Inv-2271

INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT OF THE DIRECTOR

BUREAU OF SAFETY

ACCIDENT ON THE

CHICAGO GREAT WESTERN RAILROAD

BOLTON, ILL.

MAY 25, 1938.

INVESTIGATION NO.2271

SUMMARY

Inv-2271

Railroad:	Chicago Great Western
Date:	May 25, 1938.
Location:	Bolton, Ill.
Kind of accident:	Derailment
Train involved:	Passenger
Train number:	2
Engine number:	733
Consist:	4 cars
Speed:	35-40 m.p.h.
Operation:	Timetable, train orders and automatic block-signal system.
Track:	Single; tangent; 0.38 percent ascending grade.
Weather:	Cloudy
Time:	6:37 a.m.
Casualties:	2 killed
Cause:	Spread rails, due to improperly maintained track.

June 14, 1938.

To the Commission:

On May 25, 1938, there was a derailment of a passenger train on the Chicago Great Western Railroad near Bolton, Ill., which resulted in the death of two employees.

Location and method of operation

This accident occurred on the Illinois Division, First District, which extends between Stockton and Chicago, Ill., a distance of 131.1 miles. In the vicinity of the point of accident this is a single-track line over which trains are operated by timetable, train orders and an automatic block-signal system. The accident occurred approximately 3 miles east of the station at Bolton. Approaching this point from the west the track is tangent for a distance of 3,471 feet, and this tangent extends for more than 1 mile beyond. The grade is slightly undulating, being 0.38 percent ascending for east-bound trains at the point of accident.

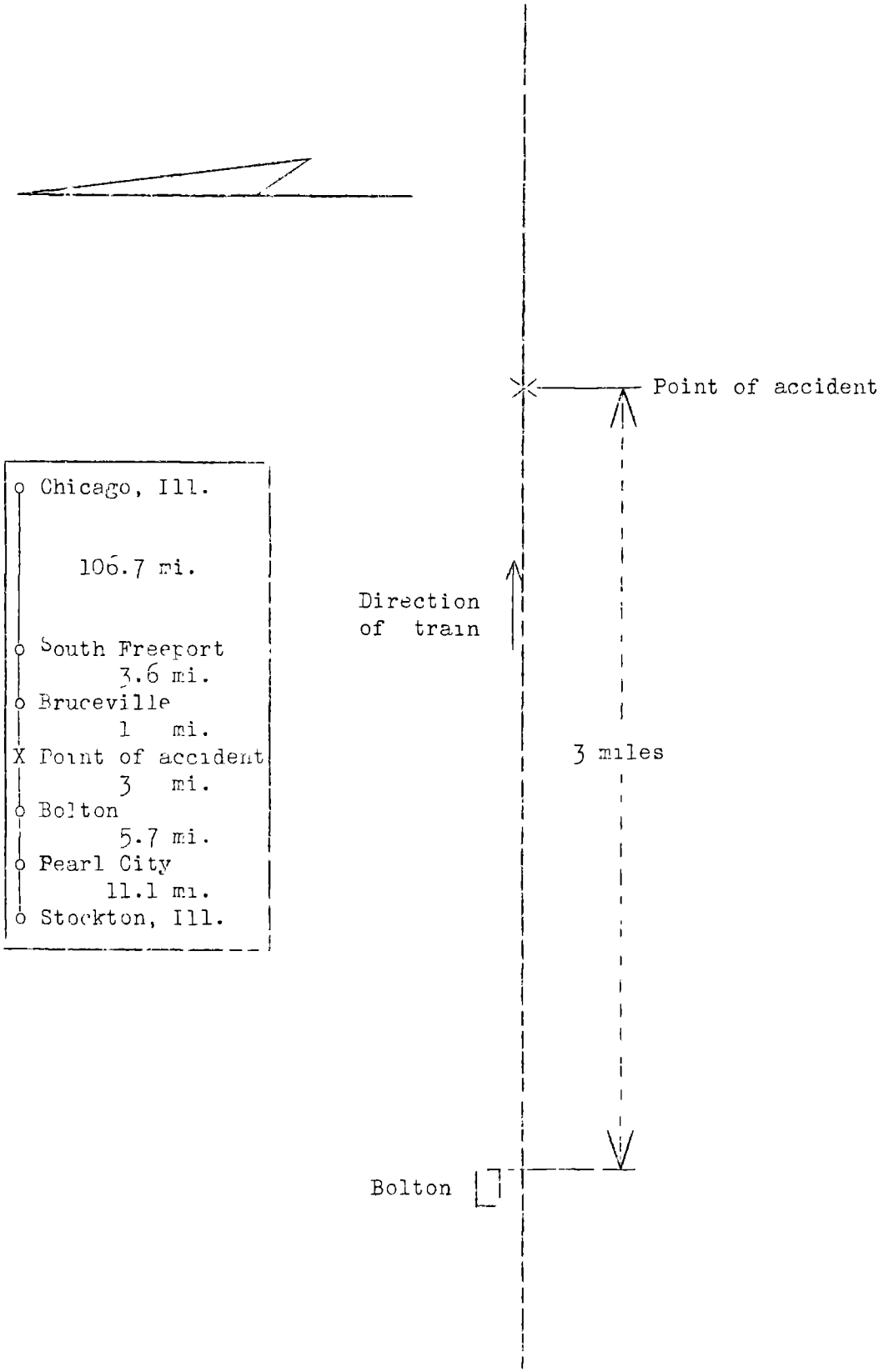
The track is laid with 100-pound rail, 33 feet in length, laid new in 1921, with 20 red oak and birch ties to the rail length, the curves being tie-plated with occasional tie-plated rails on tangent track; six rail anchors per rail are used and the track is ballasted with pit-run gravel to a depth of 34 inches.

