Inv-2370

INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT OF THE DIRECTOR

BUREAU OF SAFETY

ACCIDENT ON THE

MISSOURI PACIFIC RAILROAD

CHESTER, ILL.

JULY 13, 1939.

INVESTIGATION NO. 2370

SUMMARY

Inv-2370

Railroad:	Missouri Pacific	
Date:	July 13, 1939	
Location:	Chester, Ill.	
Kind of accident:	Highway grade crossing	
Equipment involved:	Passenger train	: Motor truck
Train number:	831	
Rail motor-car number:	603	
Consist:	Gasoline-propelled motor-car	
Speed:	20-25 m. p. h.	: 20-70 m. p. h.
Operation:	Timetable and train orders; crossing protected by flashing-light signals	
Track:	Single; 6° curve at crossing; slightly descending northward	
Highway:	1°45' left curve 944 feet in length, then tangent 156 feet to crossing and beyond; 7° descending grade almost to crossing, then practically level over track	
Weather:	Clear and sun shining	
Time:	4:15 p. m.	
Casualties:	1 killed, 2 injured	
Cause:	Truck struck side of train at highway grade crossing in disregard of signals indicating approach of train.	

September 19, 1939.

To the Commission:

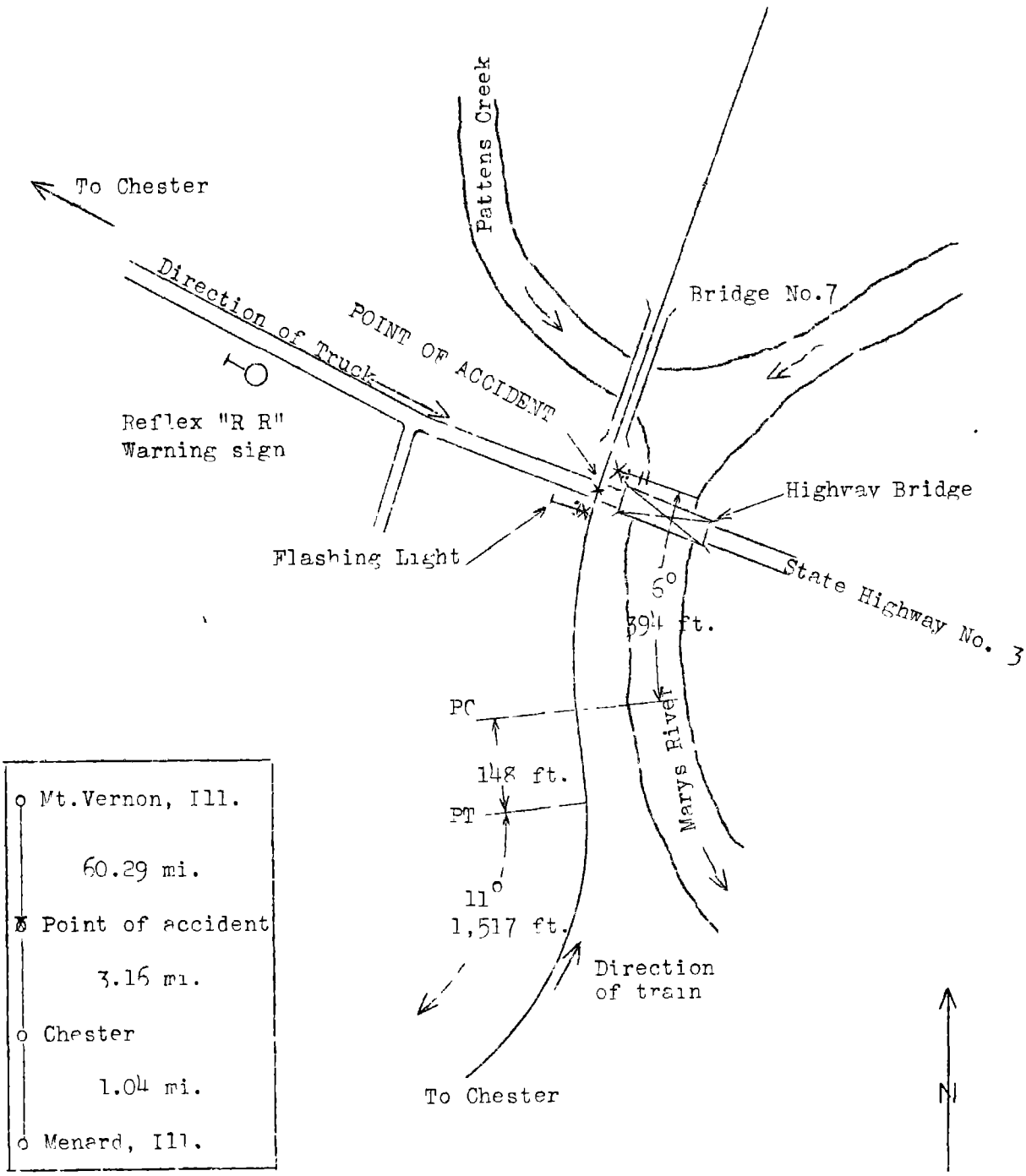
On July 13, 1939, there was a derailment of a passenger train on the Missouri Pacific Railroad as a result of being struck by a motor truck at a highway grade crossing near Chester, Ill., which resulted in the death of one railroad employee, and the injury of the truck driver and one railroad employee.

