Inv-2064

INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT OF THE DIRECTOR

BUREAU OF SAFETY

ACCIDENT ON THE

CENTRAL VERMONT RAILWAY

NORTHFIELD, VT.

MAY 3, 1936

INVESTIGATION NO. 2064

SUMMARY

Railroad:	Central Vermont
Date:	May 3, 1936
Location:	Northfield, Vt.
Kind of accident:	Derailment
Train involved:	Freight
Train number:	Symbol No. 430
Engine number:	703
Consist:	60 cars and caboose
Speed:	25 miles per hour
Track:	3^{o} 45' curve; ascending grade for southbound trains
Weather:	Cloudy
Time:	1:45 a.m.
Casualties:	1 killed and 1 injured
Cause:	Engine pilot coming in contact with car stake, raising front of engine enough to allow engine-truck wheel to mount rail.

June 23, 1936.

To the Commission:

On May 3, 1936, there was a derailment of a freight train on the Central Vermont Railway at Northfield, Vt., which resulted in the death of 1 employee and the injury of 1 employee. The investigation of this accident was made in conjunction with representatives of the Vermont Public Service Commission.

Location and method of operation

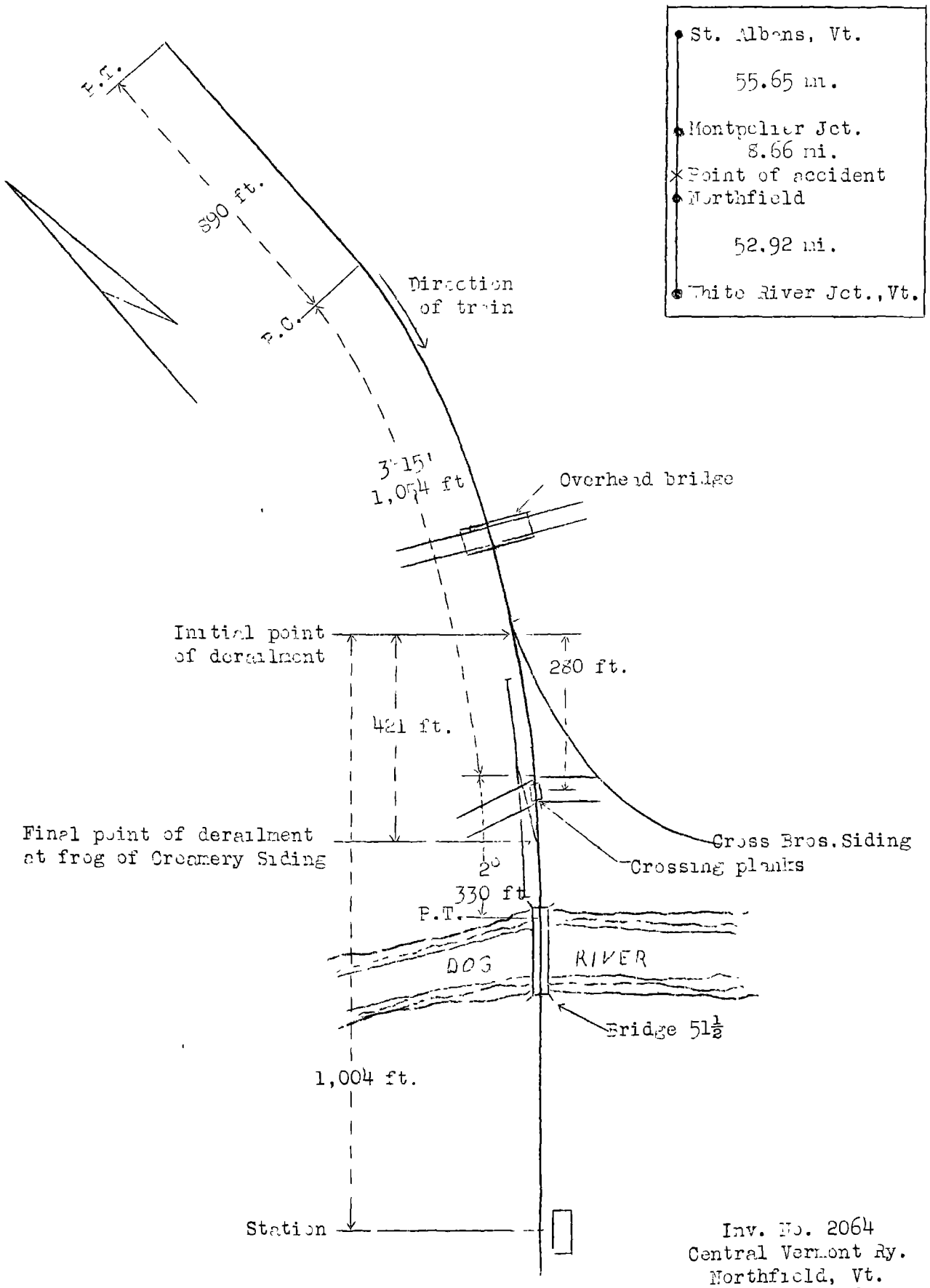
This accident occurred on the Roxbury Subdivision of the Northern Division, which extends between White River Junction and St. Albans, Vt., a distance of 117.23 miles, and is a single-track line over which trains are operated by time table and train orders, no block-signal system being in use. The initial point of derailment was 1,004 feet north of the station at Northfield, at the frog of a switch leading to the Cross Brothers Siding, a facing-point switch for southbound trains, while the final derailment occurred 421 feet beyond that point, near the frog of a trailing-point switch leading to a spur known as the Creamery Siding. Approaching from the north, there is tangent track for a distance of 890 feet, followed by a compound curve to the right 1,384 feet in length, consisting of a 3° 15' curve for a distance of 1,054 feet and a 2° curve for a distance of 330 feet, the initial derailment occurring on the 3° 15' portion of the curve at a point 848 feet from its northern end, and the final derailment occurring on the 2° portion of the curve. The grade is generally ascending for southbound trains, and is 0.79 percent at the point of accident.

