INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE LINE OF THE READING COMPANY NEAR SUNBURY, PA., ON APRIL 9, 1928.

May 16, 1928.

To the Commission:

On April 9, 1928, there was a head-end collision between a passenger train and a freight train on the line of the Reading Company near Sunbury, Pa., which resulted in the death of one employee and the injury of seven passengers, one mail clerk, one Pullman porter, five employees off duty and seven employees on duty. The investigation of this accident was made in conjunction with a representative of the Public Service Commission of Pennsylvania.

Location and method of operation

This accident occurred on that part of the Shamokin Division extending between Tamaqua and Newberry Junction, Pa., a distance of 104 miles. In the vicinity of the point of accident this is a single-track line over which trains are operated by time-table, train orders and a manual block-signal system. The point of accident was 10,812 feet south of the station at Sunbury, approaching this point from the north the track is tangent for a distance of about 1,600 feet, the accident occurring near the southern end of this tangent. Approaching from the south there is a curve of 4° 15' to the right which is 450 feet in length followed by 700 feet of tangent and then a 4° curve to the right 600 feet in length leading to the southern end of the tangent on which the accident occurred. The grade is 0.4 per cent ascending for southbound trains. On account of trees and shrubbery on the inside of the curve south of the point of accident the range of vision in this vicinity is restricted to about 1,200 feet.

There is a telegraph office and a train-order signal at the station at Sunbury. SF Tower, known as Sunbury Tower, is located 710 feet south of the station, the towerman operating the signals controlling movements over the crossing of the Reading tracks and those of the Pennsylvania Railroad. On the west side of the Reading tracks, opposite the tower, is a manual block signal governing the entrance of Reading trains to the block extending between Sunbury and Snydertown, 6.8 miles from Sunbury, this block signal is also controlled by the towerman.

There is a long siding on the west side of the main track, the southern end of this siding being known as Sunbury Siding, while there is a short siding on the east side of the main track, opposite Sunbury Siding, known as Haas Siding. This latter siding begins at a point 1,950 feet south of SF Tower, while its southern end is 4,466 feet south of the tower.

The weather was clear at the time of the accident, which occurred at 8.55 a.m.

Description

Southbound passenger train No 6 consisted of one combination mail and baggage car, one combination baggage and smoking car, one coach and one Parlor car, all of steel construction, hauled by engine 603, of the double-cab type, and was in charge of Conductor Eisele and Engineman Wascher. This train left Sunbury at 8.51 a.m., and as the engine passed SF Tower the towerman handed to the engineman a copy of train order No. 512, Form 19, reading as follows:

> "Eng 1703 run extra Snydertown to end of double track at Lewisburg and may enter block at Snydertown and meet No. 6 at Haas Siding No. 6 may enter block at Sunbury Tower."

The conductor, however, did not receive a copy of the order and the train proceeded southward, passed Haas Siding without stopping, and had attained a speed of 40 or 45 miles per hour when extra 1703 was seen approaching. The speed of train No 6 had been decreased materially before the accident occurred.

Northbound freight train extra 1703 consisted of 23 cars and a caboose, hauled by engine 1703, and was in charge of Conductor Houck and Engineman Trutt. This train passed Snydertown at 8.47 a.m., two copies of train order No. 512 having been handed on to the engine by the operator, and the train was nearing Haas Siding when it collided with train No. 6 while traveling at a speed estimated to have been from 30 to 35 miles per hour.

Both engines were derailed but remained upright, in a badly damaged condition. The first car in train No. 6 was the only car in that train to be derailed. The first six cars of extra 1703 were derailed, the first being demolished, while the next four cars rolled down embankment on the inside of the curve and came to rest on the tracks of the Pennsylvania Railroad, which parallels the tracks of the Reading Company at this point The employee killed was the engineman of train No. 6.

