

IN RE INVESTIGATION OF AN
ACCIDENT WHICH OCCURRED ON THE NEW YORK
CENTRAL RAILROAD NEAR SCHODACK LANDING, N. Y.,
ON MAY 13, 1918.

June 22, 1918.

On May 13, 1918, there was a derailment of a passenger train on the New York Central Railroad, near Schodack Landing, N. Y., resulting in the death of two passengers and two employees and the injury of three employees, 79 passengers and nine other persons.

After investigation as to the cause and nature of this accident, the Chief of the Bureau of Safety submits the following:

The Hudson Division of the New York Central Railroad on which the accident occurred is a two, three and four track line, extending between Croton, N. Y., the end of the Electric Zone, 34 miles from the Grand Central Station, and Albany, N. Y., a distance of 108 miles. The tracks lay on the east bank of the Hudson River, generally close to it, and while extending in a north and south direction, trains moving north are classed as westbound and those in the opposite direction are considered east-bound trains. In this report all reference to directions is in accordance with those used by the railroad company in the operation of its trains.

On this division trains are operated by time table rights and train orders, all movements being protected by an automatic block system, with all main line switches directly operated from interlocking plants or electrically controlled from the signal stations. The high speed main track interlocking signals are also block signals.

being motor operated and controlled by the track circuits as well as by the signal station. All signals are three-position, giving the indications in the upper right hand quadrant, the horizontal position indicating stop, the inclined, caution and the vertical, clear. The corresponding night indications are given by colors, red, yellow and green for stop, caution and clear respectively. The automatic signals work on the normal danger system, but the control circuits of the high speed arms of the interlocking signals are such that, as long as the lever in the signal station is in the reversed or "clear" position the signal will clear on approach of a train automatically and assume the stop position when the train passes and as long as the block is occupied, thus making them semi-automatic.

At the point of accident there are two main tracks, the westbound known as track No. 3, and the eastbound known as track No. 2. These main tracks are separated to allow a middle passing track, 4,342 feet long between clearance points, to be constructed between them. Each main track is connected to each end of the middle track by a No. 10 turnout, and the switches and signals are operated and controlled by signal station 93 at the east, and by signal station 94 at the west end. The interlocking machine in signal station 93, where the accident occurred has 12 working levers, the switches, locks, dwarf signals and low speed signals being operated by the usual pipe connections. The westbound home signal has two arms, the upper of which is motor operated and controlled in the usual way for this division, and is also controlled by signal station 94. The lower arm leading into the middle track being mechanically operated, has no track circuit control and gives its indications in the zero and 45-degree positions only; the rear home or distant signal, known as automatic 12992, is 5,048 feet

east of the home signal and is controlled by a circuit through the signal mechanism on the home signal, being thus entirely automatic in its action.

Electric locks are provided for each home signal lever, so arranged that the lever cannot be latched in its normal position unless the lock is energized by a circuit which is only completed when the home signal is in the stop position and the rear home indicates stop or caution. The switch lock levers also have electric locks which are arranged to lock the levers while a train is on the track circuit between signal governing movements over that switch. Approach locking locks up the route when an approaching train is about 9,000 feet from the westbound home signal. Each track circuit also has an indicator in the tower to show whether any given track section is occupied or not, and repeaters are provided for each high speed home and rear home signal. An annunciator shows when a train is approaching and in the case of the westbound track, rings when the train is about 9,000 feet distant. Hand screw releases are provided so that the home signal lever lock may be released after an interval of 1½ minutes provided the signal is at stop and the rear home at stop or caution.

Approaching the scene of the accident from the east, in the direction in which the train was moving, the track is tangent from a point nearly a mile east of the westbound rear home signal No. 12993, but about 100 feet west of this signal there is a 56-minute curve to the right, 374 feet long. The track is then tangent for 3,650 feet to a point 700 feet from the home signal for signal station 93, where there is another curve 59 minutes to the right, 317 feet long, after which the track is tangent to the switch leading to the middle track. The track is practically level, but is very slightly descending for about 900 feet just east of the home signal; previous to that it is ascend-

ing for about a half mile at the rate of .12%. Schoedack Landing Station is one half mile east of signal station 93, and there is a hand operated trailing switch electrically controlled from the tower in the westbound main, just west of the station. The view of the signals is unobstructed and the westbound home signal can be seen a distance of nearly 2,500 feet from Schoedack Station.

The train involved in this accident was westbound passenger train No. 29 en route from New York to Buffalo, in charge of Conductor Carpenter and Engineman Sherwood and consisted of engine 3362, one Arms Palace horse car, one mail car, one composite car, one coach and six Pullman sleeping cars. All were of steel construction except the first, which was of steel underframe construction.

