

INTERSTATE COMMERCE COMMISSION
WASHINGTON

REPORT OF THE DIRECTOR
BUREAU OF SAFETY

ACCIDENT ON THE
NASHVILLE, CHATTANOOGA & ST. LOUIS RAILWAY

CARTERSVILLE, GA.

JULY 20, 1940

INVESTIGATION NO. 2437

SUMMARY

Inv-2437

Railroad: Nashville, Chattanooga & St. Louis
Date: July 20, 1940
Location: Cartersville, Ga.
Kind of accident: Side collision
Trains involved: N. C. & St. L : L. & N.
yard engine : freight
Train number: : Extra 1517
Engine numbers: 423 : 1517
Consist: 3 cars : 43 cars, caboose
Speed: 3-7 m. p. h. : 25-50 m. p. h.
Operation: Timetable, train orders and automatic
block system; yard limits
Track: Single; 4°35' curve; grade practically
level
Weather: Clear
Time: 3:25 p. m.
Casualties: 2 killed; 4 injured
Cause: Failure to control speed of extra
train properly while moving within
yard limits

Inv-2437

September 21, 1940

To the Commission:

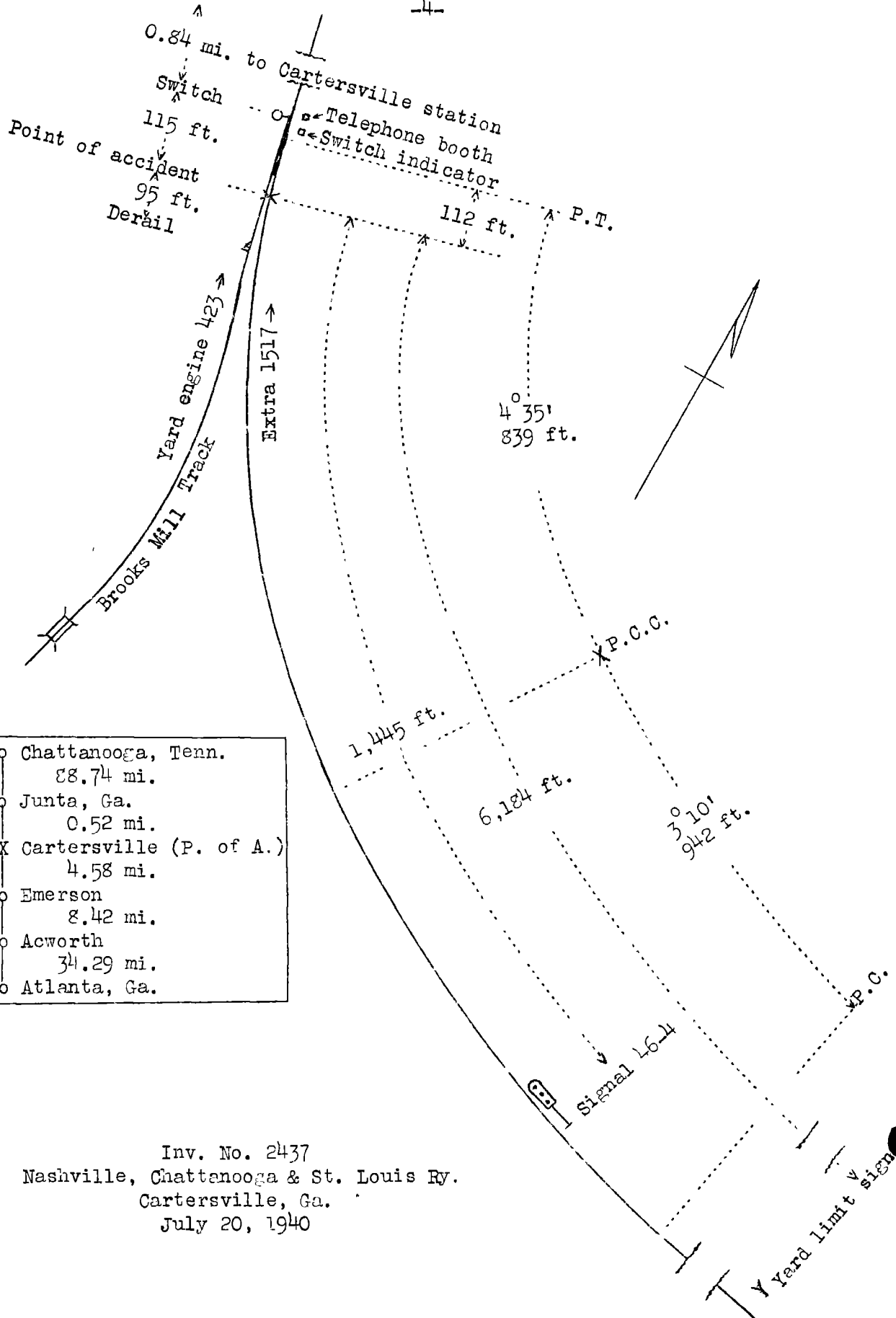
On July 20, 1940, there was a side collision between a Nashville, Chattanooga & St. Louis Railway yard engine and a Louisville & Nashville Railroad freight train, on the line of the first-mentioned carrier, at Cartersville, Ga., which resulted in the death of two employees and the injury of five employees.

