

INTERSTATE COMMERCE COMMISSION  
WASHINGTON

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REPORT OF THE DIRECTOR  
BUREAU OF SAFETY

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ACCIDENT ON THE  
CALIFORNIA WESTERN RAILWAY  
AND NAVIGATION COMPANY

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FORT BRAGG, CALIF.

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JANUARY 11, 1936

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INVESTIGATION NO. 2033

SUMMARY

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Railroad: California Western Railway and  
Navigation Company

Date: January 11, 1936

Location: Fort Bragg, Calif.

Kind of accident: Derailment

Train involved: Light engine

Train number: Extra 23

Engine number: 23

Speed: 16 m.p.h.

Track: 10° curve, grade 0.30 percent  
descending.

Weather: Cloudy

Time: 7:30 a.m.

Casualties: 1 killed and 1 injured

Cause: Washout

February 21, 1936.

To the Commission:

On January 11, 1936, there was a derailment of a light engine on the line of the California Western Railway and Navigation Company near Fort Bragg, Calif., which resulted in the death of 1 employee and the injury of 1 employee.

#### Location and method of operation

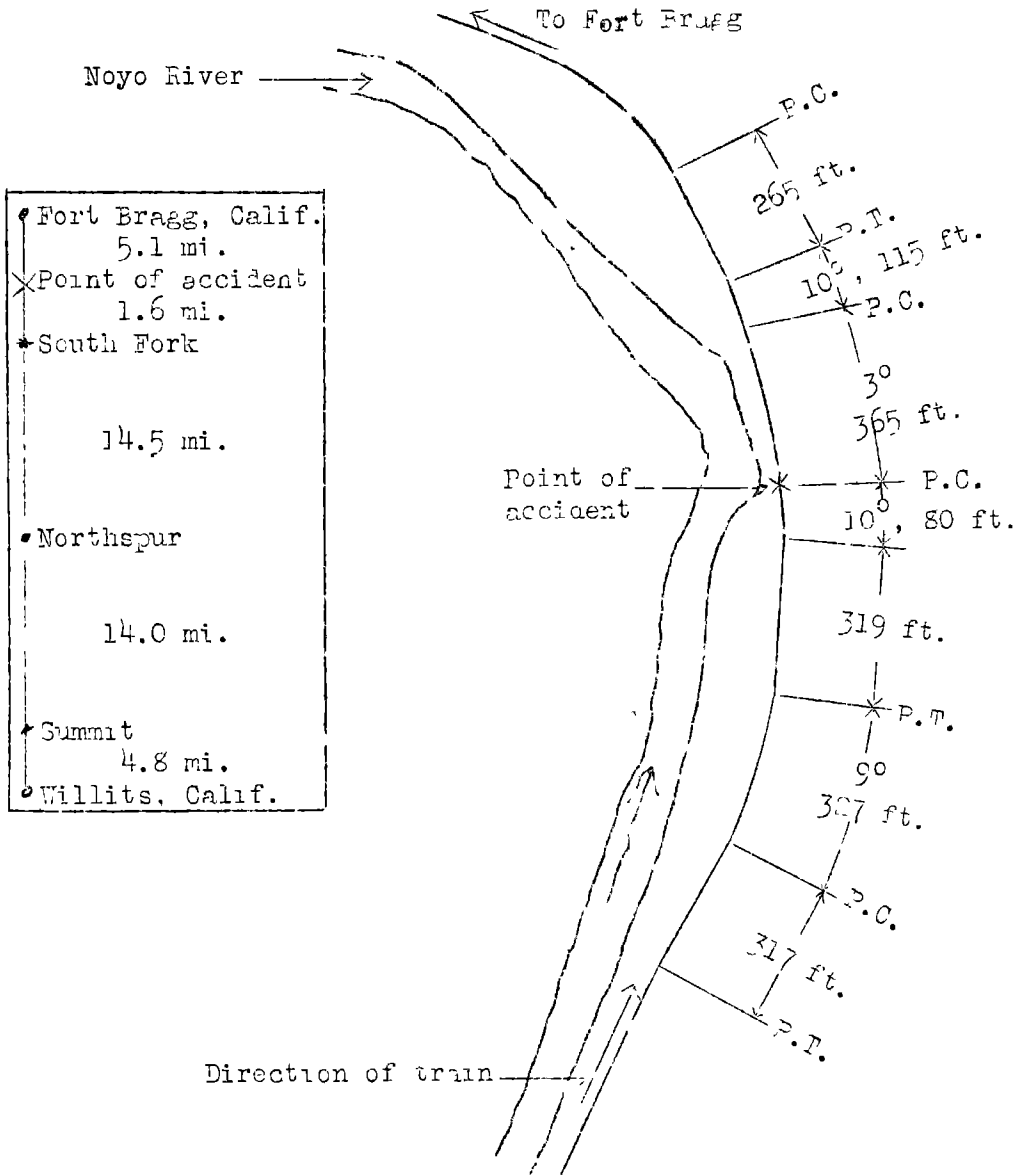
This accident occurred on that portion of the railway extending between Willits, Calif., and Fort Bragg, Calif., a distance of 40 miles; in the vicinity of the point of accident this is a single-track line over which trains are operated by time table and train orders, no block-signal system being in use. The accident occurred 5.1 miles west of Fort Bragg; approaching this point from the west, there is a 90° curve to the left 327 feet in length, followed by a tangent of 319 feet and then a compound curve to the left which is 550 feet in length, the accident occurring on this curve 80 feet from its western end, where the curvature is 10°. The grade for east-bound trains is 0.2 percent descending at the point of accident. The track is laid with 65-pound rails, 33 feet in length, with 17 redwood ties to the rail length, about one-fourth tie-plated, and is single-spiked. It is ballasted with mixed gravel and dirt to a depth of about 12 inches below the bottoms of the ties and is fairly well maintained.

