

IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE
ATLANTIC COAST LINE RAILROAD NEAR PINE PARK, GA., ON
DECEMBER 15, 1920.

March 8, 1921.

On December 15, 1920, there was a derailment of a passenger train on the Atlantic Coast Line Railroad near Pine Park, Ga., which resulted in the death of 2 passengers and the injury of 16 passengers, 6 employees, and 2 mail clerks. After investigation of this accident the Chief of the Bureau of Safety reports as follows:

Location.

The Montgomery District of the Second Division, on which this accident occurred, extends between Montgomery, Ala., and Thomasville, Ga., a distance of 210 miles, and is a single-track line, over which train movements are governed by time-table and train orders, no block-signal system being in use. The accident occurred about 2 miles west of Pine Park. Approaching the point of accident from the west there is a tangent 7,853 feet long, followed by a curve of 1° to the left 1,795 feet in length, and about 300 feet of tangent to the point of accident. The grade at the point of accident is .62 per cent descending for eastbound trains. The track in this vicinity is laid with 80-pound rails, 30 feet in length, single-spiked to an average of about 16 cypress ties to the rail. Six-hole angle bars are used at joints, and the track is ballasted with gravel, from 4 to 10 inches in depth. Tie plates are used on curves, and, except on a few ties recently renewed, are not used on straight track. At the point of accident

the track is on a fill located immediately east of a pile-bent trestle, which spans a small stream and the adjacent low ground. The stream passes under it at an angle from north to south and runs close to the south side of the eastern abutment. This trestle is 259½ feet in length and approximately 18 feet in height, the accident occurred at a point about 25 feet east of it.

Description.

The train involved was eastbound passenger train No. 58, operating between Montgomery, Ala., and Savannah, Ga., and was in charge of Conductor Hiles and Engineman Poundstone. It consisted of 1 express car, 1 combination mail and baggage car, 2 coaches, and 3 Pullman sleeping cars, in the order named, hauled by engine 451. Train No. 58 left Cairo, about 5 miles west of the point of accident and the last open telegraph office, at 2.44 a.m., 19 minutes late, and was derailed near Pine Park while running at an estimated speed of 45 or 50 miles per hour.

Engine 451 was derailed to the right and came to rest down the embankment on its right side, approximately 400 feet beyond the point of derailment. The tender came to rest right side up across the track, nearly opposite the cab of the engine. The first five cars and the forward truck of the sixth car were derailed, the first and third cars turning over on their left sides. The engine and first three cars were considerably damaged.

Summary of evidence.

Engineman Poundstone thought the engine truck was the

first to be derailed, the engine seeming to drop down between the rails, he had not noticed any rocking of the engine when passing over the trestle. On examining the track he found one of the rails turned outward at an angle of about 45° ; he said the spikes on the inside of this rail were not holding and that he did not notice any marks on the ties on the outside of the rail. The fireman was shoveling down coal in the tender and noticed nothing unusual prior to the accident, and on account of injuries sustained the conductor and baggage-master were unable to make any examination of the track or equipment, while the flagman immediately went back to flag.

Inspection of the track during the investigation disclosed that the first marks of derailment were on the gauge side of the head of the leaving end of the first rail east of the bridge, on the south side of the track; the receiving end of this rail rested on the eastern end of the trestle for a distance of 3 feet. At a point $43\frac{1}{2}$ inches west of the leaving end there were two well-defined marks, 17 inches in length, extending diagonally from the top to the bottom of the head, probably caused by the rim of the engine-truck wheels. There was then a horizontal mark on the inside face of the web of the rail, 3 inches in length, apparently caused by the outside edge of the rim of the wheel, while immediately under this mark the top of the base of the rail was scored for a distance of 15 inches by a wheel tread; the next mark appeared on the upper corner

of the receiving end of the inside angle bar. This rail was badly chafed on the gauge side of the head from the point where the first marks began to the leaving end, while the shearing of the inside of the heads of the spikes on the inside of this rail, on the first nine ties from the leaving end, indicated that the rail had canted sharply.