Location and Method of Operation

Trains of the Louisville & Nashville Railroad, hereinafter referred to as the L. & N., are operated over the Nashville, Chattanooga & St. Louis Railway, hereinafter referred to as the N. C. & St. L., between Atlanta and Junta, Ga., a distance of 47.81 miles. Junta is located 0.52 mile north of Cartersville. This accident occurred on that part of the Atlanta Division which extends between Atlanta, Ga., and Chattanooga, Tenn., a distance of 136.55 miles. In the vicinity of the point of accident this is a single-track line over which trains are operated by timetable, train orders and an automatic block system. The accident occurred within yard limits at a point 115 feet south of an industry-track switch, which is located 0.84 mile south of the station at Cartersville.

As the point of accident is approached from the south there are, in succession, a tangent 5,465 feet long, a compound curve to the right 1,781 feet long, the maximum curvature of which is $4^{\circ}35'$, and a tangent 126 feet long; the accident occurred on this curve at a point 112 feet from its northern end. The grade for north-bound trains is, successively, 0.20 percent descending a distance of 1,400 feet, 0.60 percent descending a distance of 1,600 feet, 0.48 percent descending a distance of 1,400 feet, and practically level a distance of 2,300 feet to the point of accident.

A yard-limit sign is located 6,184 feet south of the point of accident. The industry track involved, known as Brooks Mill track, is more than 1,500 feet in length, extends southward, and lies west of the main track. Entry to this track is made through a trailing-point switch for northward movements,



○	Chattanooga, Tenn.	88.74 mi.
○	Junta, Ga.	0.52 mi.
X	Cartersville (P. of A.)	4.58 mi.
○	Emerson	8.42 mi.
○	Acworth	34.29 mi.
○	Atlanta, Ga.	

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which is provided with a No. 10 turnout. The switch-stand is located on the west side of the main track. A derail, which operates in conjunction with the switch, is located on the industry track at a point 210 feet south of the switch. There is a telephone booth on the east side of the main track about 15 feet east of the switch-stand and a switch indicator immediately south of the telephone booth. Automatic signal 46-4, which governs northward movements on the main line, is a 3-indication, color-light signal, and is located 1,500 feet south of the switch.

The following rules of the operating department read in whole or in part as follows:

93. Certain yards will be indicated by yard or station limit signs. Within such limits the main track may be used, protecting against first and second class trains. Third class and extra trains must move on the main track under such control that they can stop within the range of their vision.

505 (a). Block signals govern the use of the blocks, but, unless otherwise provided, do not supersede the superiority of trains; nor dispense with the use or the observance of other signals whenever and wherever they may be required.

