In re investigation of the derailment of an Atlantic Coast Line train within the military reservation at Camp Jackson, near Columbia, S. C., on May 10, 1918.

June 12, 1918.

On May 10, 1918, there was a derailment of a troop train, in charge of the Atlantic Coast Line Railroad, within the military reservation at Camp Jackson, near Columbia, S. C., which resulted in the death of 9 soldiers and the injury of 25 soldiers. After investigation the Chief of the Bureau of Safety reports as follows:

The track upon which this derailment occurred forms a part of the railway system at Camp Jackson and is owned and maintained by the United States Government. All train and yard movements within the reservation are made under the direction and supervision of the Transportation Department of the Quartermaster Corps.

A special troop train, consisting of A. C. L. locomotive 973, 3 box cars, 2 wooden coaches, 1 steel underframe coach, 3 wooden coaches, 1 steel coach, 3 wooden coaches, and 1 steel underframe coach, in the order named, was in charge of Conductor Felder and Engineman Sheppard of the Atlantic Coast Line Railroad. It was made up on track No. 1 at Camp Jackson, left there at 8:56 a. m., en route to Camp Sevier, Greenville, S. C., and had proceeded about one and one-half train lengths when it was derailed about 9 a. m. while running at a speed of 8 or 10 miles an hour.

B&O coach 3039, the fifth car from the head end of the train, fell from the trestle and came to rest on the ground about 20 feet below on its roof, parallel with the track. It was of wooden construction and was entirely demolished from its roof to the bottom window sills its entire length, the occupants being crowded into the small space between the bottom window sills and the floor of the car. All of the deaths and serious injuries occurred in this car. The sixth car in the train came to rest on its right hand side on the embankment which forms the approach to the trestle and at an angle of about 15 degrees with the track, while the forward trucks of the seventh car were derailed. The remainder of the train was not derailed.

The derailment occurred at the north end of a one-story wooden trestle which spans Wild Cat Creek, the channel of which is the southern boundary of Camp Jackson at that point. The trestle was built less than a year ago, and is modern in design and substantial construction. It is 600 feet long, has a maximum height of 36 feet, and an average height of 20 feet. The northern half of the trestle and tracks are owned and maintained by the Government and the southern half by the railroads. Leading to the trestle from the north there are three tracks, known as the lead track, track No. 1 and track No. 2. The lead track is on a curve to the left which extends to within 330 feet of the trestle, and is tangent the remainder of the distance. Track No. 1 is on a 13-degree curve to the left from the point where the train started to within 120 feet of the trestle, at which point it connects with the lead track. Track No. 2 parallels track No. 1 and connects with the lead track at a point 15 feet north of the trestle. Connecting with the Government owned track at the center of the trestle is a single-track line extending about three miles south, and is known as the Camp Jackson branch. This branch is owned jointly by the Atlantic Coast Line Railroad, the Seaboard Air Line Railway, and the Southern Railway, but trains are operated over it by the Atlantic Coast Line Railroad.

The track is laid on a grade of about 1% descending toward the trestle, and beginning at a point about 150 feet north of the trestle there is an embankment which forms the approach to the trestle and which gradually increases to a height of 12 feet 4 inches. The track consists of 75-pound steel rails, with the exception of a few 80-pound rails, 33 feet in length, with 18 or 20 pine ties under each rail, and not ballasted. No rail braces or tie plates are used. Near the point of derailment there was a number of angle bars not completely bolted on account of the bolt holes in the angle bars and in the rails not matching, but with the exception of one joint, at least two bolts were used at each joint. The joint just referred to was located on track No. 1 about half way between the frog and end of switch point on outside of curve where track No. 1 connects with the lead track, and about 160 feet north of the trestle. At this joint the north end of the south rail was spiked on both

sides, and the south end of the north rail was spiked in a similar manner, but the spikes had worked loose, the one on the outside of the rail being almost entirely ineffective. The tie at this joint was considerably cut and worn on account of the looseness of the joint.

The first indications of derailment were marks on top of the rail about five feet south of the joint just described, these marks extending about five inches diagonally across the rail and then diverged abruptly to the outside of the rail. Opposite this point and between the switch point rail of track No. 1 and the main rail of the lead track there were flange marks on the base of the lead track rail which began ten feet north of the switch point and extended six feet south of the switch point. The bolts on the outside of the joint on the right hand side of the lead track eight feet south of the switch on No. 1 track were sheared off. The rail leading from the embankment to the trestle on the right hand side of the track was bent, several ties displaced, and the right hand switch point on track No. 2 was broken in two. On the trestle eight ties and two lengths of guard rail were broken, the first and second bents displaced, and one outside pedestal and four intermediate braces were damaged, but there were no wheel marks on the trestle.

Conductor Felder stated that he was riding on the locomotive and the train was drifting at a speed of about 8 miles an hour when he received a stop signal from Switchman Faisy which he transmitted to the engineman and the train stopped within a half car length. After the derailment he inspected the track and found what he termed a mismatched joint which contained only one bolt in the angle bars, and the rail had worked down into the tie. He found wheel marks on the rail a short distance south of this joint.

Engineman Sheppard stated that when Conductor Felder gave him a stop signal he immediately made an emergency application of the air brakes and the train was brought to a stop within a distance of 80 or 90 feet, the speed of his train having been about 8 miles an hour. He looked back and saw B&O coach 3039 falling from the trestle, and observed that it had become uncoupled from the car ahead of it but remained coupled to the car behind it during the first stages of its fall. He inspected the track after the accident and found a defective rail joint and wheel marks adjacent thereto, and was of the opinion that the derailment was caused by the defective joint. Upon leaving the yard at Camp Jackson on the morning of the

accident he did not notice any unusual condition of track and thought the track where the derailment occurred compared favorably with other railroad yards in which he had worked.

