

INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY CONCERNING
AN ACCIDENT WHICH OCCURRED ON THE NORTHERN PACIFIC
RAILWAY NEAR EDDY, MONT., ON MARCH 18, 1932.

May 19, 1932.

To the Commission.

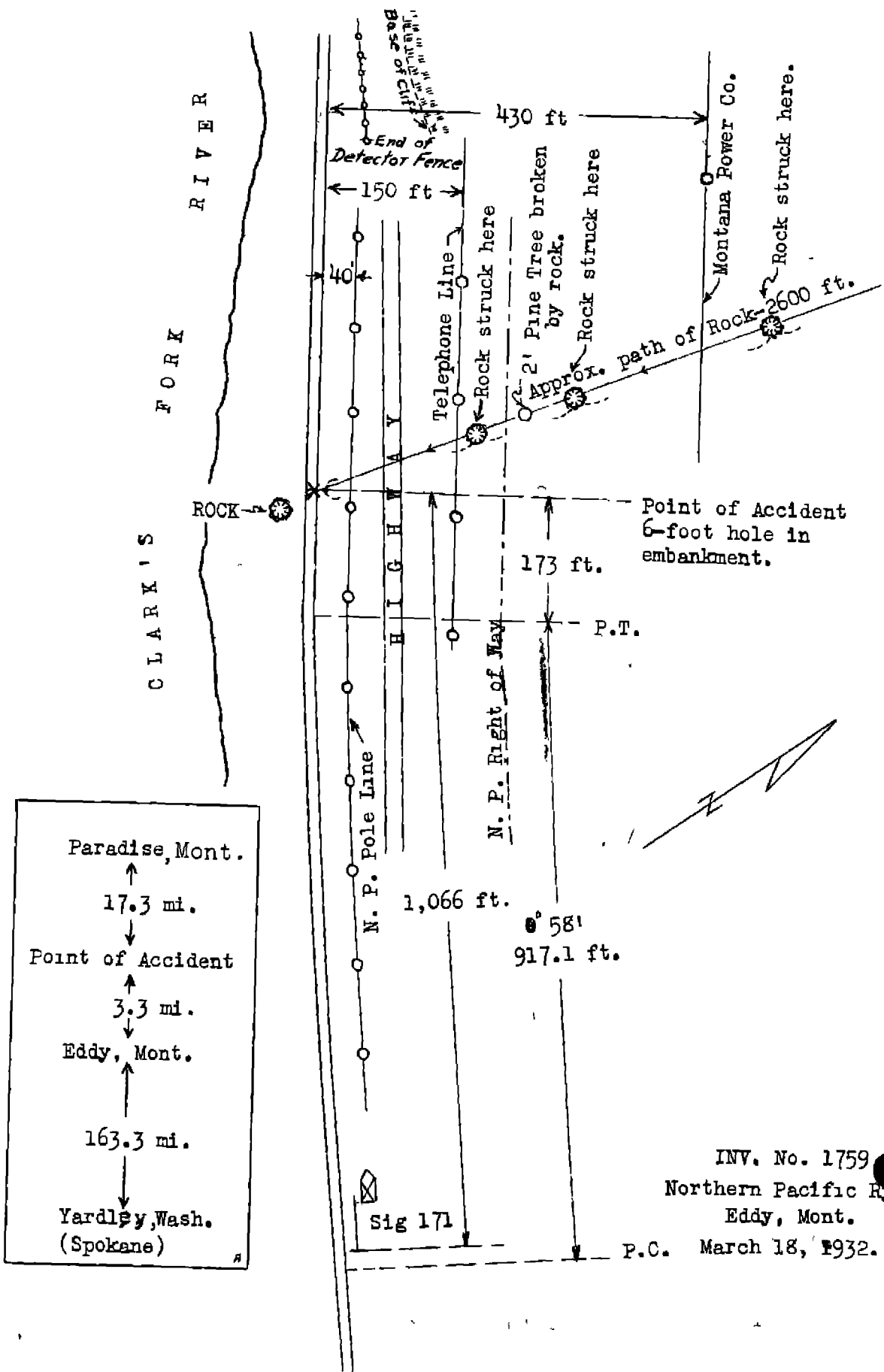
On March 18, 1932, there was a derailment of a passenger train on the Northern Pacific Railway near Eddy, Mont., which resulted in the death of two employees and the injury of five passengers.

