

INTERSTATE COMMERCE COMMISSION

WASHINGTON

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REPORT NO. 3273

NORTHERN PACIFIC RAILWAY COMPANY

IN RE ACCIDENT

NEAR MELVIN, MINN., ON

AUGUST 19, 1949

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SUMMARY

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Date: August 19, 1949  
Railroad: Northern Pacific  
Location: Melvin, Minn.  
Kind of accident: Derailment  
Train involved: Passenger  
Train number: 14  
Engine number: 2158  
Consist: 5 cars  
Speed: 50 m. p. h.  
Operation: Timetable and train orders  
Track: Single; tangent; 0.6 percent ascending grade eastward  
Weather: Clear  
Time: 3:20 p. m.  
Casualties: 13 injured  
Cause: Insecure condition of track

INTERSTATE COMMERCE COMMISSION

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REPORT NO. 3273

IN THE MATTER OF MAKING ACCIDENT INVESTIGATION REPORTS  
UNDER THE ACCIDENT REPORTS ACT OF MAY 6, 1910.

NORTHERN PACIFIC RAILWAY COMPANY

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October 17, 1949

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Accident near Melvin, Minn., on August 19, 1949, caused  
by insecure condition of the track.

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REPORT OF THE COMMISSION<sup>1</sup>

PATTERSON, Commissioner:

On August 19, 1949, there was a derailment of a passenger train on the Northern Pacific Railway near Melvin, Minn., which resulted in the injury of 11 passengers and 2 dining-car employees.

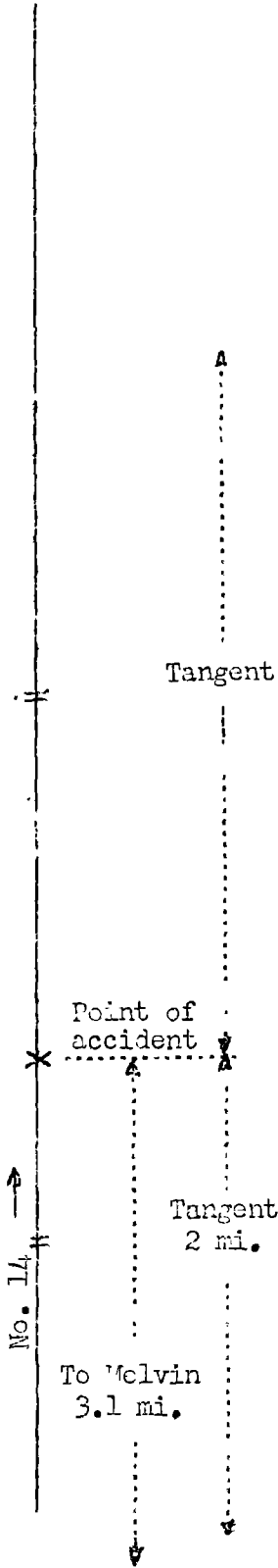
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<sup>1</sup>  
Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Commissioner Patterson for consideration and disposition.

To Manitoba →

o	Manitoba Jct., Minn.
	44.0 mi.
o	Fertile
	4.9 mi.
X	Point of accident
	3.1 mi.
o	Melvin
	15.2 mi.
o	Crookston
	26.7 mi.
o	East Grand Forks, Minn.

← To East Grand Forks



Report No. 3273  
 Northern Pacific Railway  
 Melvin, Minn.  
 August 19, 1949

### Location of Accident and Method of Operation

This accident occurred on that part of the St. Paul Division extending between East Grand Forks and Manitoba Jct., Minn., 93.9 miles, a single-track line, over which trains are operated by timetable and train orders. There is no block system in use. The accident occurred on the main track at a point 45 miles east of East Grand Forks and 3.1 miles east of Melvin. From the west the track is tangent about 2 miles to the point of accident and a considerable distance eastward. At the point of accident the grade is 0.6 percent ascending eastward.

The track structure consists of 90-pound rail, 33 feet in length, laid new in 1912 on an average of 19 treated ties to the rail length. It is fully tieplated, single-spiked, and is provided with 4-hole heat-treated joint bars 24 inches in length and an average of about one rail anchor per rail length. It is ballasted with pit-run gravel to a depth of 6 inches under the ties.

The maximum authorized speed for passenger trains was 55 miles per hour.

