INTERSTATE COMMERCE COMMISSION.

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE ILLINOIS CENTRAL RAILROAD NEAR CORINTH, MISS., ON MARCH 17, 1923.

April 10, 1923.

To the Commission:

On March 17, 1923, there was a derailment of a freight train on the Illinois Central Railroad near Corinth, Miss., resulting in the death of two employees and the injury of one employee.

Location and method of operation

This accident occurred on that part of the Birmingham District of the Tennessee Division extending between Ruslor, Miss., and Haleyville, Ala., a distance of 79.93 miles; in the vicinity of the point of accident this is a single-track line over which trains are operated by time-table and train orders, no block-signal system being in use. The accident occurred at a point about 2 miles south of Corinth, just north of the center of what is known as Stevenson's cut, which is about 4,000 feet in length, approaching this point from the south the track is tangent for more than 2 miles. The grade is descending for northbound trains, varying from 0.4 to 0.55 per cent, being at its maximum at the point of accident. The track is laid with 85-pound rails, 33 feet in length, with an average of about 20 treated oak and pine ties to the rail-length, single-spiked, tie-plated, and ballasted with gravel about 18 inches in depth, the track is well maintained.

At the point of accident the cut is about 45 feet in depth, 126 feet wide at the top, and 36 feet wide at the bottom. Well cleaned surface-ditches on each side of the track, approximately 2.5 feet in width and 1.2 feet below the sub-grade, are provided for drainage through the cut; the drainage fall is at the rate of 21 feet to the mile from the south end of the cut to a point about 800 feet north of the center of the cut, from which point to approximately a half mile north of the north end of the cut the fall is about 3½ feet to the mile, to a stream known as Bridge creek. The drainage on top of the bank on the west side of the cut is away from the cut, to a ravine located about 50 feet to the west, while on the top of the bank on the east side of the cut there is some

drainage toward the cut near its southern end; however, this is carried away from the track by a natural ravine, and with this exception, drainage on this side flows northward to a ravine located near the north end of the cut. The gravel ballast through the cut rests on a stratum of blue clay, over 8 feet in depth, this clay extends 3 feet above the tops of the rails in the slopes of the cut, above which there is sandy red soil, for 22 feet, then about 3 feet of blue clay, and then 16 feet of sandy loam to the top of the cut. A wooden overhead bridge, located approximately 875 feet south of the point of accident, slightly breaks the line of vision through the cut. The weather was clear at the time of the accident, which occurred at about 12.25 a.m.

Description.

Northbound freight train extra 1750 consisted of 55 cars and a caboose, hauled by engine 1750, and was in charge of Conductor Horton and Engineman McCullough. This train left Red Bay, 41.97 miles south of Corinth, at 10.05 p.m., March 16, and was derailed while traveling at a speed estimated to have been between 20 and 25 miles an hour.

Engine 1750, together with its tender, was derailed to the east and came to rest on its right side, parallel to the track, the first 2 cars came to rest against the west slope of the cut, just ahead of the engine, while the next 15 cars were across the track. The following 9 cars were not derailed, however, the next 9 cars were derailed and also came to rest across the track. The employees killed were the engineman and fireman.

Summary of evidence.

Just before the accident occurred, Engineman McCullough shut off steam, made the usual air-brake application on the descending grade, then released, and the train was drifting at the time it was derailed. Head Brakeman Westbrook, who was riding on the brakeman's seat on the left side of the engine, stated that although the rays of the electric headlight shone brightly on both slopes of the cut, he did not know the condition of the track, as he was looking for the indicating displayed by a switch light, located a short distance north of the point of accident, and the first knowledge he had of anything wrong was when the engine went down on the right side and started turning over to the right. The first intimation other members of the crew had of anything wrong was when the accident occurred. Conductor Horton at first thought the train had broken in two, but on pro-