Location and method of operation

This accident occurred on the First Sub-division of the Idaho Division, which extends between Paradise, Mont., and Yardley, Wash., a distance of 183.9 miles. In the vicinity of the point of accident this is a single-track line over which trains are operated by time-table, train orders, and an automatic block-signal system. The accident occurred at a point about $3\frac{1}{4}$ miles east of Eddy, approaching this point from the east, the track is tangent for a distance of approximately 2 miles, followed by a $0^{\circ} 58'$ curve to the right 917.1 feet in length and then tangent track for a distance of 1,553.2 feet, the accident occurring on this tangent at a point 173 feet from its eastern end. The grade is slightly descending for westbound trains to within 700 feet of the point of accident, from which point it is level. The track is laid with 90-pound rails, 33 feet in length, with 19 treated fir and tamarack ties to the rail-length, single-spiked, and fully tie-plated; eight rail anchors per rail length are used. The ballast consists of pit-run gravel 8 inches in depth on native soil and rock excavated from the nearby hillsides. The track is maintained in good condition.

In the vicinity of the point of accident the track is laid on a fill 12 feet in depth and about 3,200 feet in length, bordered on the south by Clark's Fork River and on the north by a mountain 2,384 feet in height; the crest of the mountain is about 2,960 feet distant horizontally from the center line of the track. The mountain slopes at an angle of approximately 45° to within 320 feet of the track; the intervening 320 feet is rough and partly covered with brush and some fallen timber, but offers practically no resistance to rolling stones of any size. The last automatic block signal is located 1,066 feet east of the point of accident.

It was dusk and raining at the time of the accident, which occurred at 5.40 p. m.

