

IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON  
THE CHESAPEAKE & OHIO RAILWAY NEAR DICKSON, W. VA.,  
ON OCTOBER 6, 1920.

November 27, 1920.

On October 6, 1920, there was a derailment of a passenger train on the Chesapeake & Ohio Railway near Dickson, W. Va., which resulted in the death of 1 employee and 1 mail clerk, and the injury of 8 passengers, 4 mail clerks, and 2 Pullman porters. After investigation of this accident the Chief of the Bureau of Safety reports as follows:

This accident occurred on the Alleghany District of the Clifton Forge Division, extending between Clifton Forge, Va., and Hinton, W. Va., a distance of 79.9 miles. With the exception of a few short sections of single track through tunnels, this is a double-track line over which trains are operated by time-table, train orders, and an automatic block-signal system. The train involved in this accident was being operated against the current of traffic under manual block rules. The accident occurred at a point 130 feet 6 inches west of the east switch of the passing track at Dickson, the passing track being located between the two main tracks. Approaching the east switch from the east, the track is tangent for about 1,000 feet, followed by a 3-degree 15-minute curve to the left about 1,700 feet in length, and a tangent of about 80 feet. Beginning about 10 feet beyond the switch, which connects with the eastbound main track and is a facing-point switch for westbound trains moving over the eastbound track, there is a curve to the right of 3 degrees 30 minutes; the accident occurred on this curve about 120 feet from its eastern end, or 130 feet 6 inches from the switch points, at a point where the curvature is 2 degrees. The grade is .6 per cent descending for the westbound trains for a distance of more than 1 mile. The track is laid with 100-pound rails, 33 feet in length, single-spiked, with about 18 hard wood ties under each rail, and with an average of 4 rail anchors to each rail-length. The track is tie-plated, and is ballasted with about 18 inches of crushed limestone and slag, maintained in good condition. The weather at the time of the accident was clear.

The train involved in this accident was westbound passenger train No. 5, en route from Washington, D. C., to Cincinnati, Ohio. It consisted of 1 mail car, 1 combination car, 2 coaches, 5 Pullman sleeping cars, and 1 business car, all of all-steel construction, hauled by engine 137, and was in charge of Conductor Arnett and Engineman Womack. It left Clifton Forge at 9.02 p.m., and on its arrival at White Sulphur, W. Va., at 10.21 p.m., the crew received a copy of an order directing their train to operate over the eastbound track from White Sulphur to Ronceverte, W. Va., this being made necessary on account of

a freight train on the westbound track with a derailed car. The crew also received a clearance stating that the block was clear from White Sulphur to Whitcomb, the next open office beyond the point of accident. Train order No. 22 was made complete at 10.19 p.m., and train No. 5 departed from White Sulphur on the eastbound track at 10.27 p.m., according to the train sheet, 7 minutes late, and at about 10.35 p.m. was derailed at Dickson while traveling at a speed estimated by the crew to have been between 25 and 35 miles an hour.

The engine and tender came to rest practically upright on the outside of the curve, 236 feet beyond the initial point of derailment, with the head end of the engine about 60 feet from the track; the principal damage was confined to the running gear. The mail car came to rest behind the tender and at right angles to it, and was very badly damaged. The combination car was torn from its trucks and considerably damaged. The track was torn up for a distance of about 170 feet beyond the point of derailment. The employee killed was the engineman.

The statement of Fireman Poteet indicates that the first thing noticed by him was a peculiar sound toward the front end of the engine; he said it felt as if something had given way, the engine being derailed immediately and the brakes applied in emergency. The statements of the other members of the crew of train No. 5 indicated that the first thing noticed by them was a severe shock, the air brakes apparently being applied about at the time of the derailment. Their estimates as to the speed of the train varied from 20 to 35 miles an hour. Fireman Poteet and Baggage-master Snyder afterward made an examination of the track, and the fireman said the switch points and frog were in good condition, while the baggage-master found a broken rail west of the frog on the left side of the track in the direction in which the train was moving.

