

April 1, 1915.

IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE
 ATCHISON, TOPEKA & SANTA FE RAILWAY AT ELSINORE
 JUNCTION, CALIF., ON MARCH 5, 1915.

On March 5, 1915, there was a derailment of a passenger train on the Atchison, Topeka & Santa Fe Railway at Elsinore Junction, Calif., which resulted in the death of 1 passenger and injury of 15 passengers and 2 employees. After investigation of this accident the Chief of the Division of Safety submits the following report:

The train involved in this accident was a southbound passenger train running from San Bernardino, Calif., to Murrieta, Calif., via Elsinore, and at the time of the accident was running as train No. 535. It consisted of locomotive No. 475, one combination baggage-smoker and one coach, and was in charge of Conductor Haines and Engineman Fish. It left San Bernardino at 9:55 a. m., on time, and departed from Ferris, the last station which is 11.7 miles north of Elsinore Junction at 11:35 a. m., 13 minutes late, and the rear car was derailed while passing over a switch frog at Elsinore Junction, at about 12 o'clock noon, while running at a speed of about 12 miles per hour.

The district of the Atchison, Topeka and Santa Fe Railway on which this accident occurred is a single track line extending from Highgrove, Calif., southward to Temecula, Calif., At Elsinore Junction, there is a branch extending westward to Elsinore. This branch is connected to the main line by a wye. Train No. 535 in moving from the main line to the branch used the north leg of this wye, which is 730 feet long and has a curvature of 12 degrees. The initial point of the derailment was at the heel of the frog, at the point where the north and south legs of the wye come together to form the Elsinore Branch. From the point of this switch, westward, the track is tangent for several hundred feet. Located 63 feet west of the point of this switch is a wooden trestle 175 feet long and 13 feet high, resting on piles supporting the track over the San Jacinto River. The weather was clear.

The rear truck of the coach was the first to be derailed. It left the rails at the heel of the frog of the switch and ran along 80 feet on the ties on the south side of the track to the switch point, where the east wheel climbed the stock rail and dropped down on the outside. The truck then continued running on the ties until it reached the bridge where it straddled the wooden center rail and ran off of the south side of the bridge. The car then broke away from the head end of the train, dropped off the south edge of the bridge, and came to rest on its right side across the river with the body of the car 10 inches above the water. The engine and combination car remained on the rails and stopped with the rear of the

combination car separated from the head end of the coach a distance of about 50 feet.

The derailed coach was of steel underframe construction with reinforced steel ends. It was 70 feet in length, weighed 120,000 pounds and was built in 1910. The trucks were of the six-wheel type and were of steel. The body of the car was slightly damaged. An inspection of the car and trucks after the accident, disclosed nothing which might have caused the derailment.

Engineer Fish stated that approaching the point of accident his train was running at a speed of about 12 miles per hour. He stated that the first intimation he had of the derailment was one blast of the air whistle signal, which at first he thought was a signal from the conductor. A few seconds after he heard this whistle, he looked back and saw that the rear truck of the coach was on the ground and that the coach was about to turn over. He immediately made an emergency application of the brakes and it was at that time the coach broke away from the remainder of the train. The engine ran about 50 feet after the brakes were applied.

Conductor Haines, who was seriously injured, was riding in the middle of the coach at the time of the accident, and pulled the whistle signal cord as soon as he felt the wheels leave the rails.

Section Foreman Creseno stated that he reached the point of accident about 12:45 p.m. He made an examination of the track and found nothing which would cause a derailment. He further stated that at 7.00 a. m. on the date of the accident he made an examination of this frog and found it in good condition. The track under the frog was ballasted with sand and the ground was a little soft.

Roadmaster Johnson stated that on the morning following the accident he made an examination of the frog where the wheels first left the rails, and found the gauge to be 1 foot $0\frac{1}{2}$ inches, and the spikes were loose which allowed about five-eighths inch play. Under the weight of an engine or car the ties settled from one-half to three-fourths inch, due to soft roadbed. Notwithstanding this, he considered the track safe for a speed of 15 miles per hour.

The section on which this accident occurred comprises 14 miles of track and is in charge of a foreman and 8 men. The track is laid with 51-pound steel rails. The frog at the point of derailment is a No. 9 clamp frog without bolts.

An examination of the track made after the accident also disclosed that the frog was badly worn, and there were marks to indicate that the flange of the wheel, on the inside of the curve, had struck the end of the guard rail, passed over it and dropped down inside the guard rail.

While the direct cause of this accident was not definitely ascertained, it is believed to have been due to the defective and insecure condition of the track at the point of derailment.

The gauge of the track was one inch wide, while the looseness of the spikes permitted a further spread of five-eighths of an inch under a passing train. The roadbed on which the frog rested was soft and under load permitted the frog to settle from one-half to three-fourths of an inch. It is believed that this condition permitted the moving train to force the rail at the heel of the frog outward sufficiently to allow the flange of the opposite wheel to strike the end of the guard rail. This forced the flange of the wheel on the outside of the curve to mount the rail, the wheel on the inside of the curve dropping down inside the guard rail. The truck then ran along on the ties until it came to the bridge, where it ran off the edge of the bridge, causing the car to overturn.