INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED AT THE INTERSECTION OF THE TRACKS OF THE BELT RAILWAY OF CHICAGO AND THE BALTIMORE & OHIO CHICAGO TERMINAL RAILROAD AT W. 75TH AND LEAVITT STREETS, CHICAGO, ILL., ON NOVEMBER 17, 1931.

January 11, 1932.

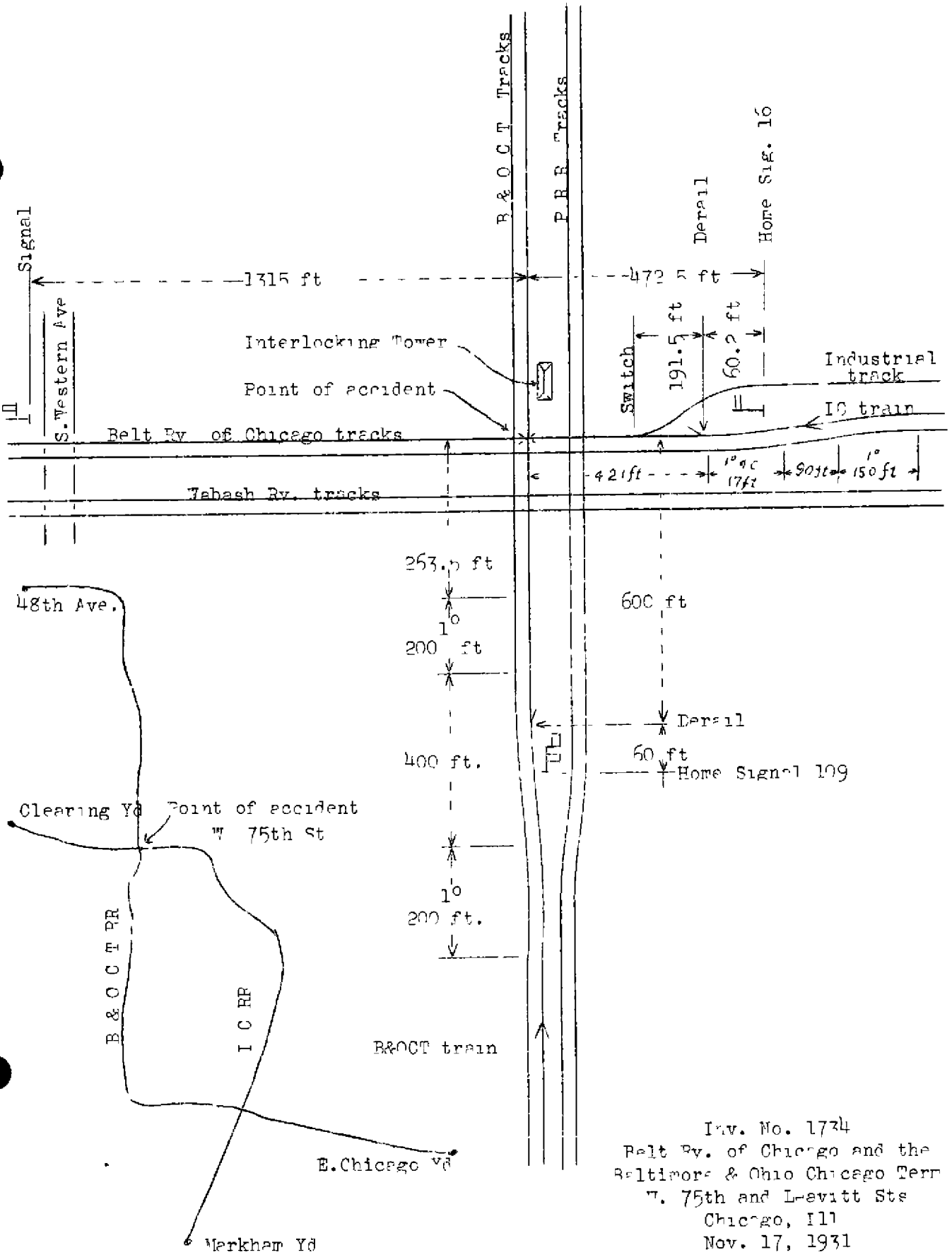
To the Commission:

On November 17, 1931, there was a side collision between an Illinois Central transfer freight train moving over the tracks of the Belt Railway of Chicago, and a Baltimore & Ohio Chicago Terminal transfer freight train moving over its own tracks, at W. 75th and Leavitt Streets, Chicago, Ill., which resulted in the death of one employee of the Illinois Central and the injury of two employees of the B & OCT. This accident was investigated in conjunction with a representative of the Illinois Commerce Commission.

Location and method of operation

Both of the roads involved in this accident are double-track lines, engaged in industrial switching and interchange movements. Transfer trains are operated over the B Ry. of C by book of rules and special instructions, no block-signal system being in use, while transfer trains are operated over the B & OCT RR by time-table, train orders, and an automatic block-signal system. At the crossing involved there are four double-track lines of four different railroads, crossing each other at right angles. Compass directions are used in this report. The tracks of the B Ry. of C extend east and west and parallel the tracks of the Wabash Railway on the north, while the tracks of the B & OCT extend north and south and parallel the tracks of the Pennsylvania Railroad on the west. The accident occurred at the intersection of the B Ry. of C westbound track with the B & OCT northbound track.

Approaching the point of accident on the B Ry. of C from the east, the track is tangent for more than one mile, then there is a 1° curve to the left 150 feet in length, 90 feet of tangent, a 1° 40' curve to the right 117 feet in length, and then tangent track a distance of 421 feet to the intersection, this tangent extending



Inv. No. 1734
Belt Ry. of Chicago and the
Baltimore & Ohio Chicago Term
W. 75th and Leavitt Sts
Chicago, Ill
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for a considerable distance beyond the crossing. The grade is 0.45 per cent descending for westbound trains to within about 1,025 feet of the intersection, then it is level to and beyond the crossing. Approaching from the south on the B & OCT RR., the track is tangent for a considerable distance, then there is a 1° curve to the left 200 feet in length, 400 feet of tangent, a 1° curve to the right 200 feet in length, and then tangent track a distance of 263.5 feet to the intersection, this tangent extending for a considerable distance beyond. The grade is 0.50 per cent descending for northbound trains to within about 300 feet of the intersection, being level over the intersection.

Movements over the crossing are governed by an interlocking plant, operated by the B & OCT RR., the tower being located just north of the tracks of the B Ry. of C and between the tracks of the B & OCT and the Pennsylvania Railroads; the interlocking machine is a 132-lever Saxby and Farmer machine. Home signal 16, governing westbound movements on the B Ry. of C over the crossing, is located 472.5 feet east of the point of accident, between an industrial track and the westbound track; this signal is a one-arm, two-position, upper-quadrant, wire-connected semaphore, night indications being red and green, for stop and proceed, respectively. A Wharton derail which is operated in conjunction with home signal 16, is located 60.2 feet west of the signal; the industrial track joins the westbound track from the north at a point 191.5 feet west of the derail, the hand-operated switch being a trailing-point switch for westbound trains. There is no westbound distant signal.

Home signal 109, governing northbound movements on the B & OCT RR., is located 660 feet south of the point of accident; this signal is of the two-arm, upper-quadrant semiautomatic type. The top arm assumes three positions, 0° to 45° being controlled from lever and 45° to 90° from the signal in advance; the bottom arm is fixed in horizontal position, and displays a red light at night. A derail is located 60 feet north of the home signal.

The weather was clear and it was dark at the time of the accident which occurred about 4.18 a.m.

