

IN THE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE
MONONGAHELA CONNECTING RAILWAY AT PITTSBURGH,
Pa., ON JULY 9, 1919.

August 8, 1919.

On July 9, 1919, there was a derailment of a transfer train on the Monongahela Connecting Railway at Pittsburgh, Pa., which resulted in the death of 2 employees and 1 other person and injury to 1 employee and 4 other persons. After investigation of this accident, the Chief of the Bureau of Safety reports as follows:

The Monongahela Connecting Railway is a double-track line with the exception of three short stretches of single track, on one of which this derailment occurred. The main line is approximately 10 miles in length, with numerous switches and turn-outs to serve industries located along it. Train movements are governed by time-table rules and dispatcher's orders transmitted by telephone, all orders being issued verbally. There is no block signal system in use. The speed of all trains is limited by bulletin to 5 miles an hour. Some of the engines and cars of this road are not equipped with air brakes.

The derailment took place at a point 64 feet south of a switch leading from double to single track. This switch is a standard No. 8 switch, through which the southbound track merges into the northbound track. Flush with the south end of this switch, Carson Street crosses the railroad track at right angles, a double-track street railway line intersecting the Monongahela Connecting Railway at this crossing; the point of derailment was about 14 feet south of Carson Street. About 50

feet south of the point of derailment there is a facing point switch to a track leading to the P. V. & O. Yard, to which the train involved in the accident in question was destined.

Approaching the scene of the accident from the north, starting at the south end of a bridge over the Youghiogheny River, there is a curve of 11 degrees and 28 minutes to the left, approximately 100 feet in length; then a tangent 480 feet in length, followed by a curve to the right of 9 degrees and 33 minutes, about 115 feet in length, and 240 feet of tangent. The track then curves to the left to connect with the northbound track at the end of double track, there being a curve to the left of 11 degrees and 28 minutes, approximately 115 feet in length; a tangent of about 25 feet, and a curve of 12 degrees and 28 minutes to the right nearly 50 feet in length, this latter curve being at the switch. The track is then tangent to the point of derailment, about 65 feet farther south. The grade is descending southward from the Youghiogheny River bridge to near Carson Street crossing, then ascending into the P. V. & O. Yard. The ascending grade is approximately 1,000 feet long, being 1.82 per cent. for 450 feet beyond the starting point of the train, and then .18 per cent. for about 550 feet. At the point of derailment the grade is ascending .92 per cent. and the train had been on the ascending grade about 300 feet when the derailment occurred. The track in the vicinity of the point of accident is laid with 100-pound steel rails, 33 feet in length, tie-plated, single-spiked, and with about 18 oak ties to the rail. The track is laid on cinder ballast, the rails being laid at

this point in 1916. The gauge of the track is well maintained, but the surface as a whole was not in good condition, owing to numerous switches and the street car crossing at grade.

The train involved in this accident was southbound transfer train extra 65, consisting of 15 loaded cars and 1 empty car, hauled by locomotive 35, and was in charge of Engineman Williams and Conductor Graham. It was en route from the Low Grade Yard on the North Side to the P. V. & C. Yard on the South Side, a distance of about 1½ miles; the train stopped on the bridge over the Youghiegheny River for the purpose of having the route lined up and the track cleared between that point and the interchange with the P. V. & C. Yard, which is a regular custom for all trains making this movement. When this had been done and the train crew notified to that effect, the train proceeded and had moved approximately 1,510 feet when the derailment occurred, at about 4.45 p.m.

After derailment the engine plowed through a frame dwelling on the east side of the track, completely demolishing the house and instantly killing one of the children of the tenant occupying it. The engine came to rest turned in the opposite direction from which it had been traveling and lay on its right side across Carey Alley, the next street running parallel with Carson Street; the distance from the first marks shown by the derailment to the point where the engine came to rest was 70 feet. The tender frame was still coupled to the engine, while the cistern of the tender was torn from its frame and also came to rest turned end for end, on the west side of the track, lying par-

tially in the front room of a brick dwelling. The first five cars were derailed but remained on the roadbed in an upright position. The employees killed were the engineman and the conductor, who was riding on the engine.

The first mark of derailment was a wheel mark on a spike-head on the east or left side of the east rail of the main track, 14 feet south of Carson street. From this point the ties showed flange marks on the east side of each rail, leading toward the east side of the track and extending to the frog of the facing point switch in advance. This frog was torn out by the derailment, and two or three rails were torn out of the track at that point.

Fireman Sowers stated that after the train left the bridge over Youghiegheny River, the engine was working steam and getting up all the headway possible on the ascending grade to enable it to pull the train up the ascending grade into the P.V. & C. Yard and that they were running from 30 to 35 miles an hour when he felt the front end of the engine leaving the track; at this time he was sitting on his seat box and the conductor was in the cab behind him. He stated that the engineman immediately shut off the steam and applied the brakes, at which time they were about one car length south of Carson Street crossing. He said that in passing over the street crossing the engine rocked backward and forward, but that there was no unusual side motion of the engine. He stated further that he was thoroughly familiar with the track and with the handling of trains of this class, and

that it was necessary, after leaving the bridge, to get up sufficient speed to enable the train to pull up the ascending grade into the P. V. & C. Yard. He stated that the engine was equipped with air brakes and that he understood the air was coupled up on two or three of the head cars.