Between the west switch at Pearl City and Bruceville, a distance of approximately 9.7 miles, within which territory this accident occurred, the speed of passenger trains is restricted by train order to 40 miles per hour, and of freight trains to 30 miles per hour.

The weather was cloudy and there had been some rain just prior to the time of the accident, which occurred about 6:37 a.m.

Description

No. 2, an east-bound passenger train, consisted of one baggage-express car, one mail-baggage car, one coach, and one Pullman cafe-sleeping car, in the order named, hauled by engine 735 of the 2-8-2 type, and was in charge of Conductor Welch and Engineman Gosnell. The cars were of all-steel construction with the exception of the first car which had a steel underframe. This train departed from Stockton, 16.2 miles from Bolton, at 6:11 a.m., according to the train sheet, 41 minutes late, and after passing Bolton was derailed while traveling at a speed estimated to have been between 35 and 40 miles per hour.



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Chicago Great Western R.R.
Bolton, Ill.
May 25, 1938

The engine stopped with its front end 630 feet beyond the first mark of derailment and approximately 26 feet south of the track; it was parallel to the track, leaned slightly to the right, and was embedded in dirt 5 feet deep. The tender remained coupled to the engine but stopped at right angles to the track; it was almost upright but was tilted down an embankment in such manner that it crushed the engine cab. The first car stopped at a slight angle across the track with its front end to the left of the track; it leaned to the right and was badly damaged. The next three cars were also derailed but only slightly damaged. The employees killed were the engineman and the fireman.

Summary of evidence

Conductor Welch stated that passing through Pearl City the speed had been reduced to about 40 miles per hour and this speed was maintained up to the time he felt the air brakes applied in emergency just before the derailment. After the train stopped he went back a distance of about 10 rail lengths and found that the rails were loose and were kicked out of position, which he thought was a result of the derailment. It was not raining at the time of the accident, but the ground was wet and water was in the ditches along the track. The accident occurred at 6:37 a.m.

