

INTERSTATE COMMERCE COMMISSION
WASHINGTON

INVESTIGATION NO. 2481
THE SOUTHERN RAILWAY COMPANY
REPORT IN RE ACCIDENT
NEAR SANDERSVILLE, MISS., ON
JANUARY 28, 1911

SUMMARY

Railroad: Southern
Date: January 29, 1941
Location: Samburgville, Miss.
Kind of accident: Derailment
Train involved: Passenger
Train number: Seventh 41
Ex. line number: 6341
Consist: 11 cars
Speed: 40-45 m. p. h.
Description: Timetable, train orders and
automatic block-signal and
automatic train-stop system
Track: Single; 90° curve; 0.34 percent
ascending grade southward
Weather: Clear
Time: 11:57 a. m.
Casualties: 1 killed, 20 injured
Cause: Accident caused by driving wheels
knocking out top of rail as result of
failure of trailer-block
spring

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 2481

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

THE SOUTHERN RAILWAY COMPANY

April 1, 1941

Accident near Sandersville, Miss., on January 29, 1941,
caused by driving wheels becoming derailed as a
result of failure of trailer-truck spring.

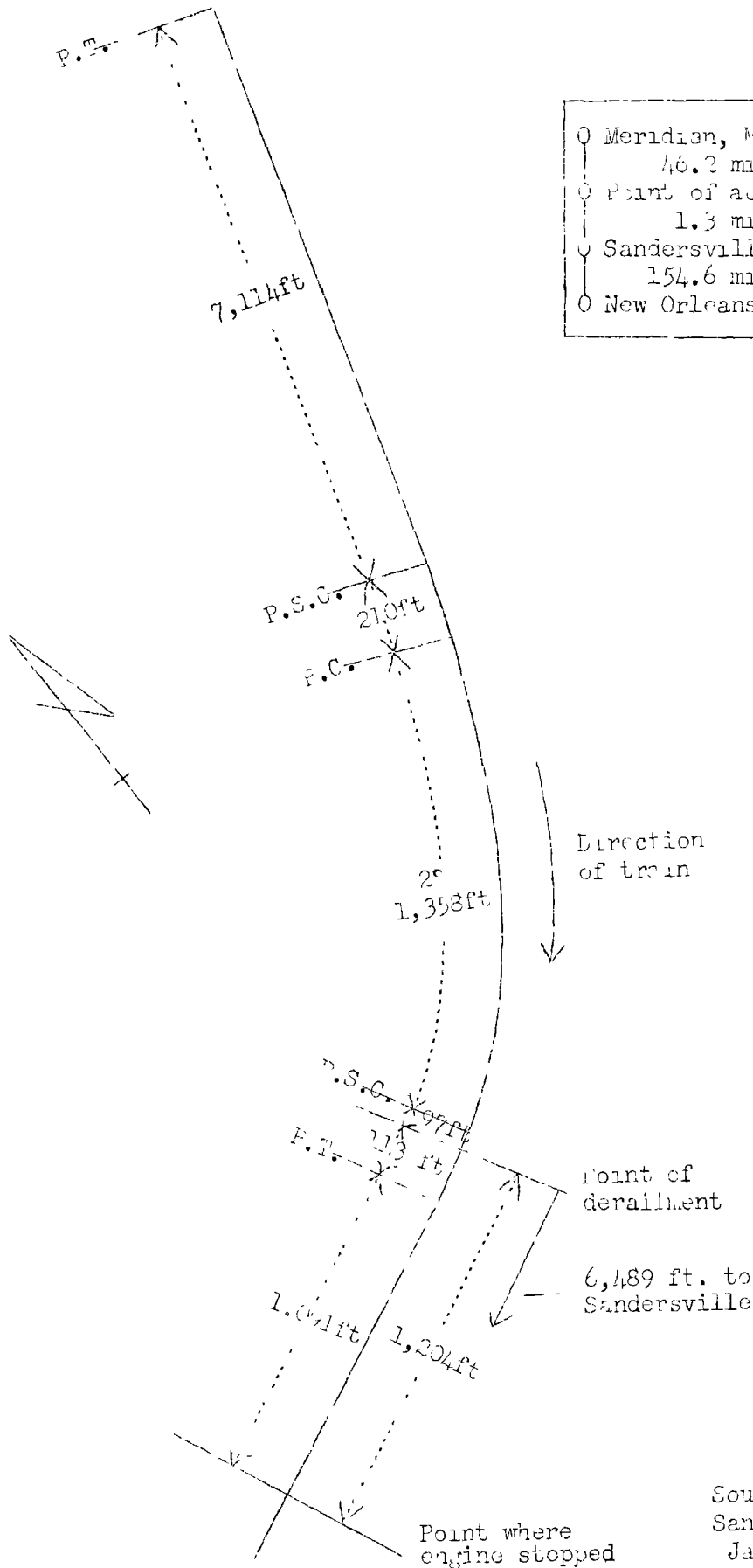
REPORT OF THE COMMISSION¹

PATTERSON, Commissioner:

On January 29, 1941, there was a derailment of a passenger train on the Southern Railway near Sandersville, Miss., which resulted in the death of 1 employee and the injury of 30 passengers.

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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.



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|---|---------------------|-----------|
| ○ | Meridian, Miss. | 46.2 mi. |
| ○ | Point of accident | 1.3 mi. |
| ○ | Sandersville, Miss. | 154.6 mi. |
| ○ | New Orleans, La. | |

Inv-2481
 Southern railway
 Sandersville, Miss.
 January 29, 1941

Location and Method of Operation

This accident occurred on that part of the Southern Railway System designated as the New Orleans & Northeastern Railroad which extends between Meridian, Miss., and New Orleans, La., a distance of 202.1 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 and automatic train-stop system. The derailment occurred on the main track at a point 6,489 feet north of the station at Sandersville. As the point of accident is approached from