Location and Method of Operation

This accident occurred on that part of the Illinois Division designated as the Mt. Vernon District which extends between Menard and Mt. Vernon, Ill., a distance of 64.49 miles. In the vicinity of the point of accident this is a single-track line over which trains are operated by timetable and train orders, no block system being in use. At the intersection involved the railroad extends practically north and south; the highway extends practically east and west and crosses the track at almost right angles. Time-table directions are north and south. Compass directions are used in this report. The accident occurred about 3.16 miles north of Chester, near Marys River bridge, where State highway No. 3 crosses the track.

Approaching the crossing from the south on the railroad there is a compound curve to the left 1,517 feet in length having a maximum curvature of 11°, then a tangent of 148 feet, followed by a 6° curve to the right which extends 356 feet to the point of accident and 38 feet beyond. The grade for trains moving northward over the crossing is 0.15 percent descending. A 15 mile-per-hour speed-restriction sign and a whistle post are located 2,233 and 1,295 feet, respectively, south of the crossing; a resume-speed sign is located 33 feet 6 inches north of the center-line of the highway.

Approaching from the west on the highway there is a 1°45' curve to the left 944 feet in length, and then a tangent which extends 156 feet to the crossing and beyond. The grade for vehicles moving eastward is about 7 percent descending a distance of 3,200 feet to within a short distance of the crossing and practically level over the track. The highway is a concrete road 18 feet wide; the crossing is 24 feet wide and is laid with planks covered with asphalt.



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The crossing is protected by standard grade-crossing flashing-light signals with hooded lights that flash alternately; there is one signal on each side of the intersection. The signal governing an east-bound vehicle is located 14 feet 7 inches south of the center-line of the highway, and 14 feet 8 inches west of the track. The opposite signal is located at the west end of Mary River bridge, 12 feet 4 inches north of the center-line of the highway, and 14 feet 9 inches east of the track. These signals are visible to automobile drivers from both directions. The crossing-signal control-circuit for trains moving northward over the crossing is located 1,211.3 feet south of the center-line of the highway. After a train enters upon this circuit the lights flash until the train passes over the crossing. Four light-units mounted vertically on the mast of each signal display the word "STOP" when illuminated; there is a yellow marker-light below. A cross-bar sign bearing the words "RAILROAD CROSSING" is mounted above the lights on each mast. In addition, at a point 654.5 feet west of the crossing and on the south side of the highway there is a warning sign, which is a circular metal disk painted yellow and bearing the letters "RR" in black and a large letter "X" in reflector buttons.

Bridge No. 7, which spans Pattens Creek, consists of a 55-foot deck-plate girder on concrete piling with a 72-foot creosoted-piling open-deck approach on each end; the south end of the bridge is 38 feet north of the center-line of the highway.

Until a point 77 feet west of the track is reached, from the seat of an east-bound vehicle on the highway the driver's view of an approaching north-bound train is restricted by trees and brush to a distance of 78 feet, and from this point until the crossing is reached a view of 706 feet of track toward the south can be had.

The motor vehicle laws of the State of Illinois provide in part as follows:

> "Whenever any person driving a vehicle approaches a railroad grade crossing and a clearly visible electric or mechanical signal device gives warning of the immediate approach of a train, the driver of such vehicle shall stop within fifty feet but not less than ten feet from the nearest track of such railroad and shall not proceed until he can do so safely.***."

