

INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE
INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE
PENNSYLVANIA RAILROAD NEAR STAR ROCK, PA., ON
JUNE 16, 1931.

July 22, 1931.

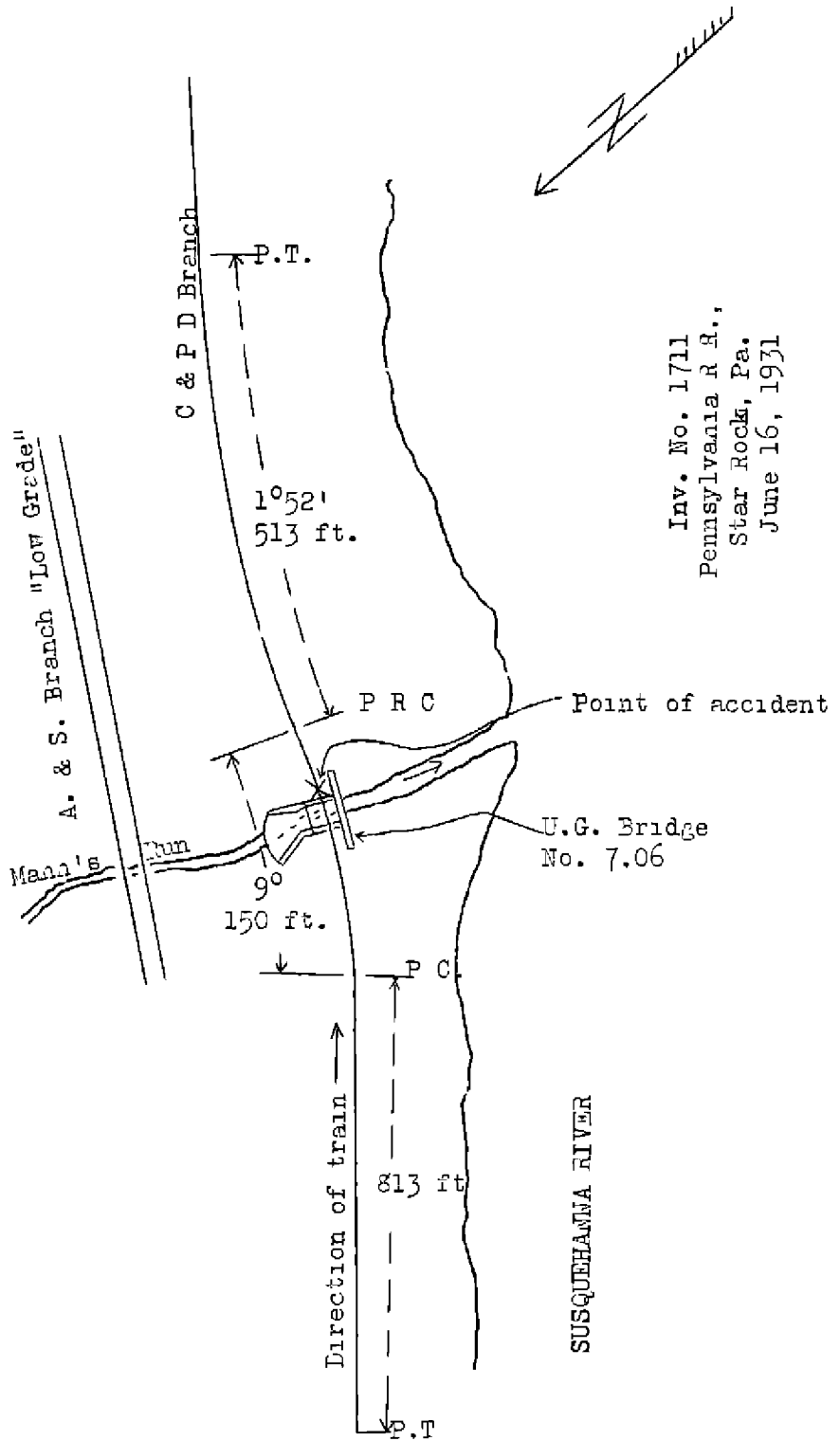
