In re Investigation of an accident which occurred on the Lehigh Valley Railroad, near Beaver Meadow, Pa., on February 10, 1917.

March 21, 1917.

On February 10, 1917, there was a derailment of a passenger train on the Lehigh Valley Railroad near Beaver Meadow, Pa., which resulted in the death of 1 employee and the injury of 1 employee. After investigation of this accident the Chief of the Division of Safety reports as follows:

The part of the Beaver Meadow Branch of the Mahoney and Hazleton Division, on which the accident occurred, is a single track line; train movements are governed by time-table and train orders. The track approaching the point of accident from both the east and west is tangent for a distance of about one-half mile. There is a slight grade descending eastward.

Eastbound passenger train No. 172, en route from Hazleton to Penn Haven Junction, Pa., consisted of 1 combination baggage and passenger car, and 2 coaches, hauled by locomotive 1486. On the day of accident it was in charge of Conductor Kline and Engineman Reynolds, and left Hazleton at 6.07 a. m., on time. The last regular stop was made at Beaver Meadow, the train leaving there at 6.34 a. m., four minutes late, and at about 6.37 a. m., while running at a speed of about 25 miles an hour, it was derailed immediately east of a water tank located about three-fourths of a mile east of Beaver Meadow station.

The locomotive ran on the ties until it reached a small culvert, 10 feet in length, 550 feet east of the point of derailment, where it left the ties; the engine and tender turned over to the south side of the track and came to rest on their right sides just east of the culvert; the engine cab was badly damaged. All the cars in the train, with the exception of the rear truck on the last car, were derailed. The cars remained in an upright position on the roadbed and were practically undamaged. At the time of accident the weather was clear; the temperature was approximately zero, and a strong north wind was blowing.

The engineman was killed in the accident.

The Beaver Meadow water tank is located on the north side of the track; it is a wooden structure, about 25 feet in height and is supplied with water by gravity. On the east side, about one foot from the top of the tank, a so-called "tell-tale pipe," 3/4 inch in diameter, is inserted, and extends outward about 18 inches. The purpose of this pipe is to disclose, by water flowing from it, when the tank is full and the automatic float valve fails properly to close the supply pipe. On the morning of the accident water was flowing from this pipe, and the strong wind prevailing at the time blew the water southward over the track, and a considerable amount of ice had formed on the rails.

The first marks of derailment appeared to have been flange marks on the top of each rail, beginning at the east side of the tank and continuing eastward on top of the rails a distance of about 25 feet. From this point there were two flange marks on the ties for a distance of about 350 feet. Eastward from this point the track was badly torn up as far as the culvert, and two rails on the south side of the track were broken.

The track in the vicinity of accident is laid with 80-pound rails, 45 feet in length, single-spiked to yellow pine ties; the rails are connected by 6-hole angle-bars. The track at the point of derailment is on a slight fill, consisting of rock, with about 18 inches of cinder ballast, and was found to be in good condition and well maintained.

Fireman Kreiger, of train No. 172, stated that when approaching the point of accident the speed of his train was about 20 miles an hour; that he was riding on the fireman's side of the cab, and that at the water tank he felt a lurch as if the engine had left the rails. He stated that he then heard the enginemen apply the brakes in emergency, and realizing that the engine was derailed he got out of the cab and got off the engine just before it turned over. He further stated that at each of the several stops made on this trip the brakes operated properly.

Conductor Kline stated that before his train left Hazleton the air-brakes were tested and found to be operating properly. He stated that he was in the second car when he felt an emergency application of the brakes, and a few seconds later felt the coach in which he was riding drop off the rails. He estimated the speed as having been about 25 miles an hour at the time the brakes were applied. He also stated that about half an hour after the accident occurred the section foreman with his men arrived and started to pick away the ice from the track at the water tank. On account of other duties which demanded his attention, he did not reach the water tank

until after the section men had removed some of the ice. He thought, however, that the ice had originally covered the rail, but he did not know how much of its length had been covered. He also stated that he found water still blowing from the tell-tale pipe when he reached the water tank.

