INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE WESTERN MARYLAND RAILWAY NEAR MT. SAVAGE, MD., ON NOVEMBER 15, 1925.

December 9, 1925.

To the Commission:

On November 15, 1925, there was a derailment of a freight train on the Western Maryland Railway near Mt. Savage, Md., which resulted in the injury of one employee.

Location and method of operation

This accident occurred on that part of the Elkins Division known as the Connellsville Sub-division, which extends between Connellsville, Pa., and G. C. Junction, near Cumberland, Md., a distance of 86.5 miles. In the vicinity of the point of accident this is a double-track line over which trains are operated by time-table and train orders, no block-signal system being in use. Beginning at mile post 187, located just east of Colmar, the grade for eastbound trains is descending all the way to G. C. Junction, a distance of 19.6 miles, the greater part of this grade being 1.75 per cent compensated for curvature. That portion of the train involved in this accident ran away on this grade, portions of it being derailed at four different points, all located between Frostburg and Mt. Savage, these stations being 6.2 and 9.9 miles, respectively, east of Colmar.

The track is laid with 90-pound rails, 33 feet in length, tie-plated on all curves and on many of the tangents, and is ballasted with stone and cinders. It is maintained in good condition.

The train first broke in two near Colmar at 9.35 p.m. and was finally derailed between Frostburg and Mt. Savage approximately one hour later, it was raining and snowing at the time.

Description

Eastbound freight train extra 850 consisted of 70 loaded coal cars and a caboose, hauled by engine 850, and was in charge of Conductor Keyser and Engineman Massie. The gross weight of the train was 5,040 tons.

It originated at Gray and roved over the tracks of the Baltimore & Ohio Railroad to R. J. Tower where it entered upon the tracks of the Western Maryland Railway. At Deal, 18.7 miles east of R. J. Tower, helper engine 842 was cut out from its position in the train immediately ahead of the caboose and extra 850 departed from that point at 9.14 a.m., followed by engine 842 running light. passed Colmar at 9.25 p.m., and at a point about 1 mile east of Colmar, while traveling at a speed estimated to have been between 12 and 15 miles an hour, the train broke in two between the 63rd and 64th cars, causing the air brakes to be applied in emergency and bringing the train to a stop, with a space of about eight car-lengths between the two portions of it. At first it was intended to wait until engine 842 arrived and then to use that engine in coupling the rear portion of the train to the head portion, but when after waiting for a considerable period of time this engine did not arrive it was decided to release enough hand brakes on the rear portion to allow it to drift down the grade and couple to the head portion. This was done, the seven cars and caboose being dropped down the grade against the head portion of the train at a speed estimated to have been between 4 and 6 miles an hour. The cars failed to couple however, while the impact caused the engine and 65 cars in the head portion of the train to start moving down the grade. This portion of the train immediately got beyond control and after passing around a curve about 6 miles distant the 15 rear cars were derailed, while about 1-1/4 miles farther east, on a 6° curve to the right, 21 cars were derailed. After the engine and the first 27 cars had traveled a short distance farther the rear 13 cars were derailed at the beginning of a long 7° curve to the left while the engine and the first 14 cars in the train were derailed near the leaving end of this curve. The approximate distance between the point where the first cars were derailed and the point where the engine finally came to rest was 8,900 feet.

The engine was quite badly damaged and the majority of the 63 cars were demolished or very badly damaged, while at each of the various points of derailment serious damage was sustained by both of the main tracks.

Summary of evidence

Conductor Keyser said that at P.W.& S. Junction, a station located on the Baltimore & Ohio tracks near Gray, the brakes were applied from the engine and he walked along the train to examine the piston travel and inspect the train, being assisted by the head brakeman, and that he found the air brakes to be in good condition with the exception of one car which had its brake

