

INTERSTATE COMMERCE COMMISSION.

REPORT OF THE CHIEF OF THE DIVISION OF SAFETY COVERING THE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE WESTERN MARYLAND RAILWAY NEAR THURMONT, MD, ON JUNE 24, 1915

JULY 30, 1915

To the COMMISSION

On June 24, 1915, there was a head-end collision between two passenger trains on the Western Maryland Railway near Thurmont, Md, which resulted in the death of 2 passengers and 4 employees, and injury to 15 passengers, 5 employees, and 3 other persons

After investigation as to the nature and cause of this accident I beg to submit the following report

The first district of the eastern division of the Western Maryland Railway, on which this accident occurred, extends from Baltimore, Md, to Hagerstown, Md From Baltimore to Emory Grove, a distance of 20 miles, the line is double track and from Emory Grove westward to Hagerstown, a distance of 66 miles, between which points this accident occurred, it is single track No block signal system is in use The movement of trains is controlled by time-table and train orders, which are transmitted by telegraph, eastbound trains being superior by direction

On the day of the accident eastbound passenger train No 10, en route from Hagerstown to Baltimore, consisted of engine 203, one baggage and express car of wooden construction, and two steel under-frame coaches It was in charge of Conductor Seigman and Engineer Cook, and left Hagerstown at 4.15 p m, on time Between Hagerstown and Pen Mar, a distance of 15 miles, the train was delayed at several stations loading express, and it arrived at Pen Mar at 5.04 p m, 11 minutes late At Pen Mar the train was given train orders 57 and 71, which read as follows

"Order 57

"No 10, engine 203, display signals Pen Mar to Hillen for engine 156"

"Order 71

"No 11, engine 209, meet No 2, engine 205, at Monocacy 1st No 10, engine 203, at Flint and has right over 2d No 10, engine 156, Westminster to Pen Mar 2d No 10 starts from Pen Mar Park 1st No 10 take siding at Flint"

First No 10 departed from Pen Mar at 5 09 p m , 16 minutes late, and arrived at Highfield, 19 miles east, at 5 14 p m , 14 minutes late At Highfield the train received train order No 74, which reads

"No 11, engine 209, meet 1st No 10, eng 203 at Sixty instead Flint 1st No 10 take siding"

This train order advanced first No 10 from Flint to Sixty, 22 miles eastward, against No 11 The conductor delivered this order to the engineman and upon returning to the train he noticed an unusually large amount of express matter to be loaded, and anticipating a delay, he went to the telegraph office and told the operator to inform the dispatcher that first 10 would be delayed until about 5 27 Upon receipt of this information the train dispatcher issued order No 75, reading

"Order No 74 is annulled"

This order canceled all of the train order meeting points between first No 10 and No 11 and left first No 10 on its time table rights superior to No 11 by direction First No 10 departed from Highfield at 5 27 p m , 27 minutes late Between Highfield and Flint, a distance of 7 miles, several stops were made to receive and discharge passengers It passed Flint, which is a nontelegraph station, and was running at a speed of about 18 miles per hour when it collided with No 11 at 5 47 p m , near the middle of bridge No 97, which is located 14 miles east of Flint

Westbound passenger train No 11, en route from Baltimore to Hagerstown, consisted of engine 209, one baggage car of wooden construction, all-steel Pullman parlor car Penseroso, and 3 coaches with steel underframes It was in charge of Conductor Eckert and Engineman Snyder and left Baltimore at 3 25 p m on time At Westminster, 34 miles west of Baltimore, it received train order No 71, previously mentioned No 11 departed from Westminster at 4 34 p m , 3 minutes late Between Westminster and New Windsor, a distance of 74 miles, the locomotive developed a hot journal and at New Windsor the conductor notified the dispatcher that the train would be delayed at Union Bridge, 4 miles farther west, for the purpose of packing it The train was delayed at Union Bridge 17 minutes cooling the hot journal and departed at 5 12 p m , 22 minutes late At Thurmont, 137 miles west of Union Bridge, the train received order No 76, reading

"No 11, engine 209, run 15 minutes late Highfield to Edgement and 10 minutes late Edgement to Hagerstown"

No 11 departed from Thurmont at 5 42 p m , 25 minutes late, and while running at a speed of about 20 miles per hour collided with first No 10 on bridge No 97, located 22 miles west of Thurmont