ceeding from the caboose to the head end of the train immediately after the accident he found that a portion of the west bank of the cut had broken away and slid down. He stated that the air brakes had been tested and worked properly on this trip, and estimated the speed at the time of the accident to have been about 25 miles an hour. He also stated that although the ground was muddy around the engine he did not notice any water in the cut. He had not received any slow orders through this cut for sometime prior to the accident, or noticed anything unusual at this point in his 15 years' of service with this railroad, and considered this a dry cut, running water being present only during wet seasons. Flagman Turner felt the air brakes on the caboose apply and release properly just before the accident occurred. Conductor Horton and Flagman Turner were of the opinion that the accident resulted from the slide pushing the track out of alignment, thereby causing the engine to be derailed.

Section Foreman Bolster made an inspection of the track through Stevenson's cut on the morning of the day prior to the accident and noticed nothing unusual. He stated that about a month prior to the accident the ditches were cleaned out thoroughly with a Jordan ditcher, the surplus earth being deposited outside the cut, and was of the opinion the accident was caused by the side of the cut breaking away, the crack extending downward practically to a level with the ditch, pushing up against the ties and moving the track out of alignment. He also stated that he considered this a dry cut, and the track through it required no more attention than any other section of the 5 miles of track under his supervision. Furthermore, during the 13 years he has been in charge of this particular cut, there has never been any indication of a slide.

Assistant Roadmaster Woodson was of the opinion the break in the cut was caused by recent heavy rains, the slide coming in contact with the ties and pushing them out of line, causing the derailment. He stated on arrival at the point of accident he observed water running out of the cut at the point where it broke.

Train No. 394, the last train to pass through the cut prior to the accident, passed that point approximately 1 hour and 35 minutes before the accident occurred, at a speed estimated to have been about 25 or 30 miles an hour, and at that time nothing unusual was noticed

by any member of the crew.

Inspection disclosed that the crevice in the west side of the cut began at a point 650 feet south of the north end of the cut and extended southward for a distance of 300 feet. This crevice appeared 10 feet below the top of the slope, and was approximately 10 feet wide, extending vertically to a depth of 35 feet, to the lower stratum of blue clay, the bottom of it being 35 feet inward from the face of the slope. The body of earth which broke away and slid was in the form of a triangle, containing approximately 7,500 cubic yards of earth. The shifting of this amount of earth placed so much pressure on the ground near the track as to cause the earth under the track to be heaved upward, measurements made after the accident indicated the extent of this upheaval at about 16 inches under each rail. The track was torn up in the accident, however, and while it was impossible to say exactly what the conditions were at the time the accident occurred, it is believed that the upheaval was more pronounced under the west side of the track, resulting in the west rail being raised higher than the east rail and in the engine overturning to the right. There is no record of any slide having occurred prior to the one which resulted in this accident. Measurements made after the derailment showed that there were no material variations in surface except those caused by the slide. The gauge in general was good, although at several points in the immediate vicinity of the accident it was from 1/4 inch to 3/8 inch tight.

A comparison in precipitation disclosed that during the months of January, and February, and up to and including March 19, 1922, there was 3.66, 5.51, and 10.84 inches of rainfall, respectively, while for a corresponding period in the year of 1923 there was 5.16, 4.52, and 4.82 inches of rainfall, or a total of 5.31 inches less rain in 1923, than in 1922.

Conclusions.

This accident was caused by a land slide.

The evidence indicates that the slide, which occurred on the west slope of the cut, forced the blue clay stratum downward and caused an upheaval in the roadbed in the immediate vicinity of the point of accident, the rails for a short distance being elevated at least 16 inches above their normal surface. There was some evidence that the track had also been pushed out of line, but owing to the damaged condition of the

track it could not be definitely ascertained that this was the case. No trouble with slides had ever been encountered in this cut, while a train had safely passed this point about 1 hour and 35 minutes previously.

All of the employees involved were experienced men. At the time of the accident they had been on duty less than 10 hours, prior to which they had been off duty more than 10 hours.

Respectfully submitted,

W. P. BORLAND,

Director.