Rule 14 (1) of the operating rules provides that when approaching public crossings at grade two long, one short, and one long blasts of the whistle must be sounded and must be prolonged or repeated until the crossing is occupied by engine or car.

The weather was clear at the time of the accident, which occurred about 4:15 p. m.

Description

No. 831, a south-bound passenger train according to time-table direction but moving northward according to compass direction, consisted of gasoline-propelled motor-car 603, and was in charge of Conductor Lybarger and Motorman Hutchinson. This train departed from Chester at 4:08 p. m., according to the train sheet, 28 minutes late, and, while moving northward over the crossing involved at a speed estimated to have been between 20 and 25 miles per hour, was struck on the left side by a motor truck.

The truck involved was a 1-½-ton, 1937-model Chevrolet, 6-cylinder, dump truck having a wheel-base 131-½ inches in length, an overall length of 200 inches, and was equipped with hydraulic brakes, 6.00-20 six-ply front tires and 32 by 6 ten-ply dual rear tires, and an enclosed cab; it had four speeds forward and one reverse. It was owned by Yourtee Roberts Sand Co., Chester, Ill., was being driven by Lee Turner, a licensed chauffeur, and bore 1939 Illinois license plate F 3917, which authorizes a gross weight of 16,000 pounds. It was loaded with about 5 tons of sand, moved eastward down the hill at a speed variously estimated to have been between 20 and 70 miles per hour, and struck the side of the motor-car.

Motor-car 603 was knocked off the track to the east and stopped on the south bank of Pattens Creek with its forward end 24 feet east of the track and 130 feet north of the highway. The impact distorted the sills and sides of the motor-car to a maximum of 23-¼ inches. Gasoline from its fuel tank became ignited and the car was destroyed by fire, the steel framework only remaining. Bridge No. 7 also was badly damaged by fire.

The front end of the motor-truck was badly damaged. The truck, overturned on its right side and facing west, stopped on the crossing with its rear end south of the south rail and its front end on the highway.

The employee killed was the conductor, and the employee injured was the motorman.

Summary of Evidence

Motorman Hutchinson stated that he had operated regularly over this track for the past 17 years. Approaching the crossing involved he was alone in the left front compartment and the

conductor was in the passenger compartment; there were no passengers in the car. The bell was being rung by means of the air valve, and he sounded the proper whistle signal for the crossing and continued sounding it to the crossing. The peep holes of the flashing-light signals at the crossing indicated that they were functioning properly. The speed of his train was between 20 and 25 miles per hour. The first that he saw the truck was when the front end of his train was about 75 feet from the crossing, at which time the truck was about 225 feet from the track and approaching at a speed which he estimated to have been between 60 and 70 miles per hour. He thought that the truck could not be stopped before reaching the crossing, so he tried to increase his speed in an attempt to clear the crossing and avert an accident. However, when he realized that the truck would strike his train he applied the air brakes in emergency and shouted a warning to the conductor. There was no apparent reduction in the speed of the truck and the driver jumped off just prior to the impact, the force of which knocked the motor-car off the track. It plunged down the embankment, stopped at the edge of the creek, and immediately caught fire. The fuel tank of the motor-car was almost full of gasoline and in his opinion escaping gasoline was sprayed on the exhaust pipe and other parts of the motor and became ignited. The only other vehicle he saw at the time of the accident was an automobile that was headed in the opposite direction and which had stopped on Marys River bridge.

Signal Engineer Gault stated that for the benefit of enginemen the flashing-light units are equipped with peep holes on the sides facing along the railroad so that it can be determined if the flashing lights are functioning.

Superintendent Exline stated that the truck struck the left side of the motor-car about midway of the car body. The railroad motor-car was constructed of fabricated steel and equipped with straight air-brake equipment carrying a pressure of 4b-pounds. The motorman's compartment was located at the extreme forward end and on the left side. In the front end there was a large clear-glass window affording an unobstructed view.

John Mohr, resident of Chester, Ill., drove his automobile westward on highway No. 3 and stopped on Marys River bridge about 50 or 60 feet from the railroad track; the crossing lights were flashing and he heard the bell ringing and the whistle on the train sounded. After his car stood on the bridge about 2 minutes he saw the train approaching a short distance away. He saw the truck coming eastward down the hill, apparently in second gear, and moving at a speed of about 20 or 25 miles per hour. The speed of the truck was not reduced and it struck the side of the train.