The railway follows the course of the Noyo River for several miles; in the vicinity of the point of accident this river is to the left of the track while on the opposite side are high wooded bluffs from which emerges a small gulch carrying a creek which drains an area of about 30 acres. At the mouth of the gulch the track is on a fill 150 feet long and from 8 to 12 feet high, the creek passing through the middle of this fill at an angle of 40° by means of a wooden box-type culvert 58 feet in length, having an opening 28 by 36 inches, the bottom of which is 10 feet 10 inches below the top of the rails. The derailment occurred at the western end of the fill.

For a period of 2 weeks prior to the day of the accident, rain had been falling intermittently, 4.8 inches being reported for the 3 preceding days. The weather was cloudy and day was breaking at the time of the accident, which occurred at 7:20 a.m.

#### Description

East-bound Extra 23, in charge of Engineman King and Fireman Gustafson, consisted of a light engine returning to Fort Bragg



Inv. No. 2033  
California Western Ry. & Nav. Co.  
Fort Bragg, California  
Jan. 11, 1936

after performing helper service. It departed from Summit, 37.2 miles west of Fort Bragg, at about 5:20 or 5:25 a.m., and was derailed by a washout at a point 5.1 miles west of Fort Bragg while traveling at an estimated speed of 16 miles per hour.

The washout had caused a gap in the fill beneath the track about 40 feet in length and 10 feet in depth and engine 23 dropped into this gap, stopping upright and in line with the track, with the forward end jammed into the embankment at the eastern end of the gap and the top of the engine about 2 feet above the original height of the rails; the rear wheels of the tender remained on the rails at the western edge of the gap. The employee killed was the fireman and the employee injured was the engineman.

#### Summary of evidence

Engineman King, of Extra 23, stated that he reported for helper service at Fort Bragg on January 10 at 8 p.m., departing at 8:30 p.m. with engine 23 cut into the middle of Train No. 61. After reaching Willits at about 2 or 2:30 a.m. he helped Train No. 62 east-bound to Summit, where his engine was cut off and he proceeded light toward Fort Bragg. During the night rain had been falling, varying in intensity and stopping only after he departed from Summit. At the time of the derailment the visibility was fair and the headlight was burning, but due to the curvature of the track he was unable to see the track beyond the front of the engine. He thought the fireman was looking ahead, but no warning was given by him of danger, and the speed was about 16 miles per hour when the engine went down, without warning and without the brakes having been applied. On the westward trip he had noticed the water in the river but on account of darkness could not see how high it was; he thought the gauge at bridge 10, which is located 850 feet east of the point of accident, registered 7 feet, and he did not consider that to be a dangerous height. He had never encountered trouble at this particular place, the water was no higher than it had been at previous times, and he did not anticipate a dangerous condition.

The statements of Conductor Brown, Engineman Dempsey, and Fireman Rowland, members of the crew of Trains Nos. 61 and 62, in general corroborated those of Engineman King. Leaving Summit, following Extra 23, their speed was somewhat slower than usual but none expected danger from high water, although they said that it had rained very heavily earlier in the night. Engineman Dempsey and Fireman Rowland said that they had seen the river higher at other places than it was on this occasion; they agreed, however, that when they arrived at the point of accident the height of the water was greater than they had ever seen it, and

they, with Conductor Brown, estimated its level to have been from  $2\frac{1}{2}$  to 5 feet below the rails. Engineman Dempsey did not recall any previous washout trouble at this point and thought it might have been caused by the water passing through a hole made by burrowing animals. Conductor Brown thought the track had become undermined, probably from the gulch side, causing it to fail under the engine.