Summary of evidence

Fireman Liddic, of train No. 6, said that when his train departed from the station at Sunbury the signal governing the Pennsylvania crossing was in clear position and that just after passing it the engineman sounded a low blast on the whistle, reduced speed slightly and then increased the speed. The fireman said he looked out on the left side of the engine but did not notice anything unusual nor did he notice the position of the manual block signal at Sunbury Tower until the engine passed under it. At this time he glanced up at the back of the signal and saw that it was in the stop position but he supposed it was so connected that it would assume that position when a train passed it. Fireman Liddic said it was customary for the engineman to sound four short blasts on the whistle as a signal to the conductor when orders were to be received but that such a signal was not sounded on this occasion and that he did not know that the engineman had received an order when passing the tower. When his train was approaching the point of accident, moving at a speed of 40 or 45 miles per hour, Fireman Liddic looked out on the left side of the engine and when he saw extra 1703 approaching he crossed to the opposite side of the cab, opened an emergency brake valve and called to the engineman to jump, at the same time doing so himself. Although he estimated the distance between the two trains to have been only three or three and one-half pole-lengths when he applied the air brakes in emergency, he thought his train had been brought nearly to a stop before the accident occurred. Fireman Liddic talked with Engineman Wascher in the hospital shortly before the engineman died and he said the engineman told him that he read the meeting point named in the order as Arters, which is 4.3 miles from Sunbury, and that he was about to read the order again when the fireman called to him just prior to the occurrence of the accident. Fireman Liddic's reason for not looking for train orders at Sunbury Tower was because of the fact that the train-order signal at the station, where meet orders usually were received, was in the clear position and he was not expecting an order for his train to be issued at the tower.

Conductor Eisele, of train No. 6, said that while at the station he noted that the train-order signal at that point was in the clear position, as well as the signal governing the movement of trains over the Pennsylvania crossing. He did not look at the indication of the manual block signal at Sunbury Tower because of the fact that he held no orders establishing a meeting point within the block section. It also appeared from the conductor's statement that he did not hear the engineman sound any

whistle signal for the purpose of calling his attention to the fact that the manual block signal was in the stop position and he did not know that a train order had been received by the engineman, his first knowledge of anything wrong being when the air brakes were applied in the emergency shortly before the occurrence of the accident.

The statements of Baggagemaster Martz, Assistant Baggagemaster Sweeney and Flagman Moore, all of train No. 6, brought out no additional facts of importance except that they seemed to think that the accident occurred very shortly after the application of the air brakes. Flagman Moore also stated that meet orders were received quite often at the station at Sunbury rather than at the tower and that Arters was the meeting point usually specified in these orders, although occasionally Haas Siding would be named.

Engineman Trutt, of extra 1703, said he was preparing to stop at the end of double track at Snydertown, both the block signal and the train-order signal being in the stop position, when the operator signalled him to proceed and as the engine passed the operator the latter handed to the fireman two copies of train order No. 512, previously mentioned. The engineman and fireman read the orders and when the head brakeman returned to the inside of the cab the latter read the orders back to the engineman and fireman. The speed of the train was then increased to about 30 miles per hour and presently the engineman saw smoke which he thought was coming from an engine on the nearby tracks of the Pennsylvania Railroad. When he saw there was a train on the Reading track he at once applied the air brakes in emergency and sounded the whistle, the accident occurring shortly afterwards. Engineman Trutt further stated that in single-track territory the conductor usually rides on the engine and that the train orders, both for the engineman and the conductor, are handed on the engine, if the conductor is not riding on the engine his copy of the order is handled by the head brakeman.

Fireman Major, of extra 1705, said he received and read the orders and that the head brakeman then went out for the purpose of placing white flags on the front end of the engine. When this brakeman returned to the cab the fireman gave him the conductor's copy of the order and the brakeman then read the orders back to the engineman and fireman. Fireman Major estimated the speed to have been about 30 or 35 miles per hour when he jumped just before the accident occurred. The statements of Head Brakeman Shelby brought out nothing additional of importance. Conductor Houck was making out reports in the caboose at the time his train entered the block at Snydertown and did not know what orders had been received at that point.

