Inv-2041

INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT OF THE DIRECTOR

BUREAU OF SAFETY

ACCIDENT ON THE

SOUTHERN RAILWAY

STRAVEN, ALA.

FEBRUARY 4, 1936

INVESTIGATION NO. 2041

Summary

Railroad:	Southern
Date:	February 4, 1936
Location:	Straven, Ala.
Kind of accident:	Derailment
Train involved:	Freight
Train number:	80
Engine number:	805
Consist:	22 cars
Speed:	5-6 m.p.h.
Track:	Tangent; level
Weather:	Rain
Time:	2:20 a.m.
Casualties:	2 killed and 1 injured
Cause:	A fill saturated with moisture giving way under the weight of the engine.

April 2, 1936.

To the Commission:

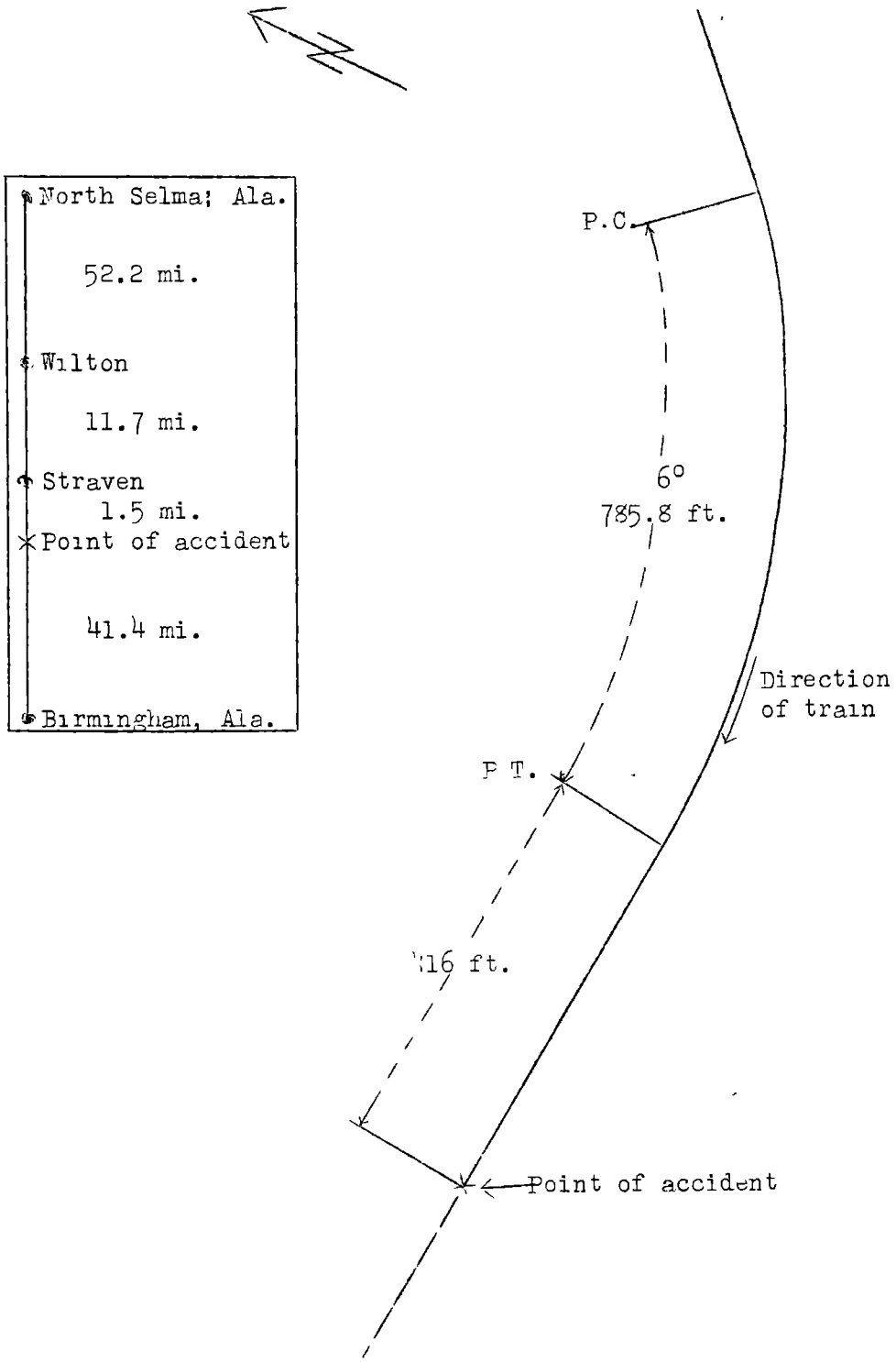
On February 4, 1936, there was a derailment of a freight train on the Southern Railway near Straven, Ala., which resulted in the death of 2 employees and injury to 1 employee.

