

INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT OF THE DIRECTOR

BUREAU OF SAFETY

ACCIDENT ON THE

SOUTHERN RAILWAY

ALLENDALE, S. C.

FEBRUARY 8, 1956.

INVESTIGATION NO. 2042

SUMMARY

Railroad	Southern
Date:	February 8, 1936
Location:	Allendale, S.C.
Kind of Accident:	Derailment
Train involved:	Passenger
Train Number	24
Engine Number:	1355
Speed:	25 - 50 m.p.h.
Track:	8° curve; ascending grade
Weather:	Clear and cold
Time:	2:40 a.m.
Casualties:	2 killed and 2 injured
Cause:	Excessive speed on a sharp curve.

April 6, 1936

To the Commission:

On February 8, 1936, there was a derailment of a passenger train on the Southern Railway at Allendale, S.C., which resulted in the death of 2 employees and injuries to 2 passengers.

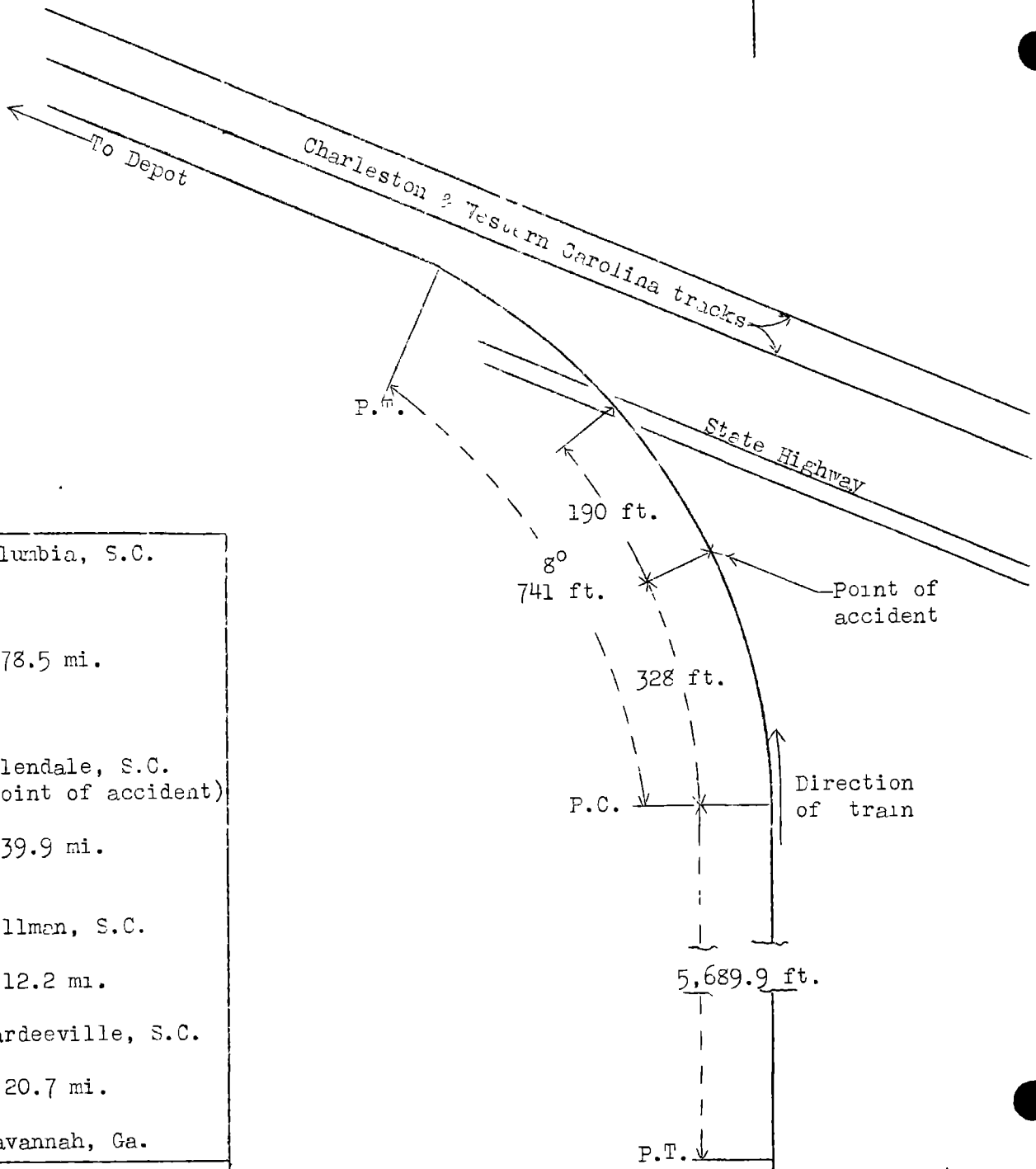
Location and method of operation

This accident occurred on that part of the Columbia Division extending between Columbia and Hardeeville, S.C., a distance of 130.6 miles; in the vicinity of the point of accident this is a single-track line over which trains are operated by time table and train orders, no form of block-signal system being in use. This accident occurred at a point less than one fourth mile south of the depot at Allendale; approaching this point from the south, the track is tangent for a distance of more than 1 mile, followed by an 8° curve to the left 741 feet in length including spirals, and then tangent track a distance of 801.3 feet extending to and beyond the depot, followed by a curve to the right. The accident occurred on the 8° curve 328 feet from its southern end; the grade is ascending for north-bound trains, being 0.50 percent at the point of accident.

In the vicinity of this point the track is on a fill about 4 feet high, and is laid with 85-pound rails, 33 feet in length, with 20 cypress and oak ties to the rail length, fully tieplated and single-spiked, while on the curve there are 6 gauge rods to the rail length; the track is ballasted with cinders to a depth of about 8 inches, and is well maintained.

South Carolina highway 28 crosses the track at grade at an angle of 30° at a point 190 feet north of the point of derailment, while the Charleston & Western Carolina Railway crosses the Southern Railway at grade about 400 feet north of the depot, and between the railway and highway crossings, the tracks of the two railways are parallel and adjacent to each other, both of them using the same depot.