The statement of Flagman Davis agreed with that of the conductor. He added that on his way back to Bolton after the accident he noticed that the track was soft and that the south rail was tipped over for a distance of from 6 to 10 rail lengths. Flagman Davis also stated that it had been raining over this division for a number of days prior to the accident.

Section Foreman Schaumberg stated that his section extended between mile posts 110.5 and 124.7, and that the accident occurred near mile post 111. His force consists of three men who work six days per week. He had last inspected the track from his motor car on the morning of May 24. At that time he did not gauge the track, and although there might have been a little wide gauge he did not consider it dangerous. With the exception of a portion of track about 4 miles west of the point of derailment, which had been re-tied by an extra gang two years previously, the ties are in very poor condition and approximately 40 or 50 percent are badly rail-cut. Recently he had been doing a great amount of work trying to keep the track properly gauged and some second-hand tie-plates had been applied where the track was spreading. Due to the large amount of rain that had fallen during the month of May the roadbed had become soft, causing the ballast to churn around the ties. The drainage was very poor and the ties were soft. About two years ago new rail anchors

had been applied from mile post 110.5 to mile post 113 but about 10 percent of these are broken at the present time. In the vicinity of the point of derailment there were a few cracked angle bars, but since they were not broken entirely through he considered them safe. About one-half mile east of the point of derailment a piece was broken out of the ball of the rail on the gauge side for about 2 inches, but he did not consider this to be large enough to be dangerous. After the accident the track was gauged and found to be 1¾ inches wide at the point of derailment; west of the point of derailment there was one place where it gauged 1 1/8 inches wide. The north rail at the point of derailment was tie-plated, there being about 20 tie-plates to the rail. On January 31 the officials had placed a speed restriction in that territory limiting the speed of passenger trains to 50 miles per hour and freight trains to 40 miles per hour. This order was in effect from February 1 to 9. A further restriction was then placed limiting the speed of passenger trains to 30 miles per hour and freight trains to 25 miles per hour between Bolton and Bruceville; this was the result of a derailment of a car. On February 11 the order was changed to 40 miles per hour for passenger trains and 30 miles for freight trains between the west switch at Pearl City and Bruceville, this order being in effect at the time of the accident.

Roadmaster Sukow stated that the speed restriction was placed on the territory in which the accident occurred due to the somewhat worn condition of the ballast and the continuous rains that spring, which had caused the ties to pump in the old gravel. He was last over this track on May 20, and at that time he observed nothing out of the ordinary except that the track was soft and that the cars rolled somewhat, due to pumping joints; however, under the existing speed restrictions he considered it safe. On arriving at the scene of accident he inspected the track and came to the conclusion that the engine was the first to be derailed. A joint in the north rail having been forced out 1¾ inches permitted the wheel to drop inside the rail. In checking the cross level and gauge from the point of derailment westward he found considerable variation in the gauge, with a maximum of 1 1/8 inches wide which was obtained by forcing the rails out under pressure by the use of a bar. Line and general surface of track were fair and should not have caused an engine or cars to roll badly when maintaining the speed permitted by train order. At the time of the accident work on ties and tie plates in this location had been scheduled to begin within a few days.

Division Engineer Rutherford stated that he was a passenger on No. 2 on the morning of the accident. A check of track conditions disclosed that the rails had been torn out of the roadbed

for a distance of 330 feet and from that point westward the rails had been kicked, spread, and partly turned over for a distance of 328 feet to a point where a joint in the north rail had been shoved out 1¾ inches and the wheel tread had marked the angle bar. West of this joint there was no evidence that any part of the equipment had been dragging. Careful inspection of the ties for a distance of 7 rail lengths or more west of the point of derailment revealed that approximately 20 percent of the ties were in poor condition, although none of the ends of the ties were broken off. Within this distance there were from 1 to 5 tie-plates on each rail, with the exception of one rail which did not have any. From the point of derailment a mark on the lower edge of the ball of the north rail extended from the first joint involved in the derailment westward for a distance of 11 feet 9 inches; there was a similar mark 4 inches in length at a point 15 feet 1 inch west of the first joint involved. A similar mark on the south rail became visible at a point 3 feet 6½ inches west of the first joint involved and extended along the rail for a distance of 11 feet 4 inches westward. At the time of his inspection he thought this mark had been caused by something dragging along the gauge side of the rail and had forced the north rail out. He considered the track safe for a speed of 40 miles per hour. He further stated that it had rained during ten days in May up to the time of the accident.