Section Foreman Klemiński, in charge of the section on which the derailment occurred, stated that he arrived at the scene of accident about 7.00 a. m. He stated that upon examination he found that ice had formed over the north rail for a distance of four or five feet, caused by the water from the tell-tale pipe on the tank blowing onto the track and freezing, the ice, however, having been broken by train No. 172. He also stated that he and his men had removed some ice from the track at this point one day of the previous week, but that there had not been so much of it at that time. Section Foreman Klemiński stated that there are slightly more than five miles of track in his section; that a trackwalker goes on duty at Beaver Meadow at 4.30 a. m., goes to the west end of the section, and then returns to the east end. The man he assigned to this work he had always considered as being competent. He also stated that subsequent to the accident he had personally examined the track west of the point of derailment and found it in good condition.

Trackwalker Shank stated that on the morning of the accident he left Beaver Meadow station at 4.30 a. m., went to the west end of his section, and then started eastward, passing the water tank about 4.45 a. m. When he passed there water was flowing from the tell-tale pipe, and he saw that the ice between the tank and the rail was frozen solid, and that it was three-fourths of an inch in thickness over the top of the north rail for a distance of about six feet. He stated that on previous occasions he picked out ice at this point with a pick, but on this trip he did not take his pick with him; he broke the ice between the rails with his shovel and therefore did not consider it dangerous to traffic.

Track Supervisor Burke stated that he arrived at the scene of accident about an hour and a half after it occurred, and that he found ice on the north rail of the track, but it had been broken by train No. 172 and the wreck train, and some of it had been removed. He stated, however, that the ice on the outside of the rail was of sufficient thickness to indicate that when train No. 172 reached the tank the pony truck of the engine was raised enough to allow the wheels to mount the rail, where they ran for a short distance before dropping down on the ties. He further stated that he considered the track in that vicinity as being well maintained.

Locomotive 1456 is of the 4-6-0 type, and has a total weight, engine and tender, of 315,800 pounds. An examination of the locomotive after the accident disclosed nothing about it that might have caused the derailment. The last train passing over this track prior to the accident was an extra about eleven hours previous.

This derailment was caused by the formation of ice covering one of the rails of the track. The ice was formed by water being blown over onto the track from the tell-tale pipe of the water-tank and reached such a thickness that when this train passed that point the wheels of the pony truck of the locomotive were raised sufficiently to mount the rail.

The responsibility for this accident rests upon Trackwalker Shank, in that he failed to take any action in removing the ice or warning approaching trains. At 4.45 a. m., almost two hours previous to the time of this derailment, he found that the ice was over the top of the rail, but did not consider it of sufficient importance to demand any action on his part, and his failure would therefore appear to be attributable to incompetence rather than to negligence. Because of the fact that he found that ice had formed over the rail to a thickness of about three-fourths of an inch; that it was solid between the track and the tank; that water was still being blown from the tell-tale pipe; that the temperature was about zero; and that train No. 172 was not due to pass for two hours, - even though he stated that at the time he found the ice he was able to break it with his shovel, - it should have occurred to him that the ice would certainly have grown thicker by the time train No. 172 reached that point.

While the direct cause of this accident was the negligence or incompetency of the trackwalker, those charged with the safe operation of this railroad must share the responsibility for this accident for allowing to exist a menace to the safety of train operation in the form of the tell-tale pipe of the water tank at the point of accident. During the investigation it was disclosed that ice had formed on the track there at other times, for the same reason as in this instance, although not to so great an extent. This tell-tale pipe extends from the east side of the tank, thus making it possible for water from the pipe to be blown over on the track by a strong north wind, which in cold weather of course results in the formation of ice. Steps should be taken at once to have the tell-tale pipe so located as to remove the danger which attends its present arrangement.