INTERSTATE COMMERCE COMMISSION

WASHINGTON

INVESTIGATION NO. 2706

THE CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS RAILWAY COMPANY

REPORT IN RE ACCIDENT

NEAR KESSLER, OHIO, ON

JUNE 13, 1943

SUMMARY

Railroad:	Cleveland, Cincinnati, Chicago & St. Louis
Date:	June 13, 1943
Location:	Kessler, Ohio
Kind of accident:	Derailment
Train involved:	Freight
Train number:	91
Engine number:	2265
Consist:	67 cars, caboose
Estimated speed:	23 m. p. h.
Operation:	Timetable and train orders
Track:	Single; 3° left curve; 0.63 percent descending grade westward
Weather:	Clear
Time:	About 12:47 p. m.
Casualties:	2 killed
Cause:	Kinked track

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 2706

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

THE CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS RAILWAY COMPANY

July 16, 1943.

Accident near Kessler, Ohio, on June 13, 1943, caused by kinked track.

REPORT OF THE COMMISSION[1]

PATTERSON, Commissioner:

On June 13, 1943, there was a derailment of a freight train on the Cleveland, Cincinnati, Chicago & St. Louis Railway near Kessler, Ohio, which resulted in the death of two employees.

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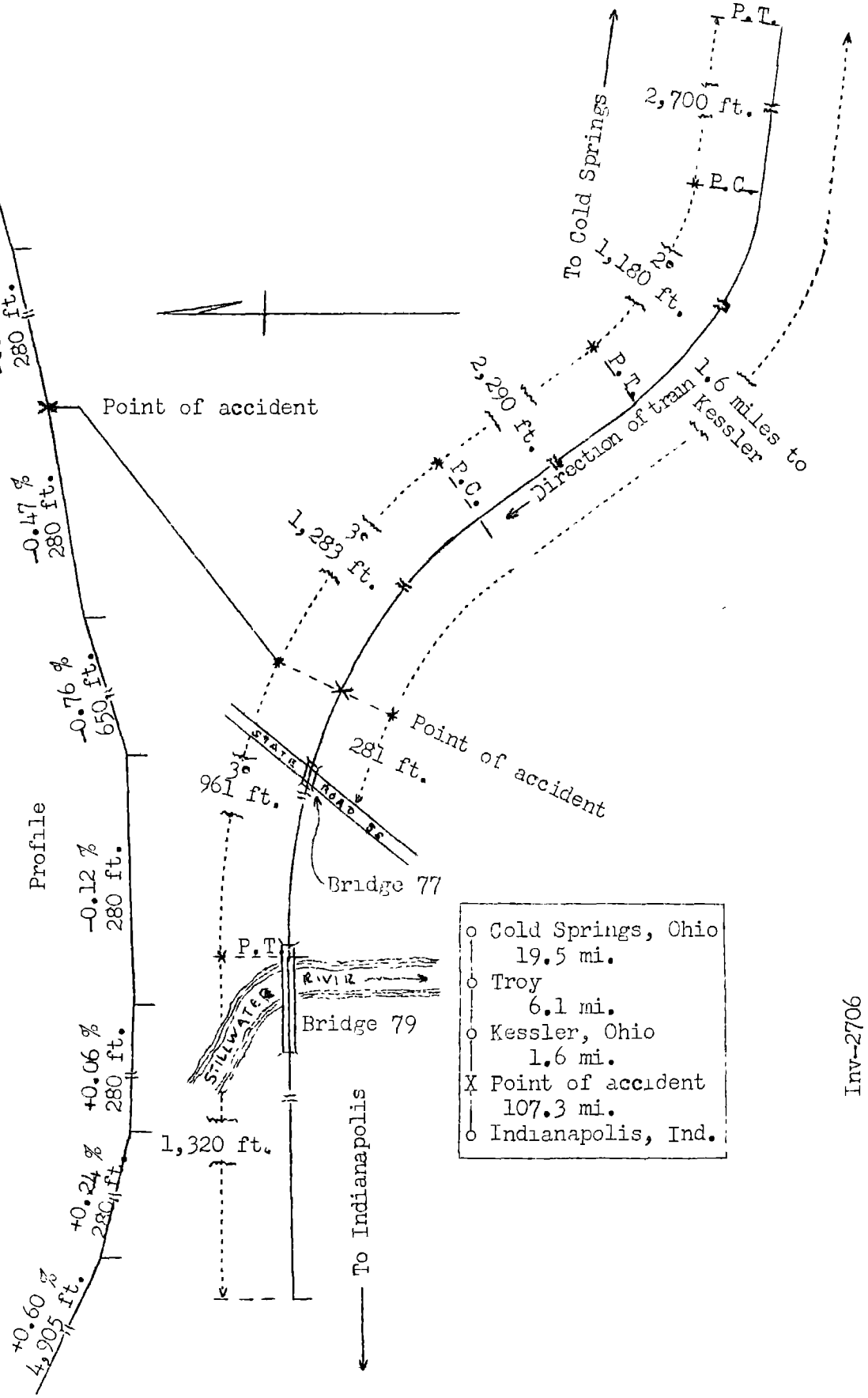
[1]Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Commissioner Patterson for consideration and disposition.



