

INTERSTATE COMMERCE COMMISSION

WASHINGTON

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REPORT OF THE DIRECTOR

BUREAU OF SAFETY

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ACCIDENT ON THE

ATLANTIC COAST LINE RAILROAD

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CHILDS, FLA.

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APRIL 2, 1937

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INVESTIGATION NO. 2167

SUMMARY

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Inv-2167

Railroad: Atlantic Coast Line  
Date: April 2, 1937  
Location: Childs, Fla.  
Kind of accident: Derailment  
Train involved: Freight  
Train number: 2nd 176  
Engine number: 410  
Consist: 21 cars, caboose  
Speed: 45 m.p.h.  
Track: Tangent; 0.10 percent descending grade  
Weather: Cloudy  
Time: 11:58 p.m.  
Casualties: 1 injured  
Cause: Failure of arch-bar truck

Inv-2167

May 24, 1937.

To the Commission:

On April 2, 1937, there was a derailment of a freight train on the Atlantic Coast Line Railroad near Childs, Fla., which resulted in the injury of one employee.

#### Location and method of operation

This accident occurred on the Haines City Branch of the Tampa District, Southern Division, extending between Haines City and Lake Harbor, Fla., a distance of 129.3 miles; this is a single-track line over which trains are operated by timetable and train orders, no block-signal system being in use. A siding 2,887 feet in length, extending southward from near the station at Childs, parallels the main track on the west; the accident occurred about 48 feet north of the south switch of this siding. Approaching the point of accident from the south the track is tangent for approximately 2 miles, while the grade is 0.10 percent descending for north-bound trains.

