Inv-2176

INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT OF THE DIRECTOR

BUREAU OF SAFETY

ACCIDENT ON THE

ILLINOIS CENTRAL RAILROAD

HILLSTEE, TENN.

MAY 29, 1957

INVESTIGATION NO. 2176

SUMMARY

Inv-2176

Railroad:	Illinois Central
Date:	May 29, 1937
Location:	Hillside, Tenn.
Kind of accident:	Derailment
Train involved:	Freight
Train number:	Extra 108-265
Engine numbers:	108 and 265 - G.M.&N.
Consist:	44 cars and caboose
Speed:	40-45 miles per hour
Track	1° left curve; 0.71 percent descending grade
Time:	10:25 p.m.
Weather:	Clear
Casualties:	3 killed; 7 injured
Cause:	Broken rail

To the Commission:

On May 29, 1937, there was a derailment of a Gulf, Mobile & Northern Railroad freight train on the Illinois Central Railroad at Hillside, Tenn., which resulted in the death of three trespassers and the injury of seven trespassers.

Location and method of operation

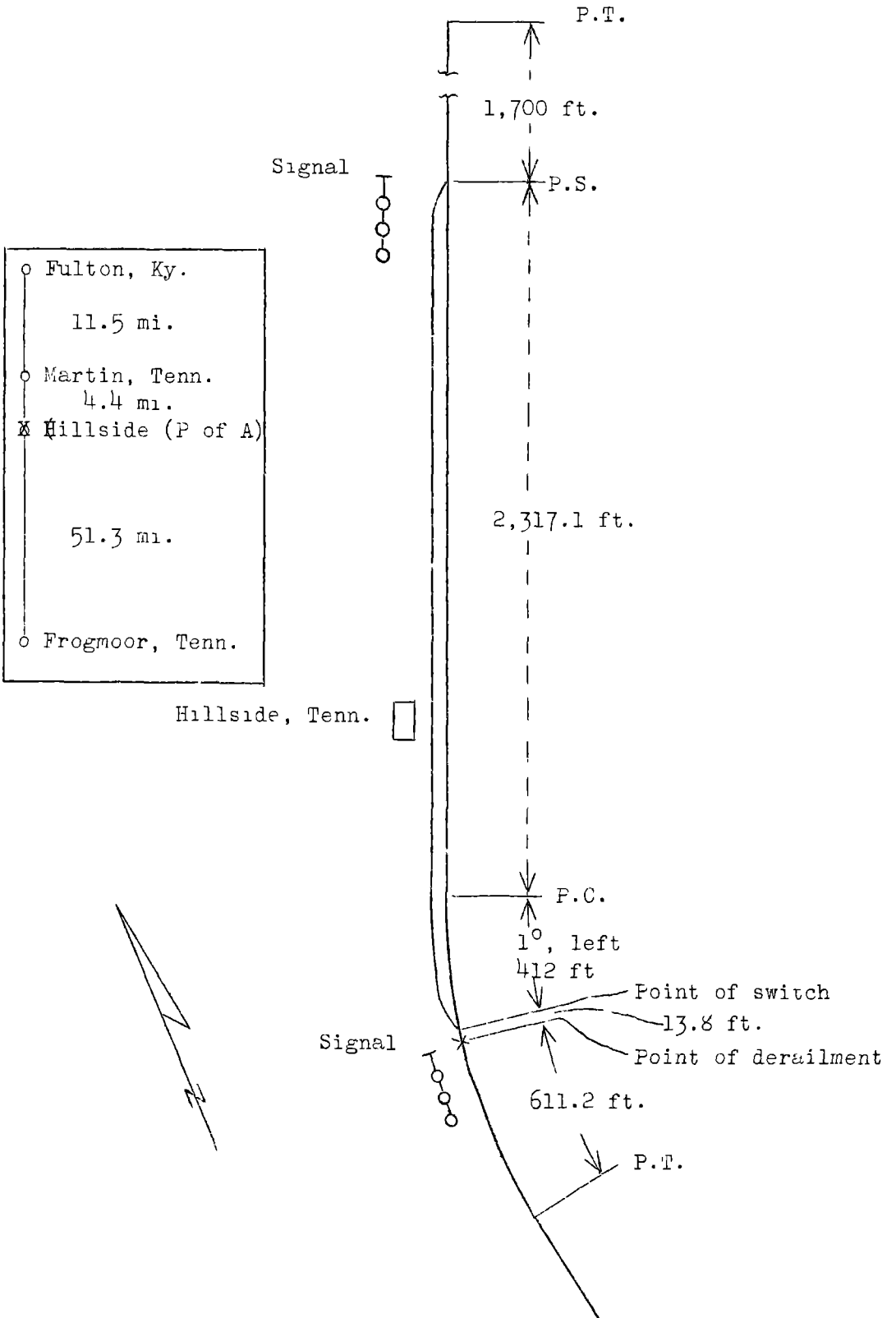
This accident occurred on that part of the Cairo District of the Mississippi Division which extends between Fulton, Ky., and Frogmoor, Tenn., a distance of 67.2 miles; in the vicinity of the point of accident this is a single track line over which trains are operated by timetable, train orders and an automatic block-signal system. At Hillside, 15.9 miles south of Fulton, a siding 2,729 feet in length parallels the main track on the west; the accident occurred at a point 13.8 feet south of the south switch of this siding. For southward trains, automatic signals of the color-light type are located near the north and south switches; the indications are red, yellow and green for stop, caution and proceed, respectively.