Towerman Blouch, on duty at Sunbury Tower, stated that when he has orders for delivery to the crew of a train he allows the manual block signal to remain in the stop position, when he has no orders for a train it is his practice to place the block signal in the clear position at about the time the train departs from the station at Sunbury. On this occasion he left the signal in stop position and went outside in order to deliver train order No. 512 to the engineman and also to the conductor. He said he held up the orders in his hand as the train approached the tower and that the engineman answered with two low blasts on the whistle. Towerman Blouch then handed to him one copy of the order and stood beside the train as it passed him, moving at a low rate of speed, expecting some one to reach out for the conductor's copy of the order. No one appeared, however, and after the train had passed him Towerman Blouch crossed over to the fireman's side of the train in order to see if any one was out on that side, and he then returned to the tower and filed the undelivered order, first writing across the face of the order the words "conductor not out". Towerman Blouch said that about three or four times weekly he would receive orders for the crew of train No 6 but that meet orders usually were sent to Sunbury station instead of to the tower. He also made a further statement that usually the engineman would call the conductor's attention to the fact that there were orders to be received, and while he did not know what signal the engineman used for that purpose he felt postive that the engineman did not sound such a signal on this occasion.

Relief Dispatcher Faust, on duty at the time of the accident, said he thought the operator at Sunbury station would be busy at the time he issued train order No. 512 to train No. 6 and consequently he put out the order at Sunbury Tower, it being made complete at 8.44 a.m., seven minutes before the scheduled departure of the train from Sunbury station He also stated that had he fixed Sunbury as the meeting point instead of Haas Siding it would have been necessary under the rules to have issued the order to the crew of train No. 6 on Form 31 instead of on Form 19.

Chief Dispatcher Smith said train order No 512 was in proper form, although he thought Relief Dispatcher Faust was not justified in sending the order to train No 6 at the tower, where there is a manual block signal but no train-order signal, instead of at the station where there is a train-order signal, and he also thought that when the towerman has orders for a train he should display a flag in addition to the block signal. He said, however, that the relief dispatcher did not violate any rule in putting out the order at Sunbury Tower nor is there any rule which would have required the towerman to display a flag in addition to the block signal. There is a rule, however, requiring towermen to have hand signals ready for use in case of

necessity and he considered that such a necessity existed when the towerman had orders for delivery to a train and he stated that at other places where there is no train-order signal it is the custom to display a red flag during the day and a red light at night, in addition to the block signal indication, he did not, however, think the presence of a red flag would have made any change in the situation In this connection it might be noted that the rule referred to as requiring towermen to have hand signals ready for use in case of necessity reads "ready for immediate use if the fixed signal should fail to work properly " Chief Dispatcher Smith further stated that in his opinion the responsibility for the failure of Conductor Eisele, of train No. 6, to receive a copy of train order No. 512 rested with Towerman Blouch, under a strict interpretation of rule 211. The provision of this rule which would apply reads as follows:

> "The operator *** will *** personally deliver a copy to each person addressed without taking his signature."

He also stated that under rule 330 of the manual block rules Towerman Blouch should have brought the train to a stop before delivering the order, while under the provisions of rule 221 a clearance card on Form 377 should also have been issued. Rule 330, and the second paragraph of rule 221 read as follows:

> Rule 330 "A signalman having train orders for a train must display the block signal at Stop. He may permit trains so stopped to proceed under Block Signal Rules after complying with Rules for Movement by Train Orders "
>
> Rule 221."When an operator receives the signal '31' or '19', followed by the direction, he must immediately display the 'stop signal' for the direction indicated and then reply 'stop displayed', adding the direction, and until the orders have been delivered or annulled the signal must not be restored to 'proceed' While 'stop' is indicated trains must not proceed without a clearance card (form 377)."

Haas Siding begins less than 2,000 feet from the tower and ends less than 4,500 feet from the tower, Chief Dispatcher Smith said that it constituted a point entirely separate from Sunbury Tower and that under these circumstances rule 208 would not apply. This is the rule the last paragraph of which provides that an order must not be sent to a superior train at the meeting point if it can be avoided, and when it is so sent the fact must be stated in the order and special precautions taken to insure safety.

Manual block rule 317-B is in effect on this division. This rule provides in part that a train must not be admitted to a block which is occupied by an opposing train except as per rule 332, which relates to a failure of communication in double-track territory, or by train order, and Chief Dispatcher Smith said that the accident would not have occurred had this provision for an absolute block been complied with, because train No 6 would have been held at Sunbury Tower until extra 1703 had been reported into clear at Haas Siding. This absolute block rule, however, has been practically abolished by the practice of allowing meeting points to be made at intermediate sidings in accordance with instructions issued by the chief dispatcher in 1922.