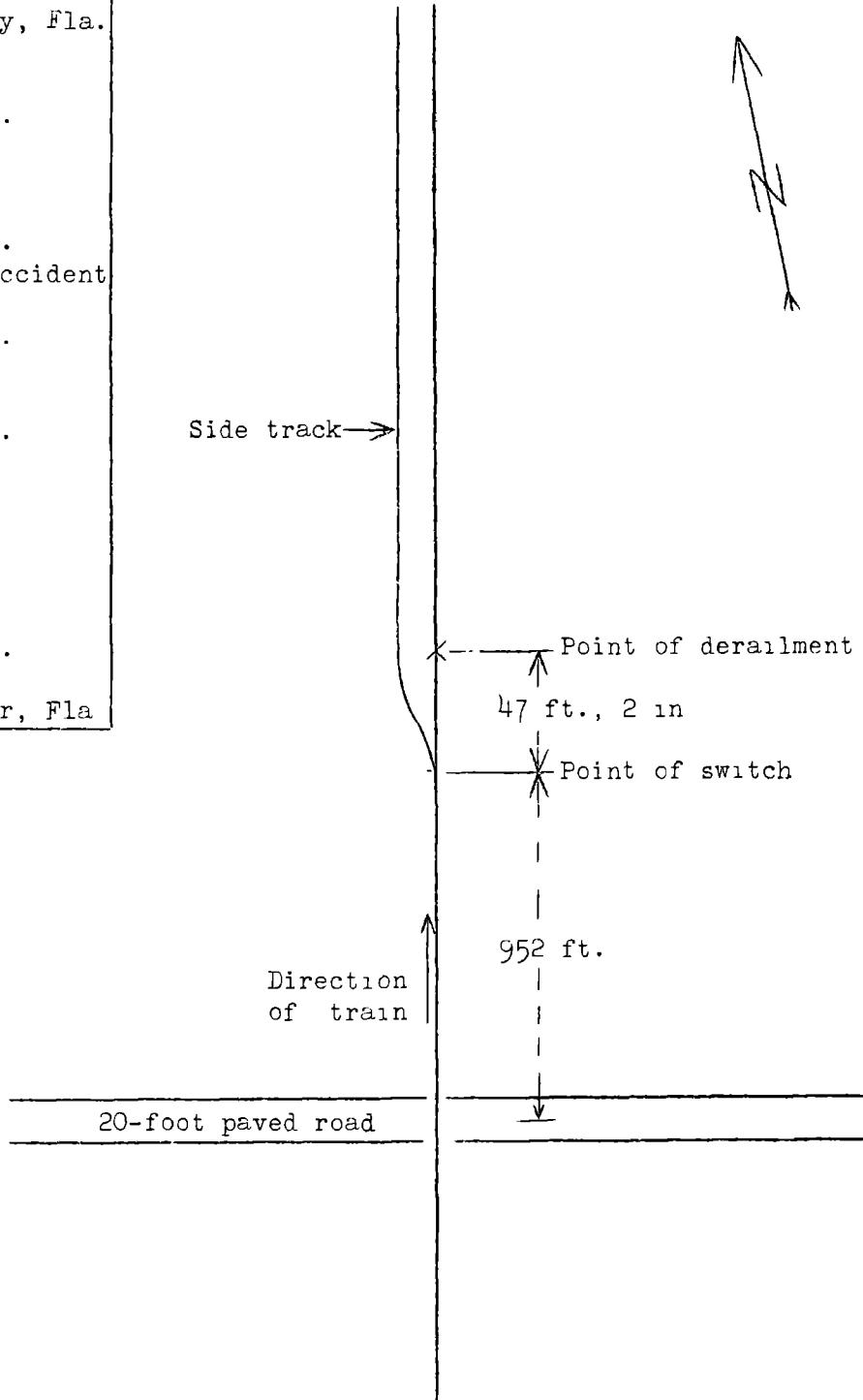
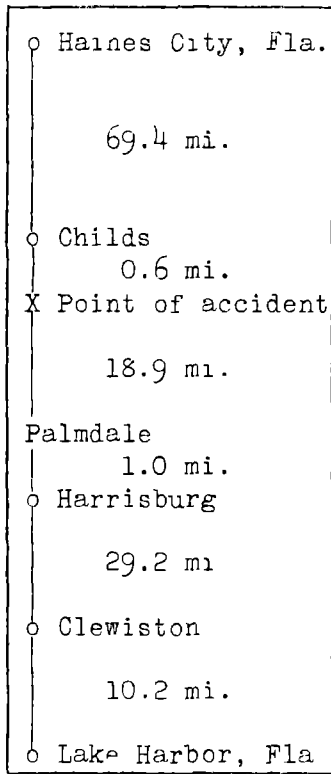
The track in the vicinity of the point of accident is laid with 85-pound rail, 33 feet in length, with 18 ties to the rail length, single-spiked and fully tieplated, and ballasted with about 10 inches of Florida flint-rock. The track is well maintained as to gauge, surface and alignment.

The maximum speed permitted for freight trains handling perishable commodities, is 45 miles per hour in that vicinity.

The weather was cloudy at the time of the accident, which occurred about 11:58 p.m.

#### Description

Second No. 176, a north-bound freight train, consisted at the time of the accident of 21 loaded cars, 10 of which were loaded with perishable freight, and a caboose, hauled by engine 410, and was in charge of Conductor Stillwell and Enginemen Jager. This train departed from Palmdale, the last point where a stop was made prior to the derailment, 19.5 miles south of Childs, at 11:25 p.m., according to the statements of the crew, and while approaching Childs, was derailed while traveling at a speed estimated to have been 45 miles per hour.



Inv. No. 2167  
 Atlantic Coast Line R.R.  
 Childs, Fla.  
 April 2, 1937

The engine and first 16 cars were not derailed and stopped with the rear of the 16th car about 1,700 feet north of the south switch of the siding; the 17th car, C.& N.W. 65172, was derailed together with the 4 cars and caboose comprising the remainder of the train; the 17th to 20th cars, inclusive stopped on their left sides west of the main track, blocking the siding from a point 600 feet to a point 857 feet north of the south switch; the 21st car and the caboose stopped on their right sides, east of the main track, 420 to 515 feet north of the south switch; the 5 cars and caboose were considerably damaged. The employee injured was a brakeman.

