

INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE
INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE
ALABAMA GREAT SOUTHERN RAILROAD, SOUTHERN RAILWAY
SYSTEM, AT NEW ENGLAND, GA , ON OCTOBER 29, 1929

February 17, 1930

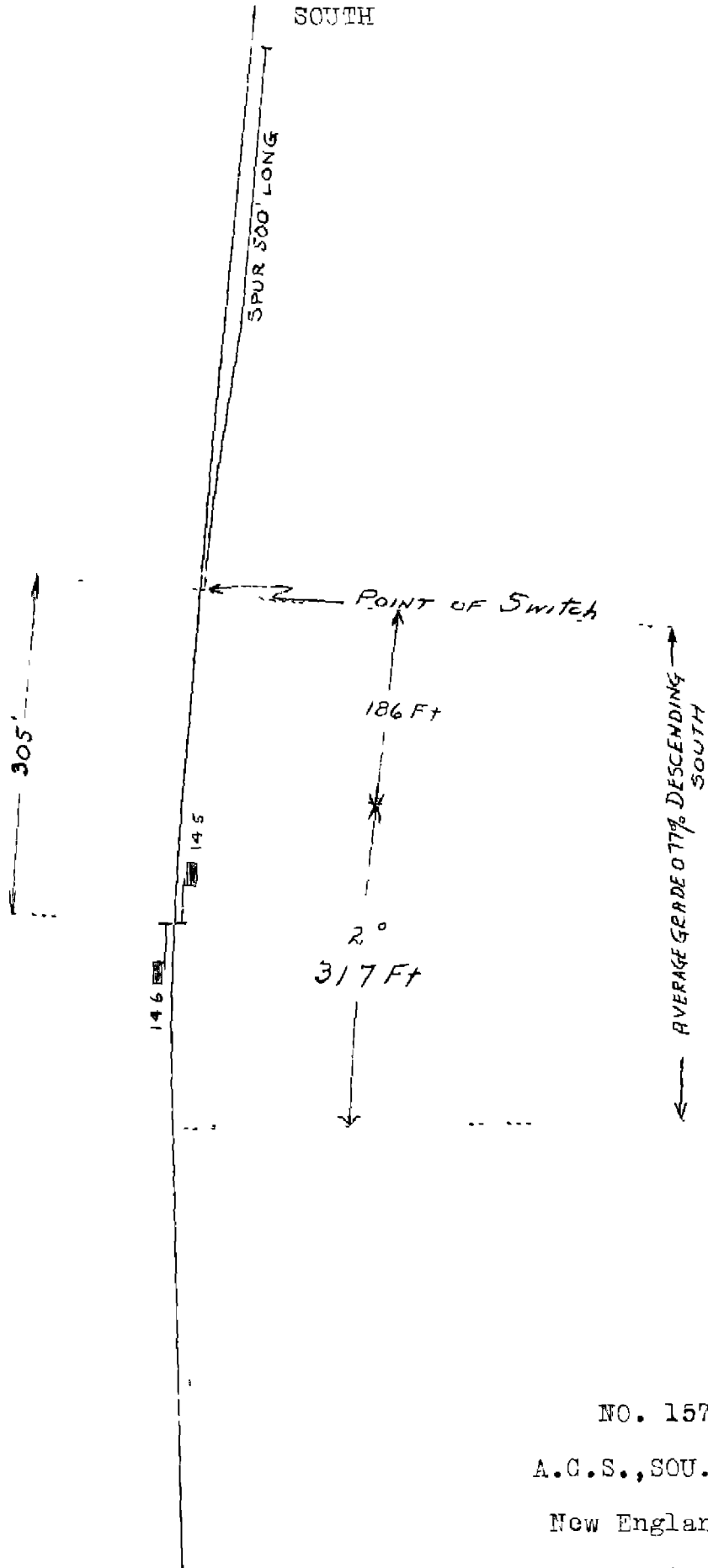
To the Commission:

On October 29, 1929, there was a derailment of a passenger train on the Alabama Great Southern Railroad, Southern Railway System, at New England, Ga , resulting in the death of one employee, and the injury of four passengers and one mail clerk.

Location and method of operation

This accident occurred on that part of the Queen & Crescent District extending between Chattanooga, Tenn , and Birmingham, Ala , a distance of 143 miles, in the vicinity of the point of accident this is a single-track line over which trains are operated by time-table, train orders and an automatic block-signal and train-control system, the signal system however, was temporarily out of service. The accident occurred at a switch located about 60 feet south of the station at New England; this switch is a facing-point switch for southbound trains and leads off the main track to the west to an industrial spur track, which is about 500 feet in length. Approaching the switch from the north the track is tangent for a considerable distance and then there is a 2° curve to the right 317 feet in length, followed by 186 feet of tangent to the switch, this tangent continuing for a considerable distance beyond. The grade for southbound trains is descending, averaging 0.77 per cent.

