

April 8, 1915.

No. 258

**In re Investigation of accident which occurred
on the Denver & Rio Grande Railroad,
near Glenwood Springs, Colo.,
on March 2, 1915.**

On March 2, 1915, there was a derailment of a passenger train on the Denver & Rio Grande Railroad, near Glenwood Springs, Colo., which resulted in the death of one engineman and the injury of two employees and one passenger. After investigation of this accident, the Chief of the Division of Safety submits the following report:

Eastbound train No. 4 was enroute from Salt Lake City, Utah, to Denver, Colo. It consisted of 1 baggage car, 1 express car, 1 mail car, 2 coaches, 1 dining car, 1 tourist sleeping car and 3 Pullman sleeping cars, hauled by locomotives Nos. 701 and 767, and was in charge of Conductor Churchill and Engineman Alkire and Armstrong. It left Glenwood Springs at 4.25 a.m., 15 minutes late, and at about 4.40 a.m. was derailed in Glenwood Canyon, at a point about 8 miles east of Glenwood Springs, while running at a speed estimated to have been about 35 miles per hour.

The leading locomotive ran on the ties for a distance of about 110 feet before turning over to the right. The second locomotive ran about 60 feet on the ties, coming to rest on the left side of the track. With the exception of the forward trucks of the first car, none of the cars in the train was derailed.

This division of the Denver & Rio Grande Railroad is a single-track line. No block signal system is in use, trains

being operated by train orders and time-card rights. The accident occurred in about the middle of a tangent about 500 feet in length. Approaching from the west there is a 7-degree curve to the right 1,500 feet in length. Approaching engine crews, however, have practically no range of vision while rounding this curve, on account of the track at this point being in the canyon, the sides of which are close to the track, and range from 1,000 to 2,500 feet in height. The grade is 1.25% ascending for eastbound trains. The track is laid with 90-pound rails, on red spruce and oak ties, ballasted with disintegrated granite. The general condition of the track was excellent.

Examination of the track showed that there was a broken rail on the left side of the track, a piece about 33 inches in length having been broken out of the center of the rail, while four rail lengths west of this broken rail two of the rails on the same side of the track had been slightly bent. This broken rail, as well as the two rails which were bent, was found to have been caused by fragments of a large rock having fallen upon the track from the side of the canyon. The first rock to fall was estimated to have weighed about 20 tons and rolled down the side of the canyon from a point several hundred feet above the track. When about 200 feet above the track it struck other rocks and was broken, one half lodging at this point, while the other part, broken into several pieces, continued to fall, three of these fragments striking the track in as many different places, doing the damage to the rails above described.

These damaged rails were on the left side of the track and as the fireman of the leading locomotive was working on the fire, while the view of the engineman on the inside of the curve was entirely obscured until his locomotive reached the tangent, it is improbable that the condition of the track was noticed by any one until the accident occurred, even though the locomotive was equipped with an electric headlight.

Leaving Glenwood Springs, this railroad follows the Grand River for 17 miles through what is known as Glenwood Canyon. On account of the narrowness of the canyon the track is necessarily laid close to the walls, and, owing to the possibility of falling rocks and slides at almost any point, it is necessary to maintain a constant track patrol. The section foreman in charge of this section has three day-trackwalkers and two night-trackwalkers. The night trackwalker who covered the portion of the section in which this accident occurred, stated that he made a round trip once every hour during the night. He passed over this particular piece of track at about 4.15 a.m., only 25 minutes prior to the occurrence of the accident, at which time there was nothing wrong. At about the time the rock fell, he was in a shelter provided for track walkers, which he said was located about six telegraph poles from the point where the accident afterwards occurred. He further stated that the wind was blowing hard through the canyon and that this, together with the noise of the rushing water, was sufficient to prevent him from hearing any noise made by the falling rock.

This accident was caused by a broken rail, due to a rock having fallen upon the track from the side of the canyon a few minutes before train No. 2 approached. The investigation discloses that a constant patrol of the track in this vicinity is maintained for the purpose of guarding against accidents of this character, and that one of the track walkers had passed over the track shortly before the accident occurred, at which time the track was in good condition. Ordinarily there would be no reason why this track walker should not have heard the noise made by the falling rock, considering that at the time he was but a few hundred feet distant, but in this particular case he claimed he was prevented from hearing the noise by the wind and water.

All of the employees involved in this accident were men experienced in the operation of trains on heavy mountain grades and were fully aware of the dangerous conditions existing in the way of land slides, falling rocks, etc. At the time of the accident the crew of the leading locomotive had been on duty 40 minutes, while the crew of the second locomotive, together with the train crew, had been on duty 3 hours and 25 minutes.