Superintendent Farrell said that the conductors of freight trains in single-track territory are instructed to ride on the engine when possible and when they find it necessary to leave the engine they are required to turn over their orders to the head brakeman, who is qualified for and assumes the conductor's responsibility for the proper handling of the orders during the absence of the conductor from the head end of the train, and if the orders are not obeyed under such circumstances the conductor is not subject to discipline It also appeared from the superintendent's statements that although extra 1703 was on the time of train No. 6 without the conductor having any train-order authority authorizing such a movement, the conductor would not have been justified in stopping the train on that account, nor would he have been justified in stopping it for the purpose of finding out why his train was entering a block when the block signal was in the stop position.

Conclusions

The primary cause of this accident was the failure of Engineman Wascher, of train No. 6, to obey train order No. 512, which established a meeting point between his own train and extra 1703 at Haas Siding.

Engineman Wascher was the only member of the crew of train No. 6 who received a copy of train order No. 512 and the fact that he was in possession of the order, as stated by Towerman Blouch, was further evidenced by the finding of a copy of the order in his clothes after the occurrence of the accident and by the statement of Fireman Liddic that he talked with the engineman in the hospital shortly before the engineman died and that at that time the engineman acknowledged having received the order but stated that he had misread it and that he thought the meeting point was Arters, a station 4.3 miles beyond Sunbury. No definite reason can be assigned for the failure of Engineman Wascher to read the order correctly.

There were several features developed in connection with the investigation of this accident, some of which have a more or less direct bearing on the reason for its occurrence. The most important of these were (1) the failure of the conductor of train No. 6 to receive a copy of the order, and (2) the non-enforcement of the rule which was intended to provide for an absolute block for opposing movements. With reference to the failure of the conductor to receive a copy of the order, it appeared that the towerman was on the ground with a copy of the order ready for delivery to the conductor but that the engineman did not sound the whistle signal which it was his custom to sound under such conditions, with the result that no member of the train crew knew there were orders for their train at Sunbury Tower and consequently the train passed the towerman without the conductor's copy having been delivered There is no rule squarely placing responsibility for the non-delivery of the conductor's copy of this order. According to the statements of Chief Dispatcher Smith, however, Towerman Blouch should have brought the train to a stop before delivering the order, and rule 330 clearly contemplates that under these circumstances this procedure should be followed Had this been done Conductor Eisele would have been apprised of the fact that there were orders for his train. On the other hand, under that part of rule 211 mentioned in the statements of Chief Dispatcher Smith, the operator was required to deliver the order to the persons addressed and in the present case he was adopting the usual practice in standing beside the train in readiness to hand on the orders. The track at this point is straight and with a short train it would appear that Engineman Wascner should have been able to look back and make certain that the conductor's copy of the order was delivered to some member of the train crew. One of the underlying reasons, however, for the failure of the conductor to receive a copy of the order was the action of Relief Dispatcher Faust in putting out the order at Sunbury Tower instead of at Sunbury station. In 1924, Sunbury was discontinued as a train-order office except between the hours of 8 a.m. and 5 p m , while at the same time manual block signals were placed in service at Sunbury Tower and the latter point established as a manual block, train order, and train reporting office. During the night, therefore, all train orders are handled through Sunbury Tower but the evidence indicated that during the day it was customary to issue orders for train No 6 at Sunbury station, where the train regularly stopped and where a train order signal is located. An examination of the train-order books covering the past year showed that out of 75 meet orders on Form 19 sent to the crew of train No. 6 where the meeting points were at sidings intermediate between Sunbury and Snydertown, only 6 orders were issued at Sunbury Tower, and of these 6 orders only 1 was sent by the regular dispatcher, the other 5 having been issued by relief dispatchers or

extra dispatchers. Had train order No. 512 been put out at the station instead of at the tower, which is located only 710 feet beyond the station, undoubtedly the fact that the train-order signal was displayed would have been noticed by every member of the crew, in which event the conductor would have received his copy of the order and the mistake by Engineman Wascher which lead to the occurrence of this accident probably would not have resulted. In putting out the order at Sunbury Tower, however, Relief Dispatcher Faust was only acting in accordance with instructions issued by the chief dispatcher, quoted in the succeeding paragraph.

