INTERSTATE COMMERCE COMMISSION.

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE CHICAGO & EASTERN ILLINOIS RAILWAY AT CAYUGA, IND., ON MARCH 29, 1924.

May 22, 1924.

To the Commission:

On March 29, 1924, there was a derailment of a passenger train on the Chicago & Eastern Illinois Railway at Cayuga, Ind., which resulted in the death of a crossing watchman and the injury of one other employee.

Location and method of operation.

This accident occurred on the Terre Haute District of the Chicago Division, extending between Danville, Ill., and Terre Haute, Ind., a distance of 54.3 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 within interlocking limits at Cayuga at a derail located on the west rail of the southbound main track at a point 522 feet north of a crossing at grade with the Nickel Plate Railway. Approaching this point from the north the track is tangent for more than one-half mile, followed by a 1° 10' curve to the left 2,345 feet in length, the accident occurring on this curve 316 feet from its northern end. The grade for southbound trains is practically level for more than a mile. The track is laid with 90-pound rails, with an average of 21 ties to the rail-length, tie-plated on curves and ballasted with gravel, the track is well maintained.

Cayuga Station is located in the northeast angle formed by the tracks of the two roads and is used jointly by them. A public highway, Curtis Street, crosses the tracks of the Chicago & Eastern Illinois Railway about 250 feet north of the railroad crossing. The switches and signals in this vicinity are controlled by a mechanical interlocking plant operated from a tower which is located in the southeast angle of the railroad crossing. The derail involved is of the Wharton lifting type. The signals involved are of the 3-position, upper-quadrant type. At the time of the accident a Nickel Plate train stood on the crossing and the route was set against a southbound Chicago & Eastern Illinois train, a caution signal indication being displayed at distant signal 140-7, 2,253 feet north of the derail, and a stop indication at home signal

141-1, 56 feet north of the derail; the view of these signals is unobstructed. The weather was cloudy at the time of the accident, which occurred about 4.19 p.m.

Description.

Southbound passenger train No. 93 consisted of one mail car, one combination baggage and smoking car, one chair car, one coach, one dining car, one Pullman parlor car and one Pullman sleeping car, in the order named, hauled by engine 1003, and was in charge of Conductor Rhorer and Engineman Kruckemeyer. This train left Danville, 17.8 miles from Cayuga, at 3.54 p.m., 4 minutes late, passed Perrysville, 6.8 miles beyond at 4.13 p.m., passed distant signal 140.7 and home signal 141-1, and ran off the open derail while traveling at a speed estimated to have been between 30 and 50 miles an hour.

Engine 1003, its tender and the first four cars of the train were derailed, the cars remaining upright; the engine left the roadbed and ran a distance of about 300 feet before coming to rest on Curtis Street about 50 feet from and at right angles with the tracks, the tender being overturned. A crossing watchman's shanty was demolished the wreckage of which struck and fatally injured the crossing watchman.

Summary of evidence.

Operator-Leverman Grafton at Cayuga Tower said a southbound Chicago & Eastern Illinois freight train had backed through the interlocking plant upon the northbound main track to clear train No. 93 about the time that a Nickel Plate passenger train stopped at the home signal on that road, and after setting signals and derails against Chicago & Eastern Illinois trains, he lined the route for the Nickel Plate train which pulled down and stopped at the station, blocking the crossing. He had just copied and repeated a train order for the freight train and was writing out a clearance card when his attention was directed to the approach of train No. 93 which was then about at the home signal. He estimated the speed at the time of the derailment to have been about 50 miles an hour. Prior to the accident he had not heard any whistle signals sounded by that train.

Engineman Kruckemeyer said the air brakes on the train were tested at Danville and after leaving that point while running at a speed of about 10 miles an hour, he made a running test of the air brakes and they seemed to work properly. The first stop to be made at Cayuga and approaching the distant signal at that point he saw the caution indication of the signal, at which time he was running at a speed of about 40 miles an hour, and when passing

the signal he applied the brakes, making a 10 or 12-pound reduction; as the brakes did not seem to hold, when about midway between the distant signal and the home signal, the indication of which he saw was stop, he made another reduction of about 15 pounds, which also did not seem to take effect, realizing that he could not bring the train to a stop before running over the derail he placed the brake valve in the emergency position and reversed the engine. He estimated the speed at the time of the derailment to have been about 15 miles an hour.

