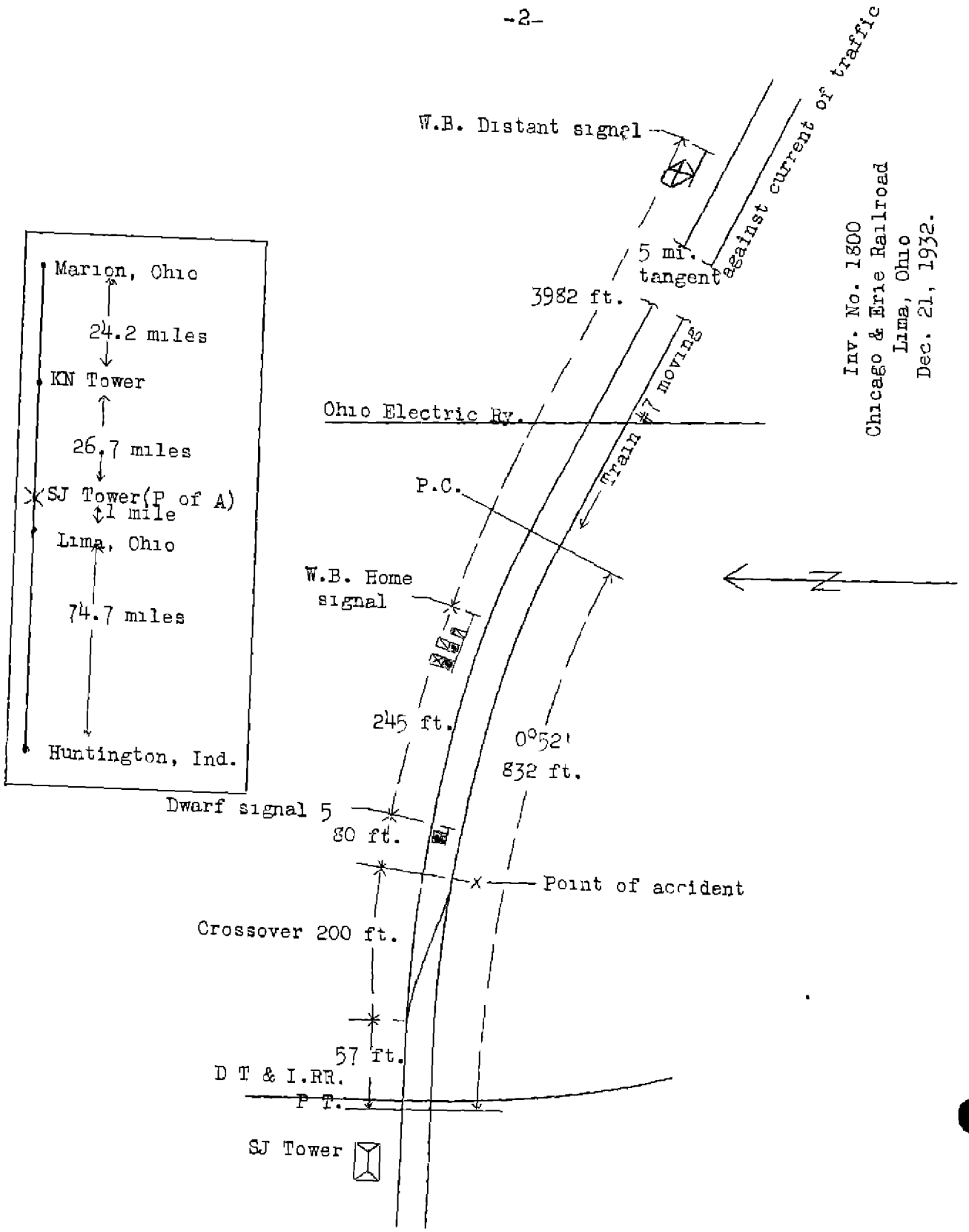
On December 21, 1932, there was a derailment of a passenger train on the Chicago & Erie Railroad near Lima, Ohio, which resulted in the death of 3 employees, and the injury of 11 passengers, 1 mail clerk and 3 employees.

Location and method of operation

This accident occurred on the First Subdivision of the Marion Division, extending between Marion, Ohio, and Huntington, Ind., a distance of 126.6 miles, in the vicinity of the point of accident this is a double-track line, over which trains are operated by time-table, train orders, and an automatic block-signal system. The accident occurred 1 mile east of Lima, within the interlocking limits of SJ tower, on a No. 10 crossover, just east of the crossing of the Detroit, Toledo & Ironton Railroad; the crossover is 200 feet in length, connecting the two main tracks, and is a facing-point crossover for movements against the current of traffic. Approaching this crossover from the east, there are about 5 miles of tangent track, followed by a 0° 52' curve to the left 832 feet in length, the east switch of the crossover being located on this curve at a point about 575 feet from its eastern end. For a distance of several miles the grade is 0.3 per cent descending for westbound trains.

