

INTERSTATE COMMERCE COMMISSION
WASHINGTON

INVESTIGATION NO. 2496
THE NEW YORK, NEW HAVEN AND HARTFORD
RAILROAD COMPANY
REPORT IN RE ACCIDENT
NEAR SPRINGDALE, CONN., ON
APRIL 9, 1941

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SUMMARY

Railroad: New York, New Haven and Hartford

Date: April 9, 1941

Location: Springdale, Conn.

Kind of accident: Head-end collision

Trains involved: Passenger : Passenger

Train numbers: N8 : N3

Engine numbers: MU motor-car 4055 : Electric engines
014 and 038

Consist: 2 cars : 3 cars

Speed: Backing, 5-6 m. p. h. : 8-15 m. p. h.

Operation: Timetable, train orders and manual
block system

Track: Single; 4° curve; 0.25 percent
descending grade westward

Weather: Clear

Time: 8:09 a. m.

Casualties: 5 injured

Cause: Accident caused by train overrunning
time-table meeting point as a result
of partly closed angle cock

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 2496

IN THE MATTER OF MAKING ACCIDENT INVESTIGATION REPORTS
UNDER THE ACCIDENT REPORTS ACT OF MAY 6, 1910.

THE NEW YORK, NEW HAVEN AND HARTFORD RAILROAD COMPANY

June 12, 1941

Accident near Springdale, Conn., on April 9, 1941, caused
by train overrunning time-table meeting point as a
result of partly closed angle cock.