505 (b). Block signals, unless otherwise provided, do not in any way supersede the rules governing the Operating Department, and do not relieve train men and others from any responsibility under such rules. The block signals are an extra precaution and must be so regarded and strictly observed.

512 (c). A switch must not be opened to permit a train movement to the main track, nor must a train come within fouling distance of the main track, unless such train is authorized by rule, time-table or train order to occupy main track or is protected as required by Rule 99.

515. A train occupying a siding where a switch indicator is used, must not, unless otherwise provided, enter the main track until a yellow light is displayed indicating that the block is clear in the direction in which the movement is to be made.

Where switch indicators are used, the indications displayed do not relieve enginemen and trainmen from protecting their train as required by the rules.

* * *

A time-table special instruction reads in part as follows:

17. Trains and engines using main track within yard or station limits as authorized by Rule 93, will, in addition to protecting as required against first and second class trains, protect against other trains and engines if such other trains and engines have not a view of train or engine thus using main track of four hundred (400) feet or more, * * * .

Because of buildings, bill boards and an embankment near the track, and track curvature, the view to be had from the cab of a north-bound engine of cars or an engine standing immediately south of the derail on the industry track is restricted to a distance of 1,104 feet, and to 527 feet where it could be seen that the main track was fouled.

The maximum authorized speed for freight trains is 40 miles per hour.

The weather was clear at the time of the accident, which occurred about 3:25 p. m.

Description

N. C. & St. L. yard engine 423, with Engine Foreman S. B. Gilstrap and Engineman L. L. Gilstrap in charge, made a back-up movement pulling three cars from the south end of Brooks Mill track and stopped just south of the derail on that track. The engine foreman went to the telephone booth, and while he was conversing with the operator at Junta a switchman opened the main-line switch. Then the yard engine was started toward the main line and, while it was moving at a speed estimated at 3 to 7 miles per hour, the east side of the first car was struck by Extra 1517 North.

Extra 1517, a north-bound L. & N. freight train, with Conductor Perkinson and Engineman Greenwell in charge, consisted of engine 1517, 31 loaded and 12 empty cars and a caboose. This train departed from Atlanta, 47.29 miles south of Cartersville, at 1:40 p. m., according to the train sheet, passed Acworth, 13 miles south of Cartersville and the last open office, at 3:07 p. m., passed the yard-limit sign at Cartersville, passed signal 46-4, which was displaying a proceed indication, and, while moving at a speed variously estimated at 25 to 50 miles per hour, struck the first car being pulled by yard engine 423.

Engine 423 and the first two cars were derailed. The engine, together with its tender, stopped bottom up, parallel to the industry track and west of it; the rear end of the tender stopped about 25 feet south of the switch. The first two cars were practically demolished, but the third car was neither derailed nor damaged.

Engine 1517 and the first 15 cars were derailed. This engine stopped on its right side, parallel to the main track and east of it; the front end stopped against an earth mound, and the cab opposite the switch-stand; the tender was at right angles to the engine and across the track at the switch. The first 13 cars were derailed, demolished and destroyed by fire; the fourteenth and fifteenth cars were derailed and badly damaged. The derailed equipment was bunched within a distance of 200 feet.

Both engines were badly damaged; their pilot end-sills overlapped a distance of 56 inches, and the pilot end-sill, cylinder, steam-chest, and cross-head on the left side of each engine were broken.

The employees killed were the enginemen of both engines; the employees injured were the fireman and the front brakeman of Extra 1517, and the fireman and both switchmen of yard engine 423.

