

CIRCULATED June 22/20

IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE MARYLAND & PENNSYLVANIA RAILROAD NEAR WOODBROOK, MARYLAND, MAY 22, 1920.

June 3, 1920.

On May 22, 1920, there was a head-end collision between a passenger train and a freight train on the Maryland & Pennsylvania Railroad near Woodbrook, Md., which resulted in the death of 2 employees and the injury of 4 passengers and 1 employee. After investigation of this accident the Chief of the Bureau of Safety submits the following report:

This accident occurred on the Maryland District, a single-track line extending between Baltimore, Md., and Delta, Pa., a distance of 43.8 miles. Trains are operated by timetable and train orders, no block-signal system being in use. Approaching the point of accident from the south the track is tangent for a distance of 2285 feet, followed by a curve of $2^{\circ} 20'$ to the left, 233 feet in length. There is then a tangent 1069 feet long and a 10-degree curve to the right 285 feet in length; the curvature then is reduced to $4^{\circ} 45'$ and $3^{\circ} 15'$, extending for a distance of about 1250 feet. The accident occurred approximately at the northern end of the 10-degree curve. On account of an embankment on the inside of this curve about 12 feet in height, close to the track, the point of accident is visible to the engineman of a northbound train a distance of only 200 feet. The point of accident is visible to the engineman of a southbound train a greater distance, but the view of a train

approaching around the curve is obstructed until within a short distance of the point of accident. Approaching from the south the grade is practically level for about 800 feet, followed by 200 feet of .75 per cent descending grade and about 1550 feet of nearly 2 per cent descending grade to the point of accident. Approaching from the north the grade varies between .46 and 1.95 per cent descending for about 1 mile, followed by about 1000 feet of ^{per cent} .78/ascending grade to the point of accident. The weather was clear.

Southbound third-class freight train No. 32 was en route from York, Pa., to Baltimore; it was hauled by engine 41 and was in charge of Conductor Donnelly and Engineman Connolly. On account of unusually heavy traffic helper engine 26, in charge of Engineman Thompson was provided at Delta. It is a custom on this line in a case of this kind for the road engine, together with the head brakeman, to handle the head portion of the train while the helper engine, with the conductor, handles the rear portion. The conductor issues instructions concerning the work to be done as the two portions of the train proceed and the engines work at different points at the same time. It is also customary in movements of this kind for the head brakeman to hold any opposing train until the rear portion of his train arrives, not permitting another train, regardless of class, to get between the two portions of the freight train. In accordance with this practice, Head Brakeman Hughes left Delta with the head portion of the train, hauled by engine 41, followed closely by Conductor

Donnelly with the rear portion, hauled by engine 26. The two portions of the train were together for the last time at Hyde, 11.7 miles from Woodbrook. At this time Conductor Donnelly gave Head Brakeman Hughes instructions as to work to be done by the head portion of the train, after which it was to go to a point south of Normal School Siding, where it was the conductor's intention to couple the two portions of the train together and proceed to Baltimore as one train. Normal School Siding is between Lawson and Sheppard, the latter being 1.1 miles north of Woodbrook. Head Brakeman Hughes misunderstood these instructions; he understood that he was to go as far as possible with the head portion of the train and that the rear portion would provide its own protection. After finishing the work at the points named by the conductor, Head Brakeman Hughes continued with the head portion of the train to the terminal at Baltimore, reaching the yard at that point at about 5:17 p. m. Although this was 13 minutes before train No. 11 departed, the crew of that train was not advised that the rear portion of the freight train had not arrived. In the meantime the rear portion had been delayed by engine trouble and on reaching Normal School Siding found that the head portion had proceeded. Supposing that, in accordance with the usual practice, the head portion would hold any opposing train at the point at which the head portion had stopped, Conductor Donnelly continued with the rear portion with the expectation of overtaking the head portion of his train at any station en route. The rear portion passed Sheppard and Woodbrook and collided with train No. 11 at a point about 850 feet south of the station at

Woodbrook while traveling at a speed estimated to have been about 8 miles an hour.

