

Inv-2417

INTERSTATE COMMERCE COMMISSION
WASHINGTON

REPORT OF THE DIRECTOR
BUREAU OF SAFETY

ACCIDENT ON THE
CENTRAL OF GEORGIA RAILWAY

STURDIVANT, ALA.

MARCH 2, 1940

INVESTIGATION NO. 2417

SUMMARY

Inv-2417

Railroad:	Central of Georgia
Date	March 2, 1940
Location:	Sturdivant, Ala.
Kind of accident:	Derailement
Train involved:	Passenger
Train number:	1
Engine number:	437
Consist:	5 cars
Speed:	25-40 m.p.h.
Operation:	Timetable and train orders
Track:	Single; 2°30' curve to right; 0.50 percent descending grade westward
Weather:	Clear
Time:	5:20 p.m.
Casualties:	12 injured
Cause:	Landslide

April 18, 1940.

To the Commission:

On March 2, 1940, there was a derailment of a passenger train on the Central of Georgia Railway at Sturdivant, Ala., which resulted in the injury of eight passengers and four train-service employees.

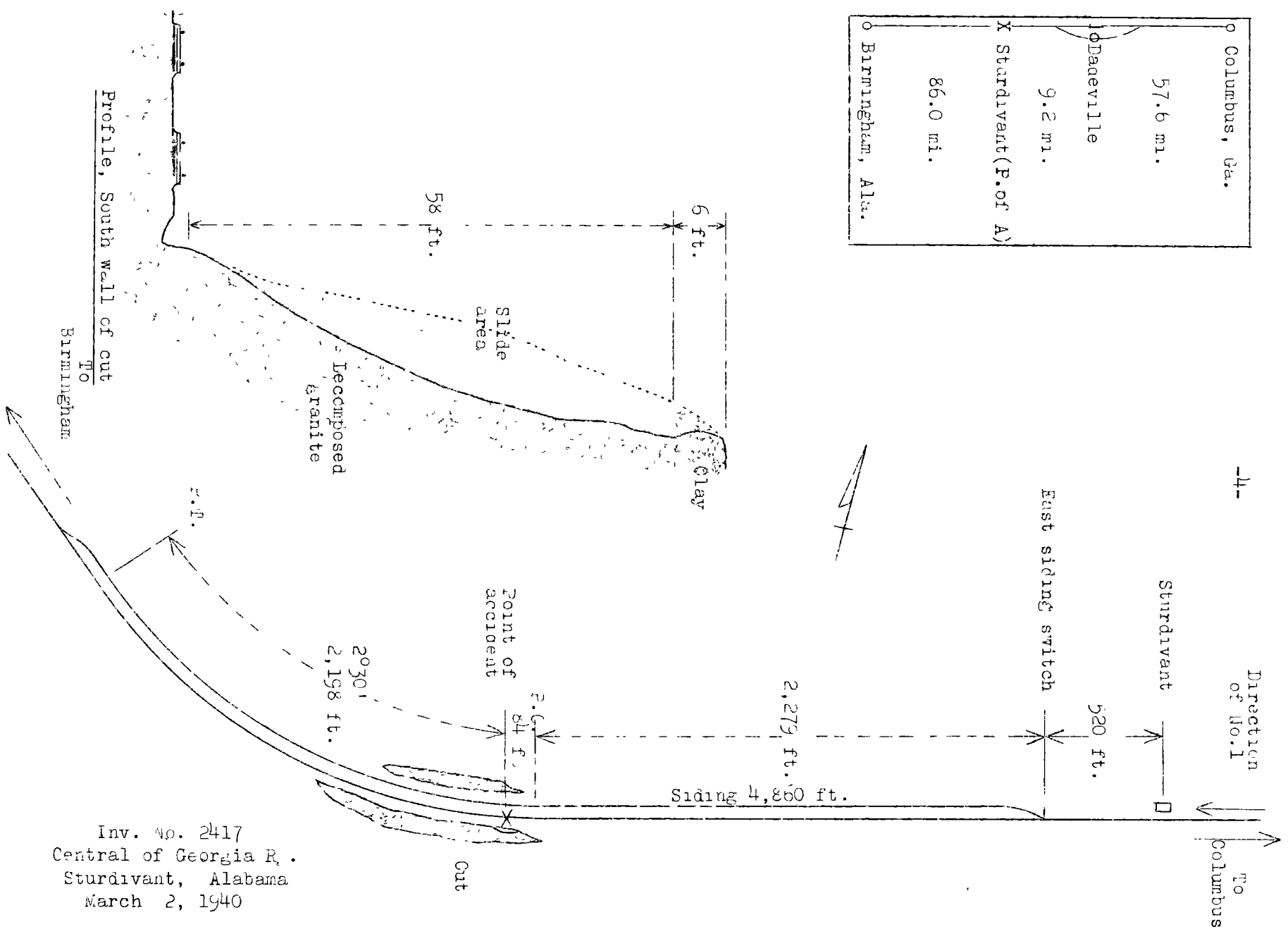
Location and Method of Operation

This accident occurred on that part of the Columbus Division designated as the Birmingham District which extends, via the Dadeville Branch, between Columbus, Ga., and Birmingham, Ala., a distance of 152.8 miles. In the vicinity of the point of accident this is a single-track line over which trains are operated by timetable and train orders; there is no block system in use. At Sturdivant a siding 4,860 feet in length parallels the main track on the north. The east switch of this siding is about 520 feet west of Sturdivant station. The accident occurred on the main track at a point 2,363 feet west of the east siding-switch. Approaching this point from the east there is a tangent 5,062 feet in length, which is followed by a $2^{\circ}30'$ curve to the right extending 84 feet to the point of derailment and 2,198 feet beyond. The grade for west-bound trains is 0.50 percent descending at the point of derailment.