Summary of Evidence

Engine Foreman Gilstrap, of yard engine 423, stated that his engine, pulling three freight cars, was backing northward on Brooks Mill track and soon after 3:20 p. m. it stopped about 3 or 4 feet south of the derail. He walked to the telephone booth and Switchman Keys followed closely, but the switchman remained outside the booth. As customary, the engine foreman telephoned the operator at Junta for information about trains. He was informed that one north-bound extra train had passed Acworth at 3:07 and another at 3:16 p. m., and that the first train should be in the vicinity of Cartersville. The engine foreman replied, "All right, I will stay in here and let both of them by." While completing this sentence he heard the switch lever click and before finishing his conversation with the operator he heard the yard engine moving and Extra 1517 approaching. He immediately ran out of the booth, waved stop signals with his hat and called a warning to the switchman, but it was then too late to avert the accident. He did not see anyone on the fireman's side of the yard engine. He estimated the speed of the yard engine to be 3 or 4 miles per hour and that of Extra 1517 to be 50 miles per hour when the accident occurred. Ordinarily the switchman who accompanies him

to the telephone booth waits outside and remains away from the switch-stand until the engine foreman has given authority to open the switch and the switch indicator has been observed to determine the condition of the block. He said that Switchman Keys had worked as a member of his crew on previous occasions, but during the present assignment he had been working only 6 days. On the day prior to the accident the engine foreman had cautioned the switchman about the importance of operating switches, but nothing was said about it on the day of the accident. In this instance Switchman Keys opened the switch without permission or authority, without having pressed the button of the switch indicator, and before the engine foreman had finished the telephone conversation with the operator. Subsequently, at the hospital, the switchman told the engine foreman that he did not know why he opened the switch, and that after he opened it the yard engine backed afoul the main track before he could do anything to prevent the accident. The engine foreman could not understand how the switchman could have been mistaken the words "all right" spoken to the operator as having been intended as authority to open the switch. He stated that there was no rule requiring the engine foreman to obtain information over the telephone about trains before the yard engine entered upon the main track at this point, but that the trainmaster had orally instructed him to take such action; he did it as an added precaution and also to expedite train movements. Within yard limits a yard engine is permitted to use the main track without protecting against extra trains if a view of 400 feet or more is available. Extra trains are required to move under control within yard limits; however, such trains usually move through the yard limits involved at a speed of about 50 miles per hour. Automatic signals do not supersede the operating rules. He said that if the switch indicator had been used the accident could have been prevented. The brake pipe was coupled throughout the engine and the cars, and all brakes were operative. The yard engineman appeared normal during the course of switching operations.

Switchman Keys, of yard engine 425, stated that while the engine foreman was talking to the operator he stood in the middle of the main track and about 10 or 12 feet from the telephone booth. The switchman understood the engine foreman to say, "All right, come out." He assumed that these words were addressed to him, so he went over to the switch-stand and unlocked and opened the switch. Then the engine foreman ran out of the booth and shouted a warning of danger. At this time, however, the tender of the yard engine had backed north of the derail. The switchman remained at the switch-stand and waved stop signals on the engineman's side of the yard engine. At first he did not see anyone on that side of the engine but soon the yard engineman looked out just as his engine was fouling the

main track, and then the accident occurred; he estimated the speed of Extra 1517 at 50 miles per hour. The switchman said that he did not receive any signal from the engine foreman, but, from what was said when the engine foreman was in the telephone booth, he felt certain it was intended that he should open the switch. After he opened the switch there was not sufficient time for him to give the yard engineman a signal before the yard engine began to back toward the main track. Subsequently, at the hospital, the engine foreman asked him why he had opened the switch, and the switchman replied that he understood the engine foreman to say, "All right, come out." However, the engine foreman informed him at this time that these words were not intended for his guidance. The switchman said that during his present 6-day assignment with this yard crew the work had been performed in a similar manner every day on Brooks Mill track. He always accompanied the engine foreman to the telephone booth, and when it was permissible to use the main line the engine foreman, either when inside or outside the booth, would say in substance, "All right, come out." Furthermore, the yard engineman had previously made the back-up movement on the indication of the switch target, apparently the same as was done in this instance, without waiting for a hand signal to back. The switchman did not operate the switch indicator, as he thought the engine foreman would perform this duty; had he known that the engine foreman did not operate it, he would have done so. Automatic signal aspects in yard-limit territory do not supersede the yard-limit rule; however, all freight trains usually move through Cartersville yard on green aspects at a speed between 40 and 50 miles per hour. In his opinion had either Extra 1517 been moving under proper control within yard limits, or the switch indicator been operated by some member of the crew of yard engine 423, the accident could have been prevented. Switchman Keys entered the service of this railroad on December 9, 1924. He said that he completed an oral and a written examination on the operating rules and the rules governing block signals given by the train-rules examiner on December 13, 1924; he had not been re-examined since that time. He worked intermittently from 1926 to 1929; his services were terminated in 1935 because of a reduction in personnel and he returned to duty as an extra trainman on November 1, 1939.

