INTERSTATE COMMERCE COMMISSION

REPORT OF THE CHIEF OF THE BUREAU OF SAFETY COVERING INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE NEW YORK CENTRAL RAILROAD AT ERIE, PA., ON OCTOBER 20, 1920

NOVEMBER 9, 1920

To the Commission

On October 20, 1920, there was a side collision between two passenger trains on the New York Central Railroad at Erie, Pa., which resulted in the death of 7 passengers, and the injury of 19 passengers, 1 of whom afterwards died, 3 employees, and 1 Pullman porter. This accident was investigated jointly with a representative of the Public Service Commission of Pennsylvania, a hearing being held at Erie, Pa., on October 22, 1920. As a result of this investigation the following report is respectfully submitted.

This accident occurred on the Erie Division, which extends between Buffalo, N. Y., and Cleveland, Ohio, a distance of 181.9 miles. In the vicinity of the point of accident this is a four-track road over which trains are operated by time-table, train orders, and an automatic block-signal system. From north to south the tracks are numbered 3, 1, 2, and 4. Tracks 3 and 1 are westbound tracks and tracks 2 and 4 are eastbound tracks; tracks 3, 1, and 2 pass the station on the north side, while track 4 passes the station on the south side. West of the station there are crossovers connecting tracks 3 and 1, 1 and 2, and 2 and 4, while opposite the station is a crossover connecting track 4 with a yard lead track. In this report these crossovers are referred to as the east, middle, west, and depot crossovers, respectively. The switches of these crossovers are handled by a switch tender whose shanty is located about 230 feet west of the west end of the station. The accident occurred at the west switch of the middle crossover, connecting tracks 1 and 2, about 700 feet west of the station. The accompanying diagram shows the location of the tracks and signals in the vicinity of the point of accident.

About 220 feet west of the switch at which the accident occurred is a bracket post which carries two signal masts. On each mast is

a two-arm, two-position automatic block signal that governing movements on track 2 being known as signal 88–2 At a point 5,130 feet west of these signals is another bracket post carrying similar automatic signals, the signal governing movements on track 2 being known as signal 89–2 All of these automatic signals are of the two-arm two-position lower-quadrant semaphore type, normally displaying stop indications

Approaching from the west the track is tangent for nearly 1 mile followed by a 45-minute curve to the left 180 feet in length, 360 feet of tangent, and a 45-minute curve to the right 180 feet in length, the track is then tangent to the station a distance of about 400 feet The point of the switch at which the accident occurred is on the short tangent 32 feet from its eastern end The grade is descending for eastbound trains being about 0 3 per cent at the point of accident The weather was clear

Westbound passenger train No 23 consisted of 1 steel-underframe baggage car and 4 coaches 1 dining car and 4 Pullman sleeping cars, of all-steel construction hauled by engine 4888, and was in charge of Conductor Lilley and Engineman Brown It left Buffalo at 8 14 a m 49 minutes late arrived at Erie at 10 34 a m , departed on track 1 at 10 38 a m 1 hour and 12 minutes late and at about 10 39 a m while the train was moving at a speed estimated to have been 10 or 15 miles an hour, the seventh, eighth and ninth cars in the train were struck by the engine of eastbound train No 60

Eastbound passenger train No 60 consisted of 1 combination car 3 coaches, 2 parlor cars, and 1 Pullman sleeping car, all of all-steel construction, and a private car hauled by engine 4817 and was in charge of Conductor Chapman and Engineman Hotchkiss It left Cleveland at 8 30 a m on time and while approaching the station at Erie on track 2, moving at a speed estimated to have been about 15 miles an hour, entered the west switch of the middle crossover and struck the side of train No 23

Engine 4817 first struck the rear of the seventh car in train No 23, this car being slightly damaged The side of the eighth car, the Pullman sleeping car Peosta, was torn out, as far as the center sills, from the head end to the rear truck and the car thrown over on its right side across track 3 Illustration No 1 shows the condition of this car after it had been rerailed After this car had been overturned engine 4817 struck the head end of the ninth car nearly head-on, driving it, together with the tenth car backward a distance of about two passenger-car lengths Engine 4817 came to rest with its head end about 300 feet east of the west switch of the middle crossover, with its right rear driving wheel and trailer derailed, its front end was considerably damaged on the left side, as shown by illustration No 2