In the vicinity of the point of derailment the track is laid through a side-hill cut 800 feet in length. The north wall of this cut is 22 feet high. The toe of the south wall is 12 feet from the center-line of the main track and the wall slopes upward at a ratio of $1/2$ to 1 a distance of 68 feet. In the south wall opposite the point of derailment there is a formation of decomposed granite, small decomposed boulders, and mica, approximately 50 feet wide and 50 feet high, above which there is an overburden of clay about 8 feet thick. On either side of this formation the south wall is composed of granite strata sloping away from the track at an angle of 45 degrees. Drainage is provided by ditches on each side of the roadbed and by a ditch about 18 feet distant from the top of the cut and parallel to it, which diverts drainage from the face of the wall.

The track structure consists of 112-pound rail, 39 feet in length, laid new in 1939 on 24 treated pine ties to the rail length; it is single-spiked and fully tieplated; it is provided with 6 rail anchors to the rail length, ballasted with 12 inches of slag, and is well maintained.

o Columbus, Ga.	57.6 mi.
o Daaverville	9.2 mi.
X Sturdivant (P. of A)	86.0 mi.
o Birmingham, Ala.	



In the vicinity of the point of accident the maximum authorized speed for passenger trains is 55 miles per hour.

The weather was clear at the time of the accident, which occurred at 5:20 p.m.

Description

No. 1, a west-bound passenger train, with Conductor Wilson and Engineman Geyer in charge, consisted of engine 437, of the 4-6-2 type, one express car, one combination baggage and mail car, and three coaches, in the order named; all cars were of steel construction. This train departed from Columbus, Ga., 66.8 miles east of Sturdivant, at 3:03 p.m. according to the train sheet, 8 minutes late, passed Dadeville, the last open office and 9.2 miles east of Sturdivant, at 5:03 p.m., 12 minutes late, and, when 2,863 feet west of Sturdivant and while moving at a speed estimated at 25 to 40 miles per hour, struck a slide and was derailed.

