

INTERSTATE COMMERCE COMMISSION
WASHINGTON

INVESTIGATION NO. 3166
CAROLINA AND NORTHWESTERN RAILWAY COMPANY
REPORT IN RE ACCIDENT
NEAR HUDSON, N. C., ON
FEBRUARY 17, 1943

SUMMARY

Railroad: Carolina and Northwestern
Date: February 17, 1948
Location: Hudson, N. C.
Kind of accident: Derailment
Train involved: Freight
Train number: Extra 440-546 North
Engine numbers: 440-545
Consist: 30 cars, caboose
Estimated speed: 25 m. p. h.
Operation: Timetable and train orders
Track: Single; tangent; 0.31 percent
descending grade northward
Weather: Clear
Time: 4:40 p. m.
Casualties: 1 killed; 2 injured
Cause: Broken rail

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 3166

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

CAROLINA AND NORTHWESTERN RAILWAY COMPANY

May 17, 1948

Accident near Hudson, N. C., on February 17, 1948,
caused by a broken rail.

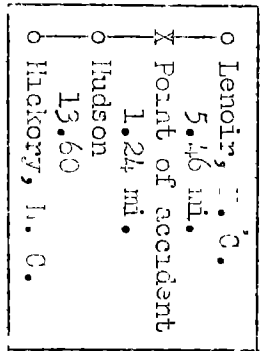
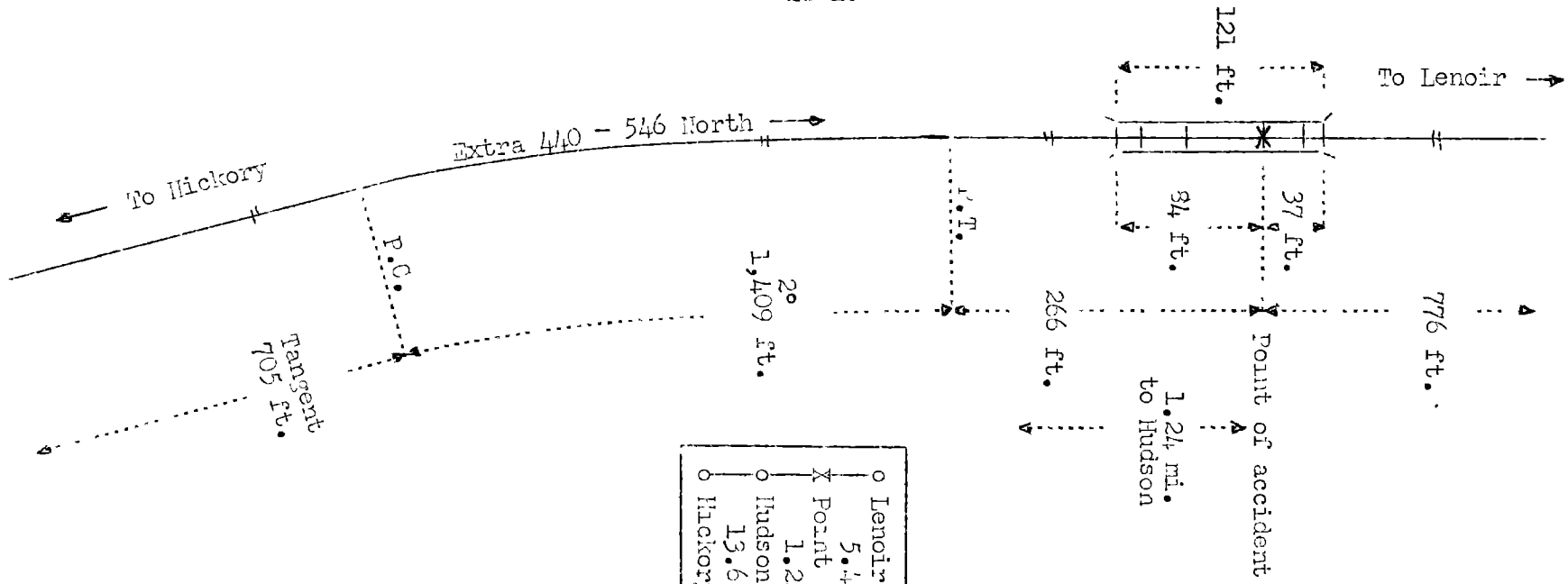
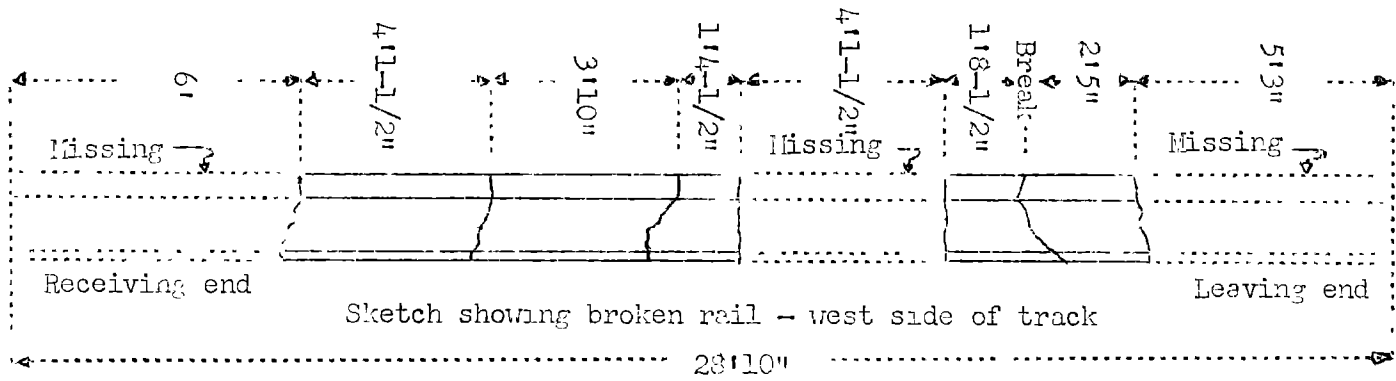
REPORT OF THE COMMISSION¹