Northbound passenger train No. 11, en route from Baltimore to Delta, consisted of 2 baggage cars and 3 coaches, all of wooden construction, hauled by engine 4, and was in charge of Conductor Myers and Enginemen Blaney. It left Baltimore at 5:30 p.m., on time, left Homeland, a flag station, at about 5.45 p. m., and at about 5:46 p. m. collided with the rear portion of train No. 32 while traveling at a speed estimated to have been from 15 to 18 miles an hour.

Both engines were partially derailed, but remained upright on the roadway and were not badly damaged. The first baggage car in train No. 11 was demolished and considerable damage was sustained by the second baggage car; none of the coaches was derailed or damaged. The second car in the freight train was telescoped by the first car and badly damaged. The employees killed were the engineman of the passenger train and the fireman of the freight train.

Engineman Jonnolle, on the first portion of train No. 32, had never before known of the rear portion of a freight train looking out for its own protection, or of any other train being allowed to get between the two portions of a train, and for this reason, after the work outlined by the conductor had been completed, he asked the head brakeman if he was positive that they were to proceed without waiting for the rear portion, to which the head brakeman replied in the affirmative. After arriving in

the yard at Baltimore at about 5:17 p. m., 13 minutes before train No. 11 was due to depart, he again asked the head brakeman if he was positive that they were not to hold train No. 11 until the rear portion arrived, and again was told that the rear portion was going to look out for its own protection. Head Brakeman Hughes said that if the head portion of his train had stopped at Woodbrook or at Homelane he would have flagged train No. 11, but he failed to give an adequate explanation as to why he did not take this action at Baltimore. When train No. 11 departed from Baltimore he gave to the enginemen of that train a signal indicating that the rear portion of the freight train had not arrived, but it was not definitely established that this signal was observed or, if observed, that it was understood.

When Conductor Donnelly failed to find the head portion of his train either at Normal School Siding or at Sheppard he knew that his instructions had been either misunderstood or violated, but felt positive that he was having flag protection and that train No. 11 would be held by the head portion of his train regardless of where it might be, until he arrived with the rear portion. It did not occur to him that, having misunderstood or violated his instructions as to where to wait, the employees in charge of the head portion might also fail to hold train No. 11.

The crew of the passenger train knew nothing about the rear portion of train No. 32, and the train crew had no warning of the impending collision until they felt an emergency application of the air brakes immediately before the collision occurred.

This accident was caused primarily by a misunderstanding of instructions issued by Conductor Donnelly to Head Brakeman Hughes, resulting in the failure of Head Brakeman Hughes to flag and hold train No. 11 until the rear portion of his train arrived. A contributing cause was the failure of Engineman Connelley, in charge of the engine hauling the head portion of the train, to take proper steps to prevent train No. 11 from getting between the two portions of train No. 32.

That there was a misunderstanding between the conductor and head brakeman is clear from the fact that the head brakeman repeated the instructions erroneously to the engineman very shortly after he received them from the conductor. At the same time the head brakeman was familiar with operating conditions on this railroad; he knew that such instructions were a departure from a custom of long standing, and as a matter of ordinary precaution should have definitely notified the engineman of train No. 11 that the rear portion of train No. 32 had not arrived at Baltimore. Had he done so it is probable that Engineman Blaney would have ascertained the location of the rear portion before proceeding; the misunderstanding between the conductor and head brakeman might then have been discovered in time to prevent the accident.

Conductor Donnelly admitted that when he failed to find the head portion of his train either at Normal School Siding or at Sheppard he knew that Head Brakeman Hughes had either misunderstood or had violated his instructions, and a proper regard for safety should have prompted him to use the telephone at Sheppard, or at Woodbrook, to find out where the head portion of his

train had gone, and whether train No. 11, which was due at Homeland at 5:45, had been flagged and was being held for him.