Road Foreman of Engines Hartman stated that he rode engine 733, on No. 2, from Graf to Dubuque on the morning of the accident and made an inspection of the engine at both of these points. He found that the engine had no excessive lateral in driving boxes, engine trucks or trailers. All flanges were good. Engine truck frame and "A" frame were in good condition, and the engine was well lubricated. He did not find any defects and did not make any work report. He got off the engine at Stockton but later, on learning of the accident, he went to the scene and made another inspection. After the engine had been raised it was found that the pilot was bent backward against the engine truck frame and a piece of rail about 4 feet in length was wedged through the pilot on the left side and was against the engine truck frame at about its center. The right front engine truck pedestal was broken off next to the frame, this being a new break. The right back pedestal was bent backward, and the left front and back pedestals were bent backward. Bolts in the right side of the engine truck "A" frame were sheared off and on the left side bolts were sheared off and plate was bent backward about 20 inches. The trailer "A" frame carrier had been sheared off which allowed the front end of "A" frame to drop down and off center lug. The driving wheels, driving springs and rigging were in good condition.

Car Inspectors Strong and Krum inspected No. 2 before its departure from Oelwein and made an air brake test, and nothing wrong was noted.

Observations of Commission's Inspectors

At the time of inspection by the Commission's inspectors the track had been repaired, but the rails which had been in the track in the vicinity of the point of initial derailment were still in service in the same location. The marks of derailment were found to coincide with those described by the Division Engineer.

Inspection of the engine disclosed nothing that could have contributed to the accident. The marks on the wheels and flanges appeared to have been a result of the derailment. The left engine truck wheel had a scrape mark on the outside of the tread and a dent on the outside of the tread. The left front driving wheel had a scrape mark on the outside of the tread.

Discussion

The evidence was to the effect that the track in the vicinity of the point of accident was in poor condition; the ties were badly rail cut and generally in bad condition and had been churning due to the recent large amount of rainfall and poor drainage. The gauge was irregular; after the accident it was found to be 1¾ inches wide at the point of accident. Measurements taken for a distance of 20 rail lengths west thereof showed the gauge to vary from 1/8 to 3/4 inch wide, and at one point it was possible to make the gauge 1 1/8 inches wide by forcing the rail with a bar. The section foreman stated that he had been doing a great amount of work recently trying to keep the track properly gauged, and that in combatting the tendency of the rails to spread he had been applying second-hand tie-plates. Cross-levels indicated a variation of from 3/4 inch high to 1/8 inch low. That the condition of the track was well known to the officials is evidenced by the fact that it had been protected by a slow order for more than 3 months and provision had been made to recondition the track from Pearl City to Bruceville. Marks on the gauge side of the north rail, coupled with scrape marks on the outside of the left engine truck wheel and a dent near the outside edge of the tread of that wheel, indicated that the left engine truck wheel was the first to be derailed. There were no flange marks on the top of the rail at any point, indicating that the rail either canted outward or spread under pressure and allowed the wheels to drop inside.

Inspection of the engine before and after the accident indicated that it was in good mechanical condition, and no defects

were found that could have contributed to the cause of the accident. The statements of the surviving members of the crew as well as the position of the wreckage indicate that the speed was not in excess of the maximum authorized speed of 40 miles per hour.

Conclusion

This accident was caused by spread rails, due to the track not being properly maintained.

Respectfully submitted,

W. J. PATTERSON,

Director.