The track is laid with 100-pound rails, 33 feet in length, with an average of 20 ties to the rail-length, single-spiked, fully tie-plated, and ballasted with crushed stone to a depth of 10 inches; rail anchors are also used. At the point of accident the tracks are laid on a cinder fill 6 feet in depth, the tracks are well maintained.

The track of the DT&IRR extends north and south and crosses the Erie tracks at right angles. SJ tower is located in the northwest angle of this crossing, and in it is located the interlocking machine controlling the switches and signals located in the vicinity. Dwarf signal 5, the only signal directly involved, is a two-position, upper-quadrant signal, located between the two main tracks at a point 80 feet east of the crossover, and governs westbound movements against the current of traffic, night indications are purple for stop and yellow for proceed at restricted speed. The westbound home signal at SJ tower is located about 325 feet east of the crossover, while the westbound distant signal is located 3,982 feet east of the home signal, at the time of the accident westbound freight train extra 3144, consisting of 91 cars and a caboose, stood on the westbound main track with its engine just east of the distant signal.


Marion, Ohio
24.2 miles
KN Tower
26.7 miles
SJ Tower (P of A)
1 mile
Lima, Ohio
74.7 miles
Huntington, Ind.
W.B. Distant signal
5 mi. tangent
against current of traffic
3982 ft.
Ohio Electric Ry.
Train #7 moving
P.C.
W.B. Home signal
245 ft.
0°52'
832 ft.
Dwarf signal 5
80 ft.
Point of accident
Crossover 200 ft.
57 ft.
D T & I.RR.
P T.
SJ Tower
Inv. No. 1800
Chicago & Erie Railroad
Lima, Ohio
Dec. 21, 1932.

Under special instructions contained in the time-table, the speed of trains through crossovers is restricted to 10 miles per hour.

The weather was misty at the time of the accident, which occurred about 8.55 p.m.

Description

Westbound passenger train No. 7 consisted of 3 express cars, 1 storage-mail car, 1 coach, 1 Pullman car, 1 express refrigerator car, 2 baggage and express cars, 2 express cars, and 1 combination passenger and baggage car, in the order named, hauled by engine 2928, and was in charge of Conductor Kacy and Engineman Scott. The first 9 cars were of all-steel construction, while the last 3 cars were of steel-underframe construction. At KN tower, the last open office, 26.7 miles east of SJ tower, the train was diverted from the westbound to the eastbound track, in order to run around two westbound freight trains, and when passing that tower, at 8.24 p.m., 1 hour and 24 minutes late, both the engineman and the conductor received clearance card, Form A, and copy of train order No. 8, Form 19, reading as follows:

> No 7 eng 2928 has right over opposing trains on eastward track KN tower to the crossover at SJ tower Extras 3144 and 3053 west on westward track have not received this order Eastbound trains get this order at SJ tower

A regular station stop was made at Kenton, 0.8 mile west of KN tower; the train then proceeded and was derailed at the crossover at SJ tower while traveling at a speed variously estimated to have been between 30 and over 70 miles per hour.

Engine 2928, its tender, the first eight cars, and the forward truck of the ninth car were derailed, five of the cars being north of the tracks, two of them across and at right angles to the tracks, and one of them south of the tracks. The engine struck the tower and stopped on its right side, headed southwest, with its front end 519 feet west of the east switch of the crossover, badly damaged, the tender was jackknifed against the bottom of the engine and wedged in between it and the first car in the train; the ninth, tenth and eleventh cars followed the eastbound main track, with the eleventh car stopping over the east crossover switch. The tower was demolished and the wreckage caught fire and was consumed. The employees killed were the engineman and fireman of train No. 7 and the operator in the tower, while the employees injured were the brakeman, flagman, and the baggageman.

Summary of evidence.