Under rule 108 of the rules of the operating department, the speed of trains is restricted to the minimum time between stations as shown in the time table; the minimum time for passenger trains between Tillman and Allendale is 45 minutes for the distance of 39.9 miles. In addition, the time table restricts the speed of trains in the city limits of Allendale to 20 miles per hour, except between the highway crossing and a point about 1,400 feet north of the depot, within which territory the speed is restricted to 6 miles per hour. The derailment



•Columbia, S.C.	
	78.5 mi.
•Allendale, S.C.	
*(Point of accident)	
	39.9 mi.
•Tillman, S.C.	
	12.2 mi.
•Wardeeville, S.C.	
	20.7 mi.
•Savannah, Ga.	

Inv. No. 2042
 Southern Railway,
 Allendale, S.C.
 Feb. 8, 1936

occurred about 190 feet south of the beginning of the 6-miles-per-hour territory, and prior to the derailment the train had run a distance of 3,000 feet within city limits.

The weather was clear and cold at the time of the accident, which occurred at 2:40 a.m.

Description

Train No. 24, a northbound passenger train, consisted of 1 express car, 1 combination baggage car and coach, 1 coach, and 2 Pullman sleeping cars, hauled by engine 1355, and was in charge of Conductor Edmunds and Engineman McNeill. All the cars were of steel construction with the exception of the express car, which was of steel-underframe construction. This train left Hardeeville, the last open telegraph office, 52.1 miles from Allendale, at 1:34 a.m., according to the train sheet, 4 minutes late, and after meeting Train No. 23 at Tillman, 30.9 miles south of Allendale, it left that point, according to the statement of Conductor Edmunds, at 2:01 a.m., 11 minutes late, and was derailed on the curve south of Allendale while running at a speed variously estimated at 25 to 50 miles per hour.

The engine, tender, the first four cars, and the forward truck of the fifth car were derailed; after being derailed, the engine followed a tangent course across the state highway and stopped on its right side about 35 feet from the track, fouling the Charleston & Western Carolina main track, its front end being 232 feet north of the point of derailment. The tender cistern was torn from the frame and stopped in reverse position and upright behind the engine; the tender frame remained coupled to the engine and stopped upright between the engine and the highway. The first car was torn from its trucks and stopped on its left side at right angles with the track, its front end just forward of the engine and its rear end on the track, this car being practically demolished. The second car remained upright and stopped on the highway to the west of the track and opposite the head car. The third and fourth cars were derailed to the right, and the front truck of the fifth car also was derailed; however, these cars remained coupled, upright, and on the roadbed. The employes killed were the engineman and the fireman.