Description

The Illinois Central westbound transfer train, operating over the B Ry. of C track, consisted of 62 loaded and 23 empty cars, and a caboose, hauled by IC engine 2997, of the 2-10-2 type, and was in charge of Conductor Stirn and Engineman McMullin. This train passed home signal 16, which the engineman stated was displaying a proceed indication, and encountered the derail which derailed only the pony-truck wheels and was then damaged and rendered inoperative; the pony-truck wheels marked the ties on the north side of each rail up to the frog of the trailing-point switch of the industrial track, where the pony-truck wheels were re-railed. The IC train continued, traveling at a speed estimated to have been about 20 miles per hour, when the northbound B & OCT train was observed to be approaching the crossing, whereupon the air brakes on the IC train were applied in emergency, bringing that train to a stop with the first car on the crossing, where it was standing when struck immediately afterwards by the engine of the B & OCT transfer train.

The northbound B & OCT transfer train consisted of 78 loaded and 12 empty cars and a caboose, hauled by engine 4019, of the 2-8-2 type, and was in charge of Conductor Anderson and Engineman Cole. This train passed home signal 109, which was displaying a proceed indication, and collided with the side of the IC train while traveling at a speed estimated to have been about 25 miles per hour.

B & OCT engine 4019 was derailed and badly damaged, but remained upright, coming to a stop west of its tracks and opposite the tower, its tender was overturned. The rear driving wheels ofIC engine 2997 were derailed, and its tender was overturned toward the north; 15 cars in the B & OCT train and 5 cars in the IC train were derailed and damaged; 6 of the 15 derailed cars in the B & OCT train were piled up behind the 23rd car in that train. The interlocking plant, crossing, and tracks, were damaged and the interlocking tower was knocked out of line, the interlocking machine being moved out of place about 6 inches and the levers jammed. The employee killed was the head brakeman of the IC train, while the employees injured were the fireman and a switchman of the B & OCT train.

Summary of evidence

Towerman Kohnstann, of the B & OCT RR, had been notified by the switchtender at 79th Street that the B & OCT transfer left Blue Island at 3.54 a.m., and shortly afterwards he started to line the route over the crossing for that train; he said that it had been lined up for about 10 or 12 minutes prior to the accident. The towerman first observed the IC train approaching, by the reflection from the headlight, when its engine was about 100 feet east of home signal 16, and still working steam. He stated that the levers controlling signal 16 and the derail were in normal position which is their proper position to set the signal and derail against the IC train. Realizing, however, that the IC train was not going to be stopped at home signal 16, and as the B & OCT train was also approaching the crossing, the towerman leaned out of the window and waved stop signals to the IC train with his lighted red lantern, but these signals were not acknowledged or heeded. When IC engine 2997 encountered the derail the lever that controlled that particular derail started to jerk and made a rumbling noise; after the accident, owing to the damage, none of the levers in the machine could be manipulated. It further appeared from the towerman's statements that the last train to use the B Ry. of C westbound track passed the tower one hour and six minutes prior to the accident; he then restored the levers to normal position and had not changed them again prior to the accident. He also estimated that with the route lined for a westbound B Ry. of C movement, it would take two and one-half minutes, including the operation of the time release, to take away the route and give it to a northbound B & OCT movement. Towerman's Helper Rohm gave testimony similar to that of Towerman Kohnstann.

Engineman McMullin, of the IC train, stated that he was familiar with the signals on the B Ry. of C, and that the air brakes on his train were tested at Markham and worked properly en route, the last stop made prior to the accident being at Ashland Avenue, located about 4,000 feet east of the crossing at 75th Street. Engineman McMullin stated that just after his train departed from Ashland Avenue he observed that home signal 16 at the 75th Street interlocking was displaying a proceed indication and he kept watching it, not noticing the position of the semaphore blade but looking only at the color of the light, which was green. When about 500