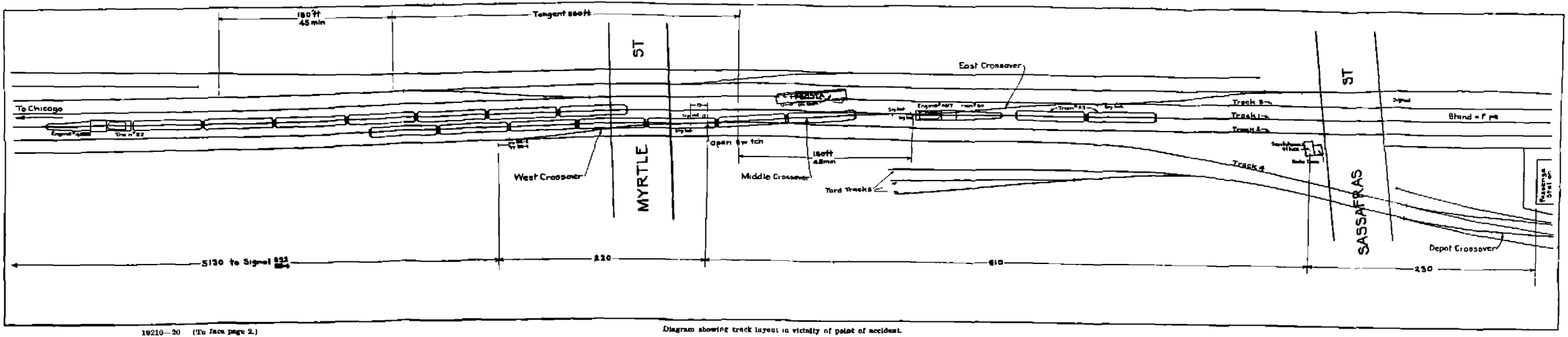

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Diagram showing track layout in vicinity of point of accident.

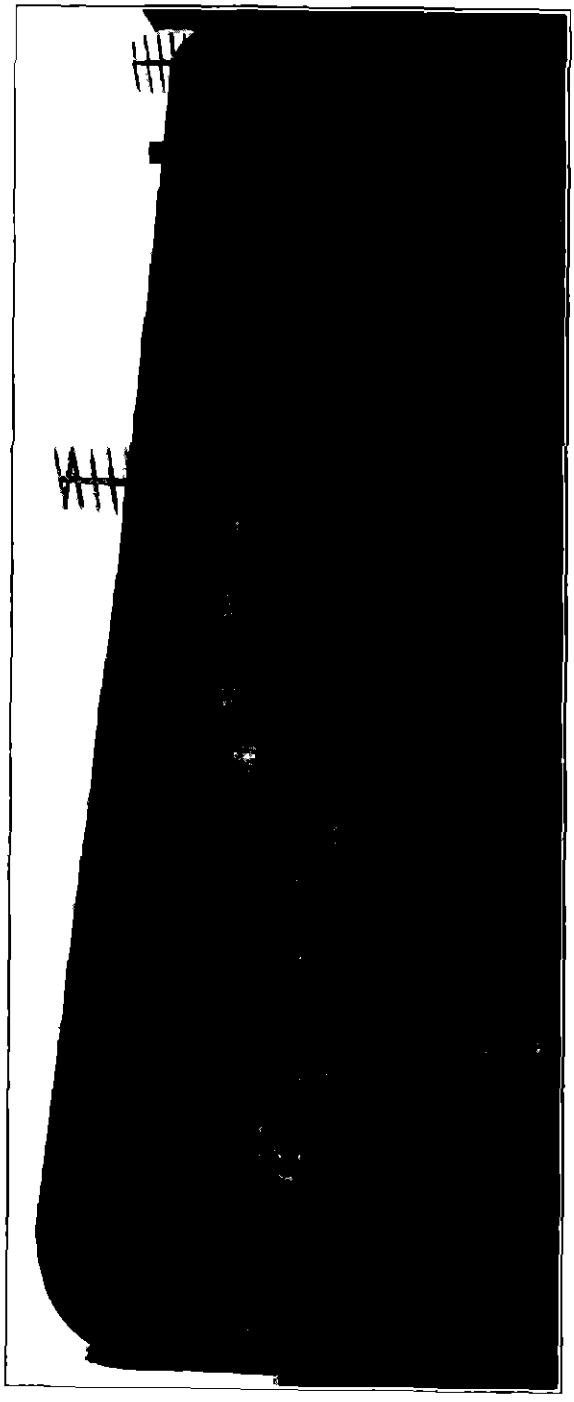

FIG 1 View showing damage sustained by the left side of sleeping car Prosta of train No 23