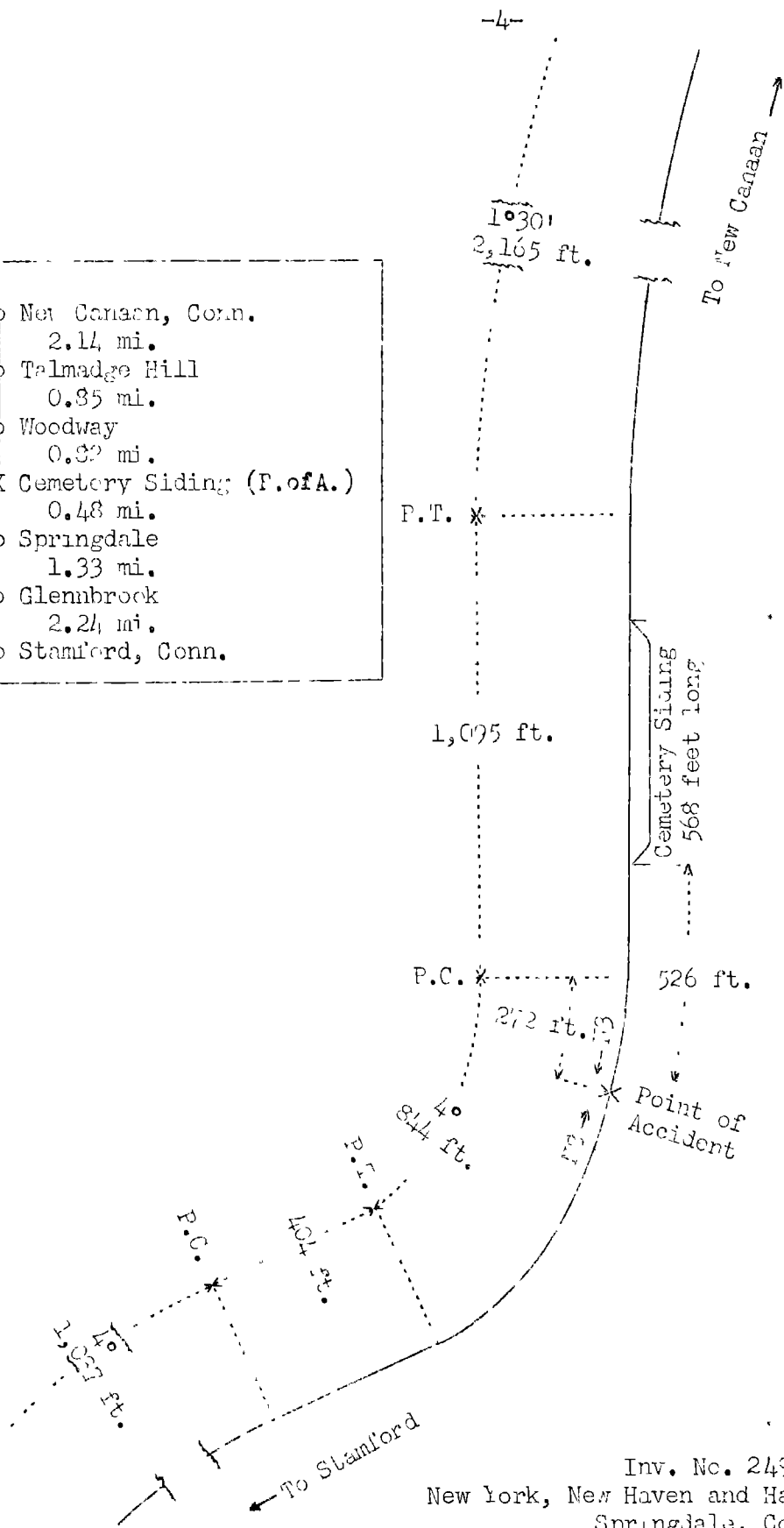
REPORT OF THE COMMISSION¹

PATTERSON, Commissioner:

On April 9, 1941, there was a head-end collision between two passenger trains on the New York, New Haven and Hartford Railroad near Springdale, Conn., which resulted in the injury of five passengers. This accident was investigated in conjunction with the Connecticut Public Utilities Commission.

¹Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Commissioner Patterson for consideration and disposition.

- New Canaan, Conn. 2.14 mi.
- Talmadge Hill 0.85 mi.
- Woodway 0.82 mi.
- X Cemetery Siding (F.of A.) 0.48 mi.
- Springdale 1.33 mi.
- Glenbrook 2.24 mi.
- Stamford, Conn.



Inv. No. 2496
 New York, New Haven and Hartford Railroad
 Springdale, Conn.
 April 9, 1941

Location and Method of Operation

This accident occurred on that part of the New Haven Division which extends between Stamford and New Canaan, Conn., a distance of 7.86 miles. The line is equipped with an overhead catenary system for electric propulsion of trains. In the vicinity of the point of accident this is a single-track line over which trains are operated by timetable, train orders and a manual block system. A siding 568 feet in length, designated as Cemetery Siding, is located 0.48 mile east of Springdale and parallels the main track on the south. The accident occurred 526 feet west of the west siding-switch. As the point of accident is approached from the east there are, in succession, a 1°30' curve to the left 2,165 feet in length, a tangent 1,095 feet, and a 4° curve to the right 272 feet to the point of accident and 572 feet beyond. As the point of accident is approached from the west there are, in succession, a 4° curve to the right 1,037 feet in length, a tangent 404 feet, and the curve on which the accident occurred. The grade for west-bound trains is 1.143 percent descending 16,100 feet, then there is a vertical curve 400 feet long, which is followed in succession by a 1.16 percent descending grade 1,800 feet and a 0.25 percent descending grade 22 feet to the point of accident and 956 feet beyond.

Rules for the government of the Operating Department read in whole or in part as follows:

14. ENGINE WHISTLE SIGNALS

Note--The signals prescribed are illustrated by "o" for short sounds;
" _ " for long sounds. * * *

(a) o Apply brakes. Stop.

* * *

* * *

(n) _ _ _ o Approaching meeting or waiting points; (See Rule 90).

* * *

90. Trains must stop clear of the switch used by the train to be met in going on the siding.

When approaching a schedule meeting point with a train of the same or superior class, or a point where by train order the train is to meet or wait for an opposing train, the engineman will give the signal 14 (n). If the engineman fails to give signal 14 (n), the conductor must take immediate action to stop the train.

317d. When trains are to meet at an intermediate point within a block, both trains will be admitted by permissive card G.

* * *

Time-table special instructions read as follows:

Train N8 take siding at Cemetery Siding for Train N3.

The maximum authorized speed for the trains involved was 40 miles per hour.

The weather was clear at the time of the accident, which occurred about 8:09 a. m.

Description

N8, an east-bound first-class passenger train, with Conductor Smith and Engineman Haggerty in charge, consisted of multiple-unit coach 4055 and passenger-baggage trailer coach 4652; both cars were of steel construction. At Stamford, 4.05 miles west of Cemetery Siding, the crew received copies of Permissive Card G, which contained information that N8 could proceed expecting to meet N3 within the block. N8 departed at 7:59 a. m., according to the train sheet, on time, stopped about 8:09 a. m. at the west siding-switch at Cemetery Siding to enter the siding, according to statements of the crew, immediately started to move backward and was moving at a speed estimated as 5 or 6 miles per hour, and had reached a point 526 feet west of the west siding-switch when it was struck by N3.