Bridge 97 is located on a 4th curve, the inside of the curve being toward the south. At the east end of the bridge is a rock cut about 300 feet in length, having a maximum depth of 40 feet. The track passes through this rock cut on an 8° curve to the south 540 feet long. Immediately west of the bridge is a curve to the south of 10° 40', 340 feet in length. Approaching the point of accident, the engine man of train first No 10 had a view of the track ahead for about 400 feet, while the engineer of train No 11, on account of being on the outside of the curve, probably could not see first No 10 until just before the collision occurred. For more than a mile west of the point of the accident there is a grade of approximately 1.45 per cent descending eastward, while between bridge 97 and Thurmont it is slightly greater. The weather at the time of the accident was clear.

Bridge 97, on which the accident occurred, is a steel plate girder bridge 298 feet long and 70 feet high and carries the track over Owings Creek. It is supported by latticed steel piers and reinforced with wooden bents. The bridge was designed for double track, but the second track has not been laid. The speed of trains over this bridge is restricted to 20 miles per hour by signboards placed at each end of the bridge.

The force of the collision drove both engines together, badly damaging the front ends. The cistern of the tender of engine 209, of No 11, was forced to the south and fell from the bridge. The baggage car on No 11 buckled upward in the middle and fell from the bridge on the south side, coming to rest in an inverted position on top of the tank at the bottom of the ravine, 70 feet below. The frame of the tender of engine 209 was pushed backward under the west end of the body of parlor car Penseroso, forcing the west end of the car to the south. When the car came to rest its west end was overhanging the bridge about two-thirds the width of the car, and the west end of the body of the car was tilted forward and downward at an angle of about 15°. The other cars in train No 11 were but slightly damaged. The tender of engine 203, on first No 10, was forced slightly backward into the east end of the baggage car, and the west end of the baggage car was telescoped for practically half its length by the coach following.

The bridge on which the accident occurred was slightly damaged. The north girder span at the point where the engines came together was depressed. The shelf angle attached to the girder was crushed down about 2½ inches, and the wooden bent just east of the depression had slightly settled. After the wreckage had been removed, without making repairs to the track or bridge, trains were permitted to pass over the bridge at a speed of 6 miles per hour.

Investigation developed that in accordance with the custom on this division, Train Dispatcher Bloom issued order No 71 to first No 10 at Pen Mar and to No 11 at Westminster, making a positive meeting point at Flint, which was also the time table meeting point. This was done to insure that No 11 would make that point in case it should meet with some slight delay and in consequence thereof be unable to reach the regular meeting point on its time-table rights. When Dispatcher Bloom learned that No 11 was being delayed at Union Bridge on account of the hot journal, he decided to advance first No 10 against No 11 and accordingly issued order No 74 to first No 10 at Highfield, and to No 11 at Thurmont, changing the meeting point from Flint to Sixty. After this order had been issued he learned of the delay to first No 10 at Highfield, due to loading express which in turn would delay No 11, and decided to change the meeting point back to Flint. With this in mind he issued order No 75 addressed to first No 10 at Highfield and to the operator at Thurmont annulling order No 74. But, according to the rules, order No 74 superseded order No 71, and as order No 75 annulled order No 74, first No 10 was left without orders and, by its time-table rights, it was superior to No 11. Order No 74, addressed to No 11 at Thurmont, had not been delivered, therefore, when order No 75 was received by the operator at Thurmont, addressed to him, in accordance with the rules, both orders No 74 and No 75 being no longer in effect, were filed away. This resulted in No 11 still holding order No 71, giving it the absolute right to go to Flint to meet first No 10, while on the other hand first No 10 expected No 11 to give it a clear track.

Train Dispatcher Bloom stated that he is familiar with the rules governing the movement of trains by train orders, but at the time he issued order No 75 he was momentarily under the impression that in annulling order No 74 he restored order No 71, fixing the meeting point at Flint, and inasmuch as No 11 had not received order No 74, it would be unnecessary for that train to have a copy of the order annulling it. He stated that after issuing order No 75, he was busy with other trains, and did not notice the error until the accident was reported by the operator at Thurmont. He also stated that on the afternoon in question, the wires were working badly and had been in trouble more or less for a week, and as a result, at the time he issued order No 75, he was very busy with train orders and messages, and had more work than one man could properly look after. He stated that if he had had more time to think, he probably would have noticed the mistake. Dispatcher Bloom stated that about a year ago, two divisions had been consolidated, and at the present time one set of train dispatchers is handling the same work that was formerly handled by two sets. He stated that as a