In the vicinity of the point of accident the track is laid with 100-pound rails, 39 feet in length, with 23 treated pine ties to the rail length, double-spiked and fully tie-plated; rail anchors are used and the track is ballasted with pit-run gravel to a depth of about 18 inches. The track is well maintained.

The weather was cloudy at the time of the accident, which occurred at 1:45 a.m.

Description

Symbol Train No. 430, a southbound freight train, consisted of 60 cars and a caboose, hauled by engine 703 of the 2-10-4 type, and was in charge of Conductor Whitcomb and



Inv. No. 2064
Central Vermont Ry.
Northfield, Vt.
May 3, 1936

Engineman Wright. This train departed from Montpelier Junction, 8.66 miles from Northfield, at 1:14 a.m., and was entering Northfield when it was derailed while traveling at a speed of 25 miles per hour.

The engine was derailed to the left and struck the end of the left girder of bridge 51½, located 97 feet beyond the frog of the Creamery Siding switch, pushing it off the back wall abutment and causing it to drop into the river. The engine stopped on its left side, headed down the embankment with its front end in the river; the tender also was on its left side, coupled to the engine, while the first two cars were derailed and practically destroyed. The employee killed was the head brakeman and the employee injured was the fireman.

Summary of evidence

Engineman Wright stated that the air brakes had been properly tested before leaving St. Albans and they functioned properly en route. As his train passed under an overhead bridge located 160 feet north of the point of accident, he observed that the speed recorder registered a speed of 25 miles per hour. The engine was working hard and he had opened the sanders, and he first noticed that the engine was derailed when it passed over a highway grade crossing located 280 feet south of the frog of the switch of Cross Brothers Siding. He immediately applied the air brakes and the engine lurched to the left, struck the bridge, and turned over.

Section Foreman Demasi arrived at the scene of the accident about one-half hour after its occurrence. He examined the track and on following the marks on the ties he found a car stake between the rails, underneath a box car, at a point a short distance south of the frog of the Cross Brothers switch; he then inspected some cars near the head end which were loaded with granite, in order to determine if the stake had come from any of these cars, but said he found them to be properly staked, with no stakes missing. Section Foreman Demasi last inspected this track on the morning prior to the accident and observed nothing wrong at that time. During his inspections over this territory, however, he has found on several occasions pieces of wood, stones and nails on the track, which apparently had been dropped or thrown from the overhead bridge.

Track Supervisor Austin stated that the car stake, of the type used on flat cars, was lying between the rails and he did not think that it had ever been used; he also looked

for any missing stakes on the first flat car in the train, the tenth car, but found the car to be properly staked, with no open pockets. He gauged the track for a distance of 200 feet on either side of the point of accident and found it to be in good condition, with a superelevation of 3½ inches.

