

In Re Investigation of the accident which occurred
on the Shore Line Electric Railway near North
Branford, Conn., on August 13, 1917.

October 11, 1917

On August 13, 1917, there was a head-end collision between two passenger trains on the Shore Line Electric Railway near North Branford, Conn., resulting in the death of 19 persons and the injury of 35 persons. Upon investigation of this accident, the Chief of the Division of Safety reports as follows:

The Shore Line Electric Railway is a single track line upon which trains are operated by schedule, and dispatcher's orders; no block signals are used. The Saybrook division, upon which this accident occurred, extends between New Haven and Chester, Conn., a distance of 47.33 miles. Upon this division regular trains are run upon what is known as an hourly schedule. There is no printed time-table for the information of either employees or the public. The schedule covers the time from 5:25 a.m., to 11:55 p.m., and during this period regular trains leave the various terminals at time intervals of one hour. These trains are designated by numbers, and are entered upon a crude hand written schedule, showing the time of trains at their various stopping places, with meeting points of trains in opposite directions shown in red ink. This written schedule is posted at the various terminals. Conductors and motormen are not furnished with copies of the schedule; they are required to familiarize themselves with its provisions, and have nothing but memory to guide them in making the various meeting points.

Written orders are not issued, either for extra or regular trains. There are telephones at the various turn-outs or meeting points, and should a train be late, or should it be desired for any reason to advance it beyond its schedule meeting point, the train dispatcher issues verbal telephone orders to that effect. The method is as follows: Upon arrival of a train at a schedule meeting point it is required to wait at the turn-out until the designated meeting time; if the opposing train does not then appear the conductor and motorman are required to communicate with the train dispatcher, who instructs them either to remain at that point until the arrival of the opposing train, or proceed to another turn-out in advance. A written record of such orders is kept in the dispatcher's office, but they are not written down by the train crew.

Extra trains are given no orders, but are run by the same method as the regular trains, on independent schedules, which are written out as occasion requires, and placed on the bulletin board, or attached to the regular schedule as a supplement. The extra train involved in this accident was known as the "half hour" car. It made one round trip between Saybrook and New Haven on five days each week, leaving Saybrook Car House, 33.58 miles from New Haven, at 3:43 p.m., or one-half hour later than the next preceding westbound regular train.

On the date of the accident this "half hour" extra, with motor car No. 16 in charge of Conductor Tryon and Motorman Negus, left Saybrook Car House on time. Its schedule required it to meet eastbound train No. 22, motor car No. 2, in charge of Conductor Jones and Motorman Morris, at North Branford turnout, at 4:55 p.m. North Branford turnout is not a schedule meeting place for regular trains. It is about 425 feet long, and the switch at its eastern end is normally set for westbound cars to take the turnout and permit eastbound trains to pass on main track. North Branford station is located about 1600 feet west of the turnout, and the point of collision is about 500 feet west of North Branford station. The extra train passed through the turnout without stopping, came to a stop at North Branford station and took on a passenger, and proceeded from there, colliding with train No. 22 while running at an estimated speed of 25 to 30 miles per hour, at about 4:57 p. m. The cars telescoped, and both were demolished for about one-third of their length, but were not derailed. The weather at the time was clear.

Approaching the point of collision from both directions the track surface conforms generally to the contour of the land. At the point of collision there is a cut, made to secure overhead clearance for a bridge which carries a steam road over the Shore Line tracks approximately 300 feet west of North Branford station. About 200 feet east of North Branford station is the beginning of an 8-degree curve to the left, 368 feet long. This curve reverses into a 6-degree curve to the right a short distance west of the station and extends westward a distance of about 527 feet. The collision occurred near the western end of this curve.

The grade throughout varies greatly, and changes abruptly with the contour of the land over which the track passes. Approaching the point of collision from the east, the track crosses Branford River about 400 feet east of the Branford turnout, and

rises on a grade of 1.77% to a highway crossing about 100 feet east of the east switch of the turnout. From this crossing the track descends on a grade of 2.15% to the west end of the turnout, and then ascends to a highway crossing immediately east of North Branford station, on a grade which attains a maximum of 5% just before the crossing is reached; from North Branford station westward the track descends on a grade of 4.85%, reducing to .13% at the point of collision. Approaching from the west, from Linsley Pond Road, about 1,000 feet from the point of collision, there is an ascending grade of 3.89%, reducing to .13% at the place of accident.

