

IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE MOBILE  
& OHIO RAILROAD AT PINSON, TENN., ON FEBRUARY 6, 1920

March 31, 1920.

On February 6, 1920, there was a derailment of an Illinois Central passenger train on the Mobile & Ohio Railroad at Pinson, Tenn., which resulted in the death of 2 employees. After investigation of this accident, the Chief of the Bureau of Safety reports as follows:

The Okolona District of the St. Louis Division of the Mobile & Ohio Railroad, on which this accident occurred, is a single-track line over which trains are operated by timetable and train orders, no block signal system being in use. At Pinson there is a passing track on each side of the main track, the accident occurring at the south switch of the west passing track. Approaching this point from the south there is a long tangent followed by a 30-minute curve to the right about 4,800 feet in length, the point of accident being about 450 feet north of the southern end of this curve. The grade approaching the point of accident is slightly descending for northbound trains but is slightly ascending at the point of accident. The track in this vicinity is laid with 85-pound rails, 33 feet in length, single-spiked, with about 20 ties to the rail. The ballast consists of crushed stone and the track is fairly well maintained. The weather at the time of the accident was cloudy.

Northbound Illinois Central passenger train second No. 10, consisting of engine 1046, 4 express refrigerator cars, 2 dead-head Pullman cars, 1 coach and 1 business car, was in charge of Conductor Blackmon and Engineer Perry. This train was carrying no passengers with the exception of some officials of the Illinois Central Railroad, who were in the business car. The train entered upon the Mobile & Ohio tracks at Ruslor, Miss., and left that point at 8:10 p.m. No stops were made between Ruslor and Pinson, a distance of 44.3 miles and at 9:20 p.m. the train was derailed at Pinson while traveling at a speed of between 40 and 45 miles an hour.

After derailling at the south switch of the west passing track the engine traveled a distance of about 450 feet on the left side of the main track, turning almost completely around and coming to rest on its right side with the tender still attached. The first car remained coupled to the tender and turned over on its right side. The bodies of the second and third cars were torn from their trucks but remained upright, the next four cars were derailed but remained upright on their trucks, the business car was the only car not derailed. The employees killed were the engineer and fireman.

Conductor Blackmon, of train second No. 10, stated that at the time of the accident he was riding in the seventh car and felt an emergency application of the brakes just prior to the shock of

the derailment. He estimated the speed at the time at between 40 and 45 miles an hour.

Flagman Hall and Brakeman Horton, of train second No. 10, both estimated the speed at the time of the accident at from 40 to 45 miles an hour.

Brakeman Green, of train No. 39, of the Mobile & Ohio Railroad, which was standing on the east passing track at the time of the accident, stated that as train 2nd No. 10 approached he was standing on the west passing track about opposite the engine of his train, or about 12 car lengths from the switch. As the engine of train 2nd No. 10 reached the switch, he saw a streak of fire flying from the left or west side of the engine truck, apparently due to the truck being off the track, following which the engine turned toward the west.

Brakeman McNally of train No. 39, had been standing near the engine of his train and had started to step across the passing track when he saw fire flying from the engine truck, this fire appearing to be on the ground or lay down in front of the engine. When working at the switch after the accident, he found the guard rail turned over away from the main track rail at an angle of about 45 degrees. Except for being turned over, the guard rail appeared to be in its normal position.

General Superintendent Egan, of the Illinois Central Railroad, who was riding in the business car, stated that he examined the track immediately after the accident and found that the guard rail on the main track side of the south switch of the west passing track had been displaced and was lying on its side. On the point of the frog was a mark resulting from a heavy blow, and on top of the frog, north of the point, was a wheel mark extending to the neck of the frog. There was then evidence of a wheel mark on the outside of the rail and on top of the joint track bolts, while on the opposite side from the frog and about 18 inches north of the point of the frog there was a mark on the inside web of the guard rail, this mark extending to the north end of the guard rail. These marks, which indicated that one pair of wheels had been derailed, led gradually to the west until they were some distance from the rail, when additional wheel marks showed on the ties. Measurement of the marks made by the pair of wheels first to be derailed showed that they were in gauge. Mr. Egan thought that the first mark at the frog was made by the lead wheel of the engine truck, which was derailed by striking the point of the frog on account of the guard rail having been displaced. His examination also showed that the guard rail had been held in place by spikes and also three guard rail clamps, which included a clamp, two filler blocks and wedges used in adjusting the position of the guard rail to each clamp. After the accident the northern and center clamps were found with their inside angles bent backward, while the inside angle of the south clamp was bent straight up, the two filler blocks at the south clamp were missing. After daylight one of the missing filler blocks was found in the ditch about 40 feet north of the frog,