Rear Brakeman Gardner, who was riding on the rear of the train, estimated the speed at the time of the derailment to have been 16 or 18 miles an hour, which was about the usual speed for trains of this kind at this point. He also stated that four air brake cars were coupled up and in service on the head end of the train, and that it was the practice when having engines equipped with air brakes to couple up a few cars on the head end.

Head Brakeman Griffin stated that the train stopped at the bridge over the Youghiogheny River and he went forward to line up the switches en route into the P. V. & C. Yard and when he had done this he advised his train by telephone that the route was clear. He said that he did not see the accident occur and for that reason could give no information pertaining to it. He stated that four air brake cars were coupled up and he thought this number was sufficient to control the train, it not being a practice to couple up all the air brakes in the train between the Low Grade Yard and the P. V. & C. Yard.

Towerman Conway, who was stationed at Carson Street crossing at the time of the accident, stated that he did not think extra 65 was making more speed than trains ordinarily made over the crossing and that he had seen trains passing at much higher rates of speed.

Master Mechanic Jessel stated that he reached the scene of the accident shortly after its occurrence; that he made an examination of the engine to determine whether the brake rigging or running gear of the engine was broken or down, but found nothing that might have caused the derailment. He also stated that after the engine was moved to the round house, he examined it and found it to be in good condition. He stated that the crossing at Carson Street could start a backward and forward motion of an engine running at high speed and cause a derailment. He also said that out of a total of 51 engines, 28 are not equipped with air brakes, but have steam driving wheel and tender brakes.

Assistant General Manager Ferguson stated that locomotives are given tonnage ratings which are based on actual tests made. He stated that the maximum speed limit for trains on the Monongahela Railway is 6 miles an hour and that if this speed was being exceeded, the fact had never been reported to him. He considered all their train movements to be yard movements and that for this reason it was not necessary to use air brakes on their trains. Several of the engines of this road are not equipped with air brakes, and are usually used in yard service, but if occasion required they are also used in transfer service. Out of 739 cars owned by the company, 649 are not equipped with air brakes.

An examination of the locomotive at the shop disclosed nothing that might have caused the accident; there was a mark on the flange of the right back driving wheel which was probably

made at the time the engine left the rail. There was also a mark on the rail on the left side of the track about 4 feet along the gauge side of a rail beginning about 16½ feet from the first mark on the rail, indicating the point at which the wheel first left the rail, evidently made by the rear driver of the engine in crossing over the rail.

Locomotive 65 is a standard switching engine of the 0-6-0 type, with a total wheel base of 11 feet and a total weight on drivers of 152,000 pounds. It has an overhang of 9 feet 1 inch from the front wheel to the forward end and 10 feet 1 inch from the rear wheel to the back end. This engine was equipped with air brakes.

This accident was caused by excessive speed over the switch and the street car crossing. The short wheel base of the locomotive, together with the overhang at each end, evidently started a backward and forward rocking motion, thus causing the front wheels of the locomotive to leave the rails.

Rule 54 of the operating rules of the Monongahela Railway Company reads in part as follows:

"On main tracks trains must not exceed speed of 6 miles per hour at any point."

It is not possible definitely to determine the rate of speed at which extra 65 was running at the time of derailment. Fireman Bowers estimated the speed at 30 to 35 miles an hour while Rear Brakeman Gardner estimated it at 16 to 18 miles an hour, these being the only two men of the crew living who were on the train at the time. The towerman who was an eye witness to the accident stated that he could give no estimate as to the speed the

train was running, but said that it was not running any faster than he had seen other trains pass over the crossing. The evidence, as well as the condition of the equipment after the accident, indicates that no attempt to observe the speed limits was being made by the engineman and conductor.

While Engineman Williams and Conductor Graham are directly at fault for this accident in failing to observe the 6-miles-an-hour speed limit, the officials of the Monongahela Railway Company share in the responsibility in failing to give sufficiently close supervision to the movement of their trains and requiring them to be operated within the speed limits fixed by rule, the evidence indicating that it was the practice to make a run in order to get over the ascending grades. In doing this, speeds much in excess of the speed limit were customary.

Engineman Williams was employed by the Monongahela Connecting Railway Company as fireman in September, 1910, promoted to engineman in August, 1912, left the service in August, 1913, was reinstated as fireman in April, 1914, and promoted to engineman in May, 1916. His record was clear.

Conductor Graham was employed as brakeman in September, 1910, was promoted to conductor in September, 1912, and to yardmaster in April, 1918. In March, 1919, he was put back as a conductor on account of depression in business. His record was clear.

At the time of the accident the crew of extra 65 had been on duty 2 hours and 15 minutes after a period off duty of 16 hours.