Conductor Kacy, who was riding in the fifth car, stated that when his train was approaching SJ tower he heard one long blast sounded on the whistle and thought his engine then was near where the rear end of extra 3144 stood on the westbound track east of the distant signal; according to this estimate the engine of train No. 7 would then have been about 1½ miles east of the crossover. The speed of the train at that time was about 60 miles per hour and when the engine reached a point approximately 25 car-lengths east of an electric railway crossing, located about 775 feet east of the crossover, he felt a light application of the brakes, at which time the speed was still about 60 miles per hour, and as the car in which he was riding reached a point about 4 or 5 car-lengths east of the electric railway crossing he felt the air brakes apply in emergency, at which time the speed was about 40 miles per hour, and he estimated the speed at the time of the accident to have been about 30 miles per hour. Conductor Kacy was fully aware of the fact that train order No. 8 required his train to return to the westbound track via the crossover at SJ tower and that the maximum permissible speed for trains passing through crossovers is 10 miles per hour, but made no attempt to reduce the speed of the train by means of the conductor's emergency valve. Conductor Kacy also said he had been somewhat confused as to his location, because under the requirements of the train order his train was to pass two westbound extras between KN and SJ towers, whereas he had only noticed it pass one extra. It also appeared from the conductor's statements that the air brakes had been tested and worked properly en route.

Brakeman Cahill, who was riding in the same car as the conductor, knew his train was required to return to the westbound track at SJ tower. While approaching SJ tower he thought the speed was a little higher than the prescribed limit for passenger trains of 60 miles per hour, but did not say anything to the conductor as he did not think it necessary to do so. He estimated the speed to have been about 35 or 40 miles per hour on nearing the crossover, saying that he had prepared to call the station when he felt the slack run in, so he sat down in a seat and braced himself, thinking that a quick stop was going to be made.

Baggageman Thompson estimated the speed to have been about 60 miles per hour on passing the freight train standing east of SJ tower. He knew his train was supposed to return to the westbound track via the crossover at SJ tower but said he did not realize his location approaching that point. He was not positive whether he noticed a light application of the brakes prior to the accident or whether it was the sound of the car wheels passing over the crossing of the electric railway. The speed then was the same as it had been, in fact there had been no reduction when the car in which he was riding became derailed, this being followed by a severe impact and the application of the brakes in emergency.

Flagman Major stated that he was riding in the last car and that on account of the loaded express cars located in the train just ahead of the last car, he was cut off from the other members of the crew in the cars ahead, and he did not know that his train was to return to the westbound track at SJ tower, although he said it was the usual practice to cross over at that point when making a movement against the current of traffic from KN tower, and that trains are frequently operated in that manner between those two points. Flagman Major estimated the speed of his train to have been about 60 miles per hour and realized that it was traveling at too high speed to negotiate the crossover; he did not notice any application of the air brakes or any reduction in speed prior to the accident.

General Air Brake Inspector Higley was a passenger on train No. 7 and was riding in the seventh car. After leaving Kenton he noticed nothing unusual until passing the freight train standing east of SJ tower, when he realized that the train was traveling at a high rate of speed, he was able to identify his location on passing over the electric railway crossing, at a speed of over 70 miles per hour. The speed was so high that he doubted whether it would be possible to stop for the Baltimore & Ohio crossing, located about 1 mile west of the DT&IRR crossing, and he got up from his seat with the thought in mind that provided an air-brake application of same kind was not made by the time the DT&IRR crossing was reached, he would apply the brakes himself by means of the conductor's emergency valve. At this time he felt a light application of the brake, which satisfied him temporarily, but the speed of the train was not reduced and then the accident occurred. After the accident, he noticed that the air brakes on the four rear cars were applied; he also examined such of the driving wheels of the engine as could be reached and found no indication of excessive braking, and all angle cocks that he was able to find, including the one on the rear of the tender, were open.

Members of the crew of extra 3144 said the speed of train No. 7 was between 65 and 70 miles per hour, or more, when it passed, with the engine working steam, and with the exception of the flagman, they all stated that there was nothing to indicate that the engineman was making any effort to reduce speed. No obstruction of any kind was found protruding from extra 3144 which could have come in contact with the engineman of train No. 7. Conductor Show and Flagman Couch were at the rear of the caboose and gave lantern signals to the engineman of train No. 7, which were acknowledged by two short blasts on the whistle. Flagman Couch further stated that he recognized Engineman Scott, saying that the engineman had his head slightly out of the cab window; the flagman also stated that he saw sparks flying after the engine had passed his caboose a distance of about 20 or 25 car-lengths and then the steam and smoke obscured it from view.

Railroad Sergeant of Police Steen had been in SJ tower a few minutes prior to the accident, and on leaving the office he saw the reflection from the headlight of the engine of train No. 7

as that train came down the grade. Sergeant Steen walked eastward and when near the electric railway crossing he saw that train No. 7 was approaching at a very high rate of speed, 60 or 70 miles per hour, working steam, and on looking at dwarf signal 5 he saw that it was displaying a purple indication and realized that there was going to be an accident. Sergeant Steen did not see any one in the cab as the engine passed him and there was nothing to indicate that the engineman was trying to stop the train.