This train left Grand Central Station at 8.01 p.m. on time, and was hauled through the Electric Zone by electric locomotive 1166 to Harmon, where engine 3362, in charge of Engineman Sherwood took the train. The train left Hudson, 16 miles east of the point of derailment 4 minutes late, passed signal station 90 at Stuyvesant, 6.32 miles east of signal station 93 at 11.19 p.m., still 4 minutes late and entered on the switch leading to the middle track at signal station 93 where it was derailed at 11.25 p.m. At this time its speed was estimated to have been 50 miles per hour, and its average speed as given by the times between signal stations 90 and 93 was 54.5 miles per hour. At the time of the accident it was raining.

Examination of the tracks after the accident indicated that the engine left the rails just after passing over the frog. After derailment it turned to the left, was thrown over onto its left side on the middle track, blocking the eastbound or track No. 2. The horse car came to rest upon its left side, blocking the same two tracks; the mail car was off its trucks, partly on track No. 2 and the middle track; the

composite car was down the bank and in the river and the coach was also partly in the river. The first sleeping car was thrown on its side across the westbound track and the middle track; the next three sleeping cars were upright but with both trucks derailed, while the fifth sleeping car had its forward truck derailed. No damage was done to the main track switch and no repairs were made to it or to the interlocking apparatus connected to it, but the middle track switch and all connections were destroyed by the accident.

Towerman Dengler of signal station 95 stated that about 10.30 p.m. he received instructions to put freight train M A 1 on the middle track, and after it was ⁱⁿ on this track he attempted to line up his switch for the main track for train 65, but for some unknown reason he could not lock the switch. After trying it 3 or 4 times he told the dispatcher, who ordered him to run train 65 through the middle track and to tell signal station 94 to have the freight train, which had just previously gone on the middle track, proceed to signal station 95. This was done, train 65 arriving about 10.40 and departing 10 minutes later; the dispatcher further instructed him to run all trains through the middle track until the repairman arrived. Train 71 was next and made the movement at about 11.11 and followed by train 29 which arrived at 11.25. The switches were not changed between any of these trains, nor did he touch the lever controlling the rear home signal. When the freight train approached he heard the annunciator and noticed that the signal indicators were right, and it was the same for all the trains. It was raining but he could see the signals. He thought when he first saw train 29 that it had slowed down, but as it approached he saw it was coming at full speed.

Engineman Claxton of train MA 1, the freight train which was the

first to use the middle track, stated that upon approaching signal station 93 he found the rear home and the lower arm of the home signal both at caution. The rain obscured the signals a little, but he said he could see them and the lights were all burning. He did not recollect that he had ever seen a signal giving a wrong indication.

Fireman Volter of train MA 1 corroborated the statement of Engineman Claxton and further stated that they came to a stop before going in on the middle track.

Engineman Daniels of train No. 55 stated that he found the rear home signal at signal station 93 at caution and both arms of the home signal at stop. He whistled for his flagman to go back. The brakeman went forward to the tower and soon after came back telling him that his train would have to use the middle track. When the towerman changed the bottom arm of the home signal to the caution position he went on through the middle track. He said movements of this kind are not unusual and he is on the lookout for them. On account of the curve he did not think the home signal could be seen a full mile, but at night it should be seen from Schoedack station, a distance of about one half a mile. He found no lights out and signals could be seen clearly, though it was raining.

Engineman Butterfield of train No. 71 stated that the rear home signal and lower arm of the home signal at signal station 93 were indicating caution as he approached. He could see the rear home No. 12993 before passing the next signal in the rear, a distance of over a mile. Approaching the home signal the top arm can be seen first, and both can be seen when 400 or 500 feet distant, but the fireman can see the signals first. No lights were out, and while it was raining, he had no

trouble in seeing the signals. He was running about 5 miles per hour while pulling into the middle track.

The firemen on both trains 55 and 71 corroborated the statements of their enginemen.

The engineer and fireman of train No. 29 were both killed in the accident.

Conductor Carpenter of train 29 stated that they left Hudson about 4 minutes late, and they were probably making a little more than their usual rate of speed approaching Schodack. There were no stops after leaving Hudson, and therefore there was no occasion to use the brakes. Approaching Schodack he said he was riding in the drawing-room of a "dead-head" sleeper, the fifth car from the engine. He felt no brake application, and his first intimation that anything was wrong was when the car lunged forward as though something were off the track, and finally tipped over. After the accident he looked at the home signal and saw that the light was burning, showing red or stop on the top arm. He stated he had had Engineman Sherwood every trip for the past two months and considered him a careful man. He had not made a similar move on any run previous to the accident, but whenever there were standing speed restrictions he had had no occasion to speak to Engineman Sherwood about exceeding the speed limit. After the accident he found Engineman Sherwood on the river bank, but had no conversation with him about the accident as he was not in condition to talk.