cut out and two other cars on which the brakes had leaked off by the time he reached them. He notified the engineman as to the condition of the brakes and after some further delay the train proceeded eastward to Rockwood, 20 retaining valves being used in controlling the speed of the train on the descending grade west of Rockwood. When the train reached Deal, 2.6 miles from Colmar he instructed the head brakeman to turn up all the retaining valves, and while at this point he noted that the brake-pipe pressure as shown on the caboose gauge had been increased from approximately 70 pounds to about 85 pounds, this being in accordance with the requirements preparatory to descending the grade east of Colmar on which the accident occurred. After the train had passed through Big Savage tunnel, just west of Colmar, and started over the summit of the grade, he noticed three applications of the air brakes, each of about 8 or 10 pounds brake-pipe reduction, and he said that he thought it was after the third application had been released that the train broke in two, between the 63rd and 64th cars. The angle cock on the rear of the 63rd car was closed by railroad Policeman Miller, who was riding in the caboose, and after a delay of about 45 minutes waiting for the arrival of engine 842 he decided to let the rear portion roll down the grade, controlling its speed by means of the hand brakes. Conductor Keyser said that before undertaking this movement he opened the angle cock on the rear of the 63rd car, found that there was a strong air pressure and then closed the cock, instructing the head brakeman, who had returned to that point and had relieved Policeman Miller, to remain there and, when the cars were about to couple together, open the angle cock so as to set the brakes on the head portion of the train. Conductor Keyser was assisted by Assistant Trainmaster Albright in dropping the rear portion of the train down the grade and he said that the head brakeman opened the angle cock in accordance with his instructions as previously outlined. It was then discovered that the brake-pipe pressure had been practically depleted, only a slight exhaust being heard, and the forward portion of the train when struck by the detached cars immediately started to move down the grade. Conductor Keyser said he at once closed the angle cock on the rear of the 63rd car, boarded the car and together with the head brakeman began applying hand brakes and he estimated that the hand brakes were applied on about 15 cars. According to his statements he then climbed down between two cars and cut an air hose with his knife in order to apply the air brakes but found that there was still no pressure in the train line and he then fell from the train while trying to climb back on top of the car. He estimated that about 10 minutes elapsed between the time he first opened the

angle cock to ascertain whether or not there was any air in the train line and the time at which the rear portion of the train came in contact with the front portion causing the latter to start down the grade. It further appeared from his statements that while it was customary to apply hand brakes when a train was stopped on this grade for any considerable period of time yet so far as he knew hand brakes were never set on the head portion of a train when the engine was attached to it, reliance being placed on the air brakes to hold the train.

Head Brakeman Wilt said he had ridden in the caboose from R. J. Tower to Deal, at which point he started ahead over the train and turned up all the retaining valves to the high-pressure position, that he was on the 25th car from the engine at the time the train broke in two and that after the forward portion of the train had come to a stop he went ahead to the engine and was told by Engineman Massie that the brake pipe pressure had gone down. While talking with the engineman, however, the latter remarked that the brake-pipe pressure had been restored and Brakeman Wilt then started back toward the rear of the train looking it over carefully and noting that the handles of all the angle cocks were in the proper position. While making this examination he also noted that there was a slight escape of air from the retaining valves and apparently there was plenty of air in the brake system. On reaching the rear of the train he found Policeman Miller stationed at the rear of the 63rd car and he stated that the policeman told him to stand there ready to open the angle cock should the forward portion of the train start to move. About 40 minutes later Conductor Keyser told him how the train was to be coupled together and to be in readiness to open the angle cock just before the coupling was made, but he stated positively that Conductor Keyser did not open the angle cock to see if there was any air in the train line during the time that he was standing at that point. When the rear portion of the train came in contact with the forward portion he opened the angle cock as he had been instructed to do and at that time found that the brake-pipe pressure was practically depleted, there being only a very slight exhaust after the angle cock had been opened. His other statements were similar to those of Conductor Keyser except he said that no air-brake test had been made, he did say, however, that at P.W.& S. Junction he examined one side of the train while the conductor examined the other side, this examination including couplers and brake rigging, and that when making this inspection

he noted that the pistons were out on all of the cars. After the occurrence of the accident Brakeman Wilt met the conductor and engineman and the engineman said the air pumps on the engine had been working rapidly all the time the train was standing on the grade and that he had been unable to build up any brake-pipe pressure. Head Brakeman Wilt said he asked the engineman why he did not call for hand brakes during this period but received no reply to his question.

The statements of Flagman Gordon added little of importance except to corroborate the statements of the conductor as to the brake-pipe pressure shown on the caboose gauge at the time the train left Deal. He also said that after the third application of the air brakes has been released, east of Colmar, the brake-pipe pressure as shown on the caboose gauge had been restored to about 88 pounds before the train broke in two.

