INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE ATLANTIC COAST LINE RAILROAD NEAR ENFIELD, N. C., ON JULY 10, 1929.

November 8, 1929.

To the Commission:

On July 10, 1929, there was a derailment of a passenger train on the Atlantic Coast Line Railroad near Enfield, N. C., resulting in the injury of 41 passengers, 5 Pullman employees, 1 railroad employee, and 3 other persons.

Location and Method of Operation

This accident occurred on the Richmond District of the First Division, extending between South Rocky Mount, N. C., and Richmond, Va., a distance of 125.6 miles; in the vicinity of the point of accident this is a double-track line over which trains are operated by time-table, train orders, and an automatic block-signal and train-control system. The derailment occurred on the northbound main track at a point about 6,100 feet north of the station at Enfield, at what is locally known as Ruggles Swamp, just north of mile post 18; approaching the point of accident from either direction the track is tangent for a considerable distance, and the grade at the point of accident is practically level. The track is laid with 100-pound rails, 33 feet in length, with about 19 ties to the rail-length, tie-plated, single-spiked, and ballasted with gravel to a depth of about 13 inches.

At the time of the accident track repairs were in progress and the ballast, with the exception of about 2 inches, had been stripped from the ties for a distance of approximately 1,200 feet, starting at a point 165 feet south of mile post 18, preparatory to reballasting with rock ballast. Many new ties had been laid in this distance and the tie-plates had not become seated in the ties, while numerous ties were lying lightly on top of the ballast.

The weather was clear at the time of the accident which occurred at about 9:45 a. m.

Description

Northbound passenger train No. 84 consisted of three express cars, one postal-storage car, one mail and baggage car, one combination passenger and baggage car, one coach, one Pullman sleeping car, one dining car, and five Pullmen sleeping cars, in the order named, all of steel construction, hauled by engine 1557, and was in charge of Conductor Gerow and Engineman Pettitt. This train passed Enfield at 9:43 a. m., 11 minutes late, and while running at a speed variously estimated to have been between 30 and 55 miles per hour the rear truck of the ninth car in the train, the dining car, was derailed, followed by the derailment of the five rear sleeping cars.

The forward portion of the train remained on the track; the dining car remained coupled to this portion of the train and came to a stop with its rear end at a point 1,847 feet north of mile post 18. The five Pullman sleeping cars came to rest on their right sides, east of and parallel to the track, with the head end of the first car 573 feet behind the dining car and the rear end of the last car 857 feet north of mile post 18. The employee injured was the flagman; all of the rest of the injured persons were riding in the derailed sleeping cars.

Summary of Evidence

Engineman Pettitt at first stated that he did not feel anything unusual as to track conditions at the time the engine passed over the place where the rear portion of the train became derailed, the first knowledge of anything wrong being when the train parted, causing the air brakes to apply in emergency; he said that he was looking ahead and observing track conditions prior to reaching the point of accident and that the track appeared to be in perfect alignment. He estimated the speed of the train to have been between 30 and 35 miles per hour at the time of the derailment. In a supplemental statement, Engineman Pettitt said that a force of section men was working just about where the accident occurred and he acknowledged that a rough spot in the track was encountered at that point, which he considered bad enough to have been reported had there been no one working the immediate vicinity. After the accident he examined the track; the west rail remained intact and practically in line, but the east rail had been torn out as a result of the accident and was laying in the swamp with the derailed cars. Engineman Pettitt said it was clear that the accident was due to spread track, but he did not know the cause of its spreading.

Fireman Garrett stated that the engine encountered an unusually rough spot in the track when it passed over the point where the rear portion of the train derailed; the track seemed to give way under the engine and it felt as though the engine dipped down on the right or east side, and when he looked back the train had parted; he estimated the speed to have been about 35 miles per hour and said that the engine was working steam when the air brakes applied in emergency. He gave testimony similar to that of Engineman Pettitt as to the condition of the track after the accident. Fireman Garrett further stated that following the derailment, and while he was sitting on the tender, he overheard a section hand telling some one that the section force had forgotten about train No. 84 and that they had the ties out and the rail was not spiked down, however, he could not identify which section hand he was who made this statement.

Express Messenger Bulchen, riding in the third car, noticed nothing prior to the application of the brakes; Baggagemaster Tinsley, riding in the sixth car, said the car seemed to jump upward about 2 feet and also swayed from side to side; he started for the emergency valve but the brakes were applied before he could reach it. He thought the speed at the time was 40 or 45 miles per hour. Train Porter Stith, riding in the same car with the baggage-master, said the car went down and then up. P. T. Sledd, an employee riding in the seventh car, said he felt a jar and heard a loud noise; the car then swayed to the right and then righted itself and ran smoothly until it came to a stop. A news agent who was passing through the seventh car said it swayed and threw him against some seats, but that he was not thrown from his feet.