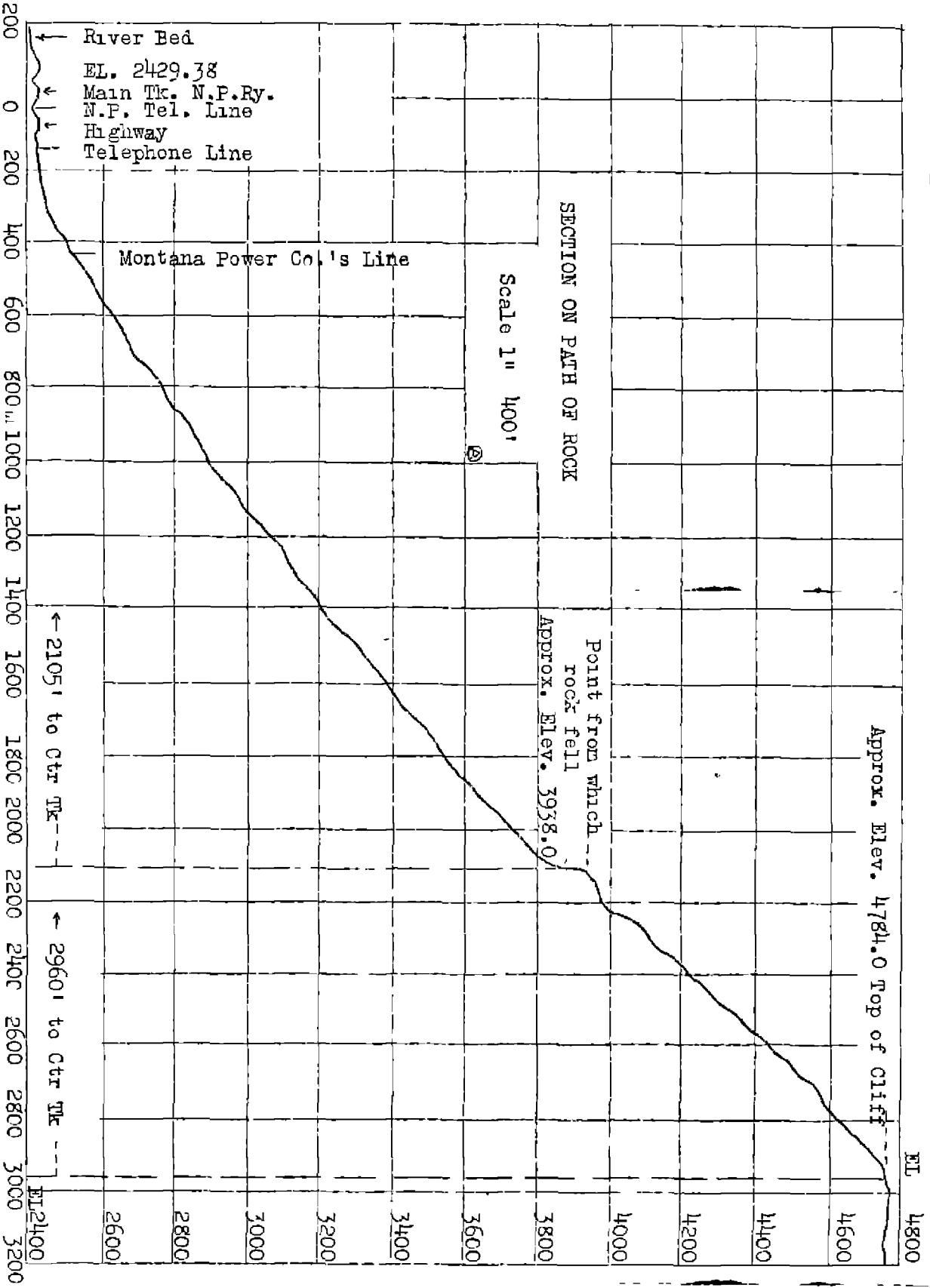


Paradise, Mont.
 ↑
 17.3 mi.
 ↓
 Point of Accident
 ↑
 3.3 mi.
 ↓
 Eddy, Mont.
 ↑
 163.3 mi.
 ↓
 Yardley, Wash.
 (Spokane)

INV. No. 1759
 Northern Pacific Ry.
 Eddy, Mont.

P.C. March 18, 1932.

Sig 171



Description

Westbound passenger train No. 1 consisted of 1 dormitory-baggage car, 1 coach, 1 tourist sleeping car, 1 dining car, 3 Pullman sleeping cars and 1 observation car, in the order named, hauled by engine 2248, and was in charge of Conductor Peck and Engineman Gallagher. The cars were of all-steel construction with the exception of the baggage and tourist cars, which were of steel-underframe construction with steel sheathing. This train departed from Paradise, Mont., 20.6 miles east of Eddy, at 5.20 p. m., according to the train sheet, 10 minutes late, and was derailed near Eddy while traveling at a speed estimated to have been about 40 miles per hour.

The engine and tender were derailed to the left and stopped on their left sides at the foot of the embankment, parallel with and about 32 feet from the track, the front end of the engine being about 254 feet beyond the initial point of derailment. The first car stopped diagonally across the track with its rear end near the rear end of the tender, the second car was directly across the track, with the head end near the right-of-way fence and against the telephone line, the third car was headed down the embankment to the left, and the fourth car and the front truck of the fifth car also were derailed to the left. The employees killed were the engineman and fireman.

Summary of evidence

Conductor Peck stated that before their departure from Paradise they received train orders Nos. 23 and 780, Form 19, directing them to look out for falling rocks and slides where liable to occur, and to reduce speed to 25 miles per hour at certain points west of Eddy on account of the liability of slides. After passing Plains, about 11 miles east of the point of accident, where the speed had been reduced to 25 miles per hour as required, the train had picked up speed and was traveling about 40 miles per hour approaching the point of derailment, but the conductor thought the engineman had shut off steam and that the train was drifting just prior to the time the air brakes were applied in emergency, the train traveling a distance of 100 or 150 feet before the derailment occurred. As he got off the coach the conductor noticed a big hole in the embankment and later found that it had been caused by a large rock falling from the top of the mountain, causing a kink in the track. He did not think that the engineman could have seen the hole in time to stop. It was dusk and raining at the time of the accident, and the headlight was burning upon their departure from Paradise. Conductor Peck considered Engineman Gallagher to have been a good engineman and one who always used good judgment, whether or not he was running late.

Head Brakeman Jacobs and Rear Brakeman Farmer stated that they inspected the air brakes on the cars in their train before its departure from Paradise and found them to be working properly, while a running test was made on leaving that point, at which time the brakes functioned properly. Head Brakeman Jacobs stated that he noticed the speed restrictions were observed en route from Paradise to the point of accident and that an emergency application of the brakes was made just prior to the derailment.

