Inv-2308

INTERSTATE COMMERCE COMMISSION

WASHINGTON

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REPORT OF THE DIRECTOR

BUREAU OF SAFETY

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ACCIDENT ON THE

ILLINOIS CENTRAL RAILROAD

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BELMONT, MISS.

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NOVEMBER 9, 1938

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INVESTIGATION NO. 2308

## SUMMARY

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| Railroad: | Illinois Central |
| Date: | November 9, 1938. |
| Location: | Belmont, Miss. |
| Kind of accident: | Derailment |
| Train involved: | Freight |
| Train number: | No. 175 |
| Engine number: | 1494 |
| Consist: | 37 loads, 1 empty and caboose |
| Speed: | 50 m.p.h. |
| Track: | Tangent |
| Weather: | Clear |
| Time: | 11.38 p.m. |
| Casualties: | 1 killed, 4 injured |
| Cause: | Broken truck side-frame |

To the Commission:

On November 9, 1938, there was a derailment of a freight train on the Illinois Central Railroad near Belmont, Miss., which resulted in the death of 1 trespasser and the injury of 4 trespassers.

## Location and Method of Operation

This accident occurred on that part of the Mississippi Division designated as the Birmingham District which extends between Frogmoor, Tenn., and Haleyville, Ala., a distance of 134.4 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 on a 5-foot fill at a point 5,010 feet south of the station at Belmont. Approaching from the north the track is tangent more than a mile to the point of accident and a considerable distance beyond. The grade varies from 0.094 to 0.4 percent descending southward, being practically level at the point of accident.

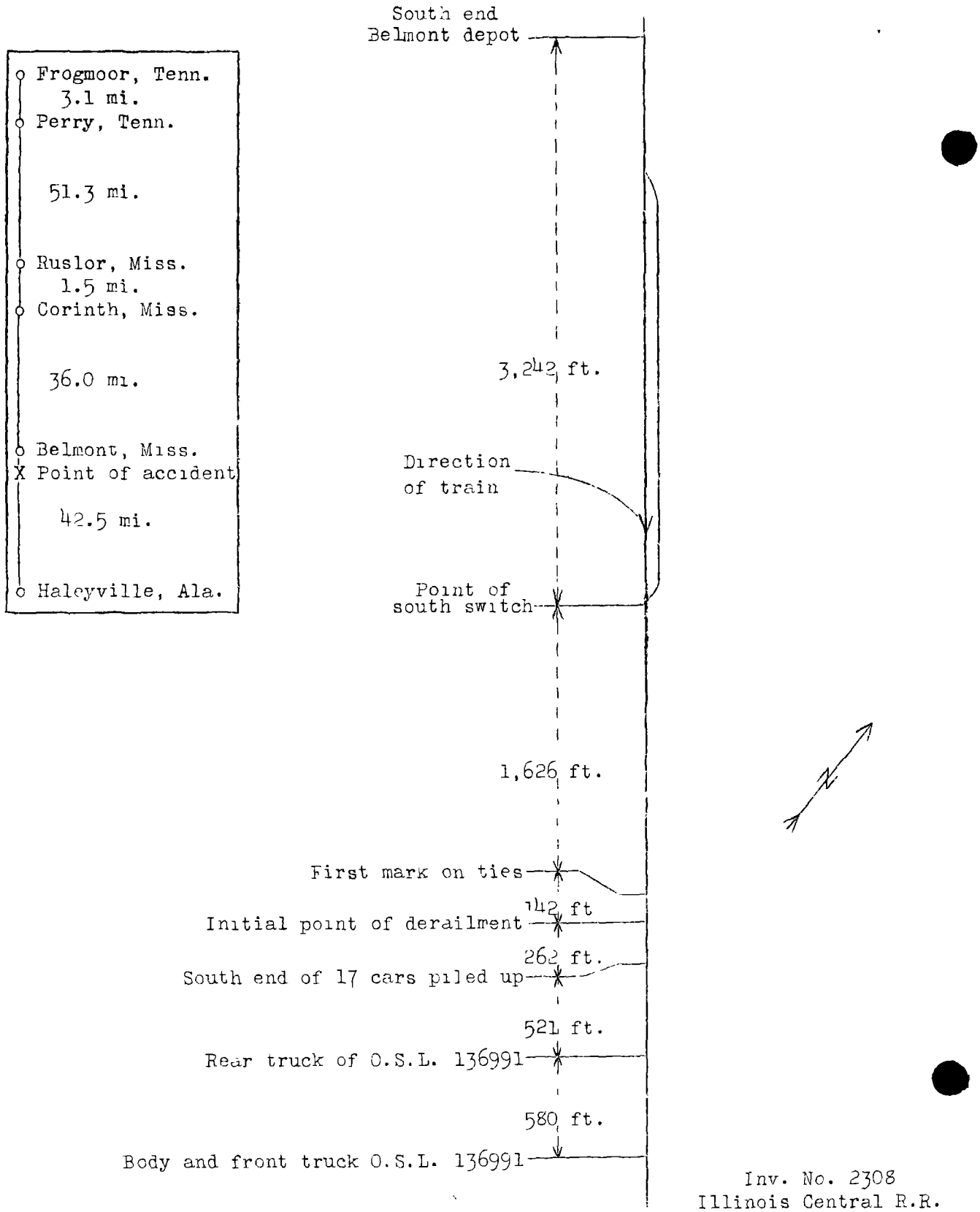
The track structure consists of 90-pound rail, 33 feet in length, laid on 20 creosoted ties to the rail length; it is single-spiked, fully tie-plated, provided with four to six rail anchors to the rail length, ballasted with 10 inches of slag, and is well maintained.