The motor cars involved were of steel underframe construction, of the center vestibule type, with seating capacity of 44 passengers. The cars weighed 28 tons, were 44' 6" long, 8' 2-1/2" wide, 12' 2" high from top of rail to top of roof, and were equipped with four 75 h. p. direct current motors and both automatic and straight air brakes. The control was of the multiple unit type, equipped with an automatic cut-off, which throws power off automatically when motorman's hand is removed from the control lever. This automatic cut-off feature, however, was not connected with the brake system.

Motorman Regus of the extra did not give any reasonable explanation of why his train failed to wait at North Branford turnout for train No. 22. In explanation of his failure to wait at the turnout he said that he "dozed away," and did not remember passing the meeting point or stopping at North Branford station. He said that the last thing he remembered, until coming to his senses only an instant before the collision, was passing a section gang alongside the track a mile or more east of North Branford turnout. He admitted that if a car was permitted to coast down the hill through the turnout without being controlled it would go through the side-track at a speed of 40 or 45 miles per hour and he did not think a car would take the turnout at that speed and stay on track. He said that a car could not take the turnout at a speed of more than 4 or 5 miles per hour without losing the trolley pole. He said that on this same trip, at a previous meeting point he dozed off and nearly ran through the turnout at a meeting point before waking up, and if he had not caught himself just in time he would have had a collision with another train at that point. He said that he did not remember stopping his car at North Branford station, nor of starting from that point afterwards. In substance his story is that he simply lost control of himself, and of his car, at some point east of North Branford turnout, and remembered nothing of what happened between that time and immediately preceding the collision. He said that he was probably awakened by the rattle of the trolley pole of his car as it went under the

overhead bridge, and he thought the trains were about 2 car lengths apart when he came to his senses. He did not believe he could see the eastbound car a greater distance than 100 to 150 feet, and said that the man on the eastbound car would have no better view than the one going west. His statement was that as soon as he saw the approaching car he stuck his head out of the window and applied his brake in emergency, and did not remember running back through the car; when he came to himself after the accident he was sitting on the ground, only slightly bruised. He had his controller handle tied down, thus destroying the automatic cut-off feature, and admitted that he had done this on previous occasions, although he knew it was against the rules. He said he did it to rest his arm. According to his statement, this practice was indulged in by other motormen on the road and violations of various rules were committed daily by men in charge of cars. He said that his brakes were good, and that he could stop the car in its own length when running 25 or 30 miles per hour, but had no idea how fast it was running at the time of the accident. He had never made any protest against working long hours, but stated that he had felt tired for several days previous to the date of the accident; he could not say that long hours of labor caused him to feel overworked.

Conductor Tryon stated that he also lost consciousness at some point east of North Branford turnout, and remembers nothing of what occurred from that time until he recovered his senses in the wreck. He said that when his car passed West Road Road he got down to make out some reports, and cannot recall anything from that time until the accident occurred. He said he woke up "in a heap in the corner of the car" after the collision occurred and that after he had disentangled himself from the wreck he saw Motorman Nexus on the ground helping a boy out of the car, and asked him how it happened; he then went back to the telephone and notified the dispatcher. He knew his train was to meet train No. 22 at North Branford turnout, but did not remind the motorman of the meet, as he said it was not customary to call attention to meeting points on this road. In explanation of his loss of consciousness, he said that he was subject to fainting spells and severe headaches, and had had spells of unconsciousness while on duty on previous occasions. He stated that he had previously lost two positions because of this same trouble. He had never made any report of this condition to his superior officers on the Shore Line Electric, but stated that they knew of it, as they were present on one occasion when he had an attack at the car barn. He said that he had worked an average of 13 hours a day for