### Description of Accident

No. 14, an east-bound first-class passenger train, consisted of engine 2158, one refrigerator car, one mail car, one baggage car, one cafe-coach and one coach, in the order named. The first and fourth cars were of steel-underframe construction and the other cars were of all-steel construction. This train departed from East Grand Forks at 2:12 p. m., 1 minute late, departed from Crookston, the last open office, 26.7 miles east of East Grand Forks, at 2:56 p. m., 9 minutes late, and while it was moving at an estimated speed of 50 miles per hour the rear truck of the fourth car and the fifth car were derailed 3.1 miles east of Melvin.

The engine and the cars remained coupled and stopped with the front end of the engine 805 feet east of the point of derailment. The rear truck of the fourth car stopped north of the track. The fifth car stopped about 5 feet north of the track and 365 feet east of the point of derailment. It leaned to the north at an angle of about 45 degrees. Both cars were slightly damaged.

The weather was clear at the time of the accident, which occurred at 3:20 p. m.

The temperature as recorded at Fertile, Minn., 4.9 miles east of the point of accident, was 64 degrees at 8 a. m., 72 degrees at 1 p. m. and 83 degrees at 4 p. m. on the day of the accident.

### Discussion

As No. 14 was approaching Fertile the speed was about 50 miles per hour. The enginemen were maintaining a look-out ahead from their respective positions in the cab of the engine, and the other members of the crew were in various locations throughout the train. The enginemen said that the engine was riding smoothly and that there was no indication of defective track. After the engine had passed the point where the derailment occurred, the enginemen observed that the train was being abnormally retarded. The fireman looked toward the rear of the train and saw that the rear cars were derailed. He called a warning to the engineer, who immediately placed the brake valve in the emergency position. The brakes of this train had been tested at East Grand Forks and had functioned properly when used en route.

Examination of the track after the accident occurred disclosed no indication of dragging equipment or of any obstruction having been on the track. The south rail had been creeping westward, and this movement had caused ties to bunch. At several locations adjacent ties were spaced as much as 38 inches apart. Many of the joints were not supported by ties and only a few joints were slot spiked. Throughout 65 rail lengths west of the point of derailment, only 58 rail anchors were provided to anchor the south rail. In many places, the cribs between the ties were less than half filled with ballast. Cross levels showed variations of from 1/4 inch to 1/2 inch, and some rail joints were 3/4 inch low. The gage varied between 4 feet 8-3/8 inches and 4 feet 8-7/16 inches.

The first mark of derailment was a flange mark on the head of the north rail. It extended from the receiving end of the rail to a point 14 feet 3 inches eastward, where it dropped outside the rail. Throughout a distance of 11 feet from the receiving end of the rail, the lip on the inside of the head was ground off, and the head was gouged deeply

3 feet 3 inches farther eastward. There was a flange mark 6 inches outside the rail and on the top of the first tie east of the point of derailment. At the point of derailment the track was deflected northward about 2 feet throughout a distance of 16 feet, then southward about 4 feet throughout a distance of 33 feet and then northward again about 1 foot throughout a distance of 33 feet. The rails on the north side of the track were overturned throughout a distance of about 360 feet east of the point of derailment.

Examination of the equipment of No. 14 disclosed no condition which would have caused or contributed to the cause of the accident.

The investigation disclosed that the track was ballasted in 1912 and no ballast had been added since that date. When ballast was needed to surface the track it was taken from the shoulders. The section foreman said that when the track was rebuilt after the accident occurred it was necessary to cut a section about 3 inches in length from the south rail. He also said that it had been necessary at least once each year to cut a section from the rail between Melvin and the point of accident during the summer months and to replace the rail from which the section was removed with a full-length rail during the winter months. The track supervisor last inspected the track about 3 hours 40 minutes before the accident occurred. He observed no abnormal condition of the track. The section force assigned to the section on which the accident occurred passed over the track on a track motor-car about 7 hours before the accident occurred, and no unusual condition was observed.

Apparently, the track structure had been creeping westward down the 0.6 percent descending grade for some time before the day of the accident, as ties were bunched in many places and the rails had become excessively compressed. The rise in temperature on the day of the accident would cause further compression in the rails. It is evident that the ballast was not adequate to prevent movement of the ties, and that there were not enough rail anchors provided to prevent the longitudinal movement of the rails. As a result, the track was compressed and insecure, and the vibration from the movement of No. 14 caused the track to be deflected laterally under the train sufficiently to permit the flange of a wheel of the rear truck of the fourth car to mount the north rail, and then drop outside the rail.

Cause

It is found that this accident was caused by insecure condition of the track.

Dated at Washington, D. C., this seventeenth day of October, 1949.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,  
Secretary.