INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY CONCERNING AN ACCIDENT WHICH OCCURRED ON THE PENNSYLVANIA RAILROAD AT PROTECTION, N.Y., ON MAY 26, 1932.

July 18, 1932.

To the Commission:

On May 26, 1932, there was a derailment of a freight train on the Pennsylvania Railroad at Protection, N.Y., which resulted in the death of one employee.

Location and method of operation

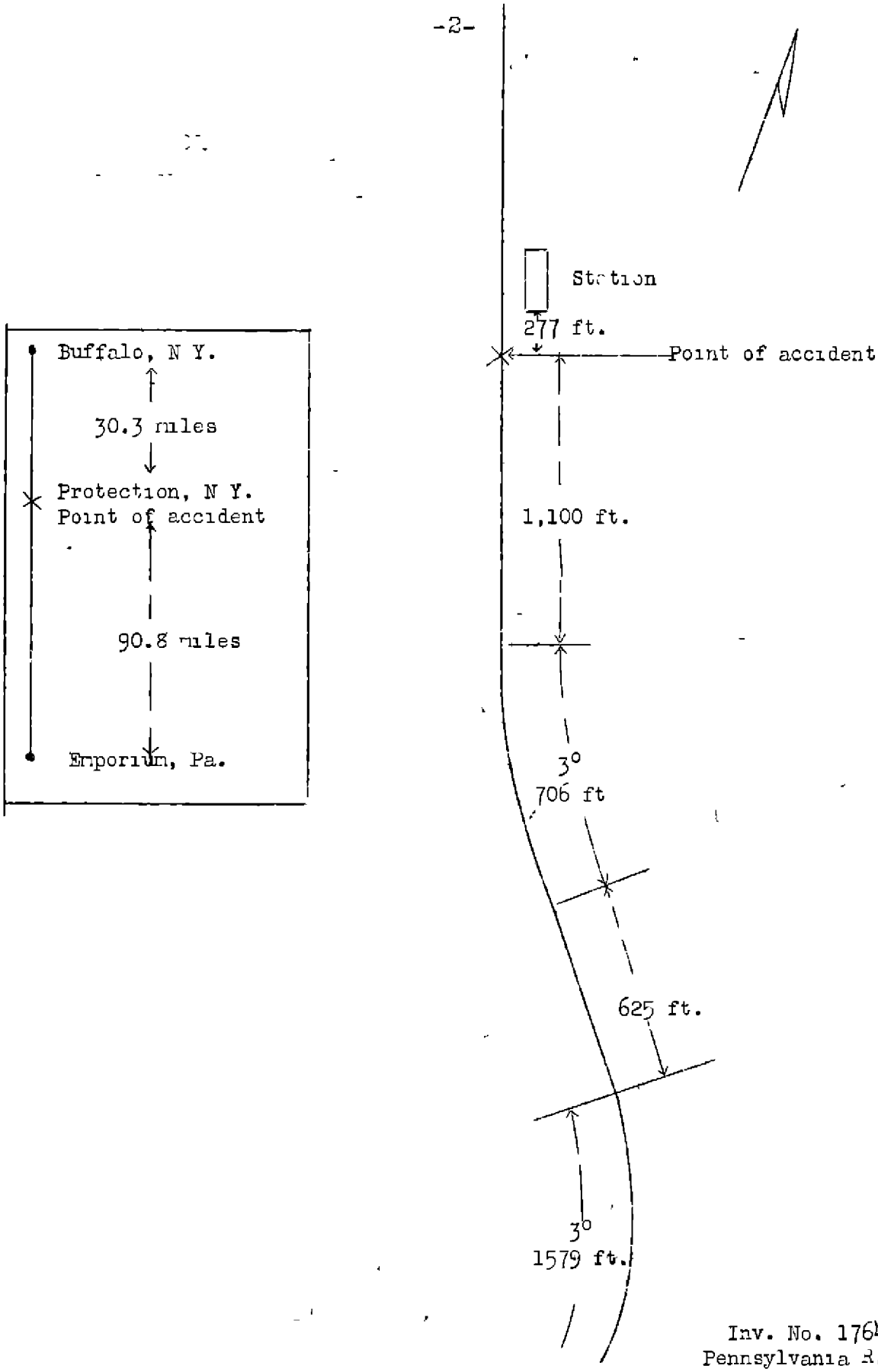
This accident occurred on that part of the Buffalo Division which extends between Buffalo, N.Y., and Emporium, Pa., a distance of 121.1 miles. In the vicinity of the point of accident this is a single-track line over which trains are operated by time-table, train orders, and a manual block-signal system. The accident occurred at a point 277 feet south of the station at Protection; approaching this point from the south, there is a 3° curve to the left 1,579 feet in length, tangent track for a distance of 625 feet, a 3° curve to the right 706 feet in length, and tangent track for a distance of 3,754 feet, the accident occurring on this latter tangent at a point approximately 1,100 feet from its southern end. The grade for northbound trains is 1.02 per cent descending in the vicinity of the point of accident. Trains with I-class engines, the type involved in this accident, are restricted by special time-table instructions to 30 miles per hour over this division.