Summary of evidence

Conductor Edmunds stated that his train left Tillman at 2:01 a.m. Approaching the point of accident he was in the smoking compartment of the second car and heard the engineman sound the whistle signal for Allendale station, at which time

the train was about half a mile south of the point of accident, traveling at a speed of 35 miles per hour. Shortly thereafter he heard a scratching or grinding sound as though an automobile had run into the train and immediately afterwards the car was jumping up and down and he knew it was off the track. He estimated the speed of the train at 25 miles per hour at the time of the derailment, which he placed at 2:40 a.m., but said he was not sure as to the speed and that his statement was a rough estimate. The conductor also said he did not know what caused the accident, although it might have been due to the speed and sharp curvature, the speed having been higher than usual at that point. It also appeared from the conductor's statement that a rail on the east side had turned outward slightly, the inside edge of the base being raised $1\frac{1}{2}$ inches, but he did not think this condition existed before the train reached it. The stops en route indicated the brakes were operating satisfactorily; he did not think the brakes were applied between the time the station signal was sounded and the time the accident occurred. It was pointed out to Conductor Edmunds that his train covered the distance from Tillman to the point of accident, more than 39 miles, in a period of 39 minutes, and he said it might have exceeded a speed of 60 miles per hour to a slight extent when making up time. At the same time, however, the conductor said the train passed Valentine on time, and if this were the case, then it averaged more than 66 miles per hour for the distance of 26.5 miles from Tillman to Valentine, after which it made approximately its scheduled time from Valentine to the point of accident. Conductor Edmunds later denied having said to Express Messenger Brown, just prior to the accident, that they were going too fast, or that the messenger was sitting facing him at the time, saying that the messenger was sitting across the aisle from him. Conductor Edmunds further stated that he saw both the engineman and fireman at Savannah, 72.5 miles from Allendale, and the point where this particular engine crew took charge of the engine, and also that he talked with the engineman at Hardeeville, and both men appeared to be in normal condition.

Baggage Master Hoover stated that approaching the point of accident he was in the second car and was standing in the aisle when the station signal was sounded at a point about half a mile south of the point of accident, at which time he looked at his watch and noted the time was 2:39 a.m., and he estimated the speed at that time at 40 miles per hour. He was still standing, about 30 seconds later, when the accident occurred, without any material reduction in speed having been made. He did not notice anything unusual in the handling of the train en route, or any excessive speed, although he was of the opinion that the speed of the train was not reduced as usual for the curve at Allendale. He did not know what caused the accident unless it was due to the spreading of a rail.

Flagman Napier stated that he did not notice any excessive speed or unusual handling of the train en route, but later admitted that the speed limit was exceeded between Tillman and Allendale. After passing Barton, the first station south of Allendale, he left the rear end and came ahead to the second car; after the engineer sounded the whistle for Allendale station and he had felt the engineer shut off steam, he asked the conductor what he had for Allendale, and about that time the accident occurred. He estimated the speed to have been about 40 miles per hour, at the time the whistle was sounded for the station, and there was no application of the brakes nor was there any material reduction in the speed of the train prior to the accident, the flagman saying that while they usually care around this curve at a speed of about 15 or 20 miles per hour, on this particular occasion the train approached the curve at a speed he said must have been twice as high.

Express Messenger Brown stated that during the trip between Savannah and the point of accident he did not notice anything unusual about the handling of the train because they generally ran fast, particularly with this engineer, and he knew they had run fast in some places on this particular trip, estimating they had at times attained a speed as high as 65 or 68 miles per hour. He was in the smoking compartment of the second car, and said Conductor Edmunds was sitting in the seat facing him, and that just before the accident happened, the conductor said to him that they were running too fast and had better slow up; the accident occurred immediately after the conductor made this remark, and Express Messenger Brown estimated the speed of the train at that time at between 43 and 50 miles per hour. He did not form any opinion or make any investigation to determine the cause of the accident.