N3, a west-bound first-class passenger train, with Conductor Bella and Engineman Carrigan in charge, consisted of electric engines O14 and O38, and three coaches, in the order named; all cars were of steel construction. At New Canaan, 3.81 miles east of Cemetery Siding, the crew received copies of Permissive

Card G, which bore information that N3 could proceed expecting to meet N8 within the block. N3 departed at 8 a. m., according to the train sheet, on time. At Talmadge Hill, 1.67 miles east of Cemetery Siding, the train stopped to receive passengers; it passed the clearance point of the west siding-switch at Cemetery Siding, where it was required to wait until N8 was in the clear on the siding, and, while moving at a speed estimated as 8 to 15 miles per hour, collided with N8.

N8 stopped with its front end about 650 feet west of the west siding-switch; the front end of the multiple-unit coach was slightly damaged. N3 stopped with its front end 550 feet west of the west siding-switch; the front end of the first engine was slightly damaged.

Summary of Evidence

Engineman Haggerty, of N8, stated that he understood his train was required to enter the west siding-switch at Cemetery Siding to meet N3. When his train stopped just west of the west siding-switch he and the conductor were in the front control compartment and the baggagemaster alighted to open the switch for N8 to enter the siding. Soon afterward the engineman observed that N3 was approaching rapidly, and when that train was about 2 or 3 car lengths east of the west siding-switch he observed the engineman of N3 giving hand signals for N8 to move backward. The engineman of N8 reversed the motors, opened the controller wide, and a speed of 8 to 10 miles per hour was attained within a distance of 6 or 8 car lengths; when N3 was about 5 feet distant, the air brakes on N8 were applied by use of the conductor's emergency valve at the rear of the second car. The speed of N8 was about 5 or 6 miles per hour at the time of the accident, which occurred at 8:08 or 8:09 a. m. During the 6-month period preceding the day of the accident N8 regularly met N3 at Cemetery Siding.

Conductor Smith, of N8, corroborated the statement of Engineman Haggerty in all essential details, except that he said the brakes on his train were not applied until after the collision occurred. He did not know how the conductor's emergency valve became open.

Baggagemaster Webb, of N8, stated that when his train stopped at the west siding-switch at Cemetery Siding he alighted to open the switch. Before he lined the switch for entry to the siding he heard a short blast sounded by the engine whistle of N3, then N8 immediately started to back. Soon afterward N3 passed him at a speed of about 10 miles per hour and collided with N8. He did not observe fire flying from the wheels of N3.

Engineman Carrigan, of N3, stated that during the past 4 years he had been regularly assigned to short turn-around service between Stamford and New Canaan. This assignment consisted of several round trips daily. After he arrived at New Canaan on N6 at 7:24 a. m., the engines were detached from the west end of the train and coupled to the east end. This necessitated the changing of the operating controls from the west end of engine 038 to the east end of engine 014. Before this change was made he closed the double-heading cock under the brake valve in the west end of electric engine 038, then opened the double-heading cock at the east end of engine 014. Brake-pipe pressure of 105 pounds was being maintained. Before N3 departed from New Canaan he made a 20-pound brake-pipe reduction; the brake-pipe exhaust appeared to be proportionate to the length of the train. The car inspector sounded the signal on the train air-signal system to release the brakes and then examined the brakes to determine if each brake was released. After the air-brake test was completed the car inspector boarded the train but did not report to the engineman the condition of the brakes. The engineman said that when the train reached a point about 1-1/2 miles west of New Canaan, a running test of the brakes was made and they appeared to control the speed properly. At Talmadge Hill, 1.67 miles east of Cemetery Siding, the grade is 1.143 percent descending westward and no difficulty was experienced in stopping the train. He understood that his train was required to stop on the main track at Cemetery Siding short of the fouling point at the west siding-switch unless N8 was in the clear on the siding. N3 and N8 were scheduled to meet at Cemetery Siding and both trains were due to leave that station at 8:09 a. m. As his train was approaching the point where the accident occurred the controller was closed and the speed was about 25 or 30 miles per hour. As indicated by the gauge, proper brake-pipe pressure was being maintained. At a point about 3,600 feet east of the west siding-switch he made a 10-pound brake-pipe reduction but the brakes did not control the speed properly. The volume and duration of the brake-pipe exhaust was sufficient for the brake equipment of the engines only. He moved the brake valve to emergency position but the speed was not reduced, so he moved the brake valve momentarily to release position, then immediately returned it to emergency position and opened the sander valve. He sounded the engine whistle signal for hand brakes to be applied and the fireman, who was in the control compartment with him, proceeded to the second engine to set the hand brake. At this time the wheels of the engine appeared to be sliding. Near the west siding-switch the speed was about 10 miles per hour and it was apparent that the train would not stop short of the fouling point. When the engineman saw N8 he sounded the engine whistle several times and also gave hand signals for that train to move backward. N8 started to move backward but did not move a sufficient distance and N3, while moving about 8 or 10 miles per hour, collided with it. The weather was clear at the time