Engineman Massie said the brakes were tested at P.W.& S. Junction and that Conductor Keyser told him they were all in working order, when this test was made he also noted that the brake-pipe leakage was about 4 pounds per minute. He said a brake-pipe pressure of 90 pounds was maintained on the descending grade between Somerset and Wilson Creek, on the Baltimore & Ohio tracks, this pressure being reduced to 70 pounds at R. J. Tower preparatory to ascending the grade to Sand Patch, 6.9 miles west of Colmar, where the brake-pipe pressure was again raised to 90 pounds with a main-reservoir pressure of 130 pounds preparatory to descending Mt. Savage grade. At Deal the helper engine was cut out and a signal received from the rear end to proceed, indicating that the air was working through to the caboose and also that the caboose gauge showed that the brake-pipe pressure had been increased from 70 pounds to 90 pounds as required by the rules. Engineman Massie said that after passing through Big Savage tunnel he made an 18 or 20-pound brake-pipe reduction which was effective in reducing the speed of the train. The brake-pipe pressure was recharged to 90 pounds and at a point about 10 car-lengths east of the east switch at Colmar he made a second reduction, this time of about 10 pounds, and he said the brakes again applied properly and reduced the speed to about 8 or 10 miles an hour. After the brake-pipe pressure had been again restored to 90 pounds he made a third reduction of about 10 pounds, at a point about 1 mile east of the east switch. This third reduction took effect properly and he said it was when the brakes were released after this reduction that the train broke in two, the brake-pipe pressure dropping down immediately to 30 pounds. While standing at this point Head Brakeman Wilt reached the engine and Engineman Massie told him to go back to the rear of the train and

ascertain if it was all right for the train to proceed. At about this time the brake-pipe pressure had increased to 90 pounds but Engineman Massie said that by the time the head brakeman had been gone long enough to walk 15 or 20 car-lengths the pressure again went down and at that time he supposed this was due to recoupling an air hose and the consequent recharging of the train line behind the point at which it had broken. Engineman Massie said that on three or four occasions he placed the brake valve in full release position and left it there for a considerable period of time, that the main-reservoir pressure and brake-pipe pressure would equalize at about 80 pounds but when bringing the brake-valve handle back to the running position the brake-pipe pressure immediately would drop back to about 30 pounds and he concluded that an angle cock had been opened to prevent him from proceeding, while shortly afterwards he remarked to the fireman that the train had been standing about one hour without any air pressure. About five minutes after he made this remark the slack ran in from the rear of the train and it started to move down the grade, and he at once told the fireman to knock the coal pick off its handle and to go back and set hand brakes. After the train had proceeded a short distance the driving wheels locked and Engineman Massie said he then released the independent brake, opened the sanders, reversed the engine and opened the throttle, this, however, resulted in locking the wheels again. He then shut off steam, placed the engine in forward motion and applied the independent brake, again locking the wheels. After reversing the engine and then using the independent brake, doing this two or three times and locking the wheels on each occasion, he then left the engine in forward motion and applied the air brakes in emergency, after which he started back over the train to help the fireman in applying hand brakes, but fell from the top of the first car while the train was traveling at a speed estimated by him to have been about 25 or 30 miles an hour.

Fireman Dover said the air pumps were working rapidly when the train came to a stop after having broken in two and that after a period of about 20 minutes, during which time the engineman was moving the brake-valve handle back and forth apparently in an endeavor to restore the brake-pipe pressure, the head brakeman reached the engine and was told by the engineman to go to the rear of the train and find out why they did not close the angle cock which he supposed was open. While the head brakeman was at the engine, however, the brake-pipe pressure started to build up, but about 15 minutes after the brakeman had started for the rear of the train the pressure again went down to between 20 and 30 pounds and was never afterwards increased to 90 pounds. The fireman said that after the

slack had run in and the train started to move down the grade the engine an reversed the engine, moved the brake-valve handle to full-release position, said there was no air in the train line and told him to go back on the train and apply hand brakes; before leaving the engine, however, Fireman Dever looked at the gauge and noted that the brake-pipe pressure was still in the vicinity of 20 or 25 pounds. Fireman Dever said he had succeeded in applying the hand brakes on six cars before he jumped from the train.

Assistant Trainmaster Albright corroborated the statements of the conductor as to the making of an air-brake test at the junction on the Baltimore & Ohio tracks, saying this test was made with a 25-pound brake-pipe reduction, and he said the conductor told him that there was one car on which the brakes were cut out and three cars on which the brakes had leaked off. Assistant Trainmaster Albright rode on the engine between Somerset and R. J. Tower, acting as pilot while the train was on the tracks of the Baltimore & Ohio Railroad. Between R.J. Tower and Deal he rode in the caboose and he said he noted from the caboose gauge that the brake-pipe pressure was reduced to about 70 pounds for the run between R. J. Tower and Sand Patch and that between Sand Patch and Deal it was again restored to 90 pounds. Mr. Albright thought the three applications of the air brakes made at and east of Colmar were each of approximately 20 pounds, made at a speed of 12 miles an hour, and he said they seemed to be effective, the train broke in two after the train line had been recharged subsequent to the third brake-pipe reduction. On reaching the point where the train parted he heard air blowing from the hose on the rear of the 63rd car. He said he then examined the couplers and found both of them closed, but on inspecting them he found that there was some looseness between the knuckle and the lock block of the coupler on the forward end of the 64th car. This condition was remedied by means of temporary repairs and the rear portion allowed to roll down the grade against the head portion, which immediately got beyond control.

