IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE NORFOLK & WESTERN RAILWAY NEAR WELCH, W. VA., ON MAY 3, 1921.

May 24, 1921.

On May 3, 1921, there was a collision between a passenger train moving backward and a cut of loaded coal cars on the Norfolk & Western Railway near Welch, W. Va., which resulted in the death of 6 passengers, and the injury of 41 passengers and 1 employee. This accident was investigated in conjunction with the Public Service Commission of West Virginia and as a result of this investigation the Chief of the Bureau of Safety reports as follows:

Location and method of operation.

The Tug Fork Branch, on which this accident occurred, is a single-track line 19 miles in length, with several branch lines leading from it on which passenger service is maintained. There are no facilities for turning equipment at the ends of these branches and it is therefore necessary for a passenger train in making a round trip to travel in backward motion for a considerable portion of the way. Trains are operated over the Tug Fork branch as authorized by operating and time-table rules, and their movements are directed by a general yardmaster located at Wilcoe, W Va , operation on this branch being virtually the same as yard operation except that there is a manual block-signal system in effect between Wilcoe and the intersection with the main line near Welch, within which territory the accident occured. Approaching the point of accident from the west

there is a long curve to the right with a maximum curvature of 6° 30', followed by a tangent 980 feet in length. About 60 feet east of the western end of this tangent is the west switch of a crossover leading to a siding on the left side of the main track. This is a facing-point switch for eastbound movements and is located 188 feet west of the east crossover switch, the crossover is about midway of the siding which extends almost a mile in each direction The ruling grade in this vicinity is about .35 per cent descending for eastbound trains. The weather was cloudy at the time of the accident, which occurred at about 2 00 p.m.

Description

Passenger train No. 160, consisting of 1 mail and baggage car, 1 express car and 3 coaches, all of the open platform type and of wooden construction, hauled by engine 954, was in charge of Conductor Compton and Engineman Richardson It passed Havaco, 1½ miles west of the point of accident at 1:55 p.m. on time, and was backing toward Welch at a speed of about 15 to 18 miles an hour when it reached the west crossover switch, the switch was open, and the train entered the siding and collided with a draft of loaded, 100-ton, steel coal cars which were standing on the siding about 14 feet east of the point of the east crossover switch.

The two rear coaches were practically demolished, and the rear car telescoped by the second car for practically two-thirds its length, none of the other cars in the train was damaged and no part of the train was derailed. The end

of the coal car which was struck was bent inward, but was only slightly damaged.

Summary of evidence.

The rear coach on this train was equipped with a back-up hose provided with a signal whistle and a valve by means of which the brakes can be applied, and Brakeman Powell was riding on the rear platform for the purpose of controlling the backward movement of the train. Approaching the point of accident Brakeman Powell sounded the air whistle as a warning to section men working on the track, and he said that when about 60 feet west of the west crossover switch he noticed that it was open. According to his statement he then opened the valve in the back-up hose to the emergency position, this being accomplished when 8 or 10 feet from the switch points, opened the rear door of the coach, shouted a warning, and jumped from the platform of the car, alighting between the rails of the main track at a point about opposite the frog of the east switch. He said that had not the sectionmen passing over the track obstructed his view, he might have been able to see the switch points sooner, a low switch target is in use at this switch and is located between the tracks. Engineman Richardson said that as his train approached the crossover switch he felt the air brakes applied, but not very hard, and thought probably there was a cow on the track. He shut off steam and on looking back, saw the rear car entering the siding, and about the same time the fireman called out, the engineman said he then moved the

brake valve from running to emergency position, but when the train had traveled about 50 feet and before the brakes had taken hold properly, the rear end of the train collided with the coal cars. The train came to a stop with the engine truck standing on the switch-points of the west crossover switch. Fireman Atwell thought the brakes were first applied when the train started through the crossover, Conductor Compton thought the application of brakes did not seem like an emergency application. The statements of the crew indicated that the air brakes had been tested and were working properly.

The investigation developed that in connection with work being done on the track in this vicinity, Section Foreman Fine had transported some ties from a point some distance east of the point of derailment to a point west thereof, using a motor and a pole car for this purpose; because of the cars on the siding he had used the main line as far west as the west crossover switch. He said that when he reached this switch he opened it and entered the crossover with the motor and pole cars but did not close the switch. Section Foreman Fine then gave the switch key to Sectionman Hale, who lined the east crossover switch for the cars to enter the siding. After this movement had been completed Sectionman Hale restored this switch to its former position, and the two men on the motor moved westward on the siding until about opposite the west switch. Section Foreman Fine said he stopped the motor and instructed Sectionman Hale to throw the switch, Sectionman Hale got off and went to the switch,

but Section Foreman Fine said he did not actually see him throw it, moreover he did not look at the target or the switch points, either just before or just after Sectionman Hale reached the switch. Sectionman Hale said he closed the switch and that he looked at the switch points and saw that they were properly lined for the main track. He then put the lock in place, but did not lock it as they intended to use the switch again within a short time. At the time of the accident there were sectionmen working a short distance east of the switch, while Section Foreman Fine and Sectionman Hale were about 600 feet west of the switch.

Examination of the switch after the accident showed it to be set for the siding, with the switch lock in position but not locked. The switch was in good condition and showed no signs of having been tampered with.

Conclusions.

This accident was caused by an open switch, for which Section Foreman Fine is responsible, and by the failure of Brakeman Powell, of train No. 160, to maintain a proper watch of the track ahead of his train.

Rule 617, of the Rules and Regulations for the Government of the Operating Department, relates to the duties of section foremen and reads in part as follows:

> "They must not permit their switch keys to pass out of their possession, and must personally attend and supervise the opening and closing of switches."

It is believed that either the switch was left open and forgotten by Section Foreman Fine, or that after stop-

ping his car on the crossover clear of the main track he closed the switch himself and failed to remember it when he later instructed Sectionman Hale to throw it, and that Sectionman Hale threw it as instructed but failed to observe its position, thus setting it for the siding without realizing that he had done so. In either event, Section Foreman Fine was responsible for seeing that the switch was properly closed and locked, and according to his own statements he did not know definitely whether this was done.

The position of the switch points can be seen from an approaching eastbound train for a distance of about 250 feet, while the low switch target used at that point cannot be seen quite so far away. Brakeman Powell's statements were to the effect that he did not see the position of the switch points until they were only 60 feet distant and did not apply the air brakes until within 8 or 10 feet of the switch points, it is not believed the sectionmen entirely obstructed the view of the switch points and switch target as the train approached the switch, and had Brakeman Powell been maintaining a proper look-out he should have discovered the open switch in time to make an emergency application of the air brakes and bring the train to a stop before the accident occurred

All of the employees involved were experienced men, with good records, at the time of the accident they had been on duty less than 7 hours, after off-duty periods of more than 10 hours.