a week before the accident, and that many of the men complained of long hours; he did not care to work more than 8 hours per day. He stated that this was the first time his car had passed a meeting point since he had worked for the Shore Line Electric Co., but that he had prevented his car from passing meeting points on three separate occasions. Two of these cases he reported to the dispatcher, but the other one he did not report because that time the car did not get off the switch. He stated that after going to the telephone and notifying the dispatcher of the accident he came back to the scene of the wreck and got the names of the witnesses; he then went back and flagged a car that had been sent to the wreck, but did not remember what happened after that. He said he flagged the car just underneath the overhead bridge west of North Branford station, and the next thing he remembered he was in a house at North Branford and there was somebody talking to him. He said he was out of his head and did not know where he went, and the conductor and motorman told him they took him to Guilford and brought him back to North Branford. He said that Motorman Negus told him he accompanied him to the house, but he remembered nothing about it, and could not say whether he had any conversation with Negus or not. He could give no explanation of why it was that he had a distinct recollection of telephoning to the dispatcher, taking the names and addresses of witnesses, and flagging the other car, but could remember nothing else concerning his movements subsequent to the accident, and stated positively that he at no time had had any understanding with Motorman Negus as to the cause of the accident. He stated also that the way his runs were arranged it was hard for him to get proper rest, and gave that as the reason for feeling overworked, rather than excessive hours on duty. For several days previous to the accident, he said he had been on a run which left Guilford at 5:25 a. m., and in order to do that it was necessary for him to leave his home at Ivoryton the night before, arriving at Guilford at 11:15 p. m., sleeping in the car barn the balance of the night. He said the motorman frequently started cars when passengers got on and off without receiving a bell signal from the conductor, and it was done every day, although contrary to rule.

Adam Benia, a track laborer employed by the Shore Line Company said that on the day of the accident he came from Guilford to North Branford on the 4:10 car to clean the switches and light the lamp at the turnout, and was at North Branford station when the extra arrived there.

He had completed his work and was waiting at the station for the eastbound car to return to Guilford. He said he distinctly heard the westbound train whistle for the highway crossing east of Branford turnout and also for the crossing east of Branford station. He is positive in his statement that the whistle was sounded for both crossings, after which the car came up to North Branford station and stopped there to take on a passenger. He saw motorman Negus when the car stopped, but did not speak to him as he was on the opposite side of the track waiting to take the eastbound car. He said that motorman Negus was looking back at the passenger getting on the car. He heard someone say "all right," and then the car started. He did not hear any bell sounded, and could not say whether a bell signal was given to start the car or not. Only a few seconds after the car started west he heard a whistle, followed quickly by the crash of the collision. He said he saw motorman Negus after the wreck and asked him about it, and Negus replied, "It was our fault." He stated that he asked Negus why he did not stop, and Negus replied that he paid no attention as he thought he was on a regular run and North Branford is not a meeting point for regular trains. He did not talk with Conductor Tryon.

Frank Harrison, who was a passenger on the extra, said he boarded the car at Guilford Green and rode in the front end of the smoking compartment. He said Conductor Tryon came in and collected his fare and then went back in the other part of the car, after which he did not notice him again. When the car went onto the turnout and off again he thought it unusual, as he knew the cars met there. He thought the motorman whistled for the crossing just east of the turnout, but was not positive as he was not paying particular attention. He saw the motorman distinctly, and stated that he was awake, watching out of the window, and running the car, sitting up straight with his hands on the controller. He said the motorman was looking ahead as the car went through the switch. The car came up to North Branford station and stopped and one passenger got on. He then heard someone say "all right," but he did not notice any bell signal before the car started. He was looking ahead and when the car reached the overhead bridge he saw the eastbound car approaching. He called out "there's a car" and ran for the door. He thought the motorman saw the approaching car at about the same time he did, as he ran out of his compartment and jumped off the car ahead of Harrison and another passenger who was riding in the smoking compartment with him. He stated that in going into the turnout motorman Negus shut off his power and slowed the car, and when the car got out on the

main line after passing through the switch he put the power on again. When he saw the eastbound car coming and called out, he said the motorman jumped right up and ran out of the car ahead of him. He thought the cars were about 200 feet apart at that time, and thought the westbound car was running twenty miles an hour. He said he was looking ahead because he thought there was danger, and was wondering why they did not stop to let the other car pass at the turnout. He said the motorman had a pair of brown glasses on, and appeared to be normal in every way.