with marks on it which indicated that something heavy had come in contact with it. The other half of the filler block was not found, and he thought that probably it had not been in place for some time. There was a slight mark on the south end of the guard rail which indicated that something had been dragging. He walked back examining the track for a distance of 1-1/4 miles and saw marks indicating that something had been dragging about 5 inches inside the left or west rail. These marks extended from a point 1-1/4 miles south of the switch to a point a considerable distance north of the switch. The marks north of the switch were about the same as those south thereof except that at a road crossing about 1/4 of a mile north of the switch there was evidence of a heavy blow, while near the north passing track switch was found a piece of brake head which showed that it had been dragging for some distance, while it was broken in a manner to indicate that it had received severe treatment. A report of this matter to the officials of the Mobile & Ohio Railroad developed that the crew of a Mobile & Ohio freight extra, the last north-bound train using the track previous to the time of derailment, had found a brake beam dragging on the fourth car from the engine and had stopped the train and wired up the brake beam, this was at a point about 3 miles north of Fanson. General Superintendent Egan further stated that careful examination of the engine and other equipment made after daylight did not disclose anything which was thought to have caused the derailment. The engine truck was demolished and one of the wheels forced inward toward the center of the axle, there was also a broken tire and wheel center on one of the wheels. Marks on the displaced wheel, as well as on the other three wheels, indicated that they had been subjected to very severe blows, unquestionably the result of being derailed and the engine passing over them after derailment. General Superintendent Egan was of the opinion that the derailment was due to something dragging from a preceding train, probably the freight extra referred to, the dragging part engaging the remaining part of the filler block at the south end of the guard rail resulting in either driving it through the guard rail or leaving it in such a position that it was struck by the engine of the derailed train in such a manner as to spread the guard rail and allow the leading engine truck wheel to engage the point of the frog.

Superintendent Hevron, of the Illinois Central Railroad, was also riding in the business car. He stated that at the last time he looked at the speed recorder with which the car was equipped it registered about 42 miles an hour, this being three or four minutes prior to the accident. At the time the derailment occurred he felt an emergency application of the air brakes followed by two severe shocks. After the accident he found the guard rail on the east side of the track at the south switch of the passing track partly torn out and lying about 10 inches from the main track rail. The braces and clamps on the guard rail were broken, but he was unable at the time to observe whether they were old or new breaks. Four filler blocks were lying between the main track and the guard rails. He also saw the marks on the ties made by something dragging, referred to by General Superintendent Egan, and said that whatever had been

dragging had evidently bounded along on the ties, as the marks appeared only on every fourth or fifth tie, these marks were about three inches inside the west rail. With the exception of the marks on the bridge immediately south of the south switch, where the marks indicated that something had been dragging in both directions, they were all made by something which had been moving northward. There were also two cattle guards on which the southern ends had been bent northward. Mr. Hovron stated that in addition to the marks on the frog and on the outside of the west rail referred to by Mr. Egan, there were marks on the inside of the east rail, the north end of the web of the guard rail bore marks indicating that the derailed wheel had run off of it onto the ties while immediately south of this point there was an indication that something had been rubbing against the web of the guard rail. A much heavier mark, rather square in its appearance and from 1-1/2 to 2 inches wide, was found on a plank at a road crossing just north of Pinson station, and at the north switch there were indications on the west rail of a brake beam having dragged over it. Just opposite the north switch a small piece of a brake head was found which fitted the impression on the crossing plank. The piece of brake head contained a fresh break and marks on it indicated that it had been dragging over the ties and ballast for some distance. No marks could be found at any point near the east rail, the side upon which the displaced guard rail was located. Superintendent Hovron further stated that while he did not consider the track conditions leading up to the point of accident as being perfect, he did not think that there were any conditions that could have caused the derailment. The switch itself was locked for the main track and the light on the switchstand was burning.