the north there are, in succession, a tangent 7,134 feet in length, a spiral 210 feet, a 2° curve to the right 1,358 feet, a spiral 97 feet to the first point of derailment and 113 feet beyond, and a tangent 1,091 feet to the point where the front end of the engine stopped. The grade for south-bound trains is, in succession, 0.47 percent descending a distance of 1,100 feet and 0.29 percent descending 300 feet; then there is a vertical curve 900 feet, which is followed by a grade 0.34 percent ascending 550 feet to the point of derailment and 150 feet beyond. Between points 120 feet and 1,100 feet south of the point of derailment, the track is laid on a fill which varies between 3 and 6 feet in height.

The track structure consists of 35-pound rail, 39 feet in length, laid on an average of 24 creosoted ties to the rail length; it is fully tieplated, single-spiked, provided with 6 rail anchors to the rail length, equipped with 4-hole angle bars, ballasted with slag to a depth of 12 inches, and is well maintained.

Automatic signal 451 and an automatic train-stop inductor, which govern southward movements, are located 5,762 feet and 5,816 feet, respectively, north of the point where the derailment occurred.

According to the timetable, the minimum running time for first-class trains between Meridian and Sandersville, a distance of 2.5 miles, is 3-1/2 minutes, or an average of 60 miles per hour.

The weather was clear at the time of the accident, which occurred at 11:57 a. m.

Description

Train No. 41, a first-class south-bound passenger train, with Conductor Moore and Engineer Brown in charge, consisted of engine 6241, of the 2-8-2 type, two baggage cars, five Pullman tourist cars, one baggage car, and three Pullman tourist cars,

in the order named; all cars were of steel construction. This train departed from Meridian, 47.5 miles north of Sandersville, at 10:20 a. m., according to the train sheet, 9 hours 30 minutes late, passed Vossburg, 11.6 miles north of Sandersville and the last open office, at 11:45 a. m., 9 hours 29 minutes late, and was derailed when approaching Sandersville while moving at a speed estimated to have been between 40 and 45 miles per hour.