He said that the flashing lights gave adequate warning of the approach of the train, and that from the time he first saw the truck approaching the truck driver should have been able to stop before reaching the track. Other occupants of the automobile gave testimony similar to that of Mohr.

State Highway Patrolman Paulus arrived at the scene of the accident about 10 minutes after its occurrence. He did not make a close inspection of the truck involved, but he did notice that it was in gear, although he could not say which gear. When the wrecker raised the truck a mechanic endeavored to take it out of gear, but was unsuccessful. He said that there is sufficient grade and curvature on the highway to require caution in driving a heavily loaded vehicle down the hill toward the track. He thought that adequate protection was provided at the crossing and that sufficient warning was given by the flashing-light signals, and he knew of no reason why an accident of this character should have occurred.

Lee Turner, driver of the truck involved, stated that he is 32 years old and has driven trucks for a number of years. He has been an employee of the Yourtee Roberts Sand Co., Chester, Ill., since August, 1936. He has driven the truck involved ever since the company acquired it. For two or three days prior to the accident he had been hauling sand between Chester and Carbondale, Ill., a distance of about 37 miles. He went on duty at 6 a. m., July 13, and at the time of the accident was making his fourth round-trip, having been on duty approximately 10¼ hours. His regular work-day schedule is 9 hours; however, sometimes he works as much as 12 to 18 hours before the last trip is completed. The day prior to the accident he worked 13 hours. His truck was loaded with about 5 tons of sand and was descending the hill in high gear with the brakes applied. At a point on the curve located 1,085 feet west of the crossing, he shifted to second gear and continued in that gear with the brakes applied; the speed was about 20 miles per hour until the accident occurred. He did not notice the warning lights flashing because at that hour of the day the rays of the sun shine against the lights and seem to interfere with the color displayed with the result that it is impossible to tell whether the lights are flashing. The first he knew of the approach of the train was when he saw it appear from behind the trees and brush a short distance from the crossing. He tried to stop the truck before it reached the crossing but was unable to do so. He did not hear the train whistle on account of the noise made by the truck being operated in second gear. He said that the front-wheel brakes had been renewed recently and the rear-wheel brakes adjusted; the brakes were in good condition. He was familiar with the highway in

this territory and the conditions at the crossing involved. He thought that if the brush and trees were cut back farther away from both sides of the track a train could be seen a greater distance.

J. L. Batson, bookkeeper for the Yourtee Roberts Sand Co., stated that Lee Turner entered the service in August, 1936. He considered the truck driver efficient and a man of good habits and reputation.

Mechanics Pinkerton and Waltemate stated that the truck involved was equipped with hydraulic brakes but that the liquid-line was broken as a result of the accident and no test could be made of the brakes. The front-wheel brakes had recently been reconditioned and the linings renewed. The linings on the rear-wheel brakes were worn to some extent; the lining on the back half of the shoe was considerably worn and the lining on the front half was partly gone. The brake drums of the front wheels were blue in color, indicating that they had been used recently to a great extent. The brake drums of the rear wheels were not discolored, but showed that the lining had been in contact with them and had been adjusted out as far as possible. The front brakes of a truck of this type in proper condition afford 41 percent and the rear brakes 59 percent of the total braking power; the indications were that this truck had only about 70 percent of standard braking power. They could not determine in what gear the vehicle was moving at the time of the accident.

The manufacturer's specifications for this type of truck provide that when 6.50-20 six-ply front tires, 32 by 6 ten-ply dual rear tires, helper springs, and governor are used, the gross allowable weight is 12,300 pounds. The tare weight of this truck was 5,700 pounds.

According to information furnished from the owner's office record a load of 5.4 tons of sand was placed on the truck before it started on its last trip.