#### Summary of evidence

Engineman Jager stated that the air brakes were tested and functioned properly en route and the train handled properly. He looked back on all curves, the last time being at a point approximately  $1\frac{1}{2}$  miles south of the point of derailment, and saw nothing unusual in the operation of the train. The headlight was burning and he did not see anything on the track that would have caused the derailment. While approaching Childs at 11:58 p.m., at a speed of about 45 miles per hour, he felt the brakes being applied in emergency, and the train stopped within a distance of from 800 to 1,000 feet. After the accident, he went back to the frog of the south switch and saw a brake-beam lying in the ditch near a derailed car but he did not know from what car the brake-beam came. He made no examination of the track and formed no opinion as to the cause of the derailment but the conductor advised him that a brake-beam was the cause. There were no unusual track conditions, the engineman observing only one rough spot which was about 12 miles south of the point of derailment.

Fireman Butler looked back as the train rounded all curves and saw no unusual conditions. The brakes operated properly; his first intimation of anything wrong was when the brakes were applied in emergency at which time the speed was from 40 to 45 miles per hour, the train stopping within a short distance. The headlight was burning and nothing was observed on the track which might have caused the accident.

Conductor Stillwell inspected the west side of the train while taking coal and water at Harrisburg, 20.5 miles south of Childs; at Palmdale, 19.5 miles south of Childs, 8 cars were picked up and the entire east side of the train was inspected, the train departing from that point at 11:25 p.m. He observed the movement of the train from the east

side of the cupola and everything appeared to be running all right. When the train was passing over a highway crossing, 952 feet south of the south switch at Childs, at a speed of about 45 miles per hour, he saw fire flying 5 or 6 car-lengths ahead of the caboose and reached for the emergency valve just as the cars started to turn over. Following the accident he made an inspection to determine its cause but having only an oil lantern, all he was able to find was a brake-beam down but it was not thrown out of the truck frame. He did not see a broken arch bar. Conductor Stillwell stated that there are no car inspectors at Lake Harbor, the initial station of this train, or at Clewiston, 49.7 miles south of Childs where 11 cars of sugar, including C. & N.W. 63172, were added to the train.

Flagman Doty corroborated the statements of Conductor Stillwell with respect to the speed of the train, time of departure from Palmdale and the inspection given by the conductor. The brakes worked properly en route. The flagman inspected the east side of the train when pulling out of the sugar mill at Clewiston and inspected the west side at Harrisburg, observing nothing wrong. He also observed the train, from the west side of the cupola, on all curves between Clewiston and Childs; his first intimation of danger was when he saw a streak of fire about 5 car-lengths ahead of the caboose, at which time he thought the caboose had passed the south switch at Childs. Shortly after the occurrence of the accident, Flagman Doty went back to flag, he saw some slight marks at the switch-points and frog but no indication that anything had been dragging under the train.

General Mechanical Foreman Kennedy arrived at the scene of the accident about 7 hours after its occurrence. He made an inspection of the derailed cars but saw nothing in connection with the brake rigging that would have caused the derailment. The west side of the rear truck of C. & N.W. 63172, the farthest north of the derailed cars, was buried in the dirt; after the section men had cleared the dirt from the truck, he found what appeared to be a new break in the forward bend of the bottom arch bar, and later he noted a small crack in the top surface of the bar at the bend, beginning at a point 1.16 inches from the inside of the arch bar and measuring about 3/16 inch deep and 11/16 inch long; since the truck was painted and the crack was small, this defect could not have been discovered by ordinary inspection and there was no other indication that the arch bar was defective at the point of fracture. All of the column bolts and box bolts were intact. The general foreman examined the track from the wreckage to a point 5 miles south thereof; he found that something had come in contact with the stock rail