George W. Cook was a passenger on the westbound car. He boarded the car at North Branford station. He said it was his custom to take this car at that place every night about 4:55. He said that previous to boarding the car he was talking with the trackman, and when they saw the westbound car coming they thought it strange that it should arrive before the eastbound car, and concluded that the latter must have been held up in New Haven. The car came up to the station and came almost to a stop when he got on. He went into the smoking compartment and sat down, but had just gotten settled in his seat when he saw the motorman leave his cab and make a rush for the door. He then saw the other train coming and ran for the door, the collision occurring before he reached it. He did not notice the conductor when he got on the car. He felt the car start ahead as the motorman applied power after he got on, but did not hear anyone say "all right." The next thing he recalled after the car started was the motorman's rushing past him just as the car went under the overhead bridge. As the motorman rushed by him Cook jumped up to see what the trouble was, and then he saw the other train and rushed toward the vestibule door himself. He did not have time to reach the door before being thrown on the floor, partly in the vestibule and partly in the smoking compartment. He saw Conductor Tryon after the wreck taking the names of passengers, and gave him his name.

Dispatcher Mooney stated that conductors and motormen were not furnished with copies of the train schedule, but were supposed to study it, as posted on the bulletin board, and learn it by heart, having only their memory to rely on as to where cars are scheduled to meet. Previous to 1913 the Company had furnished printed time-tables, but they were discontinued in that year, he could not say why. He said that employees were required to pass a written examination before being placed in charge of cars, which examination covered both the physical and operating conditions of the road, and that both Tryon and Nagus passed this examination satisfactorily. He said by the existing

schedule a car passes a siding every ten minutes during the day, and the men were wholly dependant upon their memories for making proper meeting points. Since the discontinuance of printed schedules in December, 1913, there had been four changes in managers, the present general manager taking charge only a month previous to the accident. There was no rule or custom requiring motormen and conductors to notify one another when approaching meeting points, either by bell signal or otherwise, but dispatcher Mooney thought such a rule desirable, although he had never recommended it or heard it discussed. He said that he had never before known of a crew running past its meeting point, and had had no accidents from that cause, and did not recall that Conductor Tryon had ever told him about avoiding an accident of that kind.

Superintendent Rudd of the Shore Line Railroad said he had been 21 years engaged in electric railway business, nine years as a superintendent, four years on the Baybrook Division. He had general supervision of the operating conditions on this division, and knew there was violation of rules. He said, "There is always violation of rules on every railroad; the rule does not become effective until it is violated. Of course they violate the rules, that's why you have to suspend them and reprimand them; there will always be violation of rules as long as railroads run, no matter who operates them." He said that written orders were not used on any division of the railroad, and that the use of printed time-tables was discontinued by order of the general manager, against his (Rudd's) advice, because the manager thought they were not necessary. He stated that cars on which the brake would apply automatically when the motorman's hand was removed from the control lever had at one time been used on the East Lyme division, but the brake feature had been abandoned for the reason that motormen used it to make ordinary stops with, and shook up the passengers unnecessarily. He thought that from a safety standpoint this control was superior to the one now in use (which lacks the braking feature) and could give no reason why it should be condemned because employees failed to make proper use of it. He said that inspector Hoyt had called his attention to instances of motormen tying down the control handle and he had administered discipline in each and every case reported to him. When asked what discipline was administered, he replied: "Well, as a rule I spoke to them first; of course, taping down the controller isn't such a serious offense, if he only tied it down once, why by speaking to the man and telling him he must desist in doing it; and also put up a notice, because the inspector told me it was generally being done, and I put up notices to cover it; it has been put up twice." He said that no employee had

been suspended for the practice, and stated that he knew of no discussion among officials about adopting devices to provide greater safety of operation; he thought they were operating under fine conditions since putting on an inspector.

Inspector Hoyt stated that he had been employed on this division of the Shore Line over five years, one and a half years as inspector, his duties being to instruct new men, enforce the general rules of the Company and see that they are obeyed, and generally to look after the safety of operation. He said he understood that the use of printed schedules was discontinued on account of the expense of having them printed, and believed that every employee whose duty required him to operate trains should have a copy of the schedule in his possession. He said he had discussed the matter of supplying time-tables to the employees with the superintendent and general manager, and had recommended that it be done. He thought printed time-tables and also some form of block system should be used to guard against such accidents as this. During the year and a half he had been acting as inspector Mr. Hoyt said he had reported to the superintendent two cases of men running by meeting points. In one of these cases, it was the third offense of the man at fault, and he was discharged. He had also spoken to the superintendent about control levers being tied down, and had induced the superintendent to issue a notice forbidding it, but could not recall that any employee had ever been disciplined for indulging in that practice.