The engine and tender were derailed to the north, remained coupled, and stopped 220 feet west of the point of derailment, in general line with the main track and inclined to the north at an angle of 30 degrees. The engine and the tender were considerably damaged; both tender trucks were torn loose. The first car was derailed to the north, telescoped the tender a short distance, stopped upright on the tender trucks, and was badly damaged; both trucks of this car were damaged and out of place. The third and fourth cars were slightly damaged.

The siding was pushed about 4 feet out of line, a distance of 50 feet.

The employees injured were the engineman, the fireman, the conductor, and the baggagemaster-flagman.

Summary of Evidence

Engineman Geyer stated that the air brakes functioned properly en route. As the train approached Sturdivant the headlight was burning and the speed was 55 miles per hour. About 20 or 25 car lengths east of the cut involved he observed an obstruction on the tracks in the cut and immediately applied the air brakes in emergency and called a warning to his fireman. He estimated that the speed was reduced to 25 or 30 miles per hour at the time of the impact. He said that prior to the accident the trip was normal and he had received no instruction to look out for slides. Although the weather was clear, there were shadows in the cut caused by the setting sun; these shadows

created a deceptive visual condition. The accident occurred about 5:20 p.m. He said that this was the first instance wherein he had experienced any difficulty with a slide in the cut involved.

Fireman Johnson corroborated the statement of Engineman Geyer in substance.

Conductor Wilson stated that at Columbus the air brakes were tested and they functioned properly en route. He was in the third car as the train passed Sturdivant and the speed was about 50 miles per hour. Immediately afterward he felt an application of the brakes and then the impact occurred. At the time of impact the speed was 30 or 40 miles per hour. He estimated that the train moved 600 feet from the time he felt the brakes apply until the time of impact. He said that the slide was located just west of the point of curve and it covered the rails to a depth of about 5 feet. The weather was clear and the sun had set at the time of the accident, which occurred at 5:20 p.m.

Baggagemaster-Flagman Blythe corroborated in substance the statement of Conductor Wilson. He added that shadows in the cut restricted visibility.

The statement of Train Porter Harvey added nothing of importance.

Engineman Kittell, of Second 38, an east-bound freight train and the last train prior to No. 1 to pass through the cut involved, stated that his train passed Sturdivant about 3:50 p.m. and at that time he did not observe any unusual condition in the cut.

Fireman Brannon and Conductor McArdle, of Second 38, corroborated in substance the statement of Engineman Kittell.

Section Foreman Stewart stated that he has been in charge of the section involved for 13 months past and during that time no indication of a slide had been observed in the cut at Sturdivant. He inspected the walls of the cut on February 16 and neither cracks nor seams were found. The cut is well drained and he observed very little loose material in the drainage ditch. On the day of the accident he passed Sturdivant at 7:30 a.m. and again at 9:30 a.m., and observed no unusual condition on either occasion. He arrived at the point of accident about 7:20 p.m. and inspected the equipment and the track. West of the point of derailment the track was damaged a distance of 50 feet but there was no mark on the track east of the slide. He said that during January and February the weather was unusually cold.

Supervisor Bowers stated that he arrived at the point of derailment at 7:45 p.m. He observed no damage to the track east of the slide but there was considerable damage to the track about 30 feet west of the slide. The slide covered the south rail to a depth of 4 feet and the north rail to a depth of 2 or 2-1/2 feet a distance of approximately 50 feet. He estimated that the slide contained about 500 cubic yards of earth and stone. He had inspected the cut involved after heavy rains and after freezing weather. No difficulty had been experienced with slides in this cut prior to the time of the accident. There was no excessive amount of loose material in the drainage ditches. He thoroughly examined the walls of this cut on February 26 and at that time no indication of any fault in the walls was found. He believed that the slide was caused by loosening of the material in the south wall as a result of surface cracks which followed the drying of the wall.