Fireman Mathis, of yard engine 423, stated that when his engine stopped on Brooks Mill track at a point just south of the derail he was sitting on his seat-box. The engine foreman and the switchman went to the telephone booth. Soon thereafter the engineman released the engine brake and the fireman looked toward the switch. The switchman was at the switch-stand and the switch was open. He did not see the switchman give a signal to the engineman. While the engine foreman was still in the

telephone booth the engineman said that the yard engine was being permitted to enter the main track and started the back-up movement. The fireman got down on the deck and was putting in a fire when the accident occurred. He estimated the speed of his engine at 3 or 4 miles per hour at the time of the accident, which occurred at 3:25 p. m. He did not see Extra 1517 prior to the accident. During the time his engine stood on the industry track he looked across to the main track several times to determine if any north-bound train was approaching, but saw none. Prior to starting the back-up movement the yard engineman appeared normal. At Brooks Mill track it is customary for the engine foreman to go to the telephone booth to obtain information about trains and for the switch indicator to be used. It was his observation that freight trains move at speeds of 40 to 50 miles per hour through Cartersville yard, which speeds are not in conformity with the yard-limit rule.

Switchman Hilburn, of yard engine 423, stated that it was 3:22 or 3:23 p. m. when the yard engine stopped on the Brooks Mill track near the derail. When the back-up movement was started from that point he was on the ground on the east side of the industry track and about one car length south of his engine. The first knowledge he had of anything being wrong was when the engine foreman ran out of the telephone booth, shouted, and gave stop signals. Then he saw the freight train approaching, and immediately thereafter the accident occurred. He estimated the speed of the freight train at 50 miles per hour, and that of the yard engine at 6 or 7 miles per hour when the accident occurred. He said that whenever he went to the telephone booth he was governed solely by the instructions of the engine foreman, and that the switchman always pressed the switch-indicator button before he opened the switch involved. It was his observation that freight trains were operated through Cartersville yard at a speed of about 50 miles per hour. He said that automatic block signals do not supersede operating rules.

Fireman Ross, of Extra 1517, stated that at Atlanta the air brakes were tested and they functioned properly en route. He was on the left seat-box, the front brakeman was behind him, and the engineman was on the right seat-box as their train approached Cartersville yard limits at a speed of about 40 miles per hour. The engineman made a brake-pipe reduction and the speed was reduced to 30 or 35 miles per hour, and then a drifting throttle was used on the descending grade. The engineman sounded the whistle signal for a public crossing located north of the yard-limit board. Automatic signal 46-4 displayed a green aspect until the engine passed it. Around the outside of the curve involved the fireman's view was obstructed and he was not aware of anything being wrong until the engineman applied the air brakes in emergency and called a warning of danger. The speed of the

train at this time was 30 to 35 miles per hour. As the air brakes took effect the fireman saw a tank car on the Brooks Mill track, and then the accident occurred. Prior to the accident the engineman appeared normal. He said that automatic signal aspects within yard limits do not supersede yard-limit requirements; however, it was the practice of all enginemen, with whom he had worked, to operate freight trains through Cartersville yard at excessive speed. It was his opinion that if the yard-limit rule had been observed the accident could have been prevented.

Front Brakeman Swann, of Extra 1517, stated that when his train was about ten car lengths from the point of accident his engineman applied the brakes in emergency and shouted a warning to jump. The brakeman then looked out the left side of the engine cab and saw the yard engine about five car lengths distant.

