

INTERSTATE COMMERCE COMMISSION.

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REPORT OF THE CHIEF OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE BALTIMORE & OHIO RAILROAD NEAR GREEN RIDGE, W VA , ON OCTOBER 29, 1921.

November 21, 1921

To the Commission:

On October 29, 1921, there was a derailment of a freight train on the Baltimore & Ohio Railroad near Green Ridge, W. Va., the wreckage of which was struck by an express train running in the opposite direction on an adjoining track, resulting in the death of 1 employee, and the injury of 2 express messengers and 1 employee.

Location and method of operation

This accident occurred on that part of the Cumberland Division extending between Weverton and Cumberland, Md , a distance of 99 5 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 system. The accident occurred at a point about 1 mile west of Green Ridge. Approaching this point from the west there is a compound curve to the right, approximately 2 miles in length, with a maximum curvature of  $3^{\circ} 15'$ ; the accident occurred on this curve at a point about 3,300 feet from its western end, where the curvature is 1 degree 42 minutes. The track in this vicinity is laid at the base of a mountain, there being a side cut in the mountain on the inside of the curve, and a side fill, about 12 feet in height, on the out-

side. The grade is slightly ascending for eastbound trains. There was a dense fog at the time of the accident, which occurred at about 8 10 a. m.

#### Description

Eastbound freight train extra 4415 consisted of 66 cars and a caboose, hauled by engine 4415, and was in charge of Conductor Steadman and Engineman Shewbridge. This train left Cumberland at 7 10 a. m., and after having proceeded about 30 miles, the 37th car was derailed on account of a broken wheel, causing an emergency application of the air brakes and bringing the train to a stop. The forward end of the derailed car fouled the westbound track and was struck by train No. 29.

Westbound express train No. 29 consisted of 21 express cars, hauled by engine 5085, and was in charge of Conductor Bucy and Engineman Etchison. This train passed Orleans Road, about 8 miles from the point of accident and the last open telegraph office, at 7 57 a. m., 48 minutes late, and collided with the derailed car of extra 4415 while running at a speed estimated to have been about 45 miles an hour.

Engine 5085 was derailed to the right and came to rest down the embankment on its right side, followed by the first nine cars, two of which came to rest in advance of the engine, the tenth car was partly turned over, while the front truck of the eleventh car was derailed. Several of the cars in this train were badly damaged, while the westbound track was torn up for a considerable distance. Practically all of the

damage to the freight train was confined to the 37th car, this car having its forward end and right side demolished. The employee killed was the engineman of the express train

#### Summary of evidence

The statements of all of the employees of the crew of extra 4415 were to the effect that the first they knew of anything wrong was when the air brakes were applied in emergency. Engineman Shewbridge said he immediately placed the brake valve in the lap position, and just before the train came to a stop he instructed the fireman to protect the west-bound track. Fireman Watkins had started to get off on the left side of the engine for that purpose, and said he was on the second step when he heard a snout and saw train No. 29 approaching so closely that he had time only to attempt to throw the flag through the cab window. Fireman Berger and Conductor Bucy of train No. 29 estimated the speed of their train to have been about 40 or 45 miles an hour. Fireman Berger thought the engineman closed the throttle, but did not know whether or not he applied the air brakes.

The investigation made by these employees immediately after the accident showed that the derailment of the car in the freight train was due to a broken wheel, and that this wheel was very hot, as was also the case with all of the other wheels under that particular car. The statements of Assistant Superintendent Faherty and Wreck Inspector Pague were that they arrived at the scene of the accident about 2 hours after its occurrence and at that time the fragments of the wheel still were hot. Mr

Faherty found marks on the left rail made by the broken wheel, these marks extending westward a distance of 46 rail-lengths from the derailed car, while Mr Pague found a portion of the wheel some distance back from the point of accident which measured 44 inches around the tread, and which was also hot at the time he found it.

While the evidence clearly indicates that the broken wheel, as well as all the other wheels under that particular car, was hot when examined some time after the occurrence of the accident, Engineman Shewbridge said the only brake application made by him after leaving Cumberland was one application of the independent brake. Investigation into what transpired before the departure of the train from Cumberland developed, according to Air Brake Inspector Freeland, that the cars which made up the train had been standing on tracks 3 and 7, and that the train was made up on track 7, the road engine taking all cars from track 3, while the yard engine took 25 cars from track 3 and placed them on the rear of track 7, the air brake inspector making the coupling between the 25 cars and the balance of the train. Engineman Shewbridge said that as soon as the train was made up and the train line charged to 70 pounds, he was given a signal to apply the brakes; that he made a full service application and shortly afterwards was given a signal to release the brakes, followed by a signal to depart. These statements of the engineman were practically corroborated by those of Fireman Watkins, Head Brakeman Ambrose, Conductor

Steadman and Flagman Much. At the time the brakes were released Head Brakeman Ambrose was about 12 car-lengths from the head end; Flagman Much was in about the middle of the train, while Conductor Steadman was about 20 or 25 car-lengths from the rear of the train. As the train pulled out, Flagman Much noticed that the brakes on several of the cars were sticking and said that he bled six of them as they passed him; Conductor Steadman said he also noticed several brakes sticking and that he bled them as the train passed.