at the south switch of the siding at a point 16 feet north of the switch points; the mark, which appeared to have been made by something sliding on the rail, extended about 20 feet northward, to a point where flange marks appeared on the ties, indicating that a truck had been derailed at that point. There was no mark south of the switch except at a highway crossing 952 feet south thereof; this mark was a shallow groove in the planking, parallel to and from 6 to 8 inches outside the west rail. It was General Foreman Kennedy's opinion that the broken arch bar on car C. & N.W. 63172 was the cause of the accident. Trainmaster Blanc corroborated the statements of the general foreman with respect to the inspection of the track and the marks found south of the siding switch.

Car Foreman Anderson stated that C. & N.W. 63172 arrived empty in Lakeland yard on March 29, and was given class "A" mechanical inspection by qualified Car Inspectors Barrett and Tyre. In accordance with standard instructions governing the inspection of arch-bar and cast-steel trucks, they used a mirror in inspecting the arch bars and no defects were found on this car. The car left Lakeland, empty, the same day, after being given an out-bound inspection by Car Inspectors Roddenberry and Godboldt, also qualified inspectors, who found nothing wrong with the trucks on this car. On April 5, the car was moved from the scene of the accident to Lakeland in the wrecking train; an inspection developed that the bottom arch bar, on the left side of the rear truck, was broken at the forward bend. His statements concerning the small crack found in this arch bar agreed with those of General Foreman Kennedy. The top and bottom arch bars were  $1\frac{1}{2}$  inches by 5 inches, while the tie-bar was  $\frac{1}{2}$  inch by 5 inches; box bolts  $1\frac{1}{8}$  inches and column bolts  $1\frac{1}{2}$  inches in diameter, all of these dimensions being in accordance with the A.A.R. standards for an 80,000 pounds capacity journal.

Statements of Car Inspectors Barrett, Tyre and Davis are to the effect that they made mechanical "A" inspection of C. & N.W. 63172 when the car arrived in Lakeland on March 29; mirrors were used in examining the arch bars and no defects of any kind were found. Car Inspectors Roddenberry and Godboldt inspected the car just prior to its departure from Lakeland March 29 and found no defects.

Roadmaster Hatch passed over the track in the vicinity of the point of accident on April 1 at which time he found the track to be in good condition and considered it safe for a speed of 45 miles per hour. The roadmaster did not notice any marks on the planking of the crossing south of Childs at that time.

The wreckage had been cleared away and the track repaired prior to the arrival of the Commission's inspectors. They found that the first mark of derailment was a clearly defined flange mark on a switch-tie, inside the east rail of the main track, 47 feet 2 inches north of the point of switch, and a corresponding flange mark on a switch-tie, outside the west rail, 1 foot 9 inches farther north; these flange marks were continuous and led gradually to the west until they reached a point 123 feet 8 inches north of the switch; beyond this point the track was torn up and nearly all ties had been renewed for a distance of about 800 feet. There was also a flange mark on the top surface of the ball of the west rail of the main track, beginning at the inner side, 39 feet 4 inches from the switch point, and extending diagonally across the top of the rail for a distance of 2 feet 11 inches, which was almost to the location of the flange mark on the switch-tie. An abrasion was also visible on the outside of the ball of the stock rail of the siding, beginning at a point 16 feet from point of switch and extending northward for 20 feet; this mark appeared to have been made by some part of the damaged truck having contacted the outside of the ball of this diverging rail and having slid along that rail until the truck became derailed. A piece  $\frac{3}{8}$  inch by 2 inches was broken out of the point of the frog. Except at the highway crossing there were no marks south of the switch that indicated anything had been dragging; these marks were as described by General Mechanical Foreman Kennedy.