Engine 6941 was derailed to the left, continued in line with the track a distance of 1,204 feet, and stopped on its left side at an angle of about 15 degrees to the track, with the front end of the engine on the roadbed and the rear end about 12 feet east of the track; the left side of the cab was badly damaged. The tender, remaining coupled to the engine, stopped on its left side. Both tender trucks were detached, were considerably damaged, and stopped east of the track. The front truck was 12 feet and the rear truck was 50 feet to the rear of the tender. The first car was derailed to the left and stopped on its left side parallel to the track; both trucks were damaged. The second car was derailed to the left and stopped on its left side about 25 feet from the track and parallel to it; both diaphragm plates and the front truck-frame were broken. The third car, remaining coupled to the second car, was derailed to the left and stopped on its left side about 20 feet from the track and practically parallel to it; the left side sheets, the roof sheets and both trucks were damaged. The fourth car was derailed and stopped on its left side down the embankment at an angle of 20 degrees to the track and about 50 feet from it; both vestibules, the side sheets and both trucks were damaged. The fifth car was derailed to the left, stopped with the middle of the car against the rear of the third car and leaned to the east at an angle of about 45 degrees; the left side sheets were crushed inward, the roof sheets were bent and the frame posts and vestibule posts were broken. The sixth car was derailed to the left and stopped behind the fifth car, with its front end about 25 feet east of the track and its rear end on the roadbed; it leaned to the east at an angle of 25 degrees; both vestibules and both trucks were badly damaged and the centersill was bent. The seventh and eighth cars were derailed to the left and stopped, upright, in line with the track and immediately to the rear of the sixth car; both trucks, the end posts and sheets of both vestibules and the centersill of the seventh car were damaged; the eighth car was slightly damaged. The front truck of the ninth car was derailed to the left.

The employee killed was the fireman.

Summary of Evidence

Engineer Brown stated that at Meridian he inspected engine 6241 before Seventh 41 departed. The engine appeared to be in suitable condition for service. A terminal air-brake test was made at Meridian, a running test was made soon after the train left that point, the brakes were used to control the speed at several points, and in each instance the brakes functioned properly. As his train approached the point where the accident occurred the engine was riding smoothly, the speed was about 40 miles per hour, and he was stationed in his usual position maintaining a lookout ahead. The throttle was half-open and the reverse lever was in position for short cut-off in forward motion. There was no unusual motion of either the engine or the tender. Signal 451 displayed a clear indication for his train. When his train was near the south end of the curve north of Sandersville, the rear end of the engine, at the left side, dropped down suddenly, the front end thrust heavily to the left and the engine pivoted laterally several times. He immediately applied the air brakes in emergency, closed the throttle and jumped just before the engine turned over. It was his opinion that the engine did not become entirely derailed until it was nearly stopped. The weather was clear at the time of the accident.

Conductor Moore stated that when his train was approaching the point where the accident occurred he was in the third car and the speed was 40 or 45 miles per hour. The train was riding smoothly. The first he knew of anything being wrong was when ballast showered against the bottom of the car. The train moved 7 or 8 car lengths farther, then the brakes became applied in emergency, and the car overturned almost immediately. The accident occurred at 11:57 a. m.

The statement of Brakeman Chambliss added nothing of importance.

Flagman Dyer stated that he examined the track as he proceeded back to provide flag protection. There was no indication of defective track or of defective or dragging equipment.

Assistant Train Master Stone, who was on Seventh 41, stated that in two instances he inspected the train when it was rounding curves en route and he did not observe any defective or dragging equipment. As the train was approaching the point where the accident occurred he was in the third car, the speed was about 40 or 45 miles per hour and the train was riding smoothly. The first he knew of anything being wrong was when the air brakes became applied in emergency. After the emergency application of the brakes the train continued about 175 feet before the derailment of the third car occurred.

Engineer Terry stated that he was in charge of Sixth 41, which passed the point involved about 11:38 a. m. The speed was 50 miles per hour and his train rode smoothly around the curve. There was no indication of rough track.

Track Foreman Cox stated that at 7:30 a. m., the day of the accident, he inspected the track in the vicinity of the point of accident from a motor-car and did not observe any defective condition. When Seventh 41 became derailed he and his crew were located at a point about 1/2 mile south of the point where the accident occurred. He observed the train as it derailed and the engine was the last unit to leave the roadbed. He said that the engine remained upright and in line with the track until it was almost stopped, then it became overturned. After the accident occurred he inspected the track from the point of derailment northward around the curve; he observed no indication of defective track or of dragging equipment. The last work performed on this curve was in November, 1940. The weather was clear at the time of the accident.