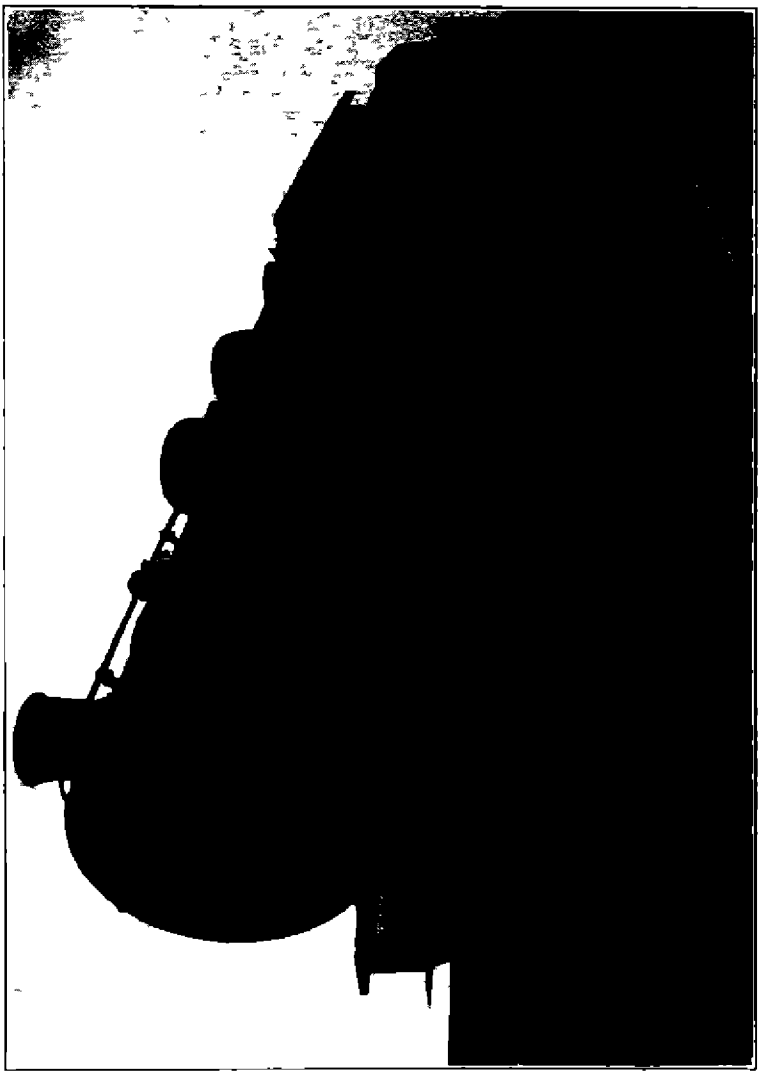

Fig. 2 - Engine 4817 of train No 60

Engineman Hotchkiss of train No 60 stated that clear indications were received at signals 89–2 and 88–2 As his train was not due to leave Erie until 10 42 a m , and was arriving at about 10 40 a m , he was not working steam figuring on drifting into the station and leaving on time Engineman Hotchkiss saw some men working on the switches, and thinking that the sound of train No 23 on the adjoining track might prevent them from noticing the approach of his train, was about to sound the whistle as a warning when he saw them stand clear of the track He had previously made a light application of the air brakes, and when he saw the front end of the engine head in at the open switch at the west end of the middle crossover he at once applied the air brakes in emergency, but he did not think the air brakes had had much opportunity to act before the accident occurred He estimated the speed of his train to have been about 15 miles per hour Immediately after the accident he went back to the switch and found it unlocked and lined for a crossover movement to track 1 The switch stand is on the fireman's side, and Engineman Hotchkiss said that he had not noticed its indication previous to the accident

The statements of Engineman Hotchkiss as to the indications of signals 89–2 and 88–2, and as to the speed of the train, were corroborated by Fireman Batt The fireman said he was on his seat box looking ahead, but when train No 23 approached he moved his head back inside of the cab window, and did not see anything further until he saw the engine enter the open switch While looking forward with his head out of the window previous to the time train No 23 approached, he had looked toward the station and had seen train No 23 leaving and had noted that the tracks at the station were clear, not noticing the position of the switch points immediately ahead of his engine The statements of the other members of the crew of train No 60 brought out no new evidence of importance

Engineman Gearhart, who was deadheading on train No 60, was on the vestibule of the first car as the train approached Erie, and on looking ahead when about three city blocks from the point of accident noted that the automatic signals were displaying clear indications He thought he felt an emergency application of the air brakes just before the shock of the collision Division Engineer Upson, who was standing on the platform of the station, also noticed that signal 88–2 was displaying a clear indication, as did Crossing Watchman Pfeffer, stationed at Sassafras Street, at the west end of the station