Conductor Perkinson, of Extra 1517, stated that he was in the cupola as the train approached Cartersville yard limits at a speed of about 40 miles per hour. A brake-pipe reduction was made, the speed was reduced to 30 miles per hour when within yard limits, and then the brakes were released. He was not aware of anything being wrong until the air brakes were applied in emergency. The brakes were effective, the train moved about 400 to 450 feet, and the speed was about 25 miles per hour when the accident occurred. He said that from the caboose of a train such as the one involved it is impossible to determine whether the engineman is operating under such control that the train can be stopped within the range of vision. In this instance his train was operated in a manner similar to that in which it had been operated for years. In his opinion his train was not operated under proper control within yard limits.

Flagman Noe, of Extra 1517, stated that he was at the desk in the caboose when the accident occurred. His testimony as to what transpired was similar to that of other witnesses. The flagman thought that automatic signals which displayed green aspects within yard limits induced enginemen to disregard the requirements of Rule 93.

Operator Baldwin, at Junta, stated that as customary the engine foreman of yard engine 423 telephoned him for information about trains and he told the engine foreman about the two north-bound extras that had passed Acworth. The operator advised him that it would be best for the yard engine to remain in the clear on Brooks Mill track until both of these extras passed, and then to follow them to Cartersville; the engine foreman replied, "All right;" the operator thought these were the last words used by the engine foreman to finish this conversation.

Trainmaster Swindell stated it was his observation that the point where the accident occurred was the only place in the Cartersville district where it was necessary to reduce speed considerably because of restricted view. There were other places within yard limits where enginemen reduced speed to some extent. While riding north-bound freight trains he had observed on a few occasions that enginemen failed to reduce speed sufficiently at this point. He had frequently admonished enginemen to be careful at danger points, and yard crews to keep clear of third-class and extra trains, as a matter of extra precaution and expediting train movements. However, under Rule 93 the yard engine involved could rightfully use the main track against the freight extra involved. On several occasions he had instructed the engine foreman to call the operator at Junta when work of switching was completed on Brooks Mill track and obtain information on trains and also to operate the switch indicator before occupying the main track. Employees have been instructed that block signals are an additional safeguard and that block signal aspects must not be depended upon in disregard of Rule 93, which requires an engineman to operate under such control that his train can be stopped within the range of vision. However, it is apparent that at this location it has become the practice for enginemen to accept a green aspect displayed by automatic signal 46-4 as an indication that the main track is clear, and to operate their trains at excessive speeds within yard limits. The general performance of L. & N. and N. C. & St. L. crews operating over this track is similar. The yard limits at Cartersville extend about 4 miles. He said that he makes frequent trips over the railroad on both passenger and freight trains, and that a traveling engineman and two traveling firemen are required to make such trips as their duties will permit. In his opinion L. & N. Extra 1517 did not comply with the requirements of Rule 93.

Superintendent Hibbett stated that the reason he had not observed freight trains failing to comply strictly with the requirements of Rule 93 in the territory involved was that Brooks Mill track was in a remote section of Cartersville yard limits and he had not had occasion to visit that point. However, at other yard-limit locations he had observed freight trains complying with the requirements of Rule 93.

Signal Supervisor Riseden stated that after the damaged track circuits were repaired tests made of signal 46-4 and the switch indicator disclosed they functioned properly. When the switch indicator is operated it will indicate whether the block between Emerson, located 4.58 miles south of Cartersville, and the switch is occupied by a north-bound train.

According to data submitted by the carrier, the total length of yard engine 423 is 61 feet 7 inches.

Observations of the Commission's Inspectors

The Commission's inspectors observed tests made to determine the extent of the view to be had from the cab of a north-bound engine on the main track of cars or an engine standing in the clear on Brooks Mill track and it was found to be as previously described. It was also observed that north-bound freight trains entered the curve involved at speeds as high as 50 miles per hour.