Junior Engineer Johnson stated that he arrived at the scene of the accident at 5:30 p. m. and inspected the track. The first mark of derailment was on the outer portion of the base of the east rail. This mark was on the south spiral at a point 113 feet north of the point of tangency, where the curvature was 1°04' and the superelevation was 1-5/8 inches. At a point 21.5 feet north of the first mark of derailment three adjacent tieplates of the east rail were forced eastward a distance of 0.01 foot. A mark on the inside face of the head of the rail at this point indicated that a flange climbed upward to the top of the rail, crossed diagonally to a point 21.5 feet farther south, and then dropped to the outside portion of the base. On the inside of the west rail at a point 0.9 foot south of the first mark of derailment, a rail anchor was crushed. Throughout a distance of 575 feet southward, flange marks averaging about 30 inches in length appeared on the outside portion of the base of the east rail at intervals which varied between 13.1 feet and 29.3 feet; however, a majority of the marks averaged about 15 feet apart. The east rail was kinked inward at nearly every point where flange marks appeared on the base of the rail. Throughout a distance of 502 feet south of the first mark of derailment, there were flange marks, on the tops of the ties, inside the west rail at distances which varied between 0.30 foot and 0.41 foot; these marks appeared at intervals varying between 11.1 feet and 31 feet; however, a majority of them appeared at intervals of about 15 feet. At a point 502 feet south of the point of derailment flange marks crossed diagonally over the head of the east rail; from this point southward throughout a distance of 116 feet the east rail was kinked inward and outward almost continuously, and there were continuous flange marks on the inside portion of the base of the west rail extending diagonally toward the east rail. At the

place where the track was destroyed the marks were 2 feet inside the west rail. From the first mark of derailment throughout a distance of 612 feet the outside angle bar at each joint of the east rail was marked. There were slight kinks outward, in the west rail, practically opposite the flange bars on the base of the east rail. At a point 576.3 feet south of the point of derailment the west rail was broken approximately in the middle and the receiving end of this break was badly battered by wheels. He gaged the track and took cross-levels southward from the northern end of the curve involved; the gage and the superelevation throughout a distance of 922 feet immediately north of the point of accident were as follows:

<u>Distance north of the point of de- railment</u>	<u>Gage</u>	<u>Superelevation</u>
922.0'	4' 8-11/16"	1-5/8"
902.5'	4' 9"	2-1/4"
885.0'	4' 8-3/4"	2-7/4"
865.5'	4' 8-11/16"	3"
847.0'	4' 8-5/16"	2-7/8"
824.5'	4' 8-1/2"	3"
805.0'	4' 8-1/2"	2-7/8"
785.5'	4' 8-11/16"	3"
766.0'	4' 8-5/8"	2-7/8"
746.5'	4' 8-5/8"	3-1/4"
727.0'	4' 8-5/8"	3-1/16"
707.5'	4' 8-5/8"	3"
688.0'	4' 8-11/16"	2-13/16"
668.5'	4' 8-5/8"	2-7/8"
649.0'	4' 8-7/8"	2-1/2"
629.5'	4' 8-3/4"	2-3/4"
610.0'	4' 8-1/2"	2-7/8"
590.5'	4' 8-5/8"	3-1/16"
571.0'	4' 8-7/8"	2-7/8"
551.5'	4' 8-9/16"	3"
532.0'	4' 8-5/8"	2-7/8"
512.5'	4' 8-1/4"	3"
493.0'	4' 8-1/4"	3"
473.5'	4' 8-7/4"	3"
454.0'	4' 8-11/16"	2-5/8"
434.5'	4' 8-9/16"	2-5/4"
415.0'	4' 8-7/8"	2-1/2"
395.5'	4' 8-7/8"	2-7/8"
376.0'	4' 8-7/8"	2-7/8"
356.5'	4' 8-5/8"	2-7/8"
337.0'	4' 8-15/16"	2-5/8"
317.5'	4' 8-1/16"	2-3/8"

289.0'	4' 8-5/8"	2-5/8"
273.5'	4' 8-5/8"	2-5/4"
257.0'	4' 8-13/16"	2-5/8"
239.5'	4' 8-3/4"	2-11/16"
223.0'	4' 8-3/4"	2-5/8"
200.5'	4' 8-5/8"	2-11/16"
181.0'	4' 8-1/2"	2-11/16"
161.5'	4' 8-1/2"	2-7/8"
142.0'	4' 8-1/2"	2-5/8"
122.5'	4' 8-9/16"	2-5/8"
103.0'	4' 8-5/16"	2-11/16"
83.5'	4' 8-1/2"	2-3/4"
64.0'	4' 8-13/16"	2-1/2"
44.5'	4' 8-9/16"	2-1/8"
25.0'	4' 8-13/16"	2"

The super-elevation at the point of derailment was 1-5/8 inches and the curvature was approximately 1°04'.