feet from the signal the fireman called "clear board" and the engineman answered him, after which the fireman got down to look at the fire. The last time the engineman saw the signal indication was on reaching a point about 100 feet from it, at which time it still showed green, and the first he knew of anything wrong was when the fireman shouted a warning of danger when about 100 feet from the crossing. The speed of his train had been about 20 miles per hour when passing the signal, and when the fireman called to him he immediately applied the air brakes in emergency, bringing the train to a stop just after the engine passed over the crossing. Engineman McMullin stated that steam was being worked on passing home signal 16 and continued to be worked until the fireman shouted the warning of danger, that he did not see any one giving signals from the tower, that he was positive the indication displayed by home signal 16 was green, and that he did not feel any jar on the engine at the derail or hear any unusual noise. Immediately after the accident he inspected the flanges of the pony-truck wheels, and he thought he found a dent in the flange indicating that it had struck something a hard blow. On going back to look at the derail he saw that it was broken and he looked for marks on the ties to see whether any part of his engine had been derailed, but said that he found only an old mark, three or four months old, on the gauge side of the south rail, about 8 inches from the rail, and did not see any corresponding mark on the north side of the north rail. About 1 hour and 45 minutes after the accident he observed that home signal 16 was displaying a red indication. Engineman McMullin further stated that there is a signal at Western Avenue, west of signal 16, which comes in line with signal 16 while descending the grade approaching the 75th Street crossing, following which they again become separated, on account of curvature of the track; at first he used to get these two signals confused, but not later, and he did not think there was any possibility of his having gotten them confused on the night of the accident.

Fireman Hendricks, of the IC train, gave testimony substantially the same as that of Engineman McMullin; the fireman was positive that a green indication was displayed on home signal 16 at the time he called it. He also estimated the speed of his train to have been 20 miles per hour when he called a warning to his engineman 100 or 125 feet from the crossing. After the accident he went back to the derail and saw that it was damaged

and that there were marks on the ties; signal 16 was then displaying a red indication. Fireman Hendricks did not look at the pony-truck wheels and did not know whether his engine was derailed at any time prior to the accident. Conductor Stirn saw marks on the ties and the damaged derail, but it was dark and he was not certain whether they were old or new marks; about one hour after the accident he observed that home signal 16 then displayed a red indication. He said the speed of his train was 20 miles per hour when the brakes were applied. Flagman McElroy said that he observed home signal 16 displaying a green indication when he got off the caboose after the accident, and that owing to the wreckage piled up at the tower he could not then see the second signal farther down at Western Avenue; after the accident he was busy putting the train away and did not at any time see homesignal 16 displaying a red indication.

Engineman Cole, of the B & OCT train, stated that after rounding the curve and getting on the straight track at W. 79th Street, the straight track beginning at a point about 2,750 feet south of home signal 109, he observed that that signal displayed a proceed indication. On passing the home signal, which was still displaying a proceed indication, the speed of his train was about 20 miles per hour and he began to work steam, but on reaching a point about 7 to 10 car-lengths from the crossing he saw theIC train come upon the crossing directly in front of his own train; he applied the air brakes in emergency and when the collision occurred, he estimated the speed of his train to have been about 25 miles per hour. The air brakes had been tested at E. Chicago yard and they worked properly. Statements of other members of the crew of the B & OCT train brought out nothing additional of importance.

Engineman Walters and Fireman Anderson, of the Wabash Railway, stated that their engine was standing on their westbound track, headed east, at a point east of Ashland Avenue, and that when IC train 2997 departed on the B Ry. of C westbound track they observed that home signal 16 displayed a green indication, as did also the second signal farther down at Western Avenue. They noticed it particularly as they expected to follow the IC train.

Switchtender Munch, of the B & OCT RR, on duty at W. 79th Street, stated that as the northbound B & OCT train passed that point he looked toward W. 75th Street and observed home signal 109 displaying a green indication; also that he had observed that signal displaying a green indication about 10 minutes prior to the arrival of the B & OCT train.