General Signal Inspector Raber reached the scene about an hour after the accident occurred. He found the interlocking machine demolished, except that the locking bed had been thrown clear of the wreckage and was practically intact from levers 2 to 27, inclusive. The position of the locking in the bed indicated that the operator had lined the route for a movement from the eastbound track via the crossover to the westbound track, and that dwarf signal 5 had been in the stop position. All the dwarf signals, however, which are mechanically operated, were found in proceed position after the accident, and the east switch of the crossover was found to be lined for a through movement on the eastbound main track, with the lock plunger through the lock rod $3\frac{3}{4}$ inches instead of 7 inches which is the case when operated by the towerman. The derailed train had torn through the pipe lines and apparently the pull thus exerted on the pipe lines had moved the dwarf signals from stop to proceed, and also had resulted in unlocking and moving the east crossover switch under the rear portion of the train, which was found to have followed the eastbound track instead of passing through the crossover. Mr. Raber's examination of the switch showed that the north point fitted properly against the stock rail and bore no indication of having been struck by a wheel or other portion of the equipment; the reverse point bore a mark indicating that it had been struck lightly but it was not bent or defective in any way. The switch was equipped with O'Brien lock and pulling rods and one switch rod. The O'Brien rods were in good condition but the switch rod had been bent downward, apparently as a result of the switch points having been forced toward each other; there was nothing, however, to indicate that the engine or cars had split the switch. The statements of Mr. Raber as to the east crossover switch being found closed after the accident, with dwarf signal 5 in proceed position, were corroborated by Conductor Kacy and General Air Brake Inspector Higley.

Road Foreman of Engines Morrett inspected the track for about one-half mile east of the east cross-over switch but found no indication of dragging equipment. The first marks were on the ties about 18 feet west of the switch points and led toward the westbound track, and there was a flange mark on the ties north of the north rail of the crossover, 156 feet from the east switch. Mr. Morrett also found heavy dents in both pairs of engine-truck wheels, but these apparently were caused by the wheels having come in contact with the diamond at the DT&IRR crossing. He also said that the brakes on the rear cars remained applied until a relief engine released them, more than five hours after the occurrence of the accident.

Examination of the track and equipment by the Commission's inspectors disclosed nothing which could have contributed to the occurrence of the accident; the markings which were found just west of the east cross-over switch were probably made by the cars in the rear portion of the train, five of which followed the main track and the first of which was entirely derailed, together with the lead truck of the following car.

Conclusions

This accident was caused by the failure of Engineman Scott, of train No. 7, properly to control the speed of his train approaching a crossover, and by his subsequent failure to obey the indication of an interlocking signal.

According to the evidence, Engineman Scott made little or no reduction in the speed of his train, believed to have been at least 60 miles per hour, as it approached the crossover at SJ tower, where its authorization to move against the current of traffic terminated and where it was required to cross over to the westbound track. As a result of the high rate at which his train was moving, Engineman Scott was in no position to obey the indication of the dwarf signal governing the crossover movement; this signal apparently was at stop when the accident occurred. All evidence available indicated that Engineman Scott was alive and attentive to his duties immediately prior to the accident, the air brakes had been tested and worked properly en route, and nothing wrong was found about the equipment or track that would have caused or contributed to the accident. Under these circumstances it is impossible to say why Engineman Scott, who was killed in the accident, failed to approach the crossover with his train under full control.

Conductor Kacy is also at fault for his failure to take steps toward reducing the speed of the train in time to avert the accident. He claimed that the speed had been reduced from 60 to 40 miles per hour and that the train was moving at the last-mentioned rate of speed when the brakes were applied in emergency in the vicinity of the electric railway crossing 775 feet east of the crossover, it is only necessary to point out, however, that had this been the case the speed would have been further reduced by the emergency application to such an extent that the accident probably would not have occurred. As a matter of fact, the great weight of evidence is entirely contrary to the statement of Conductor Kacy regarding the speed of the train, and it indicates very strongly that little or no reduction was made and that the speed probably was not less than 60 miles per hour when the engine actually encountered the open cross-over switch. Conductor Kacy knew his train was to cross back to the westbound track at that point and there is little excuse for his action in allowing the train to proceed at this excessive rate of speed without making any attempt to apply the brakes. Conductor Kacy, who was over 71 years of age, had had 42 years' experience as a conductor and it is believed that he should have been paying more attention to the safe handling of his train.

Respectfully submitted,

W.P.BORLAND,

Director.