of the accident, which occurred about 8:09 a. m. After his train stopped, the fireman alighted from the second engine, went between the engine and the first car, and informed the engineman that the brake-pipe angle cock on the rear end of the second engine was partly closed. The car inspector, who was on the train, then placed the angle cock in its proper position. The engineman expressed the opinion that the failure to stop short of the fouling point at the west siding-switch was caused by the partly closed angle cock preventing brake-pipe reduction and brake application on that portion of the train to the rear of this angle cock. After the accident, when the train was moved from Cemetery Siding to Stamford the brakes controlled the speed of the train properly.

Fireman Hart, of N3, stated that at New Canaan he was occupied in tending the steam-heat boiler and did not observe whether a terminal air-brake test was made. After N3 departed from New Canaan a running test of the brakes was made. The train stopped at Talmadge Hill and the brakes appeared to function properly. As the train was approaching the point where the accident occurred he was in the front control compartment with the engineman, and the speed was about 30 or 35 miles per hour. At a point about 3,500 feet east of the west siding-switch of Cemetery Siding the engineman made a brake-pipe reduction preparatory to stopping short of the fouling point of the switch if N8 was not in the clear. The brake-pipe exhaust was of no longer duration than that produced by the brake-pipe of an engine only. The engineman immediately moved the brake valve to emergency position. The fireman proceeded to the rear of the second engine and as he passed through the two engines he observed that the double-heading cocks of the brake valve at the rear end of the first engine and the front end of the second engine were in closed position. When he reached the brake valve at the rear end of the second engine he moved the brake valve to emergency position, opened the double-heading cock and then applied the hand brake. The movement of the engine indicated that the wheels were sliding. When the fireman alighted from the rear end of the second engine, the car inspector was between the engine and the first car examining the angle cocks. The fireman understood the car inspector to say that the brake-pipe angle cock was closed. Because the car inspector obscured the view the fireman could not see exactly what positions the brake-pipe angle cock and the train air-signal pipe stopcock were in; however, they appeared to be turned about half way between the fully closed and the fully open positions. Because of their location it would be impossible to move either cock while the train was in motion. Throughout the trip from the point of accident to Stamford the brakes controlled the speed of the train properly. At Stamford he examined the angle cock and its resistance to movement indicated that it did not close as a result of the collision.

Conductor Bella, of N3, stated that at New Canaan the car inspector informed him the air brakes were functioning properly. As the train was approaching the point where the accident occurred the conductor was collecting fares in the second car and the speed was about 25 miles per hour. The first he knew of anything being wrong was when the engine whistle was sounded repeatedly. He looked out and realized from the location of the train that it would not stop short of the west siding-switch and that N3 was not in the clear. He started toward the rear of the train to open the conductor's emergency valve but before he reached it the brakes were applied in emergency. The train stopped abruptly in 10 seconds from a speed of about 15 miles per hour. After his train stopped he saw the car inspector and the fireman standing between the second engine and the first car in N3. He examined the angle cock involved and at that time the handle was about 1/4 inch from being fully open. The angle cock involved is open when the handle is at right angles to the brake pipe, and closed when the handle is in line with the pipe.

The statement of Flagman Gallery added nothing of importance.