Switchman Faisy stated that he had been riding on the locomotive of the troop train but had gotten off before reaching the trestle and was standing near the switch on track No. 2. He noticed that two wheels of B&O coach 3039 were off the track and signaled the engineman to stop the train.

Assistant Trainmaster Jones of the Atlantic Coast Line Railroad stated that he examined the track about an hour after the derailment and found a rail joint about 40 feet north of the switch points of track No. 1 which contained but one angle bar bolt but there was a spike on each side of both rails, and they were apparently secure. About four feet south of this joint there were wheel marks on the rail, then there were wheel marks between the stock rail and the switch point for a distance of about fifteen feet, at which point the wheels apparently mounted the rail and continued for five or six feet, and then left the roadbed and went down the embankment.

Trainmaster Gaffney of the Southern Railway stated that he examined the track after the derailment and found a rail joint near the switch on track No. 1 and on the right hand side of the track which had only one track bolt in it. This joint was loose, allowing the rails to swing to one side and cause a mismatched joint, and in his opinion a wheel flange mounted the end of the rail at this joint and derailed the train. He said he found marks on the rail at this joint which justified him in the conclusion that the derailment occurred at this point. He said that on account of the superevelation of the track at the point of derailment the greatest wheel pressure would be on the lower side of the track which would make it easier for the wheels on the upper or right had side of the car to mount the rail. He thought the front truck of B&O coach 3039 was the first to be derailed.

First Lieutenant DeBaun, Company D, 306th Engineers, stated that he was in charge of maintenance of tracks at Camp Jackson and about three or four weeks prior to the accident he had inspected the tracks in that vicinity. He said that he found the track to be all right with the exception that the joints were not fully bolted on account of the bolt holes in the rail and in

the angle bars not being spaced alike and he was unable to correct this on account of not having a track drill. He examined the track shortly after the derailment and found that all the joints in that vicinity contained at least two track bolts, except one joint which contained but one bolt, but the joint apparently was solid. The first indications of derailment he noticed were marks on top of the rail about 175 feet north of the trestle, and the joint that contained but one track bolt was located 15 or 18 feet north of point of initial derailment. The gauge of the track was perfect except at the initial point of derailment it was about one-half inch wide.

Captain Supplee, Construction Quartermaster at Camp Jackson, stated that he examined the track, trestle andtrucks but could find nothing that should have caused the derailment. He examined the rail joint that contained but one track bolt but did not think the derailment occurred at that point. He said he believed that the sixth car in the train was the first to be derailed and that it pulled B&O coach 3039, which was ahead of it, off the track.

First Lieutenant Rooks, Company C, 321st Infantry, stated that he was occupying the rear seat on the left hand side of B&O coach 3039 and the first intimation he had of the derailment was when the car began to lean on one side.

Private Bost, Company C, 321st Infantry, stated that he was occupying the sixth seat from the rear on the right hand side of B&O coach 3039 and upon hearing a rumbling noise he looked back and saw the next car behind begin to topple over. The wheels apparently were running on the ties and continued to do so for about 20 feet. At that time the car in which he was riding was not derailed and he did not notice any unusual movement of the car until it reached a point about four feet from where it turned over.

Sergeant Kirckpatrick was riding in the sixth car of the train, occupying the fourth seat from the front end on the right hand side, and said the car began bumping on the ties and continued to do so for about 25 feet and then turned over on its side.

This accident was caused by an improperly maintained rail joint located about 160 feet north of the trestle and on the outside of the curve in the switch lead of track No. 1 between the frog and switch point.

Investigation disclosed that this joint had but one track bolt in it on account of the bolt holes in the angle bars and rails not being spaced alike, and the joint was not securely spiked. It is believed that on account of the joint being in that condition the two rails were out of alignment and the forward trucks of the sixth car in the train were the first to be derailed; that the derailment of that car caused B&O coach 3039 to be derailed and fall from the trestle. There were no wheel marks on the ties south of the point where the head end of the sixth car of the train began its descent down the embankment, which indicates that B&O coach 3039 was not derailed until it fell from the trestle. The statements of Lieutenant Rooks and Private Bost, who were occupants of B&O coach 3039, were to the effect that that car did not derail until it began to turn over, and the testimony of Private Bost indicated that the sixth car was the first to be derailed.

The maintenance of tracks within Camp Jackson is under the jurisdiction of the Military authorities of the Camp and the responsibility for its condition rests with them.

B&O coach 3039 was built in 1884 of light wooden construction, had a length over all of 59 feet 7 inches, weighed 52,280 pounds, and is an antiquated type of car. The car immediately behind it had a steel underframe and wood and steel superstructure, and a length over all of 78 feet 2 inches, and weighed 126,300 pounds. Doubtless the use of a car of the construction, age and condition of B&O coach 3039 greatly increased the number of casualties in this accident.

The evidence indicates that steel, steel underframe and wooden cars were placed indiscriminately in this train, which arrangement greatly increases the danger to passengers occupying the wooden cars. It is believed that a much safer practice would be to place the steel and heavier type of equipment ahead of the lighter equipment.

The crew in charge of this train were experienced men and had been on duty four hours and thirty minutes at the time of the accident.