Trainmaster Ellington, of the Illinois Central Railroad, who was riding in the business car stated that the guard rail was turned over at an angle of about 45 degrees. There was a fresh break in the clamp at the northern end of the rail, the middle clamp was broken and showed an old break covering about one-third of its section, while the clamp at the southern end of the guard rail had been bent inward on the top and there was an old fracture at the bottom. The "U" bolt in the south clamp had been hammered on each end, apparently by a hammer, and was burred, but this apparently had not been done recently, the nut on the "U" bolt could be moved up and down as the threads had been stripped for some time. Only four filler blocks were found. The guard rail showed indications of having been struck on the south end and moved northward at least 5 inches. He stated that the base of the guard rail had been resting against the base of the angle bar and had apparently been in that position for some time as the head of the spike was badly worn; marks on the angle bar also indicated that the guard rail had been resting against it. He concluded that under the pressure of the train the angle bar was shoved under the guard rail and the guard rail was raised sufficiently to cause an undue pressure on the bracing, which slipped the "U" bolt and released the guard rail so that it could open.

General Foreman Sykes, employed by the Illinois Central Railroad Company, stated that when he arrived at the scene of the accident the guard rail at the south switch had been spiked into place. There was a mark on the south end of the guard rail which indicated that something had struck it and marks on the ties indicated that it had been moved northward about 3 inches. He was unable to state, however, whether these marks were made by the sectionmen in replacing the guard rail or in some other manner. He verified the statement of General Superintendent Egan about the flange marks at the point of derailment being in gauge. He stated that he did not reach a final opinion as to the cause of the accident but his first opinion was that something on a preceding northbound train had been dragging and knocked the guard rail out of place. He saw the marks made by something dragging on the ties and rails, referred to by General Superintendent Egan, and estimated that they were from 6 to 8 inches from the west rail. The mark on the plank at the road crossing indicated that it had been struck by a brake head, and about 200 yards farther north half of a brake head was found which fitted the impression on the crossing plank, the appearance of the metal at the rupture in the brake head indicated that it was a new break. He stated that some of the marks on the ties, between the crossing and the south switch, which varied from slight marks to marks half an inch in depth, and from 1/8 inch to 1-1/4 inches in width were near the centers of the ties and on the south side, while some of them appeared on the north side of the ties near the west rail. All of the marks indicated that the brake beam involved was an outside-hung brake beam. He said that he did not believe that the brake head could have come in contact with the guard rail unless the brake hanger had broken on the right side and let the brake beam down. General Foreman Sykes further stated that after the engine trucks of engine 1046 had been removed from the wreckage he observed a wheel that had been driven in about half way to the middle of the axle. He was unable to ascertain which side of the engine the wheel had been on or whether it was a front or rear wheel. Indentations on this wheel and cracked hub indicated that the wheel had received a heavy blow and as the other wheels on the truck were also damaged he was of the opinion that the wheel became loose as a result of the derailment and was not a cause, there were no signs of its having turned on the axle. Measurements of wheel impressions on the ties and ground showed the gauge of the wheels equal to that of the gauge of the track.

Car Foreman Rowley, of the Illinois Central Railroad, stated that upon his arrival on the scene of the accident he observed that the first mark of derailment was on the frog at the south switch of the passing track, this mark having the appearance of a wheel flange having struck the frog and then glanced off to the outside of the track. He stated that another mark, beginning about 18 inches north of the first mark on the west rail, indicated where the opposite wheel had pressed against the guard rail all the way to the end and then dropped off of the rail. Marks on the ties north and south of the point of derailment showed that something had been dragging on the ties at a distance of from 2 to 4 inches from the east rail, and he thought that the

marks on a bridge located a short distance south of the south switch indicated that they were made by a southbound train, while those to the north were made by a northbound train. Foreman Rowley also saw the engine truck wheel which was loose on its axle, but as the wheel seat was not polished he thought that the wheel had not been loose prior to the derailment. In his opinion the accident was due either to the guard rail turning over or to something which held the west wheel up and permitted it to take the wrong side of the frog.