Car Inspector Rich stated that at New Canaan after engines 014 and 038 were coupled to the west end of the three cars he connected the brake-pipe hose, the train air-signal hose and the steam-heat hose between the second engine and the first car. He first opened the angle cock and the signal-pipe stopcock on the first car, then opened the angle cock and the signal-pipe stopcock on the second engine. These cocks operated normally and with the customary resistance. To avoid an undesired emergency application of the brakes it is customary to open an angle cock slowly to a 45-degree position, to wait momentarily until the pressures on each side of the cock are nearly equal, and then to move the angle cock to its fully open position. This procedure was followed in this instance. After the brakes released, the train was backed into the station and the brakes were applied. The inspector examined each brake to determine if each was applied, then from the rear end of the rear car he sounded the signal to release brakes by means of the train air-signal system. He observed that each brake released. When N3 departed from New Canaan he was in the first car. The first he knew of anything being wrong was when he heard a series of short blasts sounded by the engine whistle and followed soon afterward by the collision. After the occurrence of the accident he examined the equipment and found all brakes applied and the brake-pipe angle cock and the train air-signal stopcock at the rear end of the second engine not fully open; however, they were at angles of 82 to 85 degrees to their respective pipes, and he thought that with the cocks in these positions the passage of air through them would not be restricted. The fireman alighted from the second engine and observed the position of the cocks before the inspector moved them to fully open position; he thought it peculiar that the two

cock handles were in the same relative positions, one above the other, but examination disclosed no indication on either handle that any object had struck it, and he thought it possible that if the angle cock worked hard he might not have moved it to its fully open position and that he then placed the second cock handle in line with the first one. There was no opportunity for anyone to tamper with the angle cock involved while N3 was en route between New Canaan and the point where the accident occurred. About 2 minutes after he moved the angle cock to fully open position the brake-pipe pressure was restored and the brakes released. En route between Cemetery Siding and Stamford no further difficulty was experienced with the brakes.

Air Brake Foreman Cook stated that after the occurrence of the accident the brake-pipe of engine 038 was blown out and no obstruction was found. The angle cock involved was removed, examined and tested and no defective condition was found. When the handle was moved to a 45-degree angle to the brake-pipe the aperture in the rotary valve just started to open for the passage of air; at 47-1/2 degrees it opened sufficiently to permit the air brakes to function.

Road Foreman of Electric Locomotives Hess stated that on April 14 three brake tests were made at the scene of the accident and the equipment of N3 at the time of the accident was used in these tests. Interstate Commerce Commission inspectors, the car inspector involved, and the crew of N3 were present. During each test the brake application was started at a point about 3,635 feet east of the fouling point of the west siding-switch. During the first test all brake-pipe angle cocks were in proper position and the train was stopped by a 20-pound brake-pipe reduction in a distance of 3,555 feet or 70 feet short of the fouling point. During the second test the engineman attempted to duplicate the manner in which he operated N3 on April 9. The angle cock at the rear of the second engine was placed at a 60-degree angle to the brake pipe. The speed was 35 miles per hour and the engineman made a 10-pound brake-pipe reduction and followed it in succession by a 5-pound reduction and an emergency application. The train stopped in a distance of 1,225 feet, or 2,410 feet short of the fouling point. During the third test the brake-pipe angle cock at the rear end of the second engine was closed. A service application was made 3,655 feet west of the fouling point and at a point 300 feet westward an emergency application was made; when the train stopped the engine fouled the west siding-switch. At Stamford a standing test of the brake equipment was made. The angle cock was open enough to permit a slight passage of air only. A service brake application was made and the brakes became applied in service after an interval of 1 minute and applied in emergency application in about 3-1/2 minutes. After the brake valve was moved to release position, 2 minutes and 13 seconds elapsed before the brakes released throughout the train. When

the angle cock was placed at a 75-degree angle to the brake pipe, the brakes became applied in 3 seconds and were released in 15 seconds.

Master Mechanic Smith stated that the brake-cylinder piston-travel of the units of N3 were as follows: Engine 014, No. 1 and No. 2 cylinders, 7 inches and 6-3/4 inches, respectively; engine 038, No. 1 and No. 2 cylinders, each 6 inches; first, second and third coaches, 6-1/2, 7 and 7 inches, respectively. The travel was measured after a 20-pound brake-pipe reduction had been made.

