REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE BOSTON & MAINE RAILROAD AT ST. JOHNSBURY, VT., ON SEPTEMBER 23, 1923.

November 3, 1923.

To the Commission:

On September 23, 1923, there was a derailment of a freight train on the Boston and Maine Railroad at St. Johnsbury, Vt., resulting in the death of one employee and the injury of one employee.

Location and method of operation.

This accident occurred on that part of the Passumpsic Division extending between White River Junction, Vt., and Sherbrooke, Que., a distance of 144.26 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 an automatic block-signal system. The accident occurred at a facing-point switch 2,200 feet south of the station at St. Johnsbury, within yard limits, approaching this point from the south the track is tangent for a considerable distance, followed by a 1-degree curve to the right for a distance of 300 feet to the points of the switch involved, the turnout at this switch has a curvature of 9°. The grade is slightly undulating, being 0.76 per cent ascending for northbound trains at the point of accident. The track in this vicinity is laid with 75 and 85-pound rails, 33 feet in length, with about 19 ties to the rail-length, partly single-spiked and partly double-spiked, and ballasted with gravel and cinders about 2 feet in depth, the track is well maintained. Under the rules, trains using switches to and from main tracks or sidings, must not exceed a speed of 12 miles an hour. The weather was cloudy at the time of the accident which occurred at about 9.55 a. m.

Description.

Northbound third-class freight train No. 9751 consisted of 33 cars and a caboose, hauled by engine 2381, and was in charge of Conductor McEwen and Engineman Keating. This train passed Barnet, 9.62 miles from St. Johnsbury and the last open office, at 9.20 a.m., 2 hours and 59 minutes late and was heading in at the switch at St. Johnsbury when it was derailed while traveling at a speed estimated by the crew to have been between 10 and 15 miles an hour.

Engine 2381 came to rest on its right side, across the track, with its head end 250 feet north of the initial point of derailment. The first three cars and the forward truck of the fourth car were also derailed, one car being destroyed. The employee killed was the engineman.

Summary of evidence.

After train No. 9751 whistled for signals approaching St Johnsbury, Towerman Coakley lined the route, and shortly after it had headed in at the switch he noticed the engine commence to jump up and down, about at the switch frog, at which time he estimated the speed to have been between 12 and 15 miles an hour, with the engine working steam. Fireman Scott said the speed was 15 or 30 miles an hour when the engineman shut off steam, that no application of the air brakes was made, and that the speed was about 12 miles an hour at the time of the derailment, he thought steam was being worked again at the time of the derailment, but was not positive about it. Head Brakeman Hartshorn thought steam was being worked, estimated the speed at 10 or 12 miles an hour, and said he felt a jar when entering the switch, and shortly afterwards the engine commenced to jump around. Neither of these employees knew whether or not the engineman made an application of the air brakes at the time of the derailment. Members of the train crew stated the first knowledge they had of anything wrong was when the accident occurred, at which time they estimated the speed not to have been in excess of 15 miles an hour. They stated the air brakes worked properly en route, that on previous trips no trouble had been experienced with this engine in entering this turnout, and that it is customary to work steam at this point. Towerman Coakley, who was on the ground near the point of derailment at the time it occurred, practically corroborated the statements of the other employees as to the engine working steam, and also as to the speed at the time of the derailment.

Inspection disclosed the first marks of derailment to be on the guard rail, 7 inches south of a point directly opposite the point of the frog, and 83 feet north of the switch points, at this point there was a distinct flange mark, commencing on the head of the rail and extending diagonally across the top of the guard rail for a distance of 4.2 feet, then dropping off on the ties and continuing for a distance of 115 feet, beyond which point the track was badly torn up for a considerable distance. The first marks on the west side of the track were flange marks, which appeared on the top and center of the wedge of the frog, commencing at a point 4.6 feet north of the point of frog and continuing along the center

to the north end of the wedge, the next mark was a scarring on a spike head, 13.8 feet north of the point of frog, and then the ties on the west side of the rail were marked to where the track was torn up. Measurements of the guage, taken at the point of accident and for some distance south thereof, showed it to be practically standard, while the variation in level was slight and there was no elevation of any consequence.

Engine 2381 is of the 2-8-0 type, class K-7, having a weight on the driving wheels of 148,000 pounds, and a total weight, engine and tender, of 285,000 pounds. This engine had received class 3 repairs in March, 1923, and since then had traveled only 10,000 miles at the time of the accident, the left pony-truck wheel was somewhat worn, but the radius bar, swing center, links and cradle pins were in good condition, and should have provided for proper radial movement without tendency to derail.

Conclusions.

The cause of this accident was not definitely ascertained.

Careful examination of the engine showed it to have been in good condition, with no defect which could have contributed to the occurrence of the accident. Examination of the track also failed to disclose the presence of anything wrong. While there was practically no elevation on the left rail of the turnout, it being a flat turnout, the guage and alinement were well maintained, and the flangeway at the guard rail was adequate. There was also no conclusive evidence that the accident was due to the train entering the switch at an excessive rate of speed, for while the head end of the engine stopped 250 feet beyond the first mark of derailment, it appeared that only one pair of wheels was derailed for 115 feet of this distance, this would not have had much effect in retarding the speed of the train, and in view of the fact that steam was being worked, and that there is nothing definite to indicate that the engineman applied the air brakes when that pair of wheels first became derailed, it would not seem that the distance traveled after derailment was excessive for a low rate of speed, or that the damage sustained was unusual.

The employees involved were experienced men, at the time of the accident they had been on duty about 5 hours, previous to which they had had from 12 to 13 hours off duty.

Respectfully submitted,
W. P. BORLAND,
Director.