The track is laid with 130-pound rails, 39 feet in length, with an average of 20 treated ties to the rail-length, double-spiked, fully tie-plated, and ballasted with crushed slag to a depth of 31 inches. The track was well maintained.

The weather was clear at the time of the accident, which occurred about 2.20 a.m.

Description

Northbound freight train BF-1 consisted of 99 cars and a caboose, hauled by engine 4580, and was in charge of Conductor Gayetty and Engineman Leyda. This train departed



Inv. No. 1764
Pennsylvania R.R.
Protection, N Y.
May 26, 1932

from AD Block Station, near Olean, 39.1 miles south of Protection, at 12.09 a.m., passed DV Block Station, 7.8 miles south of Protection, at 1.54 a.m., and was derailed at Protection by a broken wheel while traveling at a speed estimated to have been between 20 and 35 miles per hour.

The engine and first car were not derailed and stopped about 15 car-lengths beyond the point of accident; the following 24 cars were derailed and piled up within a space of approximately 350 feet. The employee killed was the head brakeman.

Summary of evidence

Engineman Leyda stated that an air-brake test was made at Oil City, the initial terminal, the brakes were reported to be working properly, and he experienced no trouble in handling his train en route. Two cars were picked up at Olean, behind the engine, and an air-brake test was made by means of a 10-pound reduction from a brake-pipe pressure which was between 65 and 70 pounds, and after noting the brake-pipe leakage 15 additional pounds were drawn off; the car inspector who inspected these two cars reported the brakes as working. Upon leaving Olean, Engineman Leyda did not observe any sticking brakes on these cars and he thought that had there been a hand brake applied, or air brakes sticking, he would have noticed it. Approaching Lime Lake, located approximately 13.5 miles south of Protection, he changed the adjustment of the feed valve and when he stopped for water at that point he had a brake-pipe pressure of about 80 pounds. He again tested the brakes, making a full service application, followed by a signal from the rear end to release, and had no trouble in starting the train, the brakes appearing to be free. The cycle method of braking was used on descending the grades between Lime Lake and the point of accident; the brake-pipe pressure was not below 95 pounds at any time, and the maximum speed obtained did not exceed 30 miles per hour. He looked back over the train on every curve between Lime Lake and the point of accident and did not notice anything that would lead him to believe that brakes were sticking on any portion of the train. He had instructed the head brakeman to set up 20 retaining valves after leaving Lime Lake, to put them down after leaving Delevan, about $4\frac{1}{2}$ miles beyond, and then at once to set up 35 retaining valves from that point to South Wales, north of the point of accident, and Engineman Leyda said he personally received the signal from the head brakeman when the 35 retainers had been set up, this signal also indicating that he then could increase speed. His first intimation of anything wrong was when he felt the brakes apply on the engine and on looking back he saw dirt flying and immediately threw the independent brake valve to full release position and held the throttle

wide open; he estimated the speed of his train to have been 22 or 23 miles per hour approaching Protection. Engineman Leyda did not examine the broken wheel after the accident.

Fireman Hotz stated that the brakes were tested and reported to be working properly, as described by Engineman Leyda. He did not see any of their brakemen on top of the cars picked up at Olean, but stated that there could not have been any hand brakes set on these two cars or they would have heard them, or would have known it by the way they pulled. He looked back over his train at different times en route, but observed no fire flying other than the usual amount all along the train when descending the grades at Delevan and north of Chaffee. He estimated the speed to have been between 25 and 30 miles per hour between Lime Lake and the point of accident, although he thought it was only 18 or 20 miles per hour at the time of the accident.

Conductor Gayetty stated that after leaving Lime Lake he rode in the cupola of the caboose and on the descending grades he noticed fire flying from the cars at the head end of the train, but very little at the rear of the train. The maximum speed between Lime Lake and the point of accident did not exceed 30 miles per hour and he thought the train was traveling at about that speed at the time of the accident. Afterwards he found a portion of a broken wheel a short distance south of the station, or about opposite the middle of the train. The wheel was warm, but when he turned it around with his bare hand it did not burn him; this was about 35 or 40 minutes after the occurrence of the accident. Conductor Gayetty was positive the hand brakes were released on the two cars picked up at Olean. The only suggestion Conductor Gayetty could offer to account for possible overheating of a wheel was that when the retainers were turned down there might have been one retainer which did not release.