Brahman Eberhardt stated that he was in the rear car at the time of the accident. He immediately got out on the ground and looked at the home signal and found the lights on both arms burning brightly, the top showing red and the bottom yellow. It was raining hard at the time.

Brakeman Shea of Train 29 stated that he was riding in the smoking compartment in the head end of the "dead-head" sleeping car. He went up the track to flag eastbound trains. After he came back with the relief train he went back to signal station 93, noticed that the switch was set for the middle track and that the lights on the upper arm of the home signal showed red, with the lower yellow. He further stated that he did not consider the train was running at an unusually high rate of speed and was probably making 35 or 40 miles per hour at the time of the accident.

Asst. Maintainer Miller stated that he was called on account of the trouble with the switch at signal station 93, reached signal station 95 at 11.06 p.m., and after finding no eastbound train was close, started east on his car on the eastbound track. On approaching signal station 94, but while still west of it, he saw what he thought was an engine coming around the curve at signal station 93, but as he got near the tower he saw neither headlight nor signals. While at signal station 94 he heard towerman tell the section man that train 29 was on the ground. On arrival at the wreck he found the engineman on the ground, whom he asked what was the trouble. Engineman Sherwood said, "I did it, I did it. I am to blame." This was about 11.35 p.m. and there was no one else present. Then he went to the tower, found from the towerman that the indicators were all right, and lever 10 controlling the lower arm on the home signal, normal, but lever 13, controlling the rear home, reversed. He later looked over the switches, finding the switch set properly for the middle track and locked, examined the lights as far back as the rear home signal and disconnected the relays so that signals would be against any train approaching.

Engineman Webber of train 69 stated that he had orders to go to Schedack and bring the passengers back to Hudson. He found the second automatic east of signal station 93 at caution, and the next, the rear home for signal station 93, at stop. The flagman was just west of this signal. The home signals at signal station 93 were at stop. All lights were burning brightly, and he had no trouble in seeing signals, although it was raining.

After the accident, tests of the signal apparatus involved were made and the motor and mechanism of the rear home signal was found to be working properly, the "hold-clear" coils releasing at the required voltage. The repeaters and relays operated properly and released at the proper voltage. No crosses or grounds were found on the mechanism or wires.

The interlocking machine was also tested and found to be in proper condition. As the middle track switch with its connections was destroyed in the accident, any cause of the failure of the interlocking apparatus that prevented the towerman from locking the switch in its normal position after train MA 1 had gone onto the middle track could not be ascertained, since the same levers operate and lock both the middle and the westbound main track switches.

This accident was caused by the Engineman of train 29 failing properly to control the speed of his train in accordance with the indication of the signals on approaching signal station 93, resulting in the train taking the switch from the westbound main track to the middle track at a rate of speed that was excessive for a number 10 turnout.

The evidence of the crews of preceding and following trains, the statement of the towerman and the tests made after the accident all

indicate that the signal apparatus was in proper working order. As both the engineman and fireman were killed, no adequate explanation can be given why these experienced men, whose long service records have shown them to be competent and reliable should suddenly and without reason disregard the indications of a signal when that action might result in just such a distressing accident.

While the direct cause of this accident was the disregard of the caution indication at the rear home signal by engineman Sherwood, that rule of the New York Central Railroad, governing the observance of the caution indication, which reads as follows:

"Proceed, prepare to stop at next signal"

leads directly to a minimizing of the value of the caution indication. This rule permits the engineman to use his judgement as to when he shall begin to reduce speed in anticipation of a possible stop at the next signal.

The danger in this interpretation of the caution indication has been pointed out in previous reports of accidents investigated by this Bureau. The interests of safety demand such a modification of this rule as will cause the caution indication to be recognized as being as positive in its indication and as requiring as definite action on the part of the engineman as does the stop indication.

This accident again directs attention to the fact that careful and competent enginemen, aided by signal systems of the most highly approved type, are not adequate fully to guard against accidents of this kind. Since July, 1911, when this Bureau began the investigation of accidents, it has reported on 50 accidents, resulting in the deaths of 270 persons and injuries to 1,406 others, in which the primary cause

was the disregard of signal indications. This demonstrates how imperative is the need of some device that will supplement the human element and assume control of the train in case the engineman fails to properly control it. This Bureau has repeatedly urged that automatic train stops or train control systems be developed from their present more or less experimental stage to that point where such a system may be ready for practical operation. Several railroad organizations co-operating with some of the signal companies, as well as individuals, have made marked progress in the development of automatic train control systems and their work should be continued in such a way as to make the results of their work most readily available.

All the employees concerned in this accident were experienced men with good records. At the time of the accident the engine crew had been on duty about 9 hours, having left Albany in the previous trip east at 4.10 p.m. after having been off duty 14 hours for Engineman Sherwood and 36 hours for Fireman Joslin. The train crew had been on duty about 4 hours after having been off duty about 10½ hours.

G.F.E.