Division Engineer Beale made a careful examination of the switchpoint and frog and found both to be in good condition, with no evidence of any wheels having been on the ties at any point between the switch point and frog. On continuing his examination of the track west of that point he found a broken rail on the left or south side of the track, the break being at a point 130 feet 6 inches west of the switch point, or 47 feet 6 inches west of the frog. The first wheel marks on the ties were on the first or second tie west of the break. The receiving end of the rail remained in its place in the track, none of the spikes being disturbed; the gauge at the break measured about 4 feet 8-3/4 inches.

Mr. Beale said the break occurred at the edge of a tie, at a point 14 feet 1/2 inch from the receiving end of the rail, and was a square, even break, caused in his opinion by a

transverse fissure, which covered about two-thirds of the head of the rail. While the break was new, the surface of the metal had rubbed smooth, indicating that cars had passed over it after it had been broken and while it was in position in the track. The leaving end of the rail was found at a point about 125 feet west of its original position in the track. There were three flange marks on the fractured end of this section, two small impressions and one large impression, the latter mark apparently being made by a driving wheel. The break having occurred at the east edge of a tie, it was Mr. Beale's opinion that the east end of the leaving portion of the rail was held in place by the spikes and tie plate, while the west end of the receiving portion of the rail was forced out by the wheels enough to allow wheel flanges to come in contact with the ball of the rail at the east end of the leaving portion. He thought the engine-truck wheels were the first to strike the ball of the rail, but that it remained in place until struck by a driving wheel. He also said there were no indications of the spikes in the tie east of the break having been moved outwards.

Road Foreman of Engines Witrow, Supervisor of Track Brightwell, and Section Foreman Bennett, all of whom reached the scene of the accident within a few hours after its occurrence, found on examining the track that the switch and frog were in good condition and that there were no wheel marks of any kind on the ties east of the broken rail. Supervisor of Track Brightwell corroborated the statement of Division Engineer Beale that there were indications that the broken rail had been passed over by some eastbound train.

Examination of the track for a distance of about 1,250 feet approaching the point of derailment failed to disclose any signs of dragging equipment, while measurements made after the accident, beginning at the point of the curve on which the accident occurred, showed the elevation and gauge to be maintained in good condition.

The last train to pass the point of accident was eastbound freight extra 782, which passed at about 8.45 p.m. At that time the crew found eastbound automatic signal 3154, which is located 208 feet west of the broken rail, in the stop position. At that time the crew did not know whether or not there was a train ahead of them, and none of them, including the crew of the pusher engine on the rear of the train, felt anything indicating the presence of a broken rail.

This accident was caused by a broken rail, due to a transverse fissure.

The rail which failed bore the following marks:

ARA - B OH - 10030 - Illinois - G llllllllllll 1916 USA 49477-A.

It was laid in the track at the point of accident in November, 1916. This rail was considerably curve-worn, but according to Division Engineer Beale should have been good for 1 or 2 years' additional use under ordinary service conditions. This opinion of Mr. Beale was supported by that of Supervisor Brightwell, who said he considered the rail to be absolutely safe so far as wear was concerned. The rail broke at only one point 14 feet 1/2 inch from the receiving end; the surface of the fracture at the west end of the receiving portion showed a well-defined transverse fissure which covered about two-thirds of the area of the head of the rail. The fractured ends were rubbed smooth, and clearly indicated that the rail broke before the accident to train No. 5.

The three trains which passed the point of accident on the eastbound track immediately preceding train No. 5, with their approximate times at the point of accident, were as follows:

<u>Train</u>	<u>Time</u>
Eastbound passenger No. 6	5.20 p. m.
" freight extra 762	5.45 p. m.
" " " 782	8.45 p.m.

Statements from members of the crews of these trains indicated that train No. 6 received a clear indication at signal 3154, while extras 762 and 782 received stop indications. Inasmuch as the train sheet indicates that there were no trains of any kind occupying the block immediately ahead of these two extras, it seems probable that the rail was broken when passed over by train No. 6.

All of the employees involved were experienced men with good records. At the time of the accident the engine crew had been on duty about 2 hours, after about 2 hours off-duty, previous to which they had been on duty nearly 4 hours after about 15 hours off-duty. The train crew had been on duty nearly 2 hours, after over 19 hours off duty.