Section Foreman Freitas stated that on January 10 he departed from Fort Bragg at 7:50 a.m., with his crew of 10 men and stopped at the culvert under the embankment involved and cleaned from it a small amount of trash that had accumulated. He continued to the end of his section, Northspur, 21 miles from Fort Bragg, working at various places, and returned to Fort Bragg at 5 p.m. On the return trip he again inspected the culvert and found it free from trash and running about half-full, while the river was about 6 feet below the culvert, the gauge at bridge 10 showing  $4\frac{1}{2}$  feet shortly before 5 p.m. The track then was in good condition, with no sign of a washout, and he did not consider the river to be unusually high. He said he had been foreman on this section 25 years, had had no previous trouble at this point, and did not leave a watchman in this instance. On the day of the accident he arrived at the place of derailment about 8:30 a.m. and at that time the water had receded to some extent, having passed from the land side to the river through the opening where the engine lay. It was his opinion that the gap had been made by the wash of water from the river side. It was difficult for this section foreman to understand or to speak English, and when asked to read rule 1414 from the current books of rules, he was unable to do so; he said that he had never been examined on the rules, but understood that in stormy weather it was his duty to make sure the track was in safe condition. Rule 1414 reads as follows:

"During heavy storms, whether night or day, whereby the track or any portion of the Company's property becomes liable to sudden danger, foremen and trackmen must be on duty; and at such times they are required to go over their sections to make sure the track is safe, taking danger signals with them. The points most liable to be damaged must be first visited."

Some one in Dept of Maintenance of Way Brown stated that he arrived at the scene of derailment about 10 a.m. and found the washout to be 9 or 10 feet below the rail level and 35 to 38 feet in length. It was his opinion that the height of the river which the gauge at bridge 10 then showed at  $13\frac{1}{2}$  feet, backed the water on the gulch side to approximately the same level, and

while he was not certain as to the exact cause of the washout he advanced the theory that it may have been due to saturation of the embankment, aided particularly by the roots of trees which penetrated it. He did not believe that the bank was forced out by the impounding of water on the land side, nor in his opinion, was there any reason for cutting by the current at that particular place; when he arrived at the scene the water on the river side adjacent to the fill was comparatively quiet. The fill was composed of earth and small rock, with considerable large rock on the river side. Mr. Brown further stated that he received a report from Section Foreman Freitas on the night of January 10 to the effect that the gauge at bridge 10 registered  $4\frac{1}{2}$  feet and that the culvert was open and carrying the water from the gulch; he knew that there had been a great deal of rain but it did not occur to him that its severity might result in dangerous track conditions. As to the requirements of rule 1414, he considered that the section foreman had fully complied with them inasmuch as, in his opinion, the conditions embodied in the rule did not exist, nor did he believe that the washout was caused by an unusual condition, saying that conditions had been much worse on other occasions without affecting the track. Section foremen were not provided with a book of rules or a copy of rule 1414, but were instructed on the safety element of the work and Mr. Brown said he was entirely satisfied that Section Foreman Freitas was fully familiar with that feature, and he did not feel that the accident was caused by any neglect of duty.

#### Discussion

Earlier on the night of the accident, Engineman King had passed over the point where the derailment occurred and noticed no indication of high water, nor had he previously encountered trouble there. While returning, the rain ceased about 5:20 a.m., and since the river was no higher than he had seen it on previous occasions he anticipated no dangerous conditions. Approaching the point of accident his view was materially obscured, but it is probable that no abnormal condition existed that was perceptible from a locomotive, and he said he received no warning of impending danger from the fireman, who was on the inside of the curve, prior to the actual occurrence of the accident. Heavy and continued rains apparently raised the river to such an extent that the water had backed through the culvert to the land side of the fill, and it is evident either that it undermined the track or else completely saturated the fill to such a degree as to cause it to give way, either of its own weight or under the weight of the engine.

The section foreman had inspected the culvert on the previous day and had left it in normal condition; he had never experienced previous trouble at this point, and at the time he

completed his day's work the river was not unusually high.

The superintendent of maintenance of way did not feel that the conditions were unusual, nor such as to require the use of the protective features embodied in rule 1414; higher water had prevailed on past occasions, resulting in no track trouble, and consequently he did not think the lack of protection during this particular night constituted neglect of duty.

The rainfall record, taken daily at 8 a.m. by the railway company at Fort Bragg, which does not materially differ from other points on the Noyo watershed, shows that rain had fallen on 14 of the 17 days prior to the accident; the total reported for the period up to January 8 was 5.17 inches, and for the next 3 days it was 4.8 inches, the latter exceeding the rainfall of any equal period since November, 1920. The height of the Noyo River, which drains a mountainous territory of about 190 square miles, is shown on a gauge near the point of derailment and its readings were  $4\frac{1}{2}$  feet at 5 p.m., 7 feet at 9 p.m., and  $13\frac{1}{2}$  feet on the following morning after the accident occurred.

Rule 1414 requires that during heavy storms, whether day or night, whereby the track becomes liable to sudden danger, foremen and trackmen must be on duty and must go over their sections to make sure the track is safe. Notwithstanding the circumstances, however, no one considered that there was any danger from washouts, although it is apparent that the available rainfall data, had it had its logical interpretation, should have been a warning that a heavy and unusual storm was in progress, and had precautions been taken as required in rule 1414, the existence of a situation of possible danger might have been found and the accident averted.

#### Conclusion

This accident was caused by a washout.

Respectfully submitted,

W. J. PATTERSON,

Director.