Air Brake Inspector Freeland said that before the cars on track 3 had been moved over to track 7, he had attached an air line to the cars standing on track 7 and had gone over them for the purpose of repairing leaks, but had not made a brake application from the air line to see if the brakes worked properly, he did not test the brakes of any of the cars on track 3. After making the coupling between the 25 cars moved over from track 3 and the cars standing on track 7, he walked back over the 25 cars for the purpose of stopping any leaks he might find, and on reaching the rear end, which was in the western end of the yard, found it was 7 a.m., the time for him to go off duty, which he did without being relieved by the day inspector or taking any precautions to see that the day inspector made the required tests of the air brakes.

Air brake inspectors are required to go off duty at the eastern end of the yard, and Air Brake Inspector Seeders reported for duty at 7 a. m. at that point. He saw extra

4415 made up and apparently ready to depart, and said he had started towards the train to see if the air brake test had been made when he heard the engineman sound the whistle signal for the test, but the brakes were released at about the time he reached the first car and the train pulled out. Inspector Seeders said he then stood on an adjoining track and watched the train as it passed him; he did not observe any brakes sticking or any on which the hand brakes were applied.

Inspector Seeders further stated that according to instructions governing air brake inspectors going off duty, a report is supposed to be left at the air brake snanty in the eastern end of the yard, this report showing the tracks on which the air brakes have been examined. He said the night force had not been leaving these reports regularly, and although he had on several occasions brought the matter to the attention of Gang Foreman Reckley, he did not know of anything having been done about it. This was confirmed by Gang Foreman Reckley, who said that in the rush of work he had forgotten it. The statements of Open Yard Foreman Decker were to the effect that fast freight trains were not given the regular terminal air brake tests on account of the limited time available, although he said that within the past 2 months General Car Foreman Davis had called his attention to the matter of making the proper tests.

The triple valve from the car under which the broken wheel developed was sent to the shop for testing. The emergency casting was broken and after making necessary repairs to that

part of the valve, it was tested, and it was found that the valve would operate only on an emergency application, and would not release. Although tagged and placed in a storehouse for safe keeping until it could be dismantled and given a thorough test under observation, some one removed this triple valve and placed it in a pile of dirty triple valves, from which it was taken by one of the apprentices and cleaned. The employee who cleaned it found that the ring was stuck in the piston of the service section and turned the valve over to Repairman Ravenscroft; the latter said the piston groove ring had been dented so that one end of the ring had stuck when pressed into the groove, and that the other end, being free, had expanded against the wall of the service section. On account of this condition, the air passed by the ring so that the brake would not apply with a service application. Air Brake Foreman Ravenscroft expressed the opinion that with the triple valve in the condition described, the brakes could be applied only in emergency, and could not be released if any distance from the head end of the train

Wreck Inspector Pague said the wheel which broke was the L-4 wheel, in this case the leading wheel on the left side of the car. The wheel was manufactured in 1918, and weighed 625 pounds. There was a defect in the outer plate between the sand holes which indicated that the metal had not been properly mixed in the casting. This car had been inspected on its arrival in Cumberland by Car Inspector Mock, who noticed a missing release rod, which he marked for repair.

The night repairman whose duty it was to make this repair did not do so, and said he did not know whether any other repairman repaired the car before its departure

#### Conclusions

This accident was caused by a broken wheel

It clearly appears that all of the wheels under this particular car were very hot, due to the brake having been applied for a considerable distance while the train was en route. It could not be definitely determined whether the overheating was due to an applied hand brake, or a stuck air brake. However, the condition of the triple valve was such that if the brake had been applied before the train left Cumberland, the engineman could not have released it from the engine. In view of the results of the examination of this triple valve after the accident, as well as the condition of the wheels of the car on which it was applied, it is believed this triple valve was stuck in such position that communication was established between brake pipe and brake cylinder, permitting brake cylinder pressure to equalize with brake pipe pressure, and the car was hauled in the train in this condition until the heat generated by the brake shoes caused the wheel to break.

No test was made of air brakes in the train of extra 4415 and no report made to the train crew as to the condition of the brakes or the percentage of brakes in operation; in fact, no one had any definite knowledge as to the condition of the brakes in this train. It also appears that not only does this condition prevail frequently in the case of fast freight



trains, but that scant attention is paid to the regulations prescribing the method of relieving air brake inspectors and of notifying the relief men of the conditions existing, although attention has been called to the matter on previous occasions. The existence of such loose practice warrants the immediate attention of responsible supervising officials.

The evidence indicates that train No. 29 had passed the head end of extra 4415 before there was any opportunity of giving warning to the crew of that train in time to prevent it from colliding with the wreckage which was fouling the west-bound track

The crew of extra 4415 had been on duty about 2 1/2 hours and the crew of train No. 29 about 5 hours; previous to going on duty the crews of these trains had been off duty for varying periods, none of which involved violations of any of the provisions of the hours of service law.

Respectfully submitted,

W. P. Borland

Chief, Bureau of Safety