Trainmaster Hunt stated that while waiting in the station at Paradise for train No. 1 to arrive he mentioned to Enginemen Gallagher that trouble was being experienced with slides, that he was liable to find rocks falling at almost any point, and to be careful even if he lost time. On the arrival of train No. 1, Trainmaster Hunt said he walked toward the rear of the train, but as there was some delay he started toward the head end but did not reach the engine before the train departed; he was told, however, that the removal of a brake rod was the cause for the delay. He rode in the second car of the train and said that after leaving Plains they were traveling at a pretty fast rate of speed to the point of derailment. He noticed that the engineman shut off steam and was drifting as the train came around the curve, and then felt an emergency application of the air brakes, the car lunged once or twice, and became derailed. He estimated the speed to have been a little more than 40 miles per hour at the time he felt the emergency application. Trainmaster Hunt was of the opinion that the accident was caused by a kink in the rails as a result of a large rock coming down the mountain, striking the north side of the fill and shoving the rails and ties out of place, and he did not think that the condition of the track could have been seen by the engineman under the existing weather conditions. He further stated that he talked with a Mr. McKay, who lives on the other side of the river and heard the rock come down and also saw train No. 1 when it was derailed, and Mr. McKay said that the rock came down just ahead of the train. With regard to air-brake tests at terminals, Mr. Hunt understood that it was permissible under the rules of the company to permit a train to leave Paradise with the air brakes cut out on the tender, as there were no facilities at that point for making repairs, but he stated that if the brakes had been cut out on a car they would have had to switch that car to the rear of the train.

Roadmaster Zangar stated that while waiting at Trout Creek, 33.4 miles west of Eddy, for the ditcher work train to take him down to mile posts 43 and 44 to clear slides which had started to cover the rails, he heard an unusual noise in the telegraph office, about 5.34 p. m., and the operator informed him it was the snapping of the wires,

possibly due to being hit by rocks somewhere along the line. Roadmaster Zangar then became alarmed, thinking that rocks might be falling near Eddy, and called both Plains and Eddy for the purpose of having the section men cover that territory. He was informed by the agent that the lights and power were out at Plains, and that the agent would get the section men immediately. About 15 or 20 minutes later he heard Trainmaster Hunt talking to the dispatcher from Eddy, reporting the derailment of train No. 1. He proceeded to the point of accident as soon as possible and found a large hole in the side of the fill on the north side of the track; it extended horizontally about 6 feet into the bank and was about 8 feet in depth, and he thought the track had been thrown out of alignment about 2 feet. Across the track, on the south side, was the large boulder which had made the hole; it weighed 100 tons or more. It was his opinion that the hole had extended about 10 feet into the bank but had been partly filled by debris from the derailment. There was no evidence of the rock having struck the rails or ties. Roadmaster Zangar further stated that no previous trouble had been experienced with falling rocks on the fill in the vicinity of mile post 17, but trouble had been experienced farther west and it was for this reason that a detector fence, 794 feet in length, is located a short distance beyond the point of derailment, the eastern end of the fence being 517 feet west of the point of accident. There also is a track watchman assigned to the territory between mile post 17, east of the point of accident, and mile post 18 plus 1547 feet, the accident occurred at mile post 17 plus 1400 feet. There was no evidence of the fill sinking on account of water standing against the base of the fill on the north side, in fact, the fill was practically dry except around a culvert where the water could not run out due to the engine having dragged dirt over it on the south side; when the mouth of the culvert was uncovered it functioned in the normal manner.

Track Watchman Kinney stated that his section includes the territory from mile post 17 to 1/4 mile west of mile post 18. He went on duty at 3.45 p. m. on the day of the accident, started eastward from his house located about 1/2 mile west of mile post 17, proceeded to mile post 17, where train No. 3 passed him, then went westward about 1/3 mile and returned to mile post 17 again, for the reason that some small rocks had been falling and he wanted to go over the whole territory ahead of train No. 1. Consequently he then proceeded from mile post 17 and covered his entire territory westward. He then returned to mile post 18 where he stayed about two minutes. As it was nearing the time for train No. 1 to be approaching he started eastward but had proceeded only a short distance when he was informed by Mr. McKay of the occurrence of the accident. The

rocks which had been falling down the mountainside were between the point of accident and the eastern end of the detector fence. Watchman Kinney further stated that for the past several days it had been raining and thawing and on a few nights it had been freezing, but there was no indication of water running down the rocks in the vicinity of the point of accident, and there was scarcely any snow in sight along the rim from which the rock involved in the accident fell. Track Watchmen Kinney had been in charge of this section for more than one year and during that period he had seen quite a few rocks falling in that vicinity; on one occasion a large rock had fallen quite close to the track at a point about 15 or 20 rail-lengths east of the point of accident, but there was nothing but small rocks falling on the day of the accident.