Assistant Trainmaster Greiner stated that he was at Central Junction, near Savannah, on the night of February 7, and while there was called by Superintendent Fair and told to investigate a report to the effect that Engineer McNeill was not in condition to go out on his run. Upon his arrival at Savannah Union Station, he went to the engineer's room in company with Station Master Corle and two other employees and there found Engineer McNeill lying on a bench. After talking with the engineer, they agreed there was nothing wrong with him, but Assistant Trainmaster Greiner decided that, in order to dispel any doubt, he would have the engineer examined by a doctor; he called Dr. Thomas, company physician, who subjected Engineer McNeill to a thorough examination and advised that he was capable of fulfilling his duties as engineer. Assistant Trainmaster Greiner then observed the engineer as he oiled around the engine prior to leaving Savannah, and then boarded the

train, paying particular attention to its operation as far as Tillman, where Train No. 23 was met; there was nothing wrong with the manner in which the train was handled, and he then lay down and was sleeping when the accident occurred.

Assistant Roadmaster Rust stated that he made measurements of the track extending northward from the south end of the curve, and reported the conditions as good. The assistant roadmaster also said he examined the track while making these measurements, but could not see anything that would have caused the derailment.

Roadmaster Mauney stated that he arrived at the scene of the accident about 6:50 a.m.; on making an inspection of the track he found a wheel mark on a tie at a point 310 feet north of the south end of the curve, and on another tie there were two wheel marks, with no evidence of a wheel having crossed over the rail; these marks were to the right of each rail, heavier on the inside than on the outside. He believed that something on the rail threw the engine truck off, and that this truck, leading out to the ends of the ties, caused the driving wheels to pull the rail out. He saw a spike which he was told was picked up near where the engine truck was derailed, and he believed this spike might have been crossways on the rail and contributed to the cause of the derailment. Roadmaster Mauney said that the curve on which this accident occurred was well maintained and that this train could have gone around it at a speed of 60 miles per hour without overturning or derailling due to speed alone; however, he said this would not be a comfortable speed but that the train could have gone around the curve comfortably at a speed of $47\frac{1}{2}$ miles per hour.

Track Supervisor Duncan stated that he had inspected the track in the vicinity of the point of accident on the preceding day and found it in good condition; the track on this curve was easily maintained and he said no trouble had been experienced with it kicking out of line, and he considered this curve good for a speed of 60 or 65 miles per hour. Supervisor Duncan examined the track after the accident and the only thing he saw that could have caused the accident was a spike which he found at a point 3 or 4 feet south of the point of derailment, and he thought it had been run over by the engine.

Section Foreman DeLoach, whose section included the point of accident, said that he last inspected this particular piece of track 3 or 4 days prior to the derailment; he walked back to the rear end of the cars after the accident, but had no opinion as to its cause.

Engine Inspector Adie stated that he made a thorough inspection, and all necessary repairs, to engine 1355 on February 7 at Jacksonville, and that the engine was in good condition when it started out on the run on which the accident occurred; he had been inspecting this engine regularly for some time and did not remember that it had been reported as riding roughly at any time.

Master Mechanic Swanson stated that he made an examination of the engine at the scene of the accident, but found nothing that could have contributed to its occurrence. In a subsequent examination he found the throttle valve in the dome to be about $\frac{1}{4}$ open, but said it could have been opened by the reach rod, which was torn off; the reverse lever was in back motion position but had been knocked loose from the bracket where it was fastened to the boiler, and he said it was possible this happened when the engine overturned.

Statements of members of the crews of Train No. 25, the last southbound train and Train No. 56, the last northbound train, to pass over the track where the accident occurred, were to the effect that they noticed nothing that would indicate any irregularity at that point.

Enginemen Turner and Nestor, both of whom were experienced in the handling of passenger trains on the Columbia Division, made statements as to the manner in which they operate passenger trains when approaching Allendale from the south. Engineman Turner stated that when handling Train No. 24, he would, if approaching Allendale at a speed of 50 miles per hour, close the throttle to drifting position soon after passing the station board, located 1 mile south of the depot, and make a brake pipe reduction of 6 or 7 pounds, followed by a similar reduction about the time he reached the highway crossing. Engineman Nestor agreed with Engineman Turner except to say he would make the second reduction before reaching the curve.