Conductor Gerow, who had just passed into the dining car from the next car in the rear, estimated the speed of the train to have been between 50 and 55 miles per hour at the time of the accident; he thought that the dining car was the first to become derailed, resulting in the track being shoved over sufficiently to derail the following cars. He offered no explanation as to what caused the dining car to become derailed, and had not noticed any prior indication of a rough spot. The attention of Conductor Gerow was called to a crack in the pedestal of the rear truck of the dining car, at the forward end of the pedestal and on the west side thereof; this looked like an old break, however, and he was of the opinion that it had nothing to do with the derailment. Flagman Batton immediately went back to flag.

Section Foreman Humbert, in charge of the section involved, stated that work of stripping ties for ballast, spacing, filling in, tightening up, etc., was in progress at the time of the accident, but that his last work at this point had been performed during the last part of the previous month. During the morning about eight new ties had been placed prior to the arrival of train No. 84, these being scattered over a distance of 10 or 12 rail-lengths. He had not used jacks in putting these ties in place, simply pushing them in, spiking them, and finishing up as he went along. Section Foreman Humbert further stated that the track was in good condition in this vicinity and that about one-fourth mile of it had been stripped for rock ballast, which stripped track he regarded as being safe for a speed of 60 miles per hour. No slow orders were in effect for this piece of track, nor had any such orders ever been put out covering this location to his knowledge. When he started to repair the track after the accident he found that the east rail had been carried down in the swamp with the cars, and that the ties, together with the west rail, had been pulled over to the right for a maximum distance of 6 inches. Section Foreman Humbert was positive that the derailment was not due to track conditions, saying that two freight trains passed over the track that morning prior to train No. 84 and that he made a close inspection of the track after each train passed, but found nothing wrong.

Section Foreman Sellers, in charge of the section north of the one involved, stated that he passed over the point of derailment at 7:30 a. m., but noticed nothing unusual with track conditions. Section Foreman Humbert was spacing at the time, and had just started work of slipping ties into open gaps, but had no jacks set; this work extended from mile post 18 to about the point where the accident occurred. Section Foreman Sellers assisted in repairing the track after the accident, and at that time noticed that the west rail, together with the ties, had been pulled toward the east, the distance at one point being 8 or 10 inches. He was of the opinion that the accident was caused by something dragging, saying that at the point where the east rail had started to move outward there was a mark on an angle bar, and there were also some marks, more like surface scratches, on the gauge side of the bell of the rail south of this angle bar. The mark on the angle bar showed that it had been struck a sharp blow by something which, after contact, had run up and over it for a distance of 2 or 3 inches; he did not think this mark was made by a wheel. This angle bar was spiked down at the time of his examination, and beyond the angle bar the rail had started to bend outward.

Roadmaster Fowler said the section crew had been working in the vicinity of the point of accident renewing ties in the northbound track, but that he had sent them to Enfield about a week previously in order to work on a crossing at that point, with instructions to go back and resume the work of renewing ties as soon as the crossing work had been completed; the day of the accident marked the resumption of the work. The roadmaster said his instructions to all section foremen were to place a 30-mile slow order on track being stripped for ballast, and although he did not consider the track at the point of the accident to be empty track, yet it was stripped enough so that he told the section foreman to put out a slow order when he resumed his work at the point in question. After the accident, Roadmaster Fowler had not see where the section foreman had been working on the track, and on questioning the section foreman the latter said he had been putting in rail anchors and had not resumed the work of preparing the track for new ballast. Roadmaster Fowler estimated that prior to the accident about 8 rail-lengths of track had been opened up, but not to the bottoms of the ties; this would require about two cars of ballast, and it had been the roadmaster's intention to supply the ballast as soon as enough track had been opened up to accomodate three or four cars of ballast. Roadmaster Fowler further stated that after he saw the broken truck on the dining car he made no further examination to ascertain the cause of the accident, supposing that the truck was its cause.

Terminal Trainmaster Powell arrived at the scene of the accident about two hours after its occurrence. On examining the track he saw a mark on the inside angle bar of the east rail a short distance south of the last of the derailed cars; the east rail south of the angle bar was also marked, while north thereof the rail was turned over and there were flange marks on it, beginning about 4 feet from its southern end. This rail had started to turn over just north of the angle bar, and at its leaving end it was entirely overturned. The track south of the battered angle bar appeared to be in proper gauge, alignment and condition. Mr. Powell was of the opinion that a flaw in the outside of the middle pedestal on the east side of the south truck of the dining car caused the accident.