Superintendent of Transportation Cain stated that he was employed by the Company on August 1, 1917, to fill a newly created position. The general manager, Mr. Stratton, was also a new man, having come to the road on July 1, 1917, so that owing to the short time they had been connected with the property he and the general manager had been unable to do anything more than discuss the general situation and make some tentative plans for improvement in general operating conditions. He said that he had observed many infractions of the Company's rules, and that a tentative reorganization plan had already been prepared by him and submitted to the manager. In this plan it was his purpose to unify the various lines so that a more direct and closer supervision of minor officials and employees could be had, the introduction of standard operating methods and practices similar to those on lines in other states, the education and schooling of employees to a realization of the importance of their work. He said that he was heartily in favor of the block system but no discussion as to its introduction had been had as yet. He said that in addition

to the physical examination of their men, and the introduction of written orders and proper train sheets in the dispatcher's office, printed schedules, gotten out in standard manner, would be introduced as quickly as it was reasonably possible for the Company to act. He also stated that he would at once issue a general order prohibiting the practise of dispatchers talking over the wires about other matters when issuing train orders, and upon reorganization of the operating system he would take the necessary steps to see that his order was enforced.

The direct cause of this accident was the failure of Motorman Negus and Conductor Tryon of the eastbound extra to wait at North Branford turnout for the arrival of the eastbound train, as required by the running schedule of their train. In view of the physical condition of the track over which his car passed between Branford River and the place of collision, as well as the statements of passengers Harrison and Cook and trackman Benia, it is not believed that Motorman Negus was asleep or in such a condition as to be unable to control his car. It is more reasonable to believe that his statement to trackman Benia shortly after the accident was the truth, namely, that he thought he was running one of the regular hourly cars, the schedule of which calls for no meet at North Branford turnout. With respect to Conductor Tryon, however, it is believed that he was asleep. Passengers on his car testified before the coroner and the Public Utilities Commission that at about the place where Tryon said he lost consciousness, he entered the passenger compartment and set down and went to sleep; he was sleeping when the car passed through the turnout, and did not awaken when it stopped and picked up the passenger at North Branford station. While the direct cause of this accident was the failure of these employees properly to perform their duties, contributing to and in a large measure responsible for the accident was the slipshod and unsafe operating methods in vogue on the road, together with the absence of any mechanical safeguards for the prevention of such accidents. The crude pen-written schedule which was posted for the information of employees covers a period of approximately 19 hours daily, during which time there are 22 trains in each direction on week days and 20 each way on Sundays. In making the run from New Haven to Chester, or vice versa, some of these trains had 5 meeting points and others had 6, which points were indicated by being written on the schedule in red ink, this being the only method employed by the Company for giving employees this vitally necessary information. Neither are

written orders issued to employees when it is desired to change the schedule meeting points for any reason. Such unsafe methods of train operation are inexcusable, and display a lamentable lack of forethought for the safety of passengers and employees. The evidence also shows that there was habitual violation of rules by employees, and that no proper effort was made by those in authority to preserve discipline or secure the enforcement of rules. The statements made by former Superintendent Ludd indicate that he had no conception of his responsibilities as an operating officer, nor of what was required of him in the direction of securing safe operation.

Both Motorman Negus and Conductor Tryon had had considerable experience in the operation of electric inter-urban cars; they began work for the Shore Line Electric Company in April, 1917, or about 4 months previous to the accident.

The following table shows the service performed by Motorman Negus during the week immediately preceding the accident.