Roadmaster Holt, of the Illinois Central Railroad, stated that on close examination of the loose wheel, after it had been removed from the wreckage, it was very apparent to him that it had received a terrific blow near its center, the axle had been bent and the hub of the wheel had been cracked. The outer side of the boring had been upset outward, while the inner boring directly opposite had also been upset, and he concluded that the wheel had been forced loose from its seat by the blow and was not loose at the time of the accident. After examining the guard rail, he reached the conclusion that it had been displaced by something unknown to him.

Assistant Roadmaster Woodson, of the Illinois Central Railroad, stated that he attributed the accident to a displaced filler block which had worked back on to the rail joint and in this manner had been raised up between the traffic and guard rails to a point higher than the rail. He saw the marks on the ties near the west rail, some of which appeared to have been made by a southbound movement but did not believe that whatever had been dragging could have come in contact with the filler block, which was on the opposite side of the track, and he thought that the filler block must have been displaced in some other manner. He thought all of the filler blocks had been present prior to the derailment.

Master Mechanic Grimes, of the Illinois Central Railroad, stated that his examination of the engine truck frame showed that the pedestal jaws were broken and the truck frame bent, but in all other respects the frame, bolts, nuts and castings were in perfect condition. The wheels which were separated from the truck frame, were buried in the ground some distance away from the engine, there being only 6 or 8 inches of the wheels above the ground, indicating that they had been run over by other equipment. After the wheels were raised out of the ground by a derrick he saw that one of the wheels was displaced from its seat, while all of the other truck wheels were tight on their axles. The loose wheel had received a severe blow on the hub as shown by two dents  $13/16$ " deep, and the hub was cracked on the outer face, while the axle was bent in two places. One of the other wheels had been struck hard enough to break the tire and crack the spokes. The wheel that was loose was pressed off its axle, a pressure of 25 tons being required to move it over the seat.

Traveling Engineer Harrington, of the Illinois Central Railroad, stated that he arrived at the scene of the accident at

8.30 a.m. and noticed that there was a mark on the frog of the switch which indicated that it had received a very heavy blow and he thought possibly a filler block had worked out at the end of the guard rail and allowed the wheel to be raised. At the time of his examination the guard rail was turned over on its side. He stated that he also noticed the marks near the west rail, north and south of the point of derailment, which indicated that something on a preceding train had been dragging and he agreed with Foreman Rowley that the marks on the bridge south of the south switch apparently were due to something dragging from a southbound train. He further stated that he examined the pony truck wheels and concluded that the wheel that was loose became so as a result of the derailment, although he said that ordinarily a wheel fit would not be as bright as this one was.

Engine Inspector Brumbach, employed by the Illinois Central Railroad at Birmingham Ala., stated that he inspected engine 1046 before it left Birmingham on the day of the accident. He found the engine in perfect condition in every respect with the exception of a few loose nuts which he tightened. On account of comments having been made by different people about the good condition of this engine special notice of its condition was taken. He said that there was practically no tread wear on the tires and in going over the wheels he sounded them with a hammer to make sure that none of the tires or wheels were loose. He thought it very unlikely that a wheel could have been loose without his having discovered it.

Northbound freight train extra 332 was the last northbound train to run over the track where the accident occurred prior to train second No. 10, and Car Inspector Callahan, employed by the Mobile & Ohio Railroad, at Clomore, Tenn., stated that when the train arrived at Clomore he found two bad order cars. One of these cars had a broken brake head, the bottom part of which was broken, while the shoe and hanger were missing and the brake beam which was outside-hung, had been wired up on the west side, supposedly by the conductor or brakeman of the train. The brake beam and head were in good condition on the east side. The other bad order car had a worn-out brake head, while the shoe was missing, this was on the east side.