Fireman Kohlmeyer said he called the indication of the distant signal to the engineman who acknowledged it and made an application of the air brakes, at which time the speed of the train was about 40 miles an hour, followed by another application, neither of which seemed to reduce the speed of the train; the engineman then made an emergency application and he thought the speed had been reduced to about 15 miles an hour when the derailment occurred.

Conductor Rhorer said he observed the air-brake test made at Danville and noticed that the running test made after leaving that point was effective in that it slowed the speed of the train to about 3 or 5 miles an hour. He did not notice any reduction in the speed of the train approaching Cayuga until the Vermillion River Bridge was reached which is about midway between the distant and home signals, and as he did not hear any whistle signals sounded for the station at Cayuga, he became alarmed and started for the forward end of the car when he felt a severe jolt followed shortly afterward by the derailment. He said he inspected the train after the accident and found all the air brakes set and the angle cocks in proper position in the train line. Flagman Blue said he was in the forward vestibule of the fourth car preparing for the station stop when the air brakes were applied suddenly and he was thrown down, prior to which time he had not noticed any application of the air brakes. He further said that it was customary for enginemen to start braking near the distant signal and as the train had passed that point without a brake application he thought the train was not going to stop at Cayuga. Baggageman Donaldson said he could hear the air brake mechanism under the floor of the car whenever an air brake application was made; he noticed that the speed was high approaching Cayuga but felt no application of the air brakes before the car lurched suddenly and he was thrown to the floor.

Conductor Holmes and Engineman Stewart, in charge of the freight train which had been backed over upon the northbound track were eye witnesses of the derailment and estimated the speed at the time to have been 30 and 45 or 50 miles an hour, respectively Prior to the ac-

cident neither had heard any whistle signals sounded. The engine of their train was used to haul the three cars of the train which were not derailed to Dickason Pit, a distance of about 4 miles and the brakes on these cars worked properly during that movement as well as when the test was made when a relief engine was coupled on. Engineman Van Lieu in charge of the relief engine which hauled these cars to Evansville said the brakes on these cars worked properly en route.

Road Foreman of Equipment Powell said upon his arrival at the scene of the accident he made an inspection of the cars of the train and found that the brakes were set and on none of the cars was the piston travel in excess of 7 inches. He also found the angle cocks cut in the train line with the exception of the angle cock at the head end of the first car which was embedded in the dirt and could not be inspected. Air Brake Supervisor Laking said he made an inspection and test of the air-brake equipment of engine 1003 after the accident which showed the air-brake appurtenances to be in good condition.

Conclusions.

This accident was caused by the failure of Engineman Kruckemeyer properly to observe and obey signal indications.

Although Engineman Kruckemeyer stated that the air brakes were applied about opposite the distant signal, the evidence is to the effect that no air-brake application was made at that time, Conductor Rhorer stating that the air brakes were not applied until about midway between the distant and home signals, while Brakeman Blue and Baggageman Donaldson said they did not notice any application of the air brakes until just before the derailment occurred. While Engineman Kruckemeyer stated that the speed passing the distant signal was about 40 miles an hour, and estimated it to have been about 15 miles an hour at the time of the derailment, he was unable to account for the reduction in the speed of the train between the distant and home signals in view of his statements that the brake application he claimed to have made was not effective. The estimates of eye witnesses, together with the condition of the wreckage and the fact that the engine ran more than 300 feet in soft dirt before coming to rest, indicate that the speed must have been higher than Engineman Kruckemeyer's estimate.

The evidence also indicates that the air brakes were tested before leaving Danville and a running test was made and the air brakes worked properly, also that Engineman Kruckemeyer was fully informed of the caution indication displayed by distant signal 14C-7, and that he acknowledged the indication to the fireman. The view of both signals is unobstructed and Engineman Kruckemeyer was thoroughly familiar with their location; he was evidently in full possession of his faculties at all times, and why he failed to obey the signal indications is not known.

On a portion of this railroad there is an automatic train-control system in use. Had such a system been in use at this point for the purpose of compelling obedience to the fixed signal indications, this accident would not have occurred

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.