Assistant Signal Supervisor Carroll, of the B & OCT RR, stated that he arrived at the scene of the accident within 45 minutes of its occurrence and examination of the interlocking machine at that time disclosed all seals and locks to be intact; home signal 16 was displaying a stop indication and both locks of this signal were locked and in good condition and the signal could not be moved. The machine itself had been slued about 6 inches as a result of the accident and the levers were jammed and could not be moved. Supervisor Carroll stated that semiautomatic home signal 109 is so arranged that with the route lined for a B & OCT train over the crossing, home signal 109 goes to danger automatically when an engine passes it, but that this is not the case with home signal 16 when the route is lined for a movement over the B Ry. of C, home signal 16 being wire connected and operating through a bolt lock at the derail, and when an engine passes home signal 16 it does not go to danger. B & OCT Maintainer Ahlgrim found conditions about as described by Mr. Carroll; he also said he had inspected the derail on the previous day and found it in good condition.

Road Foreman of Engines Burns, of the B & OCT RR, stated that he arrived at the scene of the accident 1 hour and 45 minutes after its occurrence and inspection of IC engine 2997 at that time disclosed that the pony-truck wheels had been off the track, following which he went back to the damaged derail and saw where a pair of wheels had been derailed at that point and made fresh marks on the ties as far west as the frog of the inductrial track, at which point these wheels had re-railed themselves; there was a mark on the flange of the left wheel of the pony truck where it had struck the space block to the guard rail at the frog, in re-railing itself, which corresponded with the mark on the space block.

Maintenance Engineer Swift, of the Belt Railway of Chicago, stated that he examined the damaged derail after the accident and thought there was no question as to the derail having been set against the IC train. Considerable testimony was taken from various witnesses as to the way in which the derail failed to function properly; apparently the pony-truck wheels were derailed as intended, but the right front driving wheel either passed by the riser rail or encountered it in such a way as to force it away from the running rail the left driving wheel at the same time bending the point rail downward and to the left. This condition may have been aided by the fact that the rear of the engine was then on the leaving end of a short curve to the right.

The Commission's inspectors observed flange marks on the ties on the north side of each rail of the B Ry. of C westbound track, which marks extended from the damaged derail up to the guard rail and frog of the industrial track; these marks were fresh and gauged 56 inches.

Conclusions

The cause of this accident was not definitely ascertained.

The investigation clearly established the fact that the route through this plant had been lined up and clear signals displayed for the movement of the B & OCT transfer train, and that this had been done several minutes before the arrival of either train involved in this accident. To accomplish this it was necessary that the levers of the interlocking machine which control the home signal and the derail on the northbound B Ry. of C track be in normal position. According to the statement of Towerman Kohnstamm, these levers had been in normal position for more than an hour prior to the accident. The derail on this track was in derailing position as the pony-truck wheels of the IC engine were derailed, but there is considerable question whether a stop indication was displayed by signal 16. Five railroad employees who saw this signal were positive in their statements that it was displaying a green indication prior to and immediately following the accident. They were the enginemen and fireman of a Wabash engine, who noted that a green indication was displayed shortly before the arrival

of the IC transfer, their attention being particularly directed to this indication as they expected to follow the IC transfer through this plant; the engineman and fireman of the IC transfer train involved, who stated a green indication was displayed when the signal came into view and as they closely approached it; and the IC flagman who said a green indication was displayed when he got off from the caboose immediately after the accident. It is scarcely credible that these five men could have been mistaken in the indication which was displayed by this signal. It does not appear that anyone saw a red indication displayed by this signal before the accident; all the railroad employees who are known to have seen the signal shortly before the accident occurred said the indication was green. This was a wire-connected signal and while there was no evidence that any of the apparatus or connections were defective or not properly adjusted prior to the accident the plant was so badly damaged as a result of the accident that no check of its prior condition could be made.

The derail failed to accomplish its intended function. Only the pony-truck wheels of the IC engine were derailed. Opinions of railroad mechanical and maintenance officers varied as to the reasons for this failure; the causes or contributing factors were thought to be the proximity of the derail to a curve, the speed and weight of the engine and the length of its rigid wheelbase. Had the derail functioned as intended the collision would probably have been prevented.

All of the employees involved were experienced men and at the time of the accident none of them had been on duty in violation of any of the provisions of the hours of service law.

Respectfully submitted,

W. P. BORLAND

Director.