Head Brakeman Long, of extra 332, stated that on the day of the accident his train came to a stop about 2 miles north of Pinson on account of a brake beam dragging while the hanger that supported the beam was missing, this was on about the third car from the engine. The brake beam was down on the left side of the train and was dragging against the west rail. He stated that he personally wired up the brake beam. He was quite positive that the brake head was intact.

Superintendent Tolson, of the Mobile & Ohio Railroad, stated that he arrived at the scene of the accident at 10.00 a.m. and first examined the guard rail at the south switch. At this time it had been replaced but appeared to be 5 or 6 inches farther north than formerly. The rail clamp at the north end had been newly broken and the middle clamp was also broken about one-third

of the break being old and the remainder new. The clamp at the south end of the rail was bent and contained a new fracture, indicating that the guard rail had been moved considerably more at the north end than at the south end. There were very plain flange marks on the web of the guard rail from the center to the north end. A flange mark also appeared on the point of the frog. He stated that in the absence of any object at the approach to the guard rail, the left wheel of the engine, if tight, should have kept the right wheel from striking the guard rail. South of the switch he found marks on the ties about 4 inches from the inside of the west rail, they were more distinct on the bridge on account of the ties being softer. From the appearance of these marks he thought they were made by a southbound train. There were also marks on the ties north of the switch, about 4 inches from the gauge side of the rail, as well as marks on a crossing plank. Those marks differed from each other, those on the ties apparently having been made by a brake hanger, or brake hanger safety chain, while that on the crossing plank appeared to have been made by a brake head or shoe. In neither case was there any indication of anything having dragged near the west rail which could have come in contact with the guard rail. He said that the guard rail had evidently been struck on the south end but it had more the appearance of having been struck by a sledge hammer or maul than by a wheel flange. In examining the wheels of the derailed engine he found one of the wheels loose. This wheel as well as others had apparently received a heavy blow. The axle on which the loose wheel was found, however, appeared to him as being more or less polished, and the tool marks made when the wheels were fitted to it were obliterated.

General Foreman Dempster, of the Mobile & Ohio Railroad, stated that when the wheels were pulled out of the ground by a derrick he noticed that the wheel seat was polished very brightly, a condition which he had never observed when a wheel was tight. He stated that he was present when the engine truck wheels were pressed from their axles. In pressing off the wheel that was loose, the gauge registered a pressure of between 20 and 25 tons, which in his opinion was due to the burrs on the wheel seat made by wheel flanges or other objects after the wheel had slid back on to the axle. He stated that the only places where the wheel touched the wheel seat sufficiently to raise a pressure of 20 or 25 tons were where the burrs had dug into the metal and on the opposite side of the axle from these burrs. In his opinion if the burrs had been removed by filing, the gauge would not have registered any pressure. He noticed also that the wheel was easily moved over the seat about two inches before it came in contact with the first burr. He concluded that the wheel was loose at the time the train was derailed and he thought that the engine might have swung to the west side of the track, in doing which the loose wheel allowed the opposite wheel to strike the point of the frog and mount it.

Car Foreman Hahn, of the Mobile & Ohio Railroad, stated that he arrived at the scene of the accident with a derrick at



about 11.00 p.m. When the pony trucks were pulled out of the earth he concluded that the accident had been caused by a loose wheel, practically all of the wheel seat on the axle being polished. He did not see any crack at the hub of the wheel, but there was a mark indicating that it had been struck a severe blow.

Section Foreman Coffey, of the Mobile & Ohio Railroad, stated that on the day previous to the accident he measured the distance between the traffic and guard rails at the south switch at Pinson and found it to be 1-7/8", practically standard. Some days before this he had tested this guard rail with a bar and had found it to be in good condition, he did not remember when he had last examined the filler blocks. On the day of the accident he had been working just north of this point and used the switch with his motor car at about 4.00 p.m., at which time the guard rail was apparently in good condition, with the exception that only four filler blocks were in use, whereas this type of guard rail requires six. He stated that there had been only four filler blocks in this guard rail since he took charge of the section, and as braces and spikes had been applied at the north end of the guard rail, where the filler blocks were missing, he did not consider their absence dangerous. He also said that on the morning of the accident he had noticed some marks on the bridge south of the switch, which appeared to have been made by a south-bound train.