On the succeeding south rail the first mark began at a point 42 inches from the receiving end. At this point there was a diagonal mark, 13 inches in length, extending downward on the gauge side of the head; from this point eastward to the leaving end of the rail there were several marks on the base and web, some of which indicated that wheels had run on the web of the rail while it had been in an overturned position. Marks on the ties $4\frac{3}{4}$ inches outside of the outer edge of the base of this rail indicated that it had been overturned and pressed into the ties, while when the rail was removed from the track it was found to have been bent outward for a distance of $4\frac{1}{2}$ inches at the center, the curvature being uniform toward the ends. There were no wheel marks on the outside of the south rail on any of the ties that remained in the track, there being 51 of these in a distance of 95 feet from the eastern end of the trestle.

The first mark of the derailment on the north side of the track was a well-defined flange mark on a tie, 9 inches inside the gauge of the north rail, at a point

about 30 inches east of the beginning of the first mark on the web of the second south rail. This mark ran parallel to the north rail and showed on each tie remaining in the track.

Under the bearing surface of the south rails, all of the ties were rail-cut from $\frac{1}{4}$ to $\frac{3}{4}$ inch vertically, and from $\frac{1}{2}$ to $1\frac{3}{4}$ inches laterally, with the exception of a few which were tie-plated. The vertical cut was about $\frac{1}{2}$ inch deeper on the outside than on the inside, which condition allowed the rail to cant outward. The spike holes on the outside of the south rail were elongated toward the ends of the ties, nearly all of the spikes having been bent outward. The ties under the north rail were cut vertically from $1/8$ to $1\frac{1}{2}$ inches, there was practically no lateral cutting.

Examination of the trestle showed that some of the chords were in bad condition, particularly near the eastern end, and the evidence indicated that water flowing close to the south side of the eastern abutment had a tendency to make the roadbed soft on that side of the track. Measurements made by Roadmaster Jordan also showed that most of the rail joints were from $1/8$ to $1\frac{1}{2}$ inches low, these measurements not taking into consideration spaces under the rails from $1/8$ to $1/3$ inch in depth. The conditions existing on the eastern end of the trestle on the north side were such as to permit a downward movement under

the weight of an engine and Road Foreman of Engines Baker thought this was a factor in causing an excessive thrust to the right in the case of eastbound trains; this idea was further supported, according to his statement, by indications of excessive wear on the south rail.

Road Foreman of Engines Baker examined engine 451 and found indications that the treads of the engine truck wheels on the south side of the engine had been running on an overturned rail, while there was a chafed spot on the outside of the rim of the right rear engine truck wheel apparently made by rubbing against the head of a rail. There were marks on the right forward driving wheel similar to those on the engine truck wheels, while there were none of these marks on any of the wheels on the left side of the engine. His examination did not disclose anything about the engine which could have caused the accident.

The statements of Section Foreman Knight, in charge of the section on which this accident occurred, indicated that the track was soft on the south side, near the bridge, that the rail worked outward, and that it was necessary to line the track at frequent intervals. After the accident Section Foreman Knight found the second rail on the south side canted outward about $\frac{1}{2}$ inch, while the gauge was $\frac{1}{2}$ inch wide. Section Foreman Cowarts said the first two rails were canted outward from $\frac{1}{2}$ to $1\frac{1}{2}$ inches.

Conclusions.

This accident was caused by spread rails, due to

failure to maintain the track in proper condition.

The marks on the rails and ties, together with those on the engine truck wheels, clearly indicate that the rails spread sufficiently to allow the right engine truck wheels to drop down inside the rail, forcing it still farther outward and resulting in the derailment of the train. The ties were rail-cut on both sides of the track, but while this cutting was vertical on the left side it extended both vertically and horizontally on the right side, and clearly indicated the existence of a condition whereby the south rail had been subjected to rather severe outward thrusts. This condition was further evidenced by the elongation of the spike holes and the bending of the spikes outward. The strain placed upon the south side of the track at this point, just east of the trestle, undoubtedly was due to the poor maintenance of the trestle, particularly at its eastern end, not only with reference to low joints, but to the weakened condition of the trestle resulting in a tendency to sag downward on the northside under the weight of an engine, thus causing the engine to roll toward the south when leaving the trestle.

All of the members of the crew of train No. 58 were experienced men; none of them had been on duty in violation of any of the provisions of the hours of service law.