Examination of the track by the Commission's inspectors showed that for a distance of several hundred feet south of the point of the curve, the maximum variation in cross levels was only one-eighth of an inch. Measurements also were taken of the line, gauge and superelevation on the curve, beginning at the point of spiral and extending to the point of derailment. These measurements showed that the gauge varied from 4 feet 8 $\frac{3}{8}$ inches to 4 feet 8 $\frac{3}{4}$ inches, the maximum gauge being attained at the point of maximum curvature, which was $8^{\circ} 45'$, the curvature progressing from the point of spiral and attaining the maximum within a distance of 248 feet. The superelevation was one-fourth inch at the point of spiral and increased uniformly until a maximum of 2 $\frac{1}{2}$ inches was reached.

The first indication of derailment was a well-defined flange mark, $7\frac{1}{2}$ inches inside the west rail, at about the center of a tie, and a similar mark appeared on the succeeding tie, while the third tie showed two flange marks; these marks then continued on the ties, gradually bearing toward the east to a point where the track was torn out. The first mark on the outside of the east rail that could be definitely identified as a flange mark, was on the fourth tie north of the one on which the first mark appeared on the inside of the west rail; this mark was very light and continued on the following ties, becoming deeper on each succeeding tie. There were some light marks on the outside of the east rail opposite the first marks inside the west rail, but measurements showed them to be $52\frac{1}{2}$ and $53\frac{1}{2}$ inches from the corresponding marks on the inside of the west rail, while the marks on the fourth and succeeding ties were true to gauge. There were no marks on the east rails near the point of derailment to show that any wheels had passed over them, there was no indication of excessive flange wear, and the ties were sound and showed no evidence of churning or lateral motion. There was no indication of anything dragging, except a light abrasion on a tie 94 feet south of the first flange mark; this abrasion was about 8 inches inside the east rail and apparently had been made by a square object and there were no other similar marks.

The Commission's inspectors were shown a spike, which was found inside the east rail about 4 feet south of where the first flange marks appeared. This spike had the appearance of having been struck and bent over at an angle of about 70° , and it was cracked on the side opposite the bend, at a point about $1\frac{1}{2}$ inches below the head; it also had a cut on the side of its head and this part of the spike was burned blue, indicating that it had been sliding along on some hard surface or that some hard surface had slid across it. A careful inspection of the engine was made and no condition was found that indicated that any mechanical defect had contributed to the cause of the derailment; it was the opinion of the inspectors that the engine would have traveled considerably farther if it had not buried itself in rain-softened clay when it overturned.

Discussion

Conductor Edmunds estimated the speed of his train at 35 miles per hour passing the station board, and at 25 miles per hour at the time of derailment, although he admitted he was not sure as to the speed, while Baggage Master Hoover and Flagman Napier both estimated the speed at 40 miles per hour passing the station board, and at about the same speed at the time of the accident. Express Messenger Brown said he was paying particular attention to the speed of the train, and stated that it was

between 43 and 50 miles per hour at the time of the derailment, adding that on this particular trip the speed at times was greater than usual, reaching a maximum of 65 or 68 miles per hour at some points. These statements are supported by the statements regarding the running time of the train between Tillman and the point of accident, the distance of about 39 miles being covered in 39 minutes, indicating an average speed of 60 miles per hour, although according to the conductor's statements the highest speed was between Tillman and Valentine, the train averaging over 66 miles per hour between those points, and approximately schedule time being maintained after passing Valentine. The maximum average speed permitted between Tillman and Allendale, according to the minimum time between stations as shown in the time table, is 53.2 miles per hour, while the time table schedule for Train No. 24 calls for an average speed between these two points of slightly more than 46 miles per hour. A preponderance of the evidence indicates that there was no application of the brakes approaching the point of accident and that the speed of the train was about 40 miles per hour at the time of its occurrence, this being supported by the position of the equipment after the accident and the damage sustained by the engine and head car. It also appeared that the engine would have traveled farther than it did after the derailment, had it not buried itself in the soft clay when it overturned.

There was evidence during the course of the investigation to the effect that a spike found near the first flange marks on the ties might have been on the rail and have been the cause of the accident. Careful examination of this spike was made, but no definite evidence could be developed that it had anything to do with the cause of this accident.

Conclusion

It is believed this accident was caused by excessive speed on a sharp curve.

Respectfully submitted,

W. J. PATTERSON,

Director.