

INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE
INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE
ATCHISON, TOPEKA AND SANTA FE RAILWAY NEAR FLORES,
ARIZ , ON FEBRUARY 13, 1927.

March 23, 1927

To the Commission

On February 13, 1927, there was a derailment of a passenger train on the Atchison, Topeka and Santa Fe Railway near Flores, Ariz , which resulted in the death of two employees and the injury of three passengers. The investigation of this accident was made in conjunction with representatives of the Corporation Commission of Arizona.

Location and method of operation

This accident occurred on the Fourth District of the Albuquerque Division, which extends between Ash Fork and Phoenix, Ariz , a distance of 193.3 miles, and is a single-track line over which trains are operated by time-table and train orders, no block-signal system being in use. The point of accident was just south of the south passing-track switch at Flores, approaching this point from the north the track is tangent for a considerable distance, while the grade is descending for several miles, being 1.5 per cent at the point of accident. The track is laid with 85-pound rails, 33 feet in length, with an average of 22 ties to the rail-length, and is maintained in good condition.

It was raining at the time of the accident, which occurred at about 10:15 p. m.

Description

Southbound passenger train No. 49 consisted of one baggage car, one coach, one chair car, and one cafe-observation car, hauled by engine 1330, and was in charge of Conductor Shaw and Engineman London. The rear car was of steel construction while the others were of steel-under-frame construction. A station known as Date is located 19.9 miles north of Flores and is the regular meeting point between trains Nos. 49 and 42. Train No. 49 arrived at Date at 9:04 p. m., on time, departed about seven minutes later, after the arrival of train No. 42, and when near milepost 118.5, nearly 12 miles north of the point of accident, the engine struck a large rock which had fallen in such a way as to foul the track on the engineman's side.

The pilot was damaged but after examination of the same by the engineman the train proceeded, and after traveling an additional distance of about 2 $\frac{1}{2}$ miles the train broke in two between the tender and the first car, due, in the opinion of Assistant Superintendent Jones, who was a passenger in the train, to the fact that the safety chain on the left side of the coupler of the baggage car had become wedged between the bottom of the end sill and the uncoupling lever. After the engine had been recoupled to the cars the train proceeded, it departed from Congress, 6.4 miles north of Flores, at 10.05 p. m., 35 minutes late, passed Flores without stopping and was derailed just south of the south passing-track switch while traveling at a speed estimated to have been from 35 to 45 miles per hour.

The engine and its tender came to rest in an overturned position on the left side of the track, the first three cars were derailed but remained upright or nearly so and were not badly damaged. The employees killed were the engineman and fireman.

Summary of evidence

At the time train No. 49 struck the rock some distance north of Flores no one but the engineman made an examination of the damage which resulted. After the train had stopped at that point the engineman called back to the train crew that the engine had struck something, and the flagman and conductor walked back to ascertain the nature of the obstruction, and at that time they found that the rock in question had fallen from its position on the embankment on the west side of the track and had fouled the rail on the engineman's side. The force of the impact with the engine, however, had caused the rock to be moved sufficiently to clear the track, thus not interfering with the passage of other trains. In the meantime Assistant Superintendent Jones had started ahead, meeting the engineman opposite the baggage car and was informed that some of the slats in the pilot of the engine had been damaged. The engineman also said he thought some of the cars might have been damaged more than was the case with the engine and was on his way toward the rear of the train for the purpose of examining the cars. Mr. Jones said he had seen Mr. Rutt, assistant master mechanic, going toward the head end of the train, supposed he would inspect the engine, and consequently Mr. Jones accompanied the engineman to the rear of the train, looking over the cars, and then continued on his way back to join the flagman and conductor at the point where the rock had fallen to the track, while the engineman said he would return to the engine and examine the pilot again and at the same time try to fix one of the guide arms, which had been bent. Mr. Jones said he did not get back to

the point where the rock had fallen before meeting the flagman and conductor returning to the train. He turned around and accompanied them back to the rear end of the train and on reaching there he found that the enginemen had again come back to that point, and he said the enginemen once more informed him that he thought the pilot was all right, also saying that he had been able to straighten the guide arm by the use of a jack and wrench. After being assured that the engine was in safe condition to proceed Mr. Jones said he asked the conductor if the track was all right, to which the conductor replied in the affirmative, at the same time explaining somewhat in detail. The train then was permitted to proceed.