The low switchstand, located on the west side of the main track, was not equipped with either targets or a switch lamp, the turnout is a No. 10, with 15 ft. switch points. The insulated bridle bar is of the solid type, 5/8 inch thick and 2½ inches wide, with riveted lugs and 1 inch bolts, the tie or No. 2 bar is fastened likewise, and a solid-type connecting rod is used. The switch works in conjunction with the automatic block-signal and train-control system, and the signals are operated if the switch points are open ¼ inch or more, the signals are of the three-position, upper-quadrant type, displaying light indications of red, yellow, and green, for stop, caution, and proceed, respectively. Automatic signal 14.5, the last southbound signal, is located 305 feet north of the switch. The automatic train-control system is of the intermittent



NORTH

NO. 1579

A.C.S., SOU. RY. SYS.

New England, Ga.

Oct 29, 1929

inductive type, known as the auto-manual automatic stop, manufactured by the General Railway Signal Co.

It was daylight and the weather was cloudy at the time of the accident, which occurred at about 6.15 a.m.

Description

Southbound passenger train No. 43 consisted of one mail car, one baggage car, two coaches, three Pullman sleeping cars, and one dining car, in the order named, hauled by engine 6690, of the Pacific type, and was in charge of Conductor McAllister and Engineman Daniels. The cars were of all-steel construction, with the exception of the second and eighth cars, which were of steel-underframe construction. At Morganville, 12.1 miles south of Chattanooga, absolute signal 12.3 was in the stop position, and the conductor received and copied train order No. 210, Form 19, from the dispatcher over the emergency telephone, reading as follows:

"Block signals between Morganville and Trenton not working May be passed without stopping looking out for obstructions broken rail or switches not properly set This order void after 650 six fifty am"

Morganville and Trenton are 5.8 miles apart, and include the territory within which this accident occurred. Train No 43 departed from Morganville at about 6.02 or 6.03 a. m., about 15 minutes late, and when in the vicinity of signal 13.1, which signal was displaying a stop-and-proceed indication and is located 7,392 feet north of signal 14.5, speed was reduced in order to permit their own flagman, who had been sent ahead to flag through the block while the conductor was obtaining the train order, to get aboard the train, the engineman also operated the forestalling feature of the automatic train control apparatus and the train passed signal 13.1 without stopping. Approaching signal 14 5, which was also displaying a stop-and-proceed indication, the engineman again forestalled and the train passed that signal at a speed estimated to have been between 15 and 20 miles per hour and was then derailed at the switch leading to the spur track.

Engine 6690, together with its tender came to rest on its right side, diagonally across the spur track, headed southeast, with its forward end 360 feet south of the switch points, the first, third and fourth cars also came to rest in a similar manner across the spur track, except that one of the coaches remained upright. The second car was on the opposite side of the main track, the fifth car was entirely derailed and in line with the spur track,

and the sixth car only had its south or forward truck derailed. Starting at the frog of the switch, both the main track and the spur track were torn up for a distance of 300 feet, while one of two box cars that were standing on the spur track at the time of the accident was demolished and the other one was damaged. The employee killed was the fireman.

Summary of evidence

Engineman Daniels stated that when approaching New England, he was leaning out of the side window and looking ahead, the headlight was not burning. The switch at which the accident occurred was the only facing-point switch within the territory covered by the train order, and on seeing the switch points, which were plainly discernible when the engine was about 350 or 400 feet north of them, and after satisfying himself that they were properly lined for the main track, at which time he estimated the speed of his train to have been about 15 miles per hour, he released the air brakes and opened the throttle a little, and then a little more, and the speed was increasing on the descending grade at the time the switch was encountered. The first he knew of anything wrong was right after the switch points were lost to view under the front end of the engine, when a sudden lurch occurred, at which time he estimated the speed to have been not more than 18 or 20 miles per hour, throwing him from his seat box before he could close the throttle or apply the air brakes, the engine overturning before he could regain his feet. Engineman Daniels further stated that he was handling the train under control and could have brought it to a stop at any time without incident, and that he observed the switch points before reaching the block signal and operating the forestalling feature of the train control system. After the accident, he observed that the switch was locked and lined for the main track, and that the engine had derailed right at the point of switch, both points having fresh breaks, as did the bridle rod, in which condition the switch points were free to move. In his opinion the engine-truck wheels struck the switch points. Engineman Daniels knew that there was no train in the block, on account of the kind of train order that the conductor had received, but he did not know whether the automatic block signals were displaying stop indications on account of the switch points having been partly open, saying that they appeared to be properly lined to him, otherwise he would have brought the train to a stop before the switch was reached and would have examined the points. Engineman Daniels accounted for the amount of damage done as a result of the accident by saying that the engine was working steam on a descending grade, continuing to do so after the derailment, and then the momentum of the cars in the train pushed it along, tearing up the track.