Division Engineer Carter stated that after the engine crossed the slide and was derailed to the north the driving wheels ran on the ties for one rail length, then the wheels sank in the ground between the main track and the siding and plowed along the ground until the engine stopped about 220 feet distant. The cut involved is 45 feet in width and the south wall consists of granite strata lying at an angle of 45 degrees to the track and sloping away from it. The distances between the granite strata vary; at some points the strata come together and are practically solid rock; however, at the point of accident the granite strata are about 50 feet apart; a portion of this area, approximately 58 feet long, 50 feet wide, and 8 feet deep in the face of the wall, broke from the wall and fell to the track. Only a small part of the overburden came down. Because of the north wind blowing over a lake, which is located north of the cut involved, and blowing against the south wall of the cut, the frost penetrated deeply during the unusually cold weather of January and February. Warm weather on February 29, March 1 and March 2 caused sudden thawing, which in his opinion, resulted in the occurrence of the slide. The soil was moist but not wet at the time of the slide. The cut was excavated in August 1926, and, because of rock strata, was left on a 1/2-to-1 slope. The slide consisted of approximately 450 cubic yards of earth and rock and was about 4 feet in depth over the south rail and about 2 feet in depth over the north rail. He said that subsequent to the accident the slope has been changed to a ratio of 1-1/2 to 1.

Master Mechanic Burke arrived at the point of accident at 8:50 p.m. He found that the automatic brake valve was in emergency position, the independent brake valve in application position, the throttle closed, and the reverse lever practically in the center of the quadrant. He was unable to find any equip-

ment defect that could have contributed to the cause of the accident.

Superintendent Baldwin stated that he has been in charge of this Division since December 1918. The grade through the cut involved was changed and the work was completed the latter part of the year 1925. On several occasions loose rock was scaled from the walls of the cut and in each instance there was no indication of the possibility of a slide. He said that the weather in this locality was much colder than usual during the months of January and February of this year. Subsequent to the accident, on March 4, between 5 and 5:30 p.m., he observed that an engineman of a west-bound train had a clear view ahead to the west end of tangent track, a distance of $3/4$ mile, but just beyond this point shadows in the cut restricted visibility.

Observations of the Commission's Inspectors

The Commission's inspectors observed that a depression 4 feet wide and about 18 inches deep, starting in the overburden of the south wall of the cut, sloped down the wall about 15 feet and the bowl-shaped cavity left by the slide reached a maximum depth of 8 feet.

Discussion

According to the evidence, when No. 1 was about 2,163 feet west of Sturdivant and moving at a speed of 50 to 55 miles per hour, the engineman observed an obstruction on the tracks about 700 feet distant in a cut, and he applied the air brakes in emergency. The speed of the train was reduced to between 25 and 40 miles per hour when the slide was struck. Examination subsequent to the accident disclosed that the slide, containing approximately 450 cubic yards of decomposed granite and mica, came from the south wall of the cut.

Approaching the point of accident an engineman of a west-bound train has an unrestricted view for a considerable distance on tangent track; however, the evidence disclosed that a short distance beyond the end of the tangent shadows caused by the cut and the setting sun materially restricted visibility. The engineman of No. 1 was maintaining a lookout ahead but when he saw the slide it was too late to avert the accident.

The section foreman had passed this point twice on the day of the accident and about 1-1/2 hours prior to the accident an east-bound freight train passed through the cut involved; no evidence of any unusual condition in the cut was observed.

Inspections of the cut involved had been made periodically and nothing to indicate the probability of a slide had ever been observed. In this locality the weather had been unusually cold during January and February and, evidently, the south wall was frozen more deeply than usual. Three days prior to the day of the accident, warm weather caused a sudden thaw which undoubtedly loosened the material and resulted in the slide.

Conclusion

This accident was caused by a landslide.

Respectfully submitted,

S. N. MILLS,

Director.