Assistant Engineer of Track Boyle inspected the track for a distance of 1,000 feet north of the point of accident and found it to be in good condition. The frog at which the derailment occurred was in good condition and he found the gauge in the vicinity of the frog to be from 1/8 to 1/2 inch wide. On first learning of the block of wood that was found on the track he did not attach much importance to it, but later he took it to the enginehouse with the view of determining whether or not the marks on the large end of the block could have been made by anything on the front end of the 700-class engines. He found that the marks on this stake corresponded to marks that would be made by the pilot of this type of engine on striking the stake, and he was of the opinion that the stake would have to be at an angle of from 20° to 45°, and that when it tipped over the pilot threw it ahead on the track. Examination of the track at the point of derailment disclosed a depression in the first tie north of the point of frog, on the outside of the right or westerly rail, into which the small end of the stake fitted.

Chief Engineer Garner arrived at the scene of the accident several hours after its occurrence. His inspection of the track disclosed the first marks of derailment to be flange marks on the frog of the Cross Brothers switch. The marks indicated that the flange rode on top of the rail and then dropped upon the ties outside. The first mark near the right rail was at a point 8 feet south of the point of frog and 8 inches from the gauge side of the rail. Wheel marks then continued on the ties for a distance of about 420 feet until the frog leading to Creamery Siding was encountered, where the wheels swerved sharply to the left and the track then was completely torn up as far as the bridge. The car stake was found between the fourth and fifth ties south of the point of derailment; the stake was 16 inches in length and measured 3 by 5 inches at one end and 3 by 3½ inches at the other end. There were no marks to indicate that it had been used in the pocket of a flat car, but there was a depression in one of the ties that corresponded very definitely with the small end of the stake. An indentation on the large end of this stake indicated that it could have been made by the pilot of engine 703, as shown by tests conducted with the type of engine involved and the pilot of engine 703 had

been forced from right to left as a result of having encountered some object. Chief Engineer Garner stated that it was his opinion that in some manner this stake was caught by the pilot, bringing the stake to a standing position and thus lifting the front end of the engine enough to derail the truck. The last train to pass was a southbound passenger train about 1 hour 30 minutes prior to the accident.

Mechanical Engineer Hamm considered the pilot to be sufficiently strong in its construction to raise the front of the engine if a piece of hard wood, such as the stake in question, was under it and was struck at the proper angle. Mechanical Engineer Hamm also stated that the speed recorder on engine 703 had been checked on May 1 and was in good condition.

Inspection of the track by the Commission's inspectors disclosed the first mark of derailment to be a flange mark on the frog of the Cross Brothers Siding, and the first mark on the right side was a flange mark on the fifth tie south of the center of the frog and about 6 inches from the gauge side of the rail. Two planks were torn out at the highway grade crossing, and the wheel marks then continued until the engine reached the guard rail at the frog of Creamery Siding, where the final derailment occurred. A check of the track showed it to be in good condition; the superelevation was $3\frac{1}{2}$ inches, and within a distance of 100 feet north and 100 feet south of the initial point of derailment there was a variation of not more than $\frac{1}{4}$ inch, while the track also was gauged and found to vary from $\frac{1}{2}$ to $\frac{1}{2}$ inch wide.

Examination of the engine truck, driving and trailer wheels showed the flanges to be in good condition and with very little tread wear. All parts of the foundation brake equipment were fully secured, except that the adjusting rod on the left side was broken. The general mechanical condition of the engine was good, it having come from the shops on April 2, 1936, after receiving class 5 repairs, and no defective condition was found which could have contributed to the cause of the accident.

Discussion

After the accident an unused car stake was found between the rails, a few feet south of the first mark of derailment. This stake was of hard wood, 16 inches in length and 3 by 5 inches at one end and 3 by $3\frac{1}{2}$ inches at the other end. There was a depression in the first tie north

of the point of frog on the outside of the right rail that corresponded with the small end of the stake, and the stake had received a severe blow on the large end, the indentation on which was found to fit the cross section of the lower part of the pilot of an engine of the type involved in the accident. The pilot frame of engine 703 was moved at an angle from the right to left, indicating that it had received a blow or had come in contact with some hard object on the right side, and it is believed that this stake in some manner was caught by the pilot, bringing it to a vertical position and raising the frame on the front end, momentarily relieving the weight on the engine-truck wheels at the time the flange was crowding the high rail on the curve, permitting the flange to mount the rail and result in the eventual derailment of the train. It was not developed how this car stake happened to be on the track.

Conclusion

This accident was caused by the pilot of the engine striking a car stake, which apparently resulted in taking enough weight off the engine-truck wheels to allow the left wheel to mount the high rail of a curve.

Respectfully submitted,

W. J. PATTERSON,

Director.