The maximum authorized speed for dispatch trains with converted Mikado engines is 60 miles per hour.

The weather was clear at the time of accident, which occurred about 11:38 p.m.

## Description

No. 175, a second-class south-bound freight train, designated as Cuban Dispatch CD 1, consisted of 44 loaded cars, 1 empty car and a caboose, hauled by engine 1494, a converted Mikado type, and was in charge of Conductor Ray and Engineman Cartmell. This train left Frogmoor, 91.9 miles north of Belmont, at 8:20 p.m., according to the train sheet, 2 hours 40 minutes late, arrived at Corinth, the last open office, 36 miles north of Belmont, at 10:20 p.m., where seven cars were set out and, after taking coal and water, departed at 10:42 p.m., 2 hours 42 minutes late; shortly after passing the station at Belmont, this train was




Inv. No. 2308
Illinois Central R.R.
Belmont, Miss.
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derailed while traveling at a speed estimated to have been 50 miles per hour.

The engine, tender, first eleven cars and the lead truck of the twelfth car were not derailed; the twelfth car, O.S.L. 136991, remained coupled to the front portion of the train and stopped, badly damaged, with the rear end of the body on the ground 6 feet east of the east rail and at a point 1,363 feet south of the initial point of derailment; the rear truck became derailed and detached from the car and stopped at a point about 580 feet north of the body of the car. The thirteenth to twenty-ninth cars, inclusive, were piled up immediately south of the initial point of derailment within a distance of about 262 feet and were practically destroyed. The front truck of the thirtieth car was derailed; this car was only slightly damaged.

Summary of Evidence

Engineman Cartmell stated that prior to departure from Frogmoor an air-brake test was made and he was informed that all brakes were working. The first stop was made at Perry, 3.1 miles south of Frogmoor, and the next or last stop north of the point of accident was at Corinth, at which point cars were set out, and water and coal were taken; the train departed at 10:42 p.m. Approaching Belmont, he did not apply the brakes but eased off on the throttle and observed that the signal was in proceed position. No. 176 was on the siding at Belmont and No. 175 passed at a speed of about 50 miles per hour; a short time thereafter the brakes became applied. After stopping, he went back to make an examination and found that twelve cars remained coupled to the locomotive, but the rear truck of the twelfth car was missing. This car had been dragged in this condition about 30 rail lengths before the train stopped. He also observed that about eight rail lengths north of this point there were seventeen or eighteen cars piled up in a distance of two or three rail lengths. There were marks on the east ends of the ties which indicated that something had been dragged across them; he thought these marks were caused by a broken truck side-frame on the twelfth car. At no time during the trip was the speed of his train in excess of 55 miles per hour; the air brakes functioned properly en route, the engine was in first-class condition, the train handled normally and there were no rough spots or other conditions in the track that would have caused the accident. It was his opinion that the broken truck side-frame was the cause of the accident.

