COMMISSIONER Meyer

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IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE CENTRAL RAILROAD OF NEW JERSEY AT JERSEY CITY, N. J., May 18, 1919.

June 30, 1919.

On May 18, 1919, there was a derailment of a passenger train on the Central Railroad of New Jersey at Jersey City, N. J., which resulted in the death of 1 employee and the injury of 2 employees. This accident was investigated in conjunction with the New Jersey Public Utilities Commission, and as a result of this investigation the Chief of the Bureau of Safety reports as follows:

The derailment occurred near Tower "A," which is located at the entrance to the passenger station at Jersey City. Operation of trains over the track on which the derailment occurred is directed and supervised by train dispatchers in Tower "A," train movements being authorized by interlocking signals controlled from this tower. There is a speed restriction in the current time-table, Section 7, paragraph 4, reading as follows:

> "B- Trains must not exceed a speed of ten (10) miles per hour in passing through the slip switches at Tower "A" Jersey City."

The track at the point of derailment is laid with 100-pound steel rails and treated yellow pine tie timbers, spaced 22 inches from center to center, ballasted

with trap rock. The tracks and all turnout slip switches are secured with tie plates and rail braces, double spiked. The guard rails are equipped with special guard rail tie plates, combined with the guard rail base. The track was in good condition. Tower "C" is located approximately 3,800 feet west of Tower "B," while Tower "B" is approximately 2,150 feet west of Tower "A," the distance between Tower "C" and Tower "A" being, therefore, about 5,650 feet. At the time of the accident the weather was clear.

The train involved was eastbound local passenger No. 434, en route from Cranford, N. J. to Jersey City, N. J. It consisted of locomotive 606, a 10-wheel locomotive equipped with the Wootten type fire box, 5 all-steel coaches and 1 all-steel combination car, and was in charge of Conductor Dennis and Engineman Koehler. It departed from Cranford at 7:54 a. m., on time, passed Tower "C" at 8:25 a. m., 1 minute late, and at 8:26 a. m., while making the diverging movement from main track No. 1 to terminal station track No. 15, was derailed just after passing over a No. 9 double slip switch 64 feet long and designated as Slip No. 121.

The engine came to a stop at a point 388.14 feet east of the westerly switch to Slip No. 121. The engine broke away from the tender and came to rest in a position diagonally across the tracks, resting on its right side, almost reversed in direction, while the tender came to a stop a short distance west of the engine, but was not badly damaged. The first

coach in the train had both trucks derailed and came to rest leaning slightly to the north. The second coach had its front truck derailed, while its rear trucks were on the track and the car remained upright. The last four coaches remained on the rails. After being derailed, the engine travelled a distance of 850 feet east of the point where it apparently first left the rails, and in the course of its movement collided with Signal Bridge $\frac{C}{32}$, 50 feet west of Tower "A," demolishing it. Engineman Koehler was killed, the fireman and the road foreman of engines, who was also riding on the engine at the time, were injured.

Examination of the track after the derailment disclosed the first marks of derailment on the right side of the track to be clearly defined flange marks on the head of the guard rail at a point 72 feet east of the switch leading to Slip No. 121. The first marks on the ties on the inside of the guard rail were about 6 inches from the base and 90 feet east of the switch. The first marks on the left side were found on the base of the rail, on the outside, 87 feet east of the switch.

Fireman Gallagher stated that the train passed Tower "C" at a speed of about 45 or 50 miles an hour and it was moving about 7 or 8 miles an hour over Slip 121 to Tower "A." The train had been brought almost to a standstill just before the coaches left the track. He did not look out to see signals, as he thought this was being done

by the road foreman of engines, who was riding with him on the left side of the engine.

Conductor Dennis stated that the brakes were applied and the speed reduced at Tower "C," and that when they were between Tower "C" and Tower "B," the engineman slowed down with a second brake application before passing over the switches. Approaching the terminal he did not notice whether the brakes were applied, but said the speed of the train was slackened and estimated the speed at Tower "A" and over Slip 181 at 10 or 12 miles an hour. He had gone to the rear end of the first car and had started to open the trap doors when he felt a surge of the train, an emergency application of the air brakes being felt at about the same time. He looked outside and saw the cars swinging to one side, but the engine had not yet turned over.

Baggagemaster Skillman estimated the speed passing Tower "C" at from 45 to 50 miles an hour, an application of the brakes being made at about that point. He did not think the speed at Tower "B" was as high as 30 miles an hour. He noticed a service application of the brakes when they were between Tower "B" and Tower "A" and the speed was reduced, then all at once an emergency application was made, after which the train continued a short distance, followed by a more severe jar, the train then coming to a stop. He afterward said the emergency application was made when the train was in the vicinity of Tower "B" and he noted it as unusual.