Assistant Vester Mechanic Reitt, who was also on the train, said he spent some time in examining the brake rigging of the cars and finally went toward the engine, reaching there at the time the enginemen got back on the engine after having straightened the guide arm. Mr. Reitt stopped opposite the gangway and after inquiring of the enginemen as to whether the pilot was in safe condition he went back and boarded the train.

At a point 135 feet south of the south passing-track switch at Flores there is a public highway which crosses the railway track. This is a dirt crossing and examination of the track showed that at this point there was a work in the dirt on the north side of the crossing which indicated that the nose of the pilot had come in contact with the ground, while just south of the crossing the nose of the pilot had come in contact with a tie, causing the pilot to buckle under the front end of the engine and resulting in the derailment of the engine truck. The wheels which were the first to be derailed went to the right of their respective rails and ran along on the ties in this position, close to the rails, for a distance of approximately 380 feet to the point where the track began to be torn up. At this point the engine truck went to the west or right side of the track, while the balance of the derailed equipment went to the left.

Conductor Shaw said that when the train stopped after having struck the rock he went back, and near where the rock was found he also found some of the wooden parts of the pilot but he did not notice any of the braces. On his return to the train he called to the enginemen and asked him if everything was all right, after which the train proceeded. Flagman Fox said that when he reached the location of the rock he did not notice any fragments of the pilot in the vicinity, not paying any particular attention to this phase of the matter as he did not know at that time that the pilot had been damaged.

Assistant Superintendent Jones and Roadmaster Rohrer

said that no previous difficulty with falling rocks had been experienced in the cut where the rock fell on the track. Section Foreman Comer, in charge of the section on which the rock fell, said the track walker had been over the section, returning ahead of train No. 49, and that the first he knew of any difficulty was when he reported for duty on the following morning. He went immediately to the point where the rock had fallen and while working at that point he found what afterwards developed was the knee brace from the right side of the pilot of engine 1330. Section Foreman Comer further stated that there were no cuts on his section in which it was necessary to station a track watchman during rainy weather for the purpose of guarding against falling rock.

Conclusions

This accident was caused by the dropping down of the pilot of engine 1330, this pilot having been damaged a short time previously by coming in contact with a rock which had fallen in such a way as to foul the track.

When engine 1330 struck the rock the force of the impact was sufficient to break the bolts and the side frame of the pilot and also to break off the knee brace on the right side, this knee brace had been bolted to the pilot beam with four bolts and also bolted to the upright member of the pilot. Engineman London apparently had made an examination of the pilot, although there is no way of determining whether he knew that the knee brace was missing, thus resulting in materially weakening the pilot. Apparently the motion of the engine after leaving this point was sufficient to cause the pilot finally to drop down far enough to allow the nose of the pilot to come in contact with the ground and ties, causing it to buckle under the engine and result in the derailment.

When train No. 49 stopped at the point where the rock was struck it should have been ascertained definitely whether it was safe for the train to proceed. No one can say just how thorough an examination of the pilot was made by the engineman, but there were two division officials on the train, an assistant superintendent and an assistant master mechanic, and according to their own statements neither one of them either looked at the engine or at the rock which caused the damage to the engine. Had these officials not been on the train the accident probably would have happened just the same, as it was, they were informed as to what had happened and apparently they realized that damage might have resulted which would endanger the safe movement of the train, but both of them failed to ascertain that this actually was the case.

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The employees involved were experienced men, at the time of the accident they had been on duty about 6 hours, after between 14 and 15 hours off duty.

Respectfully submitted,

W. P. Borland,

Director.