Location and Method of Operation

This accident occurred on that portion of the Mobile Division extending between North Selma and Birmingham, Ala., a distance of 106.8 miles, this being 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 about 1½ miles north of Straven; approaching this point from the south, there is a 6° curve to the right 785.8 feet in length and then 964.5 feet of tangent, the derailment occurring 416 feet north of the southern end of this tangent. The grade is level at the point of accident. In this vicinity the track is laid with 85-pound rails, 33 feet in length, with about 20 oak and pine ties, 6 anti-rail creepers, and 5 gauge rods to the rail length, single-spiked, partly tieplated, and ballasted with slag to a depth of 8 inches below the ties; the track is well maintained.

At the point of derailment the track is laid on a side-hill fill which bridges a ravine for about 150 feet; this fill, built in 1889, consists of sandstone, earth and clay, mixed with shale and rock, the larger rock being used along the natural slope of the ground and ravine to form a drain to a creek which parallels the track on the western side at this point and is about 50 feet below the top of the rail. The opening into this drain is triangular in shape, with a base of about 18 inches, and is 8 feet from the top of the rails and 29 feet from the center of the track; it has a slope of 30° extending toward the creek. The ravine leading to this drain has a watershed of about 15 or 20 acres and there was little debris to retard the flow of water; the slope of the ravine is gradual and dotted with small trees and other low shrubbery and there was no indication of surface erosion due to heavy water flow. At a point 119 feet north of the drain there is a 16-inch cast-iron pipe laid at ditch level and used as a surface or track drain, and any excessive amount of water which might have overtaxed the drain under the fill would have flowed northward through the track ditch to this 16-inch drain pipe.

Inv. No. 2041
Southern Railway
Straven, Alabama
Feb. 4, 1936



Owing to the high sides of a cut on the 6° curve, the view to be had from an engine approaching the point of accident from the south is restricted to about 500 feet.

It was raining at the time of the accident, which occurred about 2:20 a.m.

Description

Train No. 80, a north-bound freight train, consisted of 21 cars and a caboose, hauled by engine 805, and was in charge of Conductor Cleveland and Engineman Kelly. This train left North Selma, according to the train sheet, at 10:30 p.m., February 3, 1 hour 30 minutes late, left Wilton, the last open telegraph office, 11.7 miles from Straven, at 1:25 a.m., February 4, 20 minutes late, and was traveling at an estimated speed of 5 or 6 miles per hour when it was derailed north of Straven.

The engine stopped on its left side paralleling the track, about 20 feet below and to the west of the rails; the tender was adjacent to and between the engine and the road bed, with the head car on top of it; the second car also was derailed, with its head end extending down the fill. The engine sustained only slight damage, the head car was destroyed, and the second and third cars were slightly damaged. The employees killed were the fireman and head brakeman, and the employee injured was the engineman.

Summary of Evidence

Engineman Kelly stated that when leaving Selma he had orders to run carefully looking out for slides and washouts, on account of heavy rains and snow. He saw section men en route, patrolling the track, and at different places he saw water almost up to the track. Just north of milepost 13-R, which is about half a mile south of the point of accident, he applied the brakes and reduced the speed of his train to about 5 miles per hour, and then released the brakes after rounding the curve and coming upon the tangent on which the accident occurred. He could see the track ahead by means of the headlight and everything looked all right, although he could see water on the right side about up to the ballast line of the track, and he said his engine had moved only a short distance when it started to turn over and he applied the brakes in emergency, but everything happened so quickly he was unable to say whether the fill was washed out or gave way under the engine.

Conductor Cleveland stated that nothing unusual occurred in the movement of his train en route to the point of accident; he was in the caboose and said that because of the heavy rains his train had been operated with caution, looking out for high water and track failures, and that while the normal speed at the point of accident was about 30 miles per hour, in this case the speed of his train had been reduced to 5 or 6 miles per hour. Immediately after the accident occurred he went to the head end and found the engine and two cars over the embankment on the west side. Conductor Cleveland also said there was some water on the east side of the track, about 30 inches from the ends of the ties, but there was none running over the track and he did not think the water had anything to do with the accident, but thought it was caused by the roadbed giving way on the fireman's side. The statements of Flagman Lawley corroborated those of Conductor Cleveland.

Section Foreman Blocker, in charge of the section on which the accident occurred, stated that on February 1 there was a snowfall of $9\frac{1}{2}$ inches, followed by continuous rainfall on February 2 and 3 which reached cloudburst proportions on the night of February 3; he patrolled the track on the day preceding the accident, making three round trips over his entire section of 9 miles, because of the heavy rains. He had never found any unusual amount of water in the vicinity of the point of accident, or any indication during the recent heavy rains of where it had flowed over the track, and during the particularly heavy rainfall the night prior to the accident he did not have any occasion to become alarmed; he had never had any trouble with water getting over the track on any portion of his section.

Section Foreman Blocker did not believe that water had washed out the fill but thought that it was the result of a slow process of saturation and that the fill gave away under the engine.

Section Foreman Houlditch, who was in charge of this section from June, 1928, to December, 1932, stated that during that period he experienced no trouble with water at the point of accident.