PATTERSON, Commissioner:

On February 17, 1948, there was a derailment of a freight train on the Carolina and Northwestern Railway near Hudson, N. C., which resulted in the death of one employee, and the injury of two employees.

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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. No. 3166
 Carolina and Northwestern Railway
 Hudson, N. C.
 February 17, 1948

Location of Accident and Method of Operation

This accident occurred on that part of the railroad extending between Hickory and Lenoir, N. C., 20.3 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 a bridge which spans Connelly Pond Creek, at a point 14.84 miles north of Hickory and 1.24 miles north of the station at Hudson. From the south there are, in succession, a tangent 705 feet in length, a 2° curve to the right 1,409 feet and a tangent 266 feet to the point of accident and 776 feet northward. The grade for north-bound trains varies between 1.54 and 2.53 percent descending throughout a distance of 2,600 feet, then there are, successively, a vertical curve 300 feet and a 0.31-percent descending grade 80 feet to the point of accident and 20 feet northward.

The bridge, reconstructed during 1939, was 121 feet long and spanned the creek at an angle of 90°. The approach at the south end consisted of a timber trestle 14 feet long and a steel girder 26 feet long, and the approach at the north end consisted of a timber trestle 11 feet long and a steel girder 26 feet long. The central structure consisted of a steel girder 44 feet long. The south end of the south approach and the north end of the north approach were supported by piling. The north end of the south approach, the south end of the north approach, and each end of each girder were supported by timber piers. Each pier was supported by concrete pedestals extending to solid rock. The timber trestles consisted of 3-ply 8-inch by 14-inch treated stringers. Each pier consisted of 12-inch by 12-inch untreated cypress timbers. The steel girders were of the conventional deck-plate type. The 26-foot girders were constructed of web plates 30-1/4 inches wide and 1/2-inch thick, braced with 6-inch by 6-inch by 5/8-inch angle cross frames. The 44-foot girder was constructed of web plates 54-1/4 inches wide and 1/2-inch thick, braced with 6-inch by 6-inch by 1/2-inch angle cross frames, 5-inch by 3-1/2-inch by 3/8-inch stiffener angles, and 3-1/2-inch by 3-1/2 inch by 3/8-inch lateral angles. Each end of each girder was seated on three 12-inch by 12-inch timbers. The distance between the centerlines of the girders was 7 feet. The maximum height of the bridge was 34.8 feet. At the time of the accident the creek was 10 feet wide and 2 feet deep.