dispatcher he controls the movement of trains over 180 miles of track, 20 miles of which is double, and at the time of the accident there were 12 eastbound and 11 westbound trains under his supervision. He also stated that during a period of duty of 8 hours he usually handles from 35 to 40 orders per day and in addition sends about 10 messages instructing trains to move cars, he also keeps a record of delays to all trains. It is his opinion that 25 orders in an eight hour trick would make a fair day's work for a train dispatcher. Dispatcher Bloom stated that during the period of 1 hour and 45 minutes he had been on duty at the time the accident occurred he had been delayed about 30 minutes by wire trouble.

Operator Lutz at Highfield stated that shortly after delivering order No 74 to the conductor of first No 10 the conductor came back and said his train would be delayed until 5 26 or 5 27 handling express. He notified the dispatcher, who immediately issued order No 75. When order No 75 was delivered, the conductor remarked "Now, I don't have anything on No 11." He, Lutz, replied "Doesn't the first meeting point stand?" to which the conductor answered "Order 75 annuls the whole business." He stated that he did not experience wire trouble to any extent that afternoon.

Operator Danner, at Thurmont, stated that upon receipt of order No 75 he filed order No 74. He did not mention orders Nos 74 and 75 to the crew of No 11, and, as far as he knows, they knew nothing of them. He stated that after receiving order No 76 Conductor Eckert remarked as he was going out the door "We meet them at Flint." At that time he was not aware there had been an error in the handling of the orders. He stated that there had been a little wire trouble that afternoon, but he had not had any difficulty in communicating with the dispatcher before the accident.

Conductor Seigman, of train first No 10, stated that after delivering order No 74 to his engineman at Highfield he found his train would be delayed loading express and notified the dispatcher, whereupon the dispatcher issued order No 75 annulling order No 74. When he received order No 75 from the operator he remarked, "Now, this takes orders from us, and we run by rule. Must be something wrong with No 11." He delivered order No 75 to his engineman, who said, "This leaves us nothing." Approaching the point of the accident, he was sitting on the right side of the coach next to the baggage car, and looking out of the window he saw the engine of train No 11 emerging from the rock cut and entering upon the bridge, a moment later the brakes were applied, and then the collision occurred.

Conductor Eckert, of train No 11, stated that at Westminster he received order No 71 to meet first No 10 at Flint. Before leaving

Westminster he notified the dispatcher that his train would be delayed at Union Bridge cooling a hot box. Upon arrival at Thurmont the operator delivered to him order No 76, requiring No 11 to run 15 minutes late Highfield to Edgemont and 10 minutes late Edgemont to Hagerstown. As he took this order from the operator he remarked, "It's a wonder they did not change No 10." The operator replied, "No 10 is late, too." The operator did not mention any other orders to him. After he delivered the order to the engineman the train proceeded. Prior to the collision he did not feel the brakes applied and had no warning of the impending accident.

This accident was caused by an error on the part of Dispatcher Bloom in assuming that an order, after having been superseded, could be restored by annulling the superseding order.

Prior to entering the service of the Western Maryland Railway Dispatcher Bloom had been in the employ of the Baltimore & Ohio Railroad $3\frac{1}{2}$ years as an operator and $2\frac{1}{2}$ years as terminal train dispatcher. He entered the service of the Western Maryland Railway in May, 1913, and was employed as dispatcher and chief dispatcher at Baltimore until the offices were consolidated in March, 1914, at which time he was transferred to Hagerstown as a dispatcher. He has practically a clear record and is considered by his superiors as one of their best dispatchers.

On the day of the accident Dispatcher Bloom went on duty at 4 p m, and during the time he was on duty the records show that he had issued 11 train orders, and orders had been completed at times shown below:

4 14, 4 15, 4 21, 4 29, 4 34, 4 49, 4 50, 4 58, 4 59, 5 02, 5 07, 5 15, 5 25, 5 32, 5 34, and 5 39 p m.

The records also show that during the 16 days prior to the accident Dispatcher Bloom issued an average of 29 orders each day during his trick of 8 hours. The greatest number issued on any one day during that period was 45.