None of the crew of westbound train No 23 had any knowledge of the accident until they felt the emergency application of the air brakes, which was apparently a result of the accident The esti-

mates of the engineman, conductor, and flagman as to the speed varied from 12 to 15 miles an hour

The investigation disclosed that engines 5941 and 4578, coupled, had arrived at Erie on track 3 from Wesleyville, a distance of about 3 miles, at about 10 25 a m , in charge of Engineman Newman Engineman Wagner took charge of engine 5941 and it was then moved through the three crossovers between tracks 3 and 4 Switch Tender Bell preceding the engine and opening the switches, but not closing them after the engine had passed through them Engineman Newman, in the course of other duties, closed both switches of the east crossover and the east switch of the middle crossover After engine 5941 had reached track 4, Switch Tender Bell closed the switch on that track and boarded the footboard on the head end of the engine for the purpose of riding eastward with it to the depot crossover At this time, therefore, all of the various switches used in crossing over engine 5941 had been closed with the exception of the west switch of the middle crossover and the east switch of the west crossover, both switches being on track 2 Signal Maintainer Larson, with Assistant Signal Maintainer Carlson, was working at the east switch of the west crossover, while Signal Maintainer Truax was working at the west switch of the middle crossover, this work consisting of installing new switch boxes, the two switches at which these men were working are 19 feet apart

According to Switch Tender Bell, when engine 5941 moved eastward on track 4 and had reached a point about opposite the two switches which were still open he signaled the engineman to stop it being his intention to get off and close the switches, but he said Signal Maintainer Larson motioned to him to go ahead, at the same time saying, "I will get the switches," or words to that effect Switch Tender Bell said he then replied "All right," and after stepping on the footboard of the engine pointed at the other switch, this being the west switch of the middle crossover meaning that the signal maintainer was also to close that switch, and he said Signal Maintainer Larson nodded his head in the affirmative As engine 5941 then proceeded eastward, Switch Tender Bell looked back and saw Signal Maintainer Larson throwing the east switch of the west crossover and supposed that he would also throw the remaining open switch, which was the west switch of the middle crossover, leading from eastbound track 2 to westbound track 1 After opening the switches for engine 5941 to move through the depot crossover into the yard, Switch Tender Bell crossed over to track 2, looked up the track and said that the switches apparently were all right, although he could not see them distinctly, he then returned to his shanty, remaining in that vicinity until the accident occurred Switch Tender Bell admitted that it was his duty to close the switches, and

that he had delegated a part of his duties to some one in no way responsible for their performance

As engine 5941 was moving eastward on track 4 Fireman Hopp saw the signal maintainer give a signal and he thought that he was going to close both switches Fireman Hopp thought this signal had been given to the switch tender, who was riding on the front footboard of his engine out of his line of vision Engineman Wagner, being on the south side of his engine, was not in position to see any signals which were passed between the two men

Signal Maintainer Larson stated that with his two assistants he was changing the switch box at the west switch of the middle crossover and preparing to change the switch box on the east switch of the west crossover In changing these boxes it was necessary to disconnect all of the wires and in order to avoid stopping trains at signal 88–2, with consequent delay to traffic, he bridged the wires on the switch-protection relay, this being at about 9 a m The effect of this action on the part of Signal Maintainer Larson was to cause the automatic signals to display clear indications to approaching trains regardless of the position of the switches In bridging the relay the signal maintainer was acting without specific authority, and in case it became necessary for him to open the switch in the course of his work he had intended to protect it The switches were closed prior to the time engine 5941 made its crossover movement, after this movement had been completed and the engine had moved eastward on track 4, stopping about opposite him, Signal Maintainer Larson said he told Switch Tender Bell that he would close the switch, meaning the one at which he was actually working the east switch of the west crossover He then closed the switch and went on with his work giving no thought to the fact that the west switch of the middle crossover was still open Signal Maintainer Larson said he had no further conversation with the switch tender, and that to the best of his knowledge he had said nothing to the switch tender to indicate that he would close both switches

Assistant Signal Maintainer Carlson, who was working with Signal Maintainer Larson at the east switch of the west crossover did not hear any conversation between Signal Maintainer Larson and Switch Tender Bell although he was sure he would have heard such a conversation had it taken place, some kind of signal was given by Signal Maintainer Larson, but he did not pay any attention to it and did not know what it was, neither did he pay any attention to the west switch of the middle crossover or know that it was open Both he and Signal Maintainer Larson noticed that the automatic signals were displaying clear indications as train No 60 approached but Carlson had been in service only since July 7 and did not know anything about the circuits or how the automatic

signals could display a clear indication to an approaching train with a switch open