Track Supervisor Davis stated that on January 31 he passed over the fill where the accident occurred, but at that time the track was covered with snow. During the past 10 years he had not experienced any trouble or had cause for any uncertainty concerning this fill or its drainage, neither had there ever been any unusual soft place at this point which would cause trouble as a result of heavy rainfall and the water had always

run off readily. Upon his arrival at the scene of accident he found very little accumulation of water, and said that during the time of the heavy rainfall and while the engine and cars were being rerailed, the water was still flowing through the rock drain. It was his opinion that the fill gave way under the engine.

Roadmaster Self stated that he was on the rear of Train No. 20 when it passed the point of accident about 4:25 p.m., February 3, and at that time there was no accumulation of water on the upper side of the track to cause alarm and the track appeared to be in good condition; he had not experienced any trouble at this point prior to the accident. He arrived at the scene of accident at 9:30 a.m. and at that time found no accumulation of water on the upper side of the track and no indication of the water having been over the track.

Bridge and Building Supervisor Dunaway stated that he arrived at the scene of accident about 8:50 a.m.; he did not find any accumulation of water at that time but said there were signs which indicated the water had been about 4 feet deep in the basin of the drainage opening, but no indication of water having flowed over the track. He further stated that the drainage opening is 7 feet 11 inches below the top of the rails, and that in the event of an interruption of water going through the drain, it would flow northward to the 16-inch cast-iron drain pipe, and if this latter drain should be overtaxed, then a large portion of the water should flow through the regular track ditch to a stone culvert 400 or 500 feet farther north before it would cross the track.

Assistant to Chief Engineer Tobien stated that between May, 1911, and August, 1934, he was engineer, maintenance of way, of the district in which the fill involved in this accident is included, and within that time he did not recall having to reline track or restore the roadbed as a result of subsidence of this fill. He further stated that figures obtained from the Weather Bureau at Birmingham, Ala., showed that 2.25 inches of rainfall were recorded on February 3; in addition, the rainfall from 7 p.m. February 3, to 2 a.m. February 4, was 1.42 inches, most of which fell prior to midnight. There had been a total precipitation of 10.07 inches for the month of January, compared with 5.52 inches normal precipitation, and 8 inches of snow remained on the ground February 1, there having been the heaviest snowfall ever recorded by the Weather Bureau at Birmingham. He said the excessive snowfall having melted and being followed by an all-day rain on February 2, and a heavier rain all day February 3, with what was characterized as a cloudburst the night prior

to the accident, had a distinct effect on this stretch of roadbed.

Assistant Engineer Perkins stated that it was his opinion this fill was softened by a saturation process and was not carried out by force of rainfall.

Agent Operator Hale stated that he had lived at Gurnee Junction, 4.7 miles north of Straven, since 1913 and had never seen such a heavy rain, which fell subsequent to a snowfall of from 9 to 12 inches; neither had he ever seen creeks and rivers through this section overflowing as much as on this occasion, while he drove over places on the highway that never had been soft and boggy before, but were nearly impassable on this occasion. Car Inspector Ambrose, also living at Gurnee Junction, corroborated statements as to heavy snow and rain prior to the accident, and said it caused the earth to be very soft and streams to overflow their banks, more than for several years.

Engine Inspector Dunden stated that engine 805 was turned out of the Birmingham shops on January 13, 1936, and that he gave this engine a pit inspection prior to its going out on the trip on which the accident occurred, but found nothing which would cause trouble. Master Mechanic Dyke made a personal inspection of engine 805 after it was rerailed and found no defect which would have contributed to the accident.

Superintendent Post stated that because of heavy snow followed by 48 hours of rain, with a heavy downfall for 24 hours previous to the accident, every precaution had been taken to protect the movement of trains; tracks were inspected and watched closely, and train crews given instructions to run carefully, looking out for slides and washouts. He believed the fill had become softened so that it settled on the west side as the weight of the engine reached that point.

Discussion

The investigation developed that there was a precipitation for the month of January of 10.07 inches, including a snowfall of 11.8 inches, with 8 inches of snow on the ground on February 1, and that this was followed by a rainfall of 0.73 inch on February 2 and by 2.25 inches of rain on February 3, with a rainfall on the night of February 3 which reached cloudburst proportions. It further appeared that orders had been received by the crew of the train involved to run carefully, looking out for slides and washouts, while section men also were patrolling

the track. Engineman Kelly said he had reduced speed to about 5 miles per hour, but on reaching the tangent on which the accident occurred he could see the track ahead and it appeared to be in normal condition; however, he had traveled only a short distance after releasing the brakes before the engine started to turn over.

There was no evidence, either before or after the accident, to indicate that water had flowed over the track at this point, and in view of the statements of the engineman, as well as statements of witnesses from the engineering department, it appears that the fill, which had been in existence at this point since 1889 without causing any trouble, had become so saturated with moisture as to cause it to slide out under the weight of the engine.

Conclusion

This accident was caused by a fill becoming saturated with moisture to such an extent as to result in its giving way under the weight of the engine.

Respectfully submitted,

W. J. PATTERSON,

Director.