On the bridge the track structure consisted of 75-pound relay rail, averaging 28 feet 10 inches in length, laid during 1947 on 8-inch by 8-inch by 10-foot creosoted bridge ties,

spaced 14 inches center to center. It was fully tieplated, single-spiked, and provided with new 4-hole joint bars 24 inches in length. Tie spacing was maintained by two 6-inch by 8-inch untreated timber guard rails, dapped 2 inches to receive the ties, and located outside of each rail near the ends of the ties. The involved rail section was manufactured by the Maryland Steel Company during 1902, and was used in the tracks of the Southern Railway until a short time before its purchase by the Carolina and Northwestern Railway Company. It was straightened, cropped and rebored before being relaid on the bridge during September, 1947. The heat number was not legible.

The maximum authorized speed for the train involved was 30 miles per hour.

Description of Accident

Extra 440-546 North, a north-bound freight train, consisting of engines 440 and 546, 30 cars and a caboose, departed from Hudson, the last open office, 1.24 miles south of the point of accident, about 4:35 p. m., and while it was moving on the bridge 1.24 miles north of Hudson at an estimated speed of 25 miles per hour the second engine and the first 12 cars were derailed.

The first engine became separated from the second engine as a result of the derailment. The first engine stopped immediately north of the bridge. The second engine and its tender, remaining coupled, overturned to the left and stopped on their left sides, in line with the bridge and on the north embankment of the creek. The cab was demolished, and the engine and tender were badly damaged. The first 11 cars stopped at the bottom of the creekbed and on the north embankment. The twelfth car stopped practically upright, with the front end on top of the wreckage and the rear end on the south embankment. The first 11 cars were demolished, and the twelfth car was badly damaged. The bridge structure collapsed during the derailment and was demolished.

The fireman of the second engine was killed. The engineer of the second engine and the flagman were injured.

The weather was clear at the time of the accident, which occurred about 4:40 p. m.

Discussion

Extra 440-546 North was moving on tangent track at an estimated speed of 25 miles per hour, in territory where the maximum authorized speed was 30 miles per hour, when the second engine and the first 12 cars were derailed at a point 34 feet north of the south end of the bridge.

The enginemen of the first engine, and the front brakeman, who was on the first engine, said that the first they knew of anything being wrong was when they heard an unusual noise to the rear, and saw the second engine overturn to the left. The engineer of the second engine, and the flagman, who was seated on the left side of the second engine, said they felt the left side of the engine drop suddenly just before it overturned. The fireman was killed. Prior to the accident, the engines and the cars were riding smoothly, and there was no indication of dragging equipment, defective track or of any obstruction having been on the track.

After the accident five pieces of a broken rail were recovered from the debris of the wreckage and the collapsed bridge. The total length of these pieces was 13 feet 5-1/2 inches. The remaining 15 feet 4-1/8 inches of this rail was not recovered. The breaks were new, and there was no indication of defective metal at the location of these breaks. There were heavy batter marks at the receiving ends of two of the breaks, but none on the leaving end of either break. Marks on the left front engine-truck wheel of the second engine of Extra 440-546 North indicate that it had been in contact with the end of a broken rail and that this wheel was the first to become derailed. Evidently, the first break occurred in that portion of the rail that was not recovered. Apparently, the failure of the rail at the first break occurred some time prior to the derailment, but the broken piece remained in normal alignment until the left rear tender-truck wheel of the first engine passed over it, then the second break occurred and this piece of rail became displaced and the derailment of the second engine followed. The remainder of the breaks in the rail occurred immediately after the first wheel became derailed. Marks on the bridge ties, on the west girder of the 26-foot span at the north end of the bridge, on the pilot of the second engine and on the strap bolts at the back end of the left main rod of this engine indicate that when the left engine-truck wheel was derailed bridge ties were shoved forward by the engine pilot, then the left 26-foot girder was displaced outwardly and the collapse of the bridge occurred as the engine overturned.

The bridge was last inspected by the engineer of maintenance of way on January 27, 1948. The track and the bridge were inspected by the section foreman about 24 hours before the derailment occurred. No defective condition of the bridge or the track was found during either of these inspections. Prior to the time of the accident, no rail-detector car had been operated on this line.

Cause

It is found that this accident was caused by a broken rail.

Dated at Washington, D. C., this seventeenth day of May, 1948.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,
Secretary.