He thought no release of brakes was made and that the train continued with brakes applied to the point of derailment.

Brakeman Wagener stated that he felt a service application of the brakes as the train came around the Communipaw Curve, near Tower "G," which he noticed was released, then when between Tower "B" and Tower "A," another service application and about two seconds later an emergency application, followed almost immediately by the accident. He did not think the speed approaching the terminal was unusual.

Passenger Traffic Manager Hope, who was a passenger on train No. 234, stated he was familiar with track conditions approaching Jersey City Station. He was riding in the first coach and did not notice any reduction in speed in passing around Communipaw Curve, nor was he aware of any emergency application of brakes until after the train passed over the switch. While he stated he could not give expert testimony as to speed, he was conscious of the fact that the train was running at a high rate of speed considering its location, and he estimated the speed at the time of derailment at from 20 to 25 miles an hour.

Assistant Train Director Meehan, stationed in Tower "A" at the time of the accident, stated that it was 8:33 a. m. when the bell controlled from Tower "G" was rung, indicating the approach of train 234. When this train was opposite the yardmaster's office, close to Tower "A," he

looked at his watch and it was then about 8:24 a. m. He thought two or three minutes elapsed from the time the train was announced by the bell as being at Tower "O" until the accident occurred.

Engineer of Maintenance of Way Kramer stated that after the accident he examined the switch points and found them in good condition. He thought that from the standpoint of track construction this switch would be safe for a speed of 25 or 30 miles an hour and could not find any track condition which, in his judgment, had contributed to the derailment.

Assistant Superintendent of Motive Power Kink stated that engine 606 was released from the shops on May 10, after having received general repairs; it had been thoroughly broken in before being assigned to road service; this locomotive had made about three trips after being placed in service and before the derailment occurred. After the accident he examined the flanges on both driving and truck wheels and applied a gauge to the engine trucks of both pairs of wheels, found them to be in good adjustment, but did not apply the gauge to the front drivers. He found one axle bent. He said their usual practice was to provide 1/8 inch clearance between hubs and boxes on truck wheels, and 1/4 inch total clearance for the driving wheels. On this particular engine the clearance between boxes and hubs on main wheels was about 3/16 of an inch. In his judgment there was nothing

in the design or construction of the engine truck which would constrast from the provision for lateral or radial movement and which might have caused the derailment.

General Locomotive Inspector Van Why stated that about 45 minutes after the accident he examined the trucks and flanges of locomotive 606, found them to be in good condition; he believed the engine truck had full and proper provision for lateral movement and could find nothing which could have contributed to the derailment. He did not think that train No. 234, running at only 10 or 12 miles an hour entering the switch on this slip, would have travelled the distance it did after an emergency application of the brakes before coming to a stop. He attributed the accident to excessive speed and thought that had the switch been taken at a speed of 10 miles an hour, there would have been no derailment; he was of the opinion that the speed was not less than 25 miles an hour through the switch. He believed that, irrespective of the engine being new and consequently not as free in its motion as one which had been running for several months, had the speed been in accordance with Rule 7, the accident would not have occurred. Since leaving the shops, engine 606 had been operated without difficulty over the switches at Jersey City Terminal, also over similar switches at Cranford, as well as short switches at Oak Island, but at these points there had been no opportunity of getting up speed.

A careful inspection by the Commission's inspectors of the type, construction and condition of the engine trucks, wheels and wheel flanges failed to disclose anything which could have been responsible for the derailment. The testimony of the conductor, corroborated by the entire crew, was to the effect that terminal tests of the power brakes had been made, that all brakes were operative and in good condition and that no difficulty had been experienced in properly controlling the train for all station stops and slow downs.

The result of the derailment does not support the testimony of the train crew concerning the speed of the train, but indicates that a considerably higher rate of speed obtained at the time of entering Slip No. 121 and at the time of derailment. This train was equipped with high-speed brakes, with 16-inch cylinders and cleasy brakes on all cars, and at a speed of from 7 to 10 miles an hour as estimated by some of the witnesses, it undoubtedly could have been stopped by an emergency brake application in a shorter distance than 250 feet from the first marks of derailment.

This derailment was caused by train 234 entering Slip No. 121 at a rate of speed considerably in excess of that permitted by Special Rule No. 7 in the current timetable, for which Engineman Koehler is responsible.

Engineman Koehler had been employed by this road

been penalized at different times by reason of engines in his charge having been involved in minor derailments, collisions and overrunning of switches.

The crew of this train had been on duty less than 4 hours, with rest periods varying from 8 to 55 hours.

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