Middle Brakeman Clarkson stated that on arriving at Olean he went to the head end of the train, coupled the two cars to the engine, and observed that the hand brake on the first car was not applied, while Brakeman Shaffer, who was afterwards killed as a result of the accident, was on top of the second car, presumably to look after the hand brake on that car. Brakeman Clarkson rode on the tender between Olean and Lime Lake and at Lime Lake he boarded the sixteenth car and worked on the retainers from the sixteenth to the thirtieth cars, while Brakeman Shaffer handled the retainers on the first 15 cars. The speed of the train was 30 or 35 miles per hour on the hill at Delevan and about 30 miles per hour when the train started to derail. Brakeman Clarkson did not observe fire flying from the wheels any more than usual. About one hour after the accident he felt of the broken wheel, which was then rather hot, and it was his

opinion that it broke on account of overheating caused by a sticking brake, probably from Lime Lake to point of accident. The statements of Flagman McLane brought out nothing additional of importance.

Car Inspector Strube stated that he inspected all the cars placed at Olean freight house on the day of the accident, although he did not remember inspecting PRR box car 31530, under which the broken wheel subsequently developed, neither did he remember taking up piston travel on any of the cars or finding any car with defective brakes or any signs of previous heating on the wheels. He further stated that they had no facilities at that point for testing the air brakes on the cars.

Car Inspector Donivan stated that he was at Olean when the two cars were picked up by train BF-1; he made the required air-brake test, found the brakes applied and released properly, and reported accordingly to the engineman. He further stated that he did not hear anything to indicate that the hand brakes were applied or that the brakes were sticking when the cars were moved out of the siding.

The operators stationed at AD block station, Hinsdale, Machias, and DV block station, who observed train BF-1 as it passed their respective stations, stated that they observed nothing wrong.

The wheel which broke and caused this accident was the right lead wheel of the front truck of the second car in the train, PRR box 31530. This wheel, 33 inches in diameter, was a cast iron wheel, 750 pounds in weight, No. 1570, branded ARA 1920, and was cast by the Pullman Company, at Pullman, Ill., on June 1, 1923. A section broke off on a practically straight chord a short distance from the hub, the tread of that section measuring 3 feet 3 15/16 inches. The discoloration of the metal on the tread of the wheel and the burned appearances of the brake shoes indicated that the wheel had been overheated. An inspection made by the Commission's inspectors of this car at the point of accident disclosed that the hand brake chain was wrapped around the brake shaft drum two and one-half times, while the brake pawl was disengaged from the ratchet-wheel; as this car came to rest bottom side up, it would have been impossible for anyone to have operated the hand brake after the accident. The retaining valve was found in the 25-pound position. The stenciling on the auxiliary reservoir of this car showed that the triple valve and brake cylinder were last cleaned on August 6, 1931, at Oklahoma City on the Missouri-Kansas-Texas Railway. This car was equipped with a K-2 triple valve and a 25 and 50-pound, three-position, weighted type retaining valve. The triple valve was tested on a standard testing rack subsequent to the accident and found to be in good condition. The retaining valve cap

was broken and no test of it was made, but inspection disclosed it to be in good condition and all ports open.

Examination of the track showed that the first marks of derailment were three pronounced scars on the right rail, made by the broken wheel before it was derailed to the right; north of this point marks were found on the ties in the center of the track and on the outside of the right rail, extending about 2,200 feet to the north end of the passing siding, where the cars began to pile up.

Conclusions

This accident was caused by a broken wheel, apparently due to overheating.

About 1 hour after the occurrence of the accident, the wheel was warm and the discoloration of the metal on the tread of the wheel and the burned appearances of the brake shoes indicated that the wheel had been overheated. This car, the second in the train, was picked up at Olean, 40.3 miles from Protection, where the air brakes were tested by a car inspector and found to be functioning properly. Several employees located at different points between Olean and the point of accident observed the train as it passed and noted nothing wrong. Examination of the damaged parts, however, indicated that the brakes had been set for some time and it is possible they had not been released between the time the first application was made on the descending grade near Delevan, 8.6 miles from Protection, and the time of the accident. It could not be determined, however, in what respect the brake equipment may have failed.

All of 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.