Members of the McKay family who live on the south side of the river opposite the point of derailment saw the rock come down the mountainside, and one member who did not see it but heard it, stated that it sounded like thunder and only a few minutes later he heard the train crash

Assistant District Engineer Shuck stated that there are about 300 feet of nearly-level ground between the base of the cliff and the track. The rock which caused this accident slipped from the cliff at an elevation of about 1,509 feet above the track and at a distance of about 2,105 feet from the center of the track. It struck the ground at three different points before reaching the track embankment, the last point being on practically level ground about 163 feet north of the track. This rock measured about 10 x 8 x 10 feet, weighed approximately 65 tons, and was of granite composition. Mr. Shuck also found two other rocks nearby, one imbedded in the north side of a public highway which is about 75 feet north of the track, this rock measured 7 x 3 x 4 feet, and was just east of the point of accident, while the other rock was about 300 feet west of the point of accident and had made a hole in the public highway, following which it had struck the railway embankment on the north side, but apparently not with great momentum, as it fell back into the ditch on the north side of the track.

It was reported by the Montana Power Company that their lines, which were located on the mountainside about 430 feet north of the track, were damaged at 5.34 p. m., at points just east of where the accident occurred, and the Western Union reported they lost five wires at 5.34 p. m. west of Paradise. At 5.40 p. m. the Northern Pacific wires were lost with the exception of the dispatcher's circuit; the balance of the Western Union wires were lost also at that time.

Lineman Johnson who arrived with Roadmaster Zangar from Trout Creek, said that the second car, which had swung around on the track, had broken a telegraph pole, breaking and entangling the wires except the one carrying the dispatcher's circuit, and one of the wires showed evidence of being scarred by a rock.

Section Signal Supervisor Flagan stated that on his arrival at the scene of the accident with the wrecker about 2.10 a. m. on the following morning he found the block signals in the vicinity of the point of accident in the stop position. He tested the signals and found them working properly. The outside circuit line was not broken; the common wire and the control wire for each direction, eastward and westward, were found on the end of the coach, stretched tightly, but none of them was broken, indicating that the stop position of the signals was caused by the derailment.

Conclusions

This accident was caused by a large rock striking the north side of the fill, shoving the track out of line.

The rock dislodged from the rim or shoulder of the mountain about 1,509 feet above the track and distant horizontally about 2,105 feet, and traveled a distance of approximately 2,600 feet before it stopped, it was of granite composition, 10 x 8 x 10 feet, with an approximate weight of at least 65 tons. The path of the falling boulder was easily traceable and its course was such that coupled with the power gained from momentum and its enormous size and weight nothing could have stopped it short of the railroad right-of-way. The rock struck at three different points on its downward course before it hit the fill of the railroad, the last jump being 163 feet in length and apparently sufficiently high to clear the line of wires upon which the dispatcher's line is located. After hitting the north side of the fill, shoving the track out of line approximately 2 feet, it cleared the fill and came to rest on the south side of the roadbed in an old borrow pit, leaving a large hole on the north side of the fill. The loosening of this boulder was probably due to intermittent rains, with changing temperatures which caused alternate periods of thawing and freezing. It is believed that it was impossible for the crew of train No. 1 to have detected the condition of the track ahead in time to have averted the accident.

Track Watchman Kinney had traversed the territory in the immediate vicinity of the point of accident three times between the hours of 3.45 p. m. and the time of the acci-

dent, but was near the western end of his section, near mile post 18, coming eastward, when the accident occurred. He had observed a few small rocks falling down the mountainside near the point of derailment but there was nothing unusual. The power line of the Montana Power Company, as well as some of the wires of the Western Union Telegraph Company, failed at 5.34 p. m , which places the time of the falling rock at 5.34 p. m., and the time of the accident is fixed at 5.40 p. m , when the balance of the wires, with the exception of the dispatcher's circuit, failed. There is no evidence that the block-signal circuit was broken prior to the derailment, these wires being found intact several hours after the occurrence of the derailment.

A slide detector-fence was located a short distance west of the point of accident, and even though the fence had extended to and beyond the point of accident it would appear that it would not have been of any protection in this instance as the path of the rock indicated that it bounded over the company's telegraph line and therefore would have missed the fence had it been located in its usual and logical position.

The investigation developed the fact that train No. 1 departed from Paradise with the brakes inoperative on the tender, a brake rod having broken and been removed as there were no facilities at that point for repairs to be made, thus allowing the train to depart with only 90 per cent operative air brakes. There is nothing to indicate, however, that it had any bearing on the occurrence of this accident.

All of the employees involved were experienced men and at the time of the accident none of them had been on duty in violation of any of the provisions of the hours of service law

Respectfully submitted,

W P. BORLAND,

Director.