Aug.	On duty	Off duty	Total hours
6	5:25 a.m. Deadheading	3:10 p.m.	9' 45" 2' <hr/> 11' 45"
7	5:25 a.m. Deadheading	3:10 p.m.	9' 45" 2' <hr/> 11' 45"
8	3:20 p.m.	7:45 p.m.	4' 25"
9	8:30 a.m. 3:40 p.m.	10:40 a.m. 7:45 p.m.	2' 10" 4' 05" <hr/> 6' 15"
10	2:07 a.m.	12:12 a.m. (11th)	10' 05"
11	11:10 a.m.	9:37 p.m.	10' 27"
12	7:00 a.m. 3:10 p.m.	11:10 a.m. 1:40 a.m. (13th)	4' 10" 10' 30" <hr/> 1'
	Deadheading		<hr/> 15' 40"

Aug.	On duty	Off duty	Total hours
13	7:10 a.m. 3:40 p.m.	11:55 p.m. 4:55 p.m.	4' 45" 1' 15" <hr/> 6'

Between the time of his release at 1:40 a.m. on the 13th and the time he again went to work at 7:10 a.m., Motorman Negus slept in the car barn at Saybrook. He stated that it was half past two or quarter to three before he got his lights put away, and he was again called for duty about 6:30 a.m., only 4 hours and 50 minutes after he had been released from duty. In the 24 hour period beginning at 3:10 p.m., on August 12th, and up to the time he was released at 11:55 a.m., on the 13th, he had been on duty in the aggregate 16' 15". Under the requirements of the Hours of Service Law Motorman Negus should not have been permitted again to go on duty until he had had at least 8 hours off duty. He was required, however, to go on duty at 3:40 p.m., or only 3' 45" after having been released. He had never complained of long hours, and stated that he was willing to take what work he could get in order to procure money to pay debts he had incurred. His living conditions were bad, furnishing no opportunity for proper rest. He had no regular boarding place; he said that he got his meals wherever he happened to be at the time, and slept in the car barn except on occasions when he was invited to some railroad-man's house.

On August 6th and 7th Conductor Tryon was off duty. Beginning on August 7th his hours of service were as follows:

Aug.	On duty	Off duty	Total hours
8	5:25 a.m. Deadheading	3:10 p.m.	9' 45" 2' <hr/> 11' 45"
9	5:25 a.m. 4:15 p.m. Deadheading	3:10 p.m. 5:37 p.m.	9' 45" 1' 22" 2' <hr/> 13' 07"

Aug.	On duty	Off duty	Total hours
10	5:25 a.m. Leadheading	3:10 p.m.	9 ^h 45 ^m 2 ^m <u>11^h 45^m</u>
11	7:07 p.m.	1:20 a.m. (12th)	6 ^h 13 ^m
12	6:30 a.m. 4:13 p.m.	12:07 p.m. 2:05 a.m. (13th)	5 ^h 37 ^m <u>7^h 52^m</u> 13 ^h 29 ^m
13	5:25 a.m. 3:40 p.m.	2:13 p.m. 4:55 p.m.	8 ^h 48 ^m <u>1^h 15^m</u> 10 ^h 03 ^m

It will be noted that on the day of the accident Conductor Tryon began duty at 5:25 a. m., eleven hours and thirty minutes previous to the accident, during which period he was off duty one hour and twenty-seven minutes. On the previous day he began work at 6:30 a.m. and was finally released at 12:05 a. m., on the 13th, a total period of 17 hours and 35 minutes, during which time he was off duty a little over 4 hours. Between 12:05 and 5:25 a.m. on the day of the accident Conductor Tryon slept in the car barn at Guilford. After being released at 12:07 p.m. on the 12th Conductor Tryon remained off duty a little more than 4 hours, going to work again at 4:13 p.m. In the 24 hour period beginning at this point and ending at 4:13 p.m. on the day of the accident he was on duty 17 hours and 13 minutes in the aggregate. The accident occurred 42 minutes later while Tryon was still on duty, and had it not occurred he would have continued on duty until 7:37 p.m., and would have worked 20^h 37^m in the aggregate during the period of 27^h 24^m. At the time Conductor Tryon was relieved from duty at 2:13 p.m. he had been on duty 16^h 40^m in the aggregate during the 24 hour period beginning at 4:13 p.m. on the previous day, and by the requirements of law he should have been given at least 8 hours off duty before being again required or permitted to resume duty. He was returned to duty at 3:40 p.m., however, with only 1^h 27^m relief, and was clearly on duty in violation of law at the time of the accident.

Employees working under such conditions and sleeping

in car barns during their off duty periods, as was the circumstances in this case, can not be considered as having the rest necessary to enable them to perform their duties in a safe manner.

To provide proper safety interrupted service of this character covering such a length of time as existed in this case should not be required or permitted.

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