Supervisor Smith stated that he arrived at the scene about 1 hour after the accident occurred. The marks of derailment which he observed corresponded with those described by Engineer Johnson. It was his opinion that one pair of driving wheels became derailed, then during each revolution these driving wheels kinked the rails. He had observed rails kinked in the same manner by engines which had lost a counterbalance.

Roadmaster Metcalfe stated that he arrived at the scene of the accident at 5:30 p. m. He corroborated the statement of Engineer Johnson, concerning the marks of derailment. In his opinion the engine continued to follow the curve of the track because only one pair of wheels was derailed at the first mark of derailment. Since the rails were kinked at intervals which correspond with the circumference of the driving wheels of the engine involved, and since the outside face of the right No. 1 driving-wheel tire was scraped free of paint, it was his opinion that the No. 1 pair of driving wheels were the first to become derailed. On January 23 and 25, 1941, he had ridden over the track involved on passenger trains which were moving about 60 miles per hour and there was no noticeable irregularity in alignment or surface of the track. Based on the A. R. E. A. calculations, with an 64-inch center of gravity, the comfortable speed on the curve involved is 66 miles per hour, the maximum safe speed is 90 miles per hour and the overturning speed is 130 miles per hour.

Inspector Allbright stated that he inspected engine C941 before its departure from Meridian on Seventh 41. During his inspection Allbright was provided by a 3-cell flashlight, which was supplied with new batteries each day. The left trailer-truck spring was in normal position and he had no reason to believe any leaves were broken. In his opinion the engine was in suitable condition for service.

Mechanic Edwards stated that he was present when engine C941 was rerailed. When the front end of the engine was suspended by the hooking car, he observed that the rear portion of the left trailer-truck spring sagged downward. The spring was in place but was so covered with mud that he was unable to detect any broken ribs; however, when the engine was towed toward Spookville the leaves fell out of the band of the spring. A number of leaves disclosed old breaks and the remainder were freshly broken.

General Pool Foreman of Engines Sims stated that in several instances he had been on a 2-8-2 type engine rounding a curve when either a trailer-truck spring or a spring hanger broke. Based on his experience, when a trailer-truck spring breaks, the rear end of the engine drops suddenly a distance of 2 or 3 inches. If the rear part of an engine drops sufficiently to permit the top rail of the frame to rest on the rear driving-wheel boxes, the weight of the engine is momentarily shifted and the front end is raised sufficiently to permit the derailment of one or more wheels.

Master Mechanic Broyer stated that he inspected engine C941 at the scene of the accident and he observed that the outside face of each right driving wheel was badly scarred. In his opinion the front pair of driving wheels was derailed some distance before the remainder of the train became derailed. When the engine was lifted, the left trailer-truck spring appeared to be in its normal position; however, when the engine was rerailed the spring collapsed. His examination of this spring disclosed that all the leaves were broken and the breaks in leaves Nos. 1, 2, 4, 7, and 8, numbered from bottom to top, were old defects. The breaks in leaves Nos. 3, 5, 6, 8, 9, and 10 passed through the punched ribs. Examination of the spring band disclosed a crack, in the inside corner at the top, about 1 inch long, but the remainder of the band was tight and apparently had held the leaves securely in their proper positions. He said that if a trailer-truck spring on the left side were to break while the engine was rounding a curve to the right, it is probable that a momentary shifting of the spring-carried load of the engine would be sufficient to lift and to swing the front of the engine to the extent that one or more wheels could pass over the top of the

rail, provided a bouncing action was in progress in the driving boxes. The back-to-back measurement of all pairs of wheels of the engine and the tender disclosed the maximum distance to be 63-3/8 inches; the minimum spacing was 53-1/8 inches. All flanges were of good contour and the height was within the prescribed limits. Measurements of the tires, wheels, and lateral motion were as follows:

Wheel	Lateral	Tread wear		Tire thickness		Diameter	
		Left	Right	Left	Right	Left	Right
Engine truck	3/8"	8/32"	8/32"	1-5/8"	1-5/8"	31-1/4"	31-1/4"
No. 1 driving	3/8"	5/32"	2/32"	2-5/8"	2-5/8"	55-5/16"	55-7/32"
No. 2 driving	1/2"	3/32"	4/32"	2-5/8"	2-5/8"	55-9/32"	55-5/16"
No. 3 driving	5/16"	4/32"	4/32"	2-5/8"	2-5/8"	55-1/4"	55-5/16"
No. 4 driving	5/8"	3/32"	4/32"	2-5/8"	2-5/8"	55-9/32"	55-5/16"
Trailer truck	3/8"	6/32"	6/32"	1-3/4"	1-3/4"	37-3/8"	37-3/8"

The average circumference of the driving-wheel tires was 14 feet 5-5/8 inches. Spread of tender side-bearings was as follows: Front truck, 36 inches; rear truck, 48 inches. The side-bearing clearance was within the prescribed limits.

Superintendent Mobley arrived at the scene of the accident at 1:45 p. m., inspected the track northward from the point of derailment, and found no indication of any dragging equipment. He corroborated the statement of Engineer Johnson concerning the various marks of derailment. Examination of engine 6041 disclosed that the outside face of the right No. 1 driving wheel was badly scuffed and the aluminum paint on the outside of the tire was completely obliterated. The outside faces of tires of the right Nos. 2 and 3 driving wheels were slightly scuffed, which condition indicated to him that the front driving wheels were the first to be derailed. He examined the left trailer-truck spring after it was removed and found it to be in the condition described by Master Mechanic Freyer.

Engineer of Tests Bryont stated that he examined the left trailer-truck spring after it was removed from engine 6041. The breaks in leaves Nos. 1, 2, 3, 7, and 9, numbering from bottom to top of the spring, were old breaks. Of the five leaves, only two were broken through the punched nibs. The breaks in the remainder of the leaves were new and were through the punched nibs. All the breaks occurring in the leaves were concealed within the band. Leaf No. 2 disclosed a distinct impression of the break in leaf No. 1, which condition indicated that the break had existed during a considerable period of time. There was a crack about 2 inches long inside the spring band and along the upper inside corner. This crack was visible on the outside

surface about 1/2 inch and was partly an old break. There was also a slight separation on the top of the band at the welding lap. After the broken leaves were refitted he observed that they had apparently been held in their proper position by the band.

According to data furnished by the carrier, the total weight of engine and tender was 207,400 pounds, which was distributed as follows: Engine truck, 20,500 pounds; No. 1 pair of driving wheels, 39,600 pounds; No. 2 pair of driving wheels, 40,600 pounds; No. 3 pair of driving wheels, 38,200 pounds; No. 4 pair of driving wheels, 40,200 pounds; and the trailing-truck, 29,700 pounds. The longitudinal center of gravity was 25.2 inches in front of the No. 3 pair of driving wheels. The spring equalization system was arranged in two parts. The front part consisted of the engine-truck and the No. 1 and No. 2 pairs of driving wheels; the rear part consisted of the No. 3 and No. 4 pairs of driving wheels and the trailer-truck. The center of moment of the front equalizing unit was at a point 97.4 inches ahead of the longitudinal center of gravity and the center of moment of the rear unit was 92.8 inches back of the longitudinal center of gravity. The total suspended load on both spring units was 159,400 pounds; 77,600 pounds were supported by the front spring system and 81,800 pounds by the rear spring system. The length of the rigid driving-wheel-base was 15 feet, the length of the total wheel-base was 33 feet 6 inches, and the total length of the engine and tender was 77 feet 1 inch. The tender was rectangular in shape and had two four-wheel trucks; its capacity was 7,500 gallons of water and 14 tons of coal. The gross weight of the tender was 154,000 pounds. This engine received Class 3 repairs July 20, 1935, and Class 5 repairs June 21, 1937. Since the last Class 5 repairs were made the total mileage covered by the engine was 68,494 miles. The trailer-truck involved was a two-wheel Hodges type. The equalizers between the rear driving-wheel spring system and the trailer-truck springs were supported on the outside of the trailer-truck frame. The front ends of the trailer-truck springs were connected to the rear ends of the longitudinal equalizers by hangers. The rear ends of the springs were connected to the frame by hangers. The spring involved was semi-elliptic, had 10 leaves chambered upward, and was seated on the journal box. The leaves were 5 inches wide, 1/2 inch thick, and the shortest and longest leaves were, respectively, 13 inches and 56 inches in length.