Western Maryland Policeman Miller was in the caboose when the train broke in two and he said he at once proceeded to the point where the break-in-two occurred and that he was the one who closed the angle cock on the rear of the 63rd car, at which time there was a strong flow of air coming from the hose. He said Conductor Keyser joined him and then told him to remain there and to notify him in case the head portion of the train started to move. Policeman Miller said that Head Brakeman Wilt arrived about 10 minutes afterwards and relieved him.

Policeman Miller also stated that during the time that he was standing at the rear of the 63rd car no one opened the angle cock to see if there was air in the train line.

Conclusions

This accident was caused by failure to set a sufficient number of hand brakes to hold the train while standing on a heavy descending grade with a depleted brake-pipe pressure, for which Engineman Massie is primarily responsible.

That the air brakes were working properly at the time the train broke in two is evidenced by the fact that although the entire train was on the heavy part of the grade yet the application of the brakes brought the two portions of the train to a stop. The testimony was to the effect that the angle cock on the rear of the 63rd car was closed very shortly after the train broke in two, while the head brakeman said he found nothing wrong with the brake system when he inspected the train as he was going from the engine back to the point where the break-in-two occurred. Under these circumstances the engineman should have been able to build up the brake-pipe pressure to 90 pounds and then have been able to hold the train on the grade for an indefinite period of time by means of the cycle method of brake manipulation which is used on this railway in the case of tonnage trains on heavy grades. While nothing was developed by the investigation to show definitely the reason why the engineman could not build up the brake-pipe pressure, it is probable that it was due to an open brake pipe on some portion of the standing train. The statements of Engineman Massie indicated very clearly that he knew there was something wrong and that for a period of nearly one hour there was not enough pressure in the brake system to enable him to control the train should it start to move down the grade. As soon as he discovered that he could not build up the proper brake-pipe pressure Engineman Massie should have sounded the whistle signal calling for the application of hand brakes. Had this signal been sounded there would have been ample opportunity for the train crew to have secured the train by means of the hand brakes until the nature of the difficulty with the air-brake system had been discovered and remedied, and on account of his failure to take the precautions which were obviously required under the existing circumstances Engineman Massie is considered primarily responsible for the occurrence of the accident.

Policeman Miller said that after the train broke in two he closed the angle cock on the rear of the 63rd car and remained at that point until relieved shortly afterwards by Head Brakeman Wilt, who remained at that point until the attempt was made to couple the two portions of the train together. Conductor Keyser said that when telling Head Brakeman Wilt of the movement he was about to make he personally opened the angle cock on the rear of the 63rd car to ascertain if there was sufficient air in the brake pipe to hold the train when the coupling was made, and that there was a strong flow of air from the open angle cock indicating that there was nothing wrong with the brake-pipe pressure, according to his statements this was about 10 minutes before the train ran away. Both Policeman Miller and Head Brakeman Wilt however stated positively that no one opened the angle cock, while the statements of Engineman Massie indicated that for nearly an hour before the train ran away there was never more than 30 pounds brake-pipe pressure according to the gauge on the engine. The weight of evidence is against Conductor Keyser and makes it seem probable that he permitted the rear portion of the train to be dropped down the grade against the head portion without knowing whether there was sufficient air in the brake system to prevent the train from getting beyond control. Conductor Keyser said he never knew of hand brakes being used to hold a train standing on a grade provided the engine remained attached, which statement is in line with the fact that the rules of this railway make no provision for using the hand brakes under such circumstances. Notwithstanding this fact, the dictates of good judgment should have prompted him to know beyond any question that his train was properly secured before trying to couple together the two portions of the train.

The members of the crew of extra 850 were experienced men, with the possible exception of the fireman, who had had practically no railroad service during the 10 years immediately prior to his employment by the Western Maryland Railway in October, 1925. At the time of the accident these employees had been on duty about 10 hours after 8-1/4 hours off duty.

Respectfully submitted,

W. P. BORLAND

Director.