Track Supervisor Ramey, of the Mobile & Ohio Railroad, stated that he considered the section on which the accident occurred the best maintained section in his district. At the time of his arrival at the scene of the accident he found the guard rail in place but it showed indications of having been knocked out of place. His attention was called to a filler block that was found about 10 feet from the rail, but he was unable to see any indications of its having been struck or run over by a wheel. He thought the absence of a filler block in the guard rail would not weaken it to a dangerous degree. He stated further that if the nuts worked off from the "U" bolts the guard rail would be weakened; he did not make a careful examination of the "U" bolts. He said that if the guard rail had been loose enough to be struck by a wheel, the tendency would have been for the wheel to mount the guard rail at the south end and then fall to either the east or the west. However, he did not believe the marks on the south end of the guard rail indicated that it had been struck by a wheel and he believed that if all of the wheels on the engine had been tight, even though the guard rail was loose, the train would have passed over it safely. There were marks south of the bridge, extending a distance of about 2,000 feet, which appeared to have been made by a southbound train, they did not extend as far south as the cattle guard referred to by Superintendent Hebron. The gauge of the flange marks near the frog was a little wider than the gauge of the pair of engine truck wheels which remained in place on their axle, he estimated this variation to have been about 3/4 inch. In his opinion the accident was caused by a loose wheel striking and displacing the guard rail, after

which a wheel on the opposite side caught the point of the frog, mounted it, and derailed the train, he based his opinion on the fact that the wheel seat was polished.

Engine 1046 is a super-neater type passenger engine, having a total weight of 245,000 pounds. The pony truck was a standard 4-wheel swinging center engine truck, carrying two class 24 springs suspended from equalizers which rest on top of cast steel boxes. These springs have a carrying capacity of 218,000 pounds. The wheels were Paige Spoke wheels, equipped with standard tires, and were mounted on 7-inch axles, the journal measuring 6-1/2 inches. Except where damaged in the derailment, all of the flanges were in good condition. In pressing off the wheel that became loose, the gauge registered between 20 and 25 tons pressure. This was believed to have been due to a great extent to the burrs on the wheel fit made after the wheel became loose and shifted toward the center of the axle, practically the only place where any pressure was required being where the burrs rubbed. On pressing off the wheel on the opposite end of the axle a pressure of from 85 to 90 tons was registered. The loose wheel also had a crack on the outside face of the hub, the crack extended into the metal only a short distance. It was impossible to ascertain whether the wheel that was loose was on the front or the rear of the pony truck, but the polished condition of the wheel seat and the partial obliteration of the tool marks on the axle indicate that it had been loose and turning on the axle prior to the time of the derailment.

The guard rail at which the derailment occurred was 16 feet 6 inches in length and was tapered on the south end. This rail was fastened with three clamps and two sets of filler blocks, although three sets of filler blocks are required for this type of guard rail. The guard rail turned over under train second No. 10 and the south end showed evidence of having been struck a heavy blow, while the web bore marks indicating that a flange had run along the last half of its length. Those of the marks on the ties which indicated that something had been dragging on a preceding northbound train were on the opposite side of the track from the guard rail and are not thought to have been made by anything that could have resulted in its being displaced.

This accident is believed to have been due to a loose wheel on the left side of the engine truck of engine 1046, which permitted the wheel on the opposite side to lead away from the right hand rail, resulting in a wheel or wheels on the left side mounting the frog and dropping off on the outside of the left rail, this movement of the wheels to the left at this particular point was probably due to the fact that the guard rail was not maintained in the best possible condition and was not strong enough to withstand the pressure placed upon it.

All of the employees involved were experienced men, with good records, and at the time of the accident none had been on duty in violation of any of the provisions of the Hours of Service Law.