Approaching the point of accident from the north the track is tangent for more than 4,000 feet, then there is a 1° curve to the left 1,037 feet long, the accident occurring on this curve at a point 425.8 feet from its northern end, at which point the track is laid in a cut having walls about 15 feet in height. The grade in this vicinity is 0.71 percent descending for southward trains.

The track was laid in 1922 with 90-pound rail 33 feet in length, an average of 18 treated ties and 4 rail anchors to the rail length, fully tie-plated and single spiked except at switches where stock rails are double spiked; it is ballasted with 5 inches of slag on top of 4 inches of gravel and is well maintained.

Between Fulton, Ky., and Frogmoor, Tenn., the Gulf, Mobile & Northern Railroad, hereinafter referred to as the G.M.&N., operates freight trains, in charge of its own employees, on the Cairo District of the Illinois Central Railroad, hereinafter referred to as the I.C. The maximum speed permitted for dispatch freight trains is 45 miles per hour.

The weather was clear at the time of the accident, which occurred at 10:25 p.m.



Inv. No. 2176
Illinois Central R.R.
Hillside, Tenn.
May 29, 1937

Description

Train G.M.&N. Extra 108-265 coupled, a southbound dispatch freight train, consisted of 44 cars and a caboose, hauled by engines 108 and 265, and was in charge of Conductor Crumpton and Enginemen Pugh and Ford.

This train departed from Fulton at 9:42 p.m., left Martin, the last open office, 4.4 miles north of the point of accident at 10:12 p.m., according to the train sheet, and was derailed near the south switch at Hillside while traveling at a speed estimated to have been between 40 and 45 miles per hour.

Engine 108, the leading engine, was not damaged and stopped at a point approximately 863 feet south of the initial point of derailment with all wheels on the rails except the left rear wheel of the tender which stopped on the web of the overturned east rail. Engine 265 stopped immediately behind the leading engine with all wheels derailed except the right front engine truck wheel; the tender remained coupled to the engine but overturned to the left, both engine and tender being slightly damaged. The first 25 cars were derailed and stopped at various angles to the track within a distance of approximately 720 feet behind the engines, the 6th, 11th, 20th and 23rd cars being destroyed, while the remainder were badly damaged. Approximately 900 feet of the track was damaged.

Summary of evidence

Engineman Pugh, of engine 108, stated that the air brakes were reported all operative at Paducah and functioned properly en route. Approaching Hillside all signals showed clear indications and the speed was not in excess of 45 miles per hour. Near the south switch he heard an unusual popping sound under the engine and instantly applied the brakes in emergency at the same time looking back and noting that fire was flying from under the second engine. The engine rode roughly until it stopped. Shortly after the accident occurred he examined engine 108 and found nothing that would have caused the derailment. Prior to the derailment the engine did not sway or ride roughly and it was his opinion that the accident was caused by a broken rail or spread track.

Both Fireman Liddell, of engine 108, and Head Brakeman Wallace, who was riding on the left side of engine 108, corroborated the statement of Engineman Pugh, but had formed no opinion concerning the cause of the derailment.

The statements of Engineman Ford and Fireman Taylor of engine 265, agreed with that of Engineman Pugh regarding events preceding the derailment and also with regard to speed and signal indications.

Engineman Ford made an examination of engine 265 after the accident and found nothing that would have caused the derailment, and said the engine rode well and he had experienced no swaying or nosing. He examined the track after the derailment and found no indication that anything had been dragging under the train.

Conductor Crumpton was on the left side of the cupola and Rear Brakeman Ford was on the right side, passing Hillside. Their first intimation of the derailment was the sudden stopping of the train. They observed no unusual slack movement in the train en route and nothing unusual occurred in the operation of the train prior to the derailment.

Master Mechanic Fox accompanied by Trainmaster Ellington and Traveling Engineer Harrington, all of the I.C., arrived at the scene of the accident about 3 hours after its occurrence. The master mechanic and the traveling engineer inspected engines 108 and 265 and detected nothing wrong with either engine; after daybreak, a close inspection of the equipment was made but they could not find any defects that would contribute to the cause of the accident. Later in the day Master Mechanic Fox examined a broken rail which had been found and which showed an old fracture from the top of the ball of the rail downward a distance of about 3/4 inch and the remainder of the surface appeared to be a new break. It was his opinion that the rail was broken when the leading engine passed over it and that the second engine turned the rail over and ran in its web. He could find nothing but the broken rail that would have caused the derailment.