Observations of the Commission's Inspectors

The Commission's inspectors examined the track from the point of derailment northward about 1/2 mile; there was no indication of dragging equipment or defective track which could have caused the derailment. The engine was examined at Meridian Shop and there was no condition of the wheels which could have contri-

buted to the cause of the accident. The paint was scraped from the outside face of the right No. 1 driving-wheel tire. The counterbalance was scored and cut its entire length on the top outside corner. The right No. 2 tire was slightly marked but the counterbalance was battered near its front end. The right No. 3 tire was unmarked but the counterbalance was badly battered near its front end; however, the outer edge of this counterbalance extends to the rim of the wheel-center. The No. 4 pair of wheels was practically unmarked. The inside faces of the left Nos. 1, 2, and 3 driving wheels were marked continuously at heights corresponding to the tops of angle bars and angle-bar bolts. All driving-box shoes and wedges were well lubricated and there was no indication that they had been sticking. The cranking castings between the engine and the tender were well lubricated. The transverse and the longitudinal splash plates of the tender were in place and securely fastened. The left trailer-truck spring was found to be as described by the master mechanic.

Discussion

According to the evidence, Seventh 41 was moving at a speed of 40 or 45 miles per hour on the leaving spiral of a curve to the right and the engine had reached a point where the curvature was $1^{\circ}04'$ and the superelevation was $1\text{-}5/8$ inches when the left rear corner of the engine dropped suddenly. The engine thrust heavily to the left at the front end, moved a distance of 1,204 feet and overturned on its left side.

After the occurrence of the accident the track was examined northward a distance of 1,741 feet and there was no indication of cragging equipment. The speed of the train was lower than equilibrium speed for the curve involved. Throughout a distance of 322 feet immediately north of the point of derailment the gage varied between 4 feet $8\text{-}1/4$ inches and 4 feet 9 inches, and the greatest variation in superelevation between two adjacent stations at points 922 feet and 502.5 feet north of the point of derailment was $5/8$ inch. At a point 134.5 feet north of the leaving end of the south spiral, three adjacent tieplates under the east rail were shifted eastward 0.01 foot and at this point a flange had scored the inside surface of the head of the east rail, then mounted the top of the head and, within a distance of 21.5 feet, crossed diagonally to a point where the flange dropped to the outside portion of the base of the rail and made the first mark of derailment. Southward from the first mark of derailment, marks on the track structure and on the No. 1 pair of driving wheels indicated conclusively that the No. 1 pair of driving wheels were the first wheels to become derailed and they were derailed throughout a distance of more than 500 feet before other wheels became derailed. This pair of driving wheels linked the rails sufficiently to cause other wheels to become derailed.

After the accident occurred, all leaves of the spring on the left side of the trailer truck were found broken in the band. Five leaves were newly broken and the remaining five leaves were found to have been broken for a considerable time. The band was fractured in the upper inside corner; the indications were that it had been broken for some time. The engine had been inspected only a few hours before the derailment occurred, but at that time the spring did not appear to be defective. Apparently this spring broke at the instant the enginemen felt the left rear corner of the engine drop. This action undoubtedly caused weight to be shifted from the front end of the engine to the rear end and resulted in the flange of the left No. 1 driving wheel being raised vertically and forced laterally to the left sufficiently for the flange to climb to the top surface of the head of the left rail. Irregular gage would cause the engine to pivot laterally, which action would increase the lateral force. Irregular surface of the track would cause the engine to roll laterally and to pitch longitudinally, which actions would in some degree cause the engine wheels to be raised.

Rules and Instructions of the Interstate Commerce Commission for Testing of Boilers and Appurtenances prescribe that a spring having a top leaf, or two leaves in the top half, or any three leaves in the spring broken, shall be removed or repaired. Considering the old breaks only, the spring involved did not meet the rules and instructions of the Commission because there were five leaves throughout the spring broken and there were three leaves in the top half broken. The defective condition of the spring was concealed from detection, in ordinary inspection, by the band.

Cause

It is found that this accident was caused by driving wheels becoming derailed as the result of the failure of a trailer-truck spring.

Dated at Washington, D. C., this first day of April, 1941.

By the Commission, Commissioner Patterson.

W. P. BARTEL,

(SEAL)

Secretary.