Fireman Aaron corroborated the statement of the engine-

man and added that when meeting No. 176 at Belmont, he was on his seatbox and he received a "highball" signal from the crew of that train. He looked his train over at various points, the last time being on the curve about a mile north of Belmont.

Head Brakeman Lann's statement coincided with those of the engineman and the fireman. In addition he stated that he looked back over the train, on both sides, on practically all curves and observed nothing wrong. At Corinth he remained at the head end, but observed that the conductor and the flagman looked around the train; the flagman came up on one side of the train and returned toward the rear on the opposite side.

Conductor Ray's statement corroborated that of Engineman Cartmell as to the operation of the train from Frogmoor to the point of accident and in addition he stated that when passing Perry and also when passing Ruslor, 51.3 miles farther south, orders were handed up by operators but no signals were given by them indicating that anything was wrong with the train. After setting out cars at Corinth, the air brakes were tested by the crew and were found to be working all right. He and the flagman inspected the train; the flagman went forward on the east side and accompanied the conductor toward the caboose on the west side of the train; they used a light which was held near the cars and nothing irregular was found. Approaching Belmont, the conductor looked the train over on the curve to the left and saw no sparks, nor anything out of the ordinary. He estimated that his train was traveling at a speed of about 50 miles per hour when the air brakes became applied, the accident occurring at 11:38 p.m., shortly after which he went forward and found the wreckage as described by the engineman. His examination developed that the east truck side-frame of the rear truck of the twelfth car, O.S.L. 136991, was broken; the fracture appeared to be new. It was his opinion that the accident was caused by this broken truck side-frame.

Flagman Johns stated that he looked the train over at all advantageous points and nothing unusual or irregular was observed.

Car Inspector Ragsdale, who was the only inspector on duty at Frogmoor when No. 175 was being prepared for departure, stated that he inspected all cars in the train in which O.S.L. 136991 arrived at that point and also when cars were assembled for No. 175 at 7:53 p.m. He stated that he made an inspection on both sides of these trains and took no exception to any of the cars. When engine 1494 was coupled to the cars he made the proper air-brake test and reported to the engineman that all brakes were operating.

Assistant Division Engineer Woodson, Train Master Ellington and Superintendent Caulfield rode over this track at 11:30 a. m., on the date of the accident, and did not observe anything out of the ordinary with track conditions.

Division Engineer Pittman stated that he arrived at the point of the accident at 11:30 a. m., November 10. He made an inspection of the track southward from the depot at Belmont and found no marks indicating that any equipment had been dragging until reaching a point 4,368 feet south of the station where he observed fresh marks on the east ends of the ties, which appeared to have been caused by some object about six inches wide having been dragged across the ties. These marks continued one rail length and at a point 142 feet farther south flange marks appeared on the ties inside of the west rail, following which the track was destroyed a distance of 262 feet; seventeen cars were piled up in the area of the destroyed track. He made a casual inspection of the rear truck of O.S.L. 136991, and observed that the truck side-frame was broken near the oil box. He stated that he gaged the track from the south switch to the point of accident and found it to be in good condition.

Master Mechanic Fox, in company with Car Foreman Rowley, arrived at the scene of the accident at 3:30 a.m., November 10, and their statements were to the effect that after daylight they made a thorough examination of the equipment. They found that the east truck side-frame of O.S.L. 136991 was broken about eight inches from the oil-box; the break was new, although there were some sand holes in the casting; also, there was a fracture that had started from the inside but did not extend through to the outside, evidently existing from the time the casting was made. They stated that this flaw could not have been detected by inspection other than by means of heating or breaking. It was their opinion that this broken truck side-frame was the cause of the accident.