Inspection of C. & N.W. 63172 disclosed that it was built in April 1926 and has arch-bar trucks, A.A.R. class "C" axles, and 5 by 9 inch journals; the capacity is 80,000 pounds; light weight 45,200 pounds; load limit 90,800 pounds. At the time of the derailment this car was loaded with 81,875 pounds of raw sugar. The top and bottom arch bars are  $1\frac{1}{4}$  inches by 5 inches and the bottom tie bar is  $\frac{1}{2}$  inch by 5 inches; the bolt holes were found to be of the proper size and there was no material wear or elongation of the holes. The bottom arch bar on the west side of the rear truck was broken at its forward bend, at a point about 3 inches from the column bolt hole. The cross section of this fracture showed that it was a new and clean break, with the exception of a very small crack which extended downward from the top surface into the metal; this crack, however, showed no oxidation to indicate that it had existed for any considerable length of time. The top surface of the bar was heavily coated with paint and the small crack could not have been seen before the bar was broken apart. The column bolts and box bolts were intact but the nuts had been removed by a cutting torch. The inner edge of the bottom arch bar and the



bottom ends of the column bolts showed distinct cuts and abrasions such as would be produced by coming in contact with, and skidding along the rail. The body of the car was badly damaged.

#### Discussion

Car C. & N.W. 63172 arrived empty in Lakeland March 29 and after being given class "A" and an out-bound inspection, was dispatched empty the same day, no defects being noted during either inspection. The car was sent to Clewiston, 134.2 miles from Lakeland, where it was loaded with raw sugar; the loaded car left Clewiston in Train Second No. 170 the night of April 2, after being inspected by both the conductor and flagman. The train operated normally between Clewiston and the point of the derailment, a distance of approximately 49.5 miles; observations were made en route by both the train and the engine crews and there were no indications that anything was wrong until the train reached a point a short distance south of Childs; while proceeding at a speed of about 45 miles per hour, the conductor and flagman observed fire flying from under the train about 5 car-lengths ahead of the caboose and then the cars started to turn over, at which time the brakes were applied in emergency.

The first mark preceding the point of derailment was at a highway crossing 952 feet south of the south switch of the siding at Childs; this and subsequent marks indicated that the arch bar broke at, or just before reaching the road crossing and the truck sagged enough to permit the lower ends of the column bolts to scrape the surface of the crossing plank. It is evident that the truck sagged rather rapidly; as it approached the south switch of the siding, the arch bar and bottom ends of the column bolts were below the level of the top of the rails and on reaching the turnout rail of this switch, they struck and skidded along the outer edge of this rail, forcing the truck to the west until it became derailed. The abrasions on the arch bar, column bolts and outer edge of the turnout rail, together with the flange marks on top of the west main-line rail and ties, are conclusive that the derailment was caused by the failure of the arch bar.

The arch bar broke at the forward bend, on the west side of the rear truck; except for a small crack, this was a clean break. It was evident that this small crack could not have been detected by inspection prior to a complete separation of the bar at this point, which demonstrates, as in numerous similar instances, that regardless of care and precaution in

making inspections of such trucks, there are hazards in this type of construction that become evident only when they are dismantled or after disastrous results occur.

The car in question is stenciled for 80,000 pounds capacity with a load limit of 90,900 pounds; at the time of the accident it contained 81,875 pounds of raw sugar.

#### Conclusion

This accident was caused by the failure of an arch-bar truck.

#### Recommendations

Recommendations as to arch-bar trucks have been made in previous reports as follows:

1. That arch-bar trucks be removed from service at the earliest practicable date.
2. That until arch-bar trucks can be eliminated from service, a reduction sufficient to guarantee safety of operation should be made in the permissible load limit on cars equipped with such trucks.
3. That inflammables, explosives or other dangerous articles should not be transported in cars which are equipped with arch bar trucks.
4. That provision be made in interchange rules whereby a receiving line may refuse to accept from a connecting line any car equipped with arch-bar trucks.

Respectfully submitted,

W. J. PATTERSON,

Director.