The statements of Engineman Connolly clearly indicate that there was a doubt in his mind concerning the instructions of the conductor as told to him by the head brakeman, this doubt existing even after the arrival of the head portion of the train at Baltimore. He had had years of experience on this road, was thoroughly familiar with the prevailing custom of handling two portions of a freight train. In view of these facts, and particularly in view of the doubt which existed in his mind, he should have seen to it that the engineman of train No. 11 was informed of the conditions. Such an exercise of proper precaution probably would have afforded opportunity for preventing this accident.

Engineman Thompson knew that the head portion of his train was not at the point where the conductor expected to find it and even though he had been told by the conductor that the head brakeman would hold train No. 11, he knew that the conductor's instructions either had been misunderstood or violated, and he is open to censure for proceeding beyond Woodbrook on the time of train No. 11 without definite information as to how the movement was being handled and without knowing absolutely that he was properly protected in the movement of his train.

Conductor Donnelly was employed as a brakeman in 1908, promoted to freight conductor in 1914, and reduced to brakeman in September, 1915. In November, 1915, he was discharged for violation

of Rule G. In October, 1916, he was reemployed as a brakeman and extra conductor and in 1918 promoted to regular conductor. Head Brakeman Hughes had been employed as a brakeman on four different occasions, having a total period in the service of this railroad of about 1 year. He had had other experience in different capacities on other railroads. Engineman Connelley was employed as a fireman in 1896 and promoted to engineman in 1900. Engineman Thompson was employed as a fireman in 1909 and promoted to engineman in 1913. With the possible exception of Conductor Donnelly, the records of these employees were good.

On the day of the accident the crew of train No. 11 had been on duty from 6:53 a. m. to 10:27 a. m., and from 5:00 p. m. to 5:46 p. m. Previous to going on duty at 6:53 a. m., they had been off duty 10 hours and 26 minutes. The crew of train No. 32 had been on duty approximately 12 hours, after periods of duty varying from 8 hours to about 14 hours.

The investigation of this accident disclosed that the method of operating freight trains in two portions as described in this report has been followed to a greater or less extent for a period of approximately 20 years, although it does not appear that the practice commonly followed is specifically covered by any operating rules which are in effect. This practice virtually results in the operation of freight trains in two sections for considerable distances without utilizing the safeguards intended to be provided by the operating rules, and presents possibilities for the occurrence of accidents similar to the one under investigation in this case, due to the fact that signals for a following

portion of the train are not displayed, and such portions of a train are operated upon verbal instructions easily subject to misinterpretation or misunderstanding; furthermore, a comparatively inexperienced brakeman is apt to occupy the position of conductor with respect to one portion of a train, notwithstanding that there is no regular examination for a brakeman until he is promoted to the position of conductor, and in this case at least the head brakeman was not furnished with a copy of the book of operating rules. In view of the possibilities of errors and misunderstandings inherent in this practice, steps should be taken immediately by the Maryland & Pennsylvania Railroad Company to insure that operating methods in conformity with the rules are adopted and that necessary safeguards provided in modern railroad practices are utilized.

Between Baltimore and Belair, Md., a distance of 26.5 miles, there are 7 open telegraph offices, including those at Baltimore and Belair; in this territory there are 10 scheduled first-class trains each day except Sunday. Between Belair and York, a distance of 50.7 miles, there are 13 additional telegraph offices; 6 first-class trains are scheduled over this part of the road. In addition to the first-class trains there are 2 third-class freight trains between Baltimore and York. With the exception of the theater special, running from Baltimore to Belair, all of the first-class trains are operated between the hours of 6:15 a. m. and 8:20 p. m. Considering the comparative density of traffic in daylight hours, the number of open telegraph offices and the nature of the country traversed by this railroad, with

many heavy grades and sharp curves, it is believed that provision should be made for operating trains on this railroad by means of the block system. A simple form of manual block-system could readily be placed in effect, and had such a system been in use this accident undoubtedly would not have occurred.