According to data furnished by the railroad, engines 014 and 038 each are 37 feet 6-1/2 inches in length, weigh 169,050 pounds, and are powered with four motors. Each engine is provided with No. 12 brake equipment and with a K-12 brake valve at each end. Class 3 repairs on engine 014 were completed on May 7, 1931, and light repairs, on March 12, 1941. Class 3 repairs on engine 038 were completed on February 1, 1931, and light repairs, on March 13, 1941. The angle cock involved was of the flat-handle type. The handle could be moved through a 90-degree angle. When the handle was in line with the brake pipe the angle cock was closed and when it was at right angles to the pipe the angle cock was open. A stop was provided on the handle to prevent it from passing either the closed or the open position. There was no self-locking feature provided. PC-2 air-brake equipment was in use on the three cars of N3.

Observations of the Commission's Inspectors

The Commission's inspectors observed that on engine 038 a key bolt of the draft gear of the coupler protruded enough to obstruct a hand from moving the handle of the brake-pipe angle cock involved. The back of the hand came in contact with the key bolt when the handle of the angle cock was moved about 35 degrees from the brake pipe, then the position of the hand had to be changed so that the thumb would be back of the handle in order to complete the movement of the handle to its 90-degree position.

Discussion

According to the evidence, N3 passed the fouling point at the west siding-switch at Cemetery Siding, where it was required to wait until N8 was in the clear on the siding, and while moving at a speed estimated as from 8 to 15 miles per hour it collided with N8 which was moving backward at a speed of 5 or 6 miles per hour, at a point 526 feet west of the west siding-switch. The engineman of N3 had given signals for the engineman of N8 to back his train out of the way. The meeting point between these trains was established by timetable and all the

employees understood that N8 was required to take siding at Cemetery Siding for N3. According to the statements of the enginemen and the fireman of N3, a brake-pipe reduction of about 10 pounds was made at a point 3,600 feet east of the west siding-switch when the speed was about 30 miles per hour but the brakes did not control the speed properly on the 1.15 percent descending grade. The volume and duration of the brake-pipe exhaust was not sufficient for the application of the brakes on the entire train. The engineman moved the brake valve to emergency position but the speed was not reduced; then he moved the brake valve momentarily to release position and returned it to emergency position and opened the sander valve. The wheels of the engine seemed to slide. The fireman proceeded to the rear of the second engine and in passing observed that the double-heading cocks of the brake valves at the rear end of the first engine and the front end of the second engine were in closed position. He moved the brake valve at the rear end of the second engine to emergency position, opened the double-heading cock and applied the hand brake; however, this action was not sufficient to avert the accident. According to the statement of the conductor, the brakes on the cars did not become applied until about 10 seconds before the accident occurred.

Immediately after the accident occurred, the brake-pipe angle cock on the rear end of the second engine was found partly closed. The car inspector, who was on N3 and who had coupled the engines to the cars and inspected the brakes at New Canaan, the initial station, was the first to reach the angle cock involved after the accident occurred. He said he found the angle cock about 8 degrees from being fully open. The fireman arrived at the rear of the second engine immediately after the car inspector, and said the angle cock was turned at an angle of about 45 degrees. About 2 minutes after the car inspector moved the angle cock to the fully open position the brake-pipe pressure on the cars was restored and the brakes released. Tests conducted after the occurrence of the accident disclosed that when the angle cock was open only enough for a slight passage of air, the brakes became applied from a service application after an interval of 1 minute and an emergency application occurred in about 3-1/2 minutes.

According to the evidence, the brakes were tested at New Canaan, a running test of the brakes was made when the train was leaving that point, and the brakes appeared to function properly when used to stop the train at a station 1.67 miles east of Cemetery Siding. The handle of the angle cock involved offered the normal amount of resistance to turning and there was no indication that it had been struck by any object or that it had been tampered with between New Canaan and the point of accident. Considering the action of the brakes in this instance and the re-

sults of various tests, it appears probable that the angle cock was in about the 45-degree position and that a slight amount of air was being admitted to the cars at the rear of the second engine; however, this condition should have been discovered during the test of the brakes at New Canaan and during the running test when the train was leaving that station, if these tests were conducted in the proper manner. Had the angle cock involved been of the self-locking type it is probable that the conditions which led to this accident would not have occurred.

Cause

It is found that this accident was caused by a train over-running a time-table meeting point as a result of a partly closed angle cock.

Dated at Washington, D. C., this twelfth day of June, 1941.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,

Secretary.