Discussion

According to the evidence, yard engine 423 was backing at a speed estimated at 5 to 7 miles per hour on Brooks Mill track toward the main-track switch when, at a point 115 feet south of the switch, the first of the three cars it was pulling was struck by the engine of Extra 1517 North, which was moving at a speed variously estimated to have been from 25 to 50 miles per hour. Since the pilot end-sills of the two engines overlapped about 36 inches it is apparent that when the collision occurred the front end of the yard engine was near the frog and the rear end of the tender was about 15 feet south of the switch point.

The accident occurred within yard limits at a point approximately 4,700 feet north of the south yard-limit board. An automatic block system extended through the yard limits and the last automatic signal passed by Extra 1517 was located about 1,500 feet south of the point where the accident occurred. All the surviving employees involved understood that automatic signal indications in yard limits could be accepted by the crews of only first and second-class trains; they understood that the yard engine involved could foul or occupy the main track without protecting against trains other than first and second-class trains unless the crew of an approaching train did not have a vision of the track ahead a distance of 400 feet or more. As the weather was clear it was possible in this case for the engineman of Extra 1517 to see at a distance of 527 feet that the main track was fouled. According to the evidence the engineman, who was the first to observe that the main track was fouled, called a warning at a point about ten car lengths distant or approximately 425 feet, and applied the brakes in emergency but too late to avert the accident.

The investigation disclosed that north-bound third-class and extra trains have been operated through this portion of the yard limits at Cartersville for a considerable period prior to the time of the accident at speeds similar to that at which Extra 1517 was moving. As the engineman was killed in the accident it is not known why he did not control the speed of his train in compliance with the yard-limit rule; however, it appears that he was operating according to past practice at this point. Subsequent to this accident the Commission's inspectors observed that third-class and extra trains moved through the yard limits involved at speeds in excess of 50 miles per hour, notwithstanding the yard-limit rule and the fact that the maximum authorized speed is 40 miles per hour. It is the duty of operating officials to enforce obedience to operating rules, and failure for a considerable length of time of crews to comply with the provisions of an operating rule indicates that operating officials have been negligent or lax in enforcing obedience to the rule.

As an extra precaution and as a means of preventing delays to main-line trains, the trainmaster had instructed the engine foreman involved to call on the telephone to obtain information from the operator at Junta concerning the progress of trains en route to Cartersville, but there was no rule covering this matter. The engine foreman was conversing with the operator on the telephone in regard to the location of trains and from the information received the engine foreman said that his engine would remain in the clear until after two north-bound trains passed, but one of his switchmen, understanding the engine foreman to indicate that the yard engine would occupy the main track immediately, lined the switch for entrance to the main track and the engineman, without receiving a signal, started his engine at once toward the switch. As the yard engineman was killed in the accident it is not known why he made this movement without a signal; however, this switchman said that on previous occasions the engineman had proceeded on the indication of a switch target only. The switch indicator located near the switch involved was installed to enable the crew of an engine, in the clear on Brooks Mill track and about to occupy the main track, to ascertain if there was a train approaching closely so that main-line trains would not be delayed by the engine. The rules provided that outside of yard limits where switch indicators were provided the main track could not be occupied unless the switch indicator showed that the block was clear, but within yard limits the yard-limit rule governed; this resulted in the switch indicator involved being used for information only.

If the switch involved had been opened before Extra 1517 passed the last signal preceding the point of accident, that train would have received a stop indication at that signal; however, the fireman said that the signal displayed a green aspect, which statement is supported by the fact that Extra 1517 moving at a speed of 50 miles per hour would use 19.7 seconds to traverse the distance of 1,445 feet from the signal to the point of accident while the yard engine moving at an average speed of 7 miles per hour would use about 16 seconds in traversing the distance of about 165 feet, the distance from the derail to the point the rear of the tender had reached when the accident occurred; therefore, it appears that the engine of Extra 1517 passed the signal 3 or 4 seconds before the switch was opened.

Conclusion

This accident was caused by failure to control the speed of Extra 1517 properly while moving within yard limits.

Respectfully submitted,

S. N. MILLS,

Director.