With respect to the non-enforcement of Rule 317-B, providing for an absolute block for opposing movements, this is a practice which has been followed for many years, having been authorized by instructions issued over the signature of the chief train dispatcher in 1922. The second paragraph of the rule in question reads as follows:

> "A train must not be admitted to a block which is occupied by an opposing train or by a passenger train, except as provided in Rule 332 or by train order."

The instructions of the chief train dispatcher read as follows:

> "When providing a meet by train orders at siding between two telegraphic block stations, please enter the train at either end of such block by train orders.
>
> "Sample: 'Extra 1030 may enter block at Brandonville and Krebs siding and will meet #80 at Krebs siding, No. 80 may enter block at Ringtown'.
>
> "This, of course, would apply to any other point in telegraphic block territories where meets are made between stations
>
> "You understand of course the order to enter a block must be placed at the entrance of such block."

The nullification of the requirements of a block signal system results in restoring the dangers of the train-order system, as witnessed in this case by the occurrence of one of the particular types of accidents which it is the function of a block system to prevent. Had an absolute block been in force, as clearly intended by rule 317-B, this accident undoubtedly would not have occurred.

Under the rules of this railway a train order on Form 19 may be used in block-signal territory in restricting the rights of a superior train. It is well recognized that the use of train orders on Form 19 for such purposes is more or less common at the present time. It is also well recognized, however, that the train-order method of operation is none too safe when taken at its best, and it is not believed that the proper degree of safety can be obtained by eliminating one of the most protective features of the train-order system, the Form 31 order, and at the same time eliminating the protection supposed to be afforded by the block-signal system. In the case here under consideration had the train order been issued to train No. 6 on Form 31 or had there been no modification of the operation of manual block rule 317-F, it is more than probable that this accident would not have occurred.

In addition to the above it is to be noted that Towerman Blouch did not deliver to the crew of train No. 6 a clearance card on form 377 as required by that part of rule 221, previously quoted. Another point brought out in connection with the towerman was the fact that he did not display a red flag in addition to the block signal. Apparently it is customary to display a red flag at other places in addition to the block signal, but this custom is not followed at Sunbury Tower, nor is there any rule in regard to the matter. While the use of a red flag undoubtedly would have made no difference in this particular case, yet if red flags are to be used for such purposes the practice should be uniform at all points and should be covered by definite instructions to that effect.

While not involved in the accident, attention is called to the practice of requiring conductors of freight trains to ride on the engine in single-track territory where practicable, and to the practice whereby operators deliver the conductor's copy of train orders to those on the engine, if the conductor for any reason finds it necessary to ride in the caboose he delegates his duties and responsibilities, at least so far as the execution of train orders is concerned, to the head brakeman who is supposed to be qualified for that purpose. Under such an arrangement those on the rear end of the train have no way of supervising or checking the movement of the train, of knowing whether it has a right to move against an opposing train, or whether it has any right to enter a block with the block signal in the stop position.

Consideration of the various features developed in connection with this investigation leads to the conclusions that some of them were adopted with the idea in mind of saving time and speeding up traffic. Those which appear to be essentially related to the saving of time are the use

of orders on Form 19 when restricting the rights of a superior train, the modification of the rule establishing an absolute block for opposing movements, and, perhaps, the giving of both copies of the orders for freight trains to those of the crew who happen to be on the engine instead of furnishing one copy for the engine crew and one copy for those in the caboose. The wisdom of the combination of the first two of these practices has been discussed. As to the last practice, undoubtedly the presence of the conductor at the head end of the train facilitates the performance of work at various stations en route, but it is difficult to see that any real benefit is gained by having both copies of the orders delivered to those on the engine instead of having one copy delivered to those in the caboose and thus affording them a means of checking against possible errors on the part of those on the head end of the train.

Had an adequate train control system been in use on this line, this accident would not have occurred

The employees involved were experienced men and at the time of the accident they had been on duty 7 hours or less after periods off duty varying from 11 to nearly 28 hours.

Respectfully submitted,

W P. Borland,

Director.