The motor-car involved was a steel combination passenger and baggage vehicle, the total length of which was 43 feet 5-5/16 inches, the width 8 feet 4 inches, having a light weight of 35,800 pounds, and a seating capacity for 36 passengers; it was propelled by a 68-horse-power gasoline motor. The side sills, center sills, and end sills were of 6-inch 8.2-pound rolled steel channels. The side sills were reinforced by 4-inch 5.4-pound rolled steel channels extending 5 feet each side of the forward bolster. The center sills were reinforced with 3-inch 8.2-pound rolled steel channels extending 3 feet each side of the

center-line of bolster. The crossings were of 3-inch 4.1-pound rolled steel channels extending from side sills to center sills and between center sills. The body frame was of steel construction, having side, end, and corner posts of 1-1/2-inch by 1-1/2-inch by 3/16-inch rolled steel tees, top rail of 2-1/2-inch by 2-inch by 1/4-inch rolled steel angles, and belt rail of 3-inch by 3/8-inch rolled steel bar. The sheathing of the car was of 3/32-inch patented leveled blue annealed sheet steel. The bottom floor was of 5/8-inch yellow pine laid crosswise upon which was another floor of 5/8-inch grooved maple laid lengthwise. The roofing, which was of 7/16-inch poplar, was supported by 1-1/2-inch by 1-1/2-inch by 3/16-inch steel tee car-lines.

A record of trains passing this crossing for the 30-day period prior to the accident showed that there was a total of 161 trains or an average daily movement of 5.37 trains.

Observations of the Commission's Inspectors

Examination of the truck by the Commission's inspectors disclosed it to be in the condition described by the mechanics. The truck bore a metal plate on which was inscribed, "Maximum allowable gross weight, including chassis, cab, body, driver, and pay load, not to exceed 9,300 pounds," and, "Chassis weight 3,095 pounds." In the vicinity of the crossing there was no visible indication of truck wheels having been slid.

A 24-hour traffic check starting at 8 a. m., July 18, showed that 1,228 vehicles and 12 trains passed this crossing. The maximum hourly traffic for vehicles was between 6 and 7 p. m., when 86 passed, and for trains it was between 2 and 3 p. m., when 2 trains passed, and between 3 and 4 p. m., when 2 more trains passed.

Discussion

The investigation disclosed that the proper whistle signals were sounded and that the train bell was ringing as the train approached the crossing at a speed of about 20 or 25 miles per hour. The flashing-light signals at the crossing were functioning properly. According to the preponderance of evidence the truck proceeded down the hill at a speed estimated to have been 20 or 25 miles per hour and the speed was not reduced at the time of the accident. The truck driver said that approaching the crossing he was driving in second gear and that he did not hear the train whistle sounded or its bell ringing. The first he knew of the approaching train was when he saw it appear from behind trees and brush a short distance away, but it was then too late to avert the accident and his truck struck the left side of the motor-car. His excuse for not stopping at the crossing as

required by the State laws was that the rays of the sun were shining against the flashing-light signals and that it was impossible for him to determine whether they were flashing. He was thoroughly familiar with conditions in this locality and for two or three days he had been hauling sand between Chester and Carbondale, Ill., a distance of about 37 miles. On this occasion he was starting out on his fourth round-trip, had been on duty approximately 10¼ hours, and had driven the truck approximately 225 miles at the time of the accident. When he could not determine definitely whether the flashing-light signals were functioning he should have approached the crossing under full control, prepared to stop, and he should not have attempted to cross until he knew that the way was safe.

The opinion of impartial witnesses was that adequate protection was provided by the flashing-light signals and that drivers of vehicles were given sufficient warning of the approach of a train to enable them to stop, as required, before reaching the crossing.

The investigation disclosed also that the aggregate weight of the truck and the lading was 16,500 pounds or 4,200 pounds in excess of the manufacturer's specifications. The evidence was to the effect that the brakes were only about 70 percent efficient. Had the aggregate weight not exceeded the manufacturer's specifications and had the brakes been of standard efficiency it is possible that the truck driver would have been able to avert the accident even though he was but a short distance from the crossing when he first saw the approaching train.

While the speed of the train in the vicinity of the crossing was restricted to 15 miles per hour and the evidence was to the effect that its speed approaching the crossing was 20 to 25 miles per hour, it does not appear that this excessive speed had any bearing on the accident.

This Bureau has previously issued numerous reports covering the investigation of accidents between trains and vehicles at highway grade crossings wherein it has been pointed out that the exercise of extreme caution is required of the drivers of such vehicles to prevent the occurrence of accidents of this character.

Conclusions

This accident was caused by a motor truck striking the side of a railroad passenger motor-car at a highway grade crossing in disregard of signals indicating the approach of a train.

Respectfully submitted,

S. R. WHITE

Assistant Director.