Conductor McAllister stated that southbound automatic block signal 12 3, located at the south end of the passing track at Morganville, was displaying a stop indication and that he went into the station at that point, telephoned the dispatcher, and received train order No 210. He and Flagman White were riding in the rear car approaching the switch and they estimated the speed to have been between 18 and 20 miles per hour, a speed which the conductor considered as being under control, otherwise he said that he would have applied the air brakes from the rear and cautioned the engineman about running too fast. After the accident the conductor examined the switch, there was no indication of the switch having been tampered with, and it was lined and locked for the main track; the No. 1 bridle rod was broken, on the west side of the track, under the switch point. The conductor's statements relative to the amount of damage done as a result of the derailment supported those of Engineman Daniels. Flagman White immediately went back to flag. Statements of other members of the crew developed nothing additional of importance.

Roadmaster Metcalfe stated that it was not the policy to maintain targets or lamps on switches located within 500 feet of automatic block signals. Switches are inspected once each week by section foremen. He arrived at the scene of the accident about 5 p. m., the day of its occurrence. Examination of the switch disclosed the break in the bridle rod to be apparently a new break, although there appeared to be a small seam in the steel, which was concealed and could not have been detected by ordinary inspection, there was no evidence of anything having dragged through the switch, striking the bridle bar, but the east switch point showed evidence of having been struck, apparently by a derailed car. There was no indication of dragging equipment. Tests of the switch, with the connecting rod unfastened from the bridle rod, leaving the switch points free to move, disclosed that the switch points opened from $1 \frac{3}{16}$ to $1 \frac{1}{2}$ inches. The switch was then lined for the spur track with lining bars, which were jerked out quickly in order to give the same action that wheels running over the switch would produce, and it was found that in every case the switch points came back to the main line side, leaving the switch cocked to the extent of about $1 \frac{3}{16}$ inches. During these tests, the only new material used was a No. 1 bridle rod. In his estimation, the speed of the train was about 25 miles per hour at the time of the accident, judging from the condition of the engine and equipment and taking into consideration that steam was being worked on the descending grade and was not shut off, nor the air brakes applied, when the accident occurred.

Section Foreman Killian last gave the switch a regular inspection three days prior to the accident, while

On the day before the accident he looked it over, nothing unusual was noticed on either of these occasions. After the accident, he examined the switch and found it to be practically in the condition as described heretofore. The break in the No. 1 bridle bar was new and near the center of the bolt hole, the hole being concealed, and the breaking of the bar allowed the points to swing open. He could not find anything to explain the breaking of the bar.

Superintendent of Terminals Whitaker was of the opinion that the engine-truck wheels split the switch, the engine and forward part of the first car following the spur track, while the rear part of that car and the second car followed the main track, the other cars following between the main track and the spur track. Judging from the conditions, he estimated the speed of the train to have been about 30 miles per hour at the time of the accident.

Signal Maintainer Ellis went over the track in this vicinity on the day prior to the accident, about 11 a.m., and at that time the signals were in proper working order. Subsequent to the accident, after repairs were made, the signals functioned properly. There was no indication of the seals having been tampered with.

Track Supervisor Price stated that he arrived at the scene of the accident about two hours after its occurrence, the No. 1 bridle rod showed a new break through the bolt hole where it fastens to the switch lug on the closed point side. In his opinion the broken bridle rod caused the accident.

Master Mechanic Bunn inspected the engine at the point of accident, but found no defect that would have caused or contributed to the derailment. He was of the opinion that the engine did not derail until it struck the derailing device located on the west rail of the spur track at a point 189 feet south of the switch points, he estimated the speed of the train to have been not less than 35 or 40 miles per hour, judging from the damage done. The engine was equipped with a device which would automatically apply the air brakes in emergency, provided the engine truck wheels assumed an angle of more than 10° from the driving wheels.

The first mark of derailment was on the gauge side of the base of the east main track rail, 9 feet from the point of switch, this mark extended a distance of 4 feet and then appeared on the ties, continuing to the frog, beyond which point the track was torn out. The first mark on the west rail was at the angle bar on the outside, 14 feet from the point, marks continued on the base of the rail for a distance of 8 feet before passing off on to the ties and then extending up to the frog.

Conclusions

This accident was caused by the defective condition of a switch.

The investigation developed that the automatic block-signal and train-control system functioned as intended, that the No. 1 bridle rod of the switch had broken in some unknown manner, and that this condition permitted the switch points to open, causing the automatic signals to assume the stop position. Engineman Daniels did not see the open switch points from his position in the engine cab, it appearing to him that they were properly lined for the main track. Engineman Daniels, however, should have known that there was a break somewhere in the track circuit by reason of the signals displaying stop indications, since he knew there was no train in the block; this was the only facing-point switch between the points named in the train order, and the switch was not equipped with either a target or a lamp. In the interest of safety and in view of the existing conditions, Engineman Daniels should have been operating his train at a much lower rate of speed than is actually believed to have been the case when approaching the switch, and had he done so, even though the switch points were open or cocked, in all probability no serious consequences would have resulted.

All of the employees involved were experienced men and at the time of the accident none of them had been on duty in violation of any of the provisions of the hours of service law.

Respectfully submitted,

W. P. Borland,

Director.