Chief Dispatcher Koons stated that for about a week prior to the accident there had been some wire trouble, but the trouble had been located in one of the office cables and had been cleared at 9 05 on the morning of the accident. Since that time there had been no wire trouble reported to him. He stated that the only complaint which he received from the dispatchers relating to overwork came from Dispatcher Bloom, when on one occasion he said, "If you have any other man who can do better work than I can, put him on." He stated that the messages which Dispatcher Bloom was required to send were the usual messages handled by dispatchers regarding the picking up of cars.

Supt Biendel stated that improved operating conditions had lessened the difficulties and delays in handling trains and had effected

such a reduction in the number of dispatching movements that two sets of dispatches were no longer necessary to care for the traffic on this district

Data was produced to show that during the month of March, 1914, just prior to the consolidation of dispatchers, there was a total of 349 engine failures, as compared with 69 during the corresponding month of the present year. It was also shown that during the month of March, 1914, there were 216 employees on duty longer than the period provided by the hours of service act and none during the corresponding month of the present year. The records show that there is a daily average of 22 train movements over the section of track where the accident occurred.

Superintendent of Motive Power Warnock stated that when he came with the road, about October 1, 1913, the company owned a total of 280 locomotives, 80 per cent of which were unfit for service. At that time, due to run down conditions, there was an engine failure recorded every two hours, day and night, and it required about three crews to get a train over the road. He stated that the power is now in good condition, and during the month of June, up to the day of the accident, no engine failures had been reported.

General Superintendent Ennes stated that he came with the Western Maryland Railway as general superintendent March 20, 1914. Since that time a great deal of attention has been given to improving the general conditions. He stated that he believes automatic block signals afford an additional safeguard to train operation, and he believes that had there been such an installation at the point of accident, the accident would have been prevented. He stated that at the time the present management came to the property there were but 5 miles of block signal installation on the entire Western Maryland line, which comprises 735 miles of track. However, during the last year 57 miles of automatic block signals were contracted for and installed, and during the coming season it was expected that block signals will be installed on 50 miles on this division, and it is hoped that 50 additional miles will be installed each year until the entire system is so equipped.

During the latter part of the year 1912 the following collisions, which occurred on this division of the Western Maryland Railway, were investigated:

October 7, 1912, a head end collision between two freight trains near Koebe, Pa., which resulted in the death of four persons, injury of four persons, and property damage amounting to \$16,250. The accident was caused by the failure of the train crew of an extra to keep clear of an opposing extra as directed by train order.

November 27, 1912, a head end collision between two freight trains at Blue Mountain, Md., which resulted in the death of one person,

injury to six persons, and property damage amounting to \$7,020. The accident was caused by the failure of a train crew to examine the train register to ascertain if all opposing trains had arrived.

December 6, 1912, a head end collision between a passenger and a freight train near Pen Mar, Md, which resulted in the death of five persons, injury to nine persons, and property damage amounting to \$11,341 87. The accident was caused by the mishandling of train orders on the part of a train dispatcher.

All of these collisions were caused by the failure of employees properly to perform their duties, and occurred under the time table and train order method of operation, without the protection afforded by a block system. In each report covering the investigation of these accidents it was recommended that an adequate block system be installed on this line to prevent the recurrence of similar accidents.

The block signal report of the Western Maryland Railway of January 1, 1914, shows no block system in service. The report of January 1, 1915, shows that the company operates 662 miles of road (735 miles of track), over which passenger trains are operated, 62 miles, or 84 per cent, of which are equipped with automatic block signals.

In this connection attention is called to the statement of General Superintendent Ennes, in which he says it is hoped that 50 additional miles of block signals will be installed each year until the entire system is so equipped. At the end of the present year approximately 112 miles of track will have been completed, leaving 623 miles unsignalled. Unless the annual installation is increased, it can not be expected that this line will be entirely protected with block signals for at least 12 years.

In a number of previous accident reports attention has been called to the inherent weaknesses of the time-table and train order system of operation, which depends entirely upon the human element and presents many opportunities where an error or mistake on the part of a single employee, or his failure to perform his duties properly, may not be detected in time to avert an accident. In this instance, on the Western Maryland Railway, an experienced train dispatcher failed to provide proper orders for directing the intended train movements, under this system of operation no means were provided for detecting such a failure on the part of the dispatcher.

In view of the volume of traffic the installation of an adequate block signal system is urgently required.

Respectfully submitted

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Chief, Division of Safety