O.S.L. 136991 was a steel underframe box car, 40 feet 6 inches in length, with composite body, corrugated steel ends, and metal roof; it was built in August, 1914, and was in fair condition. The truck involved was equipped with 100,000-pound capacity Vulcan type "T" truck sides with removable journal boxes; the truck sides were cast in July, 1914. This car was provided with cast-steel truck bolsters with rocker-type side bearings, cast iron wheels, and 5½ by 10-inch journals. The circumference of the wheels was uniform. This car was loaded with 233 bars of copper

bullion shipped from Garfield Smelter, Utah, November 4, destined to Perth Amboy, N. J.; the gross weight was 158,920 pounds, tare weight 46,220 pounds, and net weight 112,700 pounds. The stencilled load limit was 169,000 pounds. Master Mechanic Fox further stated that he went over the track and observed nothing unusual until reaching the point where the first car was derailed, at which point there were indications on the east side of the track that the bottom frame of the truck side had dropped down, struck the ties, skipped possibly six or eight ties and then traveled to the ends of the ties. He stated the records indicated that O.S.L. 136991 arrived at Paducah, Ky., at 2:35 p.m., November 9, and departed at 3:10 p.m.; at this point it received inbound and outbound inspections. No further mechanical inspection was made until arrival at Frogmoor at 7:45 p.m., where it was given inbound and outbound inspections by Inspector Ragsdale.

Engineer of Tests McEwen made a chemical analysis of the steel in the broken side frame, ASF 6650 E, with the following results:

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| Carbon | .33 percent, |
| Manganese | .47 percent, |
| Phosphorus | .035 percent, |
| Sulphur | .031 percent. |

He stated that the analysis corresponds with cast steel in such castings. He further reported that the frame broke in the "T" section approximately 8½ inches inside of the axle center and 4 inches below the crown of the box opening where the frame rested on the box. A concealed progressive fracture started from the inner side of the frame, in the lower side of the "T" section, where a series of blow and shrink holes so weakened the section as to result in overstressing the casting. In his opinion this failure was due to a very poor casting, the defects of which were not visible.

Observationsof Commission's Inspectors

The Commission's inspectors made an inspection of the track a distance of approximately 4,000 feet north of the point of accident. A gauge and cross-level check was made a distance of about 1,700 feet and no track conditions were found that would have contributed to the cause of the accident. They found the marks on the ties to be as described by the division engineer. An examination of the equipment disclosed a broken truck side-frame on the east side of

O.S.L. 136991; this was a progressive oxidized fracture and a series of blow and shrink holes appeared on the inside of the lower "T" of the lower arch at a point about 8¼ inches from the journal box center line. The broken truck side-frame bore the following marks: A S F 6650, Pat. 5 3 10, 5½ x 10, Dr, 7 - 14. U P R R CCS 694.

## Discussion

The evidence is to the effect that the twelfth car in the train, O.S.L. 136991, a composite-body steel-underframe box car loaded with copper bullion, was the first car to become derailed; this was caused by a defect in the lower side of the "T" section of the truck side-frame on the east side of the rear truck of the car. The car in question was not overloaded and had been inspected in the train by a car inspector at Frogmoor and by members of the train crew at Corinth. The air brakes were tested and they functioned properly en route. According to the evidence neither speed nor track conditions had any bearing on the accident. Examination of the failed truck side-frame and report of the engineer of tests disclosed that a progressive fracture had started from the inner side of the frame in the lower side of the "T" section, where a series of blow and shrink holes so weakened the section as to result in overstressing the casting. This fracture did not extend through to the outside and it could not be seen in ordinary inspections.

## Conclusion

This accident was caused by the failure of a truck side-frame.

Respectfully submitted,

W. J. PATTERSON

Director.