Trainmaster Ellington stated that the first joint on the east rail was 13 feet 8 inches south of the switch point of the south passing-track switch; 27 inches south of that point the rail was broken and the 27-inch section was buried in the dirt but still attached to the rail immediately north thereof. He found no flange marks north of the joint or on the 27-inch section; the first flange marks were in the web of the east rail just south of the break and continued southward a distance of about 10 feet. The first flange marks on the ties appeared on the west side immediately south of the break in the east rail. The track in the vicinity of the passing-track switch was disturbed but this was probably due to the fact that 10 cars were piled up in the cut about 2 rail lengths north of

the broken rail, thus causing a heavy rebound in the following equipment: The break in the rail appeared to be an old flaw, being discolored a reddish brown at the top and outside of the ball which was not visible while in the track; it did not appear to be a transverse fissure, and the receiving end was not battered. He further stated that a broken rail does not always cause the automatic block signal to display a stop indication.

Master Mechanic McIntosh, of the G.M.&N., inspected engine 108 after the derailment and found it to be in good condition, and it was not necessary to remove it from service. General Foreman Darnell, of the G.M.&N., inspected engine 265 on June 2nd and 3rd and no defects were found that had existed prior to the time of the accident.

Section Foreman Powell examined the south passing-track switch and the track in that immediate vicinity or the day prior to the derailment and found everything to be in good condition. He had not experienced any trouble with the track buckling in the past 9 years, and has not had to replace any broken rails during the last few months.

Track Supervisor Purcell checked the gauge of the track immediately north of the point of the accident on May 21 and again after the accident and found it to be good. The curve on which the derailment occurred has 2 inches of superelevation as required by the railroad's rules. He said a Sperry Detector car passed over the track in this vicinity on February 17 but found no defective rails. It was his opinion the rail broke under the weight of the leading engine, and the second engine canted the rail and caused it to turn over. He did not think the break in the rail was caused by a transverse fissure.

Engineer of Tests McEwen, of the I.C., stated that the 90-pound rail in question was manufactured by the Illinois Steel Co., being rolled in November, 1921, heat No. 40369, and was 33 feet in length. He made an analysis of the rail on June 4 and found no defects in the steel; the analysis is as follows:

Carbon	0.65%
Manganese	0.76%
Phosphorus	0.022%
Sulphur	0.031%
Silicon	0.20%
Brinell	241 (3000 kg - 10 mm ball)
New break	Grain structure O. K.

In working order the total weight of engine 108, a 2-8-2 type locomotive, is 196,100 pounds, of which 153,200 pounds rests on the drivers; the weight of the tender, loaded, is 138,000 pounds. In working order the total weight of engine 265, a 2-10-0 type locomotive, is 254,000 pounds of which 227,000 pounds rests on the drivers and the weight of the tender, loaded, is 177,000 pounds.

An inspection by the Commission's inspectors at the scene of the accident disclosed no track conditions that would have contributed to the cause of the accident and there was no indication that anything had been dragging under the train. The broken rail was joined to the stock rail of the south passing-track switch on the east side of the track at a point 13 feet 8 inches south of the switch; measured on the ball of the rail the break was 27 inches south of this rail joint, and extended diagonally through the web to the base of the rail. The location of flange marks was as described heretofore by officials of the railroad.

Discussion

As the leading engine of G.M.&N. Extra 108-265 south passed a point approximately 16 feet south of the south switch at Hillside, a popping sound like one which might be caused by a broken rail was heard by engine employees and a similar sound was heard when the second engine reached the same point; the derailment followed immediately thereafter. A rail on the east side of the track was found broken at a point 15 feet 11 inches south of the south switch. Trainmaster Ellington and Master Mechanic Fox stated that this break showed evidence of an old flaw at the top and outside of the ball of the rail, and Master Mechanic Fox indicated that this old flaw extended about three-fourths of an inch down into the ball. Engineer

of Tests McEwen, who made a test of the broken rail, pronounced the break new and stated that the grain structure at the fracture was good. The fact that the broken ends of the rail were buried in the dirt during the derailment may account for this discrepancy in the statements of the officials. The cause of the rail failure was not determined.

No weight limits are in effect in the territory in which the derailment occurred, but rail breakage is not frequent.

No defects were found in the locomotives or cars that would have caused the derailment, nor was there any indication that any equipment under the train had been dragging.

Conclusion

This accident was caused by a broken rail.

Respectfully submitted,

W. J. PATTERSON,

Director.