Assistant Mechanical Engineer Lynch, in charge of rolling stock, made a thorough examination of the rear truck of the dining car at the scene of the accident; he saw a very slight flaw in the back flange of the pedestal,

but was positive that this had nothing whatever to do with the accident, and he said the pedestals on the truck had become broken from running on the cross ties. He also noticed that there was very little ballast in this vicinity, the track having been stripped for a considerable distance preparatory to laying rock ballast. Many of the ties that he stepped upon would give under his weight and the tie-plates thereon were loose and rattled. It was his opinion that the dining-car truck did not cause the accident. Testimony of various other witnesses developed nothing additional of importance.

Northbound freight train extra 1641 passed over this section of the track about one and one-half hours prior to the occurrence of the accident, moving at a speed of about 30 miles per hour. Engineman Walters said that the section crew was working in the immediate vicinity, apparently putting in ties, and that he felt a rough spot in the track, which he attributed to the track repairs being made, and he was of the opinion that had the speed of his train been a little higher, the rough spot might have caused it to become derailed.

There was some testimony to the effect that the derailment might have been caused by the breaking of the rear truck of the dining car, but apparently the truck broke on account of its having been dragged over the ties following the derailment. Examination of the pedestal castings by the Commission's engineer-physicist showed the presence of good metal, and the indications were that the truck broke as a result of the derailment.

For a week or 10 days prior to the occurrence of the accident, the track had been stripped of its gravel ballast to within 2 inches of the bottoms of the ties. Many new ties had been laid, and the tie plates had not become seated in the ties, while in other cases there was a space between the top faces of the tie plates and the bottoms of the rails, the maximum space being five-sixteenths of an inch. Several of the new ties were spiked up to the rails and seemed to be hanging to them instead of resting on the ballast, moving easily when stepped upon, either at the ends or in the middle. A freight train was watched as it passed over the track and in one instance seven or eight consecutive ties were lifted out of their beds as the weight of the cars moved from one to another part of the rail.

Examination of the rails which had been torn out of the east side of the track, beginning at the angle bar at the approximate point of derailment, showed that the south end of this angle bar was badly battered as if from wheel flanges. The first rail to the north was marked on the edge of the running surface, on the gauge side, as if a wheel tread had run along on it, while beginning at a point 34 inches from its receiving end, the web of the rail on the gauge side showed flange marks, which continued all the way to the leaving end of the rail. This rail was slightly twisted and had a slight outward bend near its center and another similar bend about 2 feet from its leaving end. The south end of the angle bar connecting this rail with the second rail to the north was badly battered, and there were many marks on the gauge side of the web of the second rail for the entire length of the rail; a similar condition existed in the case of the third rail to the north. The angle bar at the south end of the fourth rail was badly battered on its bottom edge and there were marks indicating that a wheel had crossed over toward the gauge side of the rail; there were also flange marks on the web, gauge side, which ended 36 inches from the receiving end of the rail. The angle bars at the south ends of the fifth, sixth, seventh and eighth rails were marked, but there were no flange marks on the webs of these rails; some of the succeeding rails also bore marks of various kinds.

Conclusions

This accident was caused by insecure track conditions.

In stripping the ties for ballast it is probable that the material was removed toward the east, the indication being that the material was disturbed under the east ends of the ties, and partially or completely removed, resulting in the ties being inadequately supported at their east ends, and continual thrusts at a weak point on this side of the track, which appeared to have been noticed by various witnesses riding in different parts of the train, from the engine back toward the dining car, which was the first car to be derailed, finally caused the east rail to turn over. Roadmaster Fowler said he had instructed Section Foreman Humbert to place a slow order in effect before starting work again, but no such order had been issued. That a dangerous condition had developed on this

stripped track seems apparent from the statement of the engineman of a freight train which passed about one and one-half hours prior to the accident, to the effect that his train probably would have been derailed had it been moving at a higher rate of speed, and it is believed that a slow order should have been put out for the protection of this section of track.

It does not appear that Roadmaster Fowler is entirely free from responsibility. After a portion of the track had been stripped he sent the section foreman to another point, where he was occupied for a week or more. The work thus being left unfinished, steps should have been taken to insure that no unsafe condition developed. Many trains moved over the track during the time the section foreman was working elsewhere, probably resulting in gradually weakening it until it reached the stage where it was noticed by the engineman of the freight train which preceded the derailed train.

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.