Signal Maintainer Truax was working on the trunking at the west switch of the middle crossover, he did not hear any conversation between Signal Maintainer Larson and Switch Tender Bell relative to closing any of the switches, and did not notice any signals passed between them When train No 60 approached he saw that the automatic signal was displaying a clear indication, and while he knew that the circuit had been bridged, he said he was not familiar enough with the circuit to realize that the automatic signals could display a clear indication with the switch open He also said that he did not know the switch was open, although he was working at the switch at the time Switch Tender Bell crossed over engine 5941 and had had to get up from his work while this movement was being made, he afterwards stated that he had forgotten about the position of the switch

Signal Supervisor Dawson was at Erie, saw Signal Maintainer Larson immediately after the occurrence of the accident, and was told by him that he had bridged the circuit which controlled the crossover On examination Mr Dawson found the conditions to be as stated, and immediately restored the wires to their original connections He further stated that under the conditions which existed at the time of the accident the operation of the signals was what would be expected, while after he had restored the circuits the signals operated as intended

This accident was caused by the failure of Switch Tender Bell to close the crossover switches as soon as the movement of engine 5941 through them had been completed, and by the action of Signal Maintainer Larson in cutting out the switch-protection relay, thus causing the automatic signals to display a false clear indication

Switch Tender Bell admits that he only closed one of the switches he had opened in the course of moving engine 5941 through the crossovers, and that he delegated to others duties which he was supposed to perform Signal Maintainer Larson admits that he bridged the circuits with the result that a false clear indication was displayed for the movement of train No 60, and that he had acted on his own authority in making such a change The proper action for him to have taken when it became necessary to disconnect the wires for the purpose of installing the new switch boxes would have been to spike the switch points, and if afterwards it became necessary to move an engine through the crossovers the spikes could have been temporarily withdrawn and the switch-protection relay restored for the purpose of holding the signals at danger while the crossover movement was being made

The question of who was to close the switches under the arrangement made between the two men does not appear to be one of veracity, but rather one of misunderstanding Switch Tender Bell said Signal Maintainer Larson voluntarily motioned to him to go ahead and indicated that he would throw both switches, while Signal Maintainer Larson said he had reference only to the switch at which he himself was working although the other switch, the opening of which resulted in this accident, was only 19 feet distant Although Fireman Hopp of engine 5941, said he saw the signal maintainer give a signal which he thought indicated that the signal maintainer would throw both switches, efforts to find some one who heard the conversation which passed between the signal maintainer and the switch tender were unavailing

While not directly responsible for this accident, Signal Maintainer Truax knew that the circuit had been bridged so that the switch-protection relay was cut out, he was working within 3 feet of the switch points of the open switch, saw the switch opened by Switch Tender Bell and knew that it had been left open although when train No 60 approached he forgot that this latter condition still existed Although he said he did not know that the bridging of the circuit would permit the automatic signals to display clear indications to an approaching train it is believed that when he stepped aside to allow train No 60 to pass it was reasonably a part of his duties to look at the switch at which he was working to make sure that no tools or other obstructions had been left on the rails and that the switch was properly lined for the movement of the approaching train By his failure to take such action Signal Maintainer Truax contributed to the occurrence of this accident

Switch Tender Bell is 20 years of age After about four months service as a yard clerk he was employed as a switch tender in April 1919 and in October of the same year was suspended for 10 days for failing to close a switch Signal Maintainer Larson was employed as a battery man in 1907 and promoted to signal maintainer in 1911 he resigned in 1912 and was reemployed in 1916 His record was good Signal Maintainer Truax was employed as a helper in 1917 and on October 16, 1920 was transferred as signal maintainer to the section on which this accident occurred

The engine crew of train No 60 had been on duty about 4 hours, after about 13 hours off duty The baggage-master of this train had been on duty about 2½ hours previous to which he had been off duty about 2 hours previous to this 2-hour period off duty he had been on duty about 5 hours, after more than 24 hours off duty The other trainmen on train No 60 had been on duty about 2½ hours.

after more than 24 hours off duty The engine crew of train No 23 had been on duty nearly 5 hours, previous to which they had been off duty about 12 hours The train crew had been on duty about 3½ hours, previous to which they had been off duty more than 24 hours

Respectfully submitted

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Chief, Bureau of Safety

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