Inv-2706
Cleveland, Cincinnati, Chicago & St. Louis Railway
Kessler, Ohio
June 13, 1943

Location of Accident and Method of Operation

This accident occurred on that part of the Indiana Division which extends between Cold Springs, Ohio, and Indianapolis, Ind., 134.5 miles. In the vicinity of the point of accident this was a single-track line over which trains were operated by timetable and train orders. There was no block system in use. The accident occurred 1.6 miles west of Kessler. Approaching from the east there were, in succession, a tangent 2,700 feet in length, a 2° curve to the right 1,180 feet, a tangent 2,290 feet, a 3° curve to the left 2,244 feet, and a tangent 1,320 feet. The accident occurred on the latter-mentioned curve 1,283 feet west of its eastern end. The grade for west-bound trains was descending, successively, 0.60 percent 8,940 feet, 0.53 percent 280 feet to the point of accident, 0.47 percent 280 feet, 0.76 percent 650 feet, 0.12 percent 280 feet, then it was ascending, successively, 0.06 percent 280 feet, 0.24 percent 280 feet and 0.60 percent 4,905 feet.

On the curve involved the track was laid on a fill, the maximum height of which was 15 feet. The track structure consisted of 105-pound cropped rail, 30-1/2 feet in length, relaid in 1931 on 18 ties to the rail length. It was fully tieplated with single-shoulder tieplates, single-spiked, provided with 6-hole angle bars 36 inches in length and 3 to 5 rail anchors per rail length, and was ballasted with gravel to a depth of about 12 inches. In the center, the cribs were practically full of ballast, but on the shoulders there was practically no ballast above the level of the bottoms of the ties. The maximum superelevation on the curve was 5-1/2 inches and the gage varied between 4 feet 8-3/8 inches and 4 feet 8-3/4 inches. At the point of accident the superelevation was 5-1/2 inches and the gage was 4 feet 8-1/2 inches.

The east abutments of Bridges 77 and 79 were located, respectively, 280.7 feet and 900.9 feet west of the point of derailment. Bridge 77 spanned State Road 55 and Bridge 79 spanned Stillwater River. These bridges were, respectively, 50.7 feet and 515.1 feet long. Each bridge was provided with 90-pound steel inner guard rails and 5 by 8-inch timber outer guard rails. The inner guard rails were connected together near the center-line of the track a short distance east and west of each bridge.

The maximum authorized speed for freight trains was 30 miles per hour.

Description of Accident

No. 91, a west-bound second-class freight train, consisting of engine 2265, 50 loaded and 17 empty cars and a caboose, departed from Cold Springs, 25.6 miles east of Kessler, at 9:42 a. m., according to the dispatcher's record of movement of trains, 7 hours 27 minutes late, departed from Troy, 6.1 miles east of Kessler and the last open office, at 12:28 p. m., 9 hours 31 minutes late, and while moving on a 3° curve to the left at an estimated speed of 23 miles per hour the rear truck of the sixty-second car, the front truck of the sixty-third car and the rear truck of the caboose were derailed to the left at a point 1,283 feet west of the eastern end of the curve.

The engine and the first 62 cars remained coupled and stopped with the engine standing about 3,600 feet west of Bridge 79. The sixty-third car became separated from the sixty-second car and stopped with the front end standing 230 feet east of the rear of the sixty-second car. The front truck of the caboose became detached and stopped on the track against the rear truck of the rear car. The body of the caboose and its rear truck overturned to the left 153.8 feet west of the east abutment of this bridge and dropped into the river. The caboose was demolished and the sixty-second and sixty-third cars were slightly damaged.

The temperature recorded at noon on June 13 at Springfield, Ohio, 30.9 miles east of Kessler, was 92 degrees. It was clear at the time of the accident, which occurred about 12:47 p. m.

The conductor and the flagman were killed.

Discussion

No. 91, consisting of engine 2265, 67 cars and a caboose, was moving on a 3-degree curve to the left at an estimated speed of 23 miles per hour, in territory where the maximum authorized speed was 30 miles per hour, when the rear truck of the sixty-second car, the front truck of the sixty-third car and the rear truck of the caboose became derailed to the left 1,283 feet west of the east end of the curve. The enginemen and the front brakeman, who were the only surviving members of the crew, stated that prior to the occurrence of the accident the engine was riding smoothly and there was no indication of defective condition of the track. The first they knew of anything being wrong was when the air brakes became applied in emergency, and the train stopped abruptly.

After the accident a section of track 45 feet long on the 3-degree curve to the left was found to be deflected to the left. The maximum deflection, which was 13 inches, was located midway of this section, and it formed a 26-degree curve to the left. Beginning at a point 22.5 feet west of the east end of the displaced track, a flange mark extended diagonally outward across the head of the low rail a distance of 5 feet. Westward from the west end of this mark, the ties bore wheel marks outside the low rail and inside the high rail, and they were badly gouged and broken to the point where the sixty-second car stopped. The left outer guard rails of the bridges were destroyed. The east end of the inner guard rail of each bridge was damaged. The left outer cap stone of the second pier of Bridge 79 and the upper course of stone beneath the cap stone were displaced 7 inches outward.

The last train to pass the point where the derailment occurred was an east-bound freight train, which passed about 6 hours 45 minutes prior to the time the accident occurred. The members of the crew of that train did not observe any unusual condition. The track foreman last inspected the track in this vicinity on the day previous to the occurrence of the accident, and no unusual condition was observed.

The curve on which the accident occurred was realined in September, 1941. During the past 2 years there had been no unusual displacement of the track structure. Officials of the railroad who examined the track soon after the derailment occurred were of the opinion that the displacement of the track was caused by high temperature, and that the displacement occurred as No. 91 was moving on the curve. When the track was being repaired after the occurrence of the accident, it was necessary to cut a section of rail 6 inches long from both the high and the low rail to permit the track to be realined properly.

The displacement of the track occurred on a descending grade westward where the gradient changed from 0.63 percent to 0.47 percent. Beginning at a point 1,210 feet west of the point of derailment there was a 0.06 to 0.60 percent ascending grade westward. The rails on the gradients would have a tendency to creep toward the bottom of the grades and thereby cause the rails at the lower ends of the grades to be compressed. As it was necessary to shorten the rail on the curve sufficiently to permit the track to be realined properly it is evident that the rail had crept down the grade and caused the rail joints to be compressed. Only three to five rail anchors to the rail length probably were not sufficient to prevent longitudinal movement of the rails. The ballast was washed gravel and did not afford much resistance to lateral or longitudinal movement of the track structure. In addition, the

ballast on the outside shoulder extended only slightly above the level of the bottoms of the ties. Evidently the track was deflected sharply outward as a result of low resistance to lateral movement of the track structure and the rails being compressed at the joints on account of creeping and of high temperature.

The track became deflected after the engine passed that portion. Considering the low rate of speed of the train in relation to the curvature and the high superelevation, the flanges of the wheels on the low side of the curve would be compressed against the gage side of the low rail. Apparently the curvature of the deflected portion was so sharp that flanges of three cars in the rear portion of the train climbed to the top of the low rail and crossed to the outside of that rail.

Cause

It is found that this accident was caused by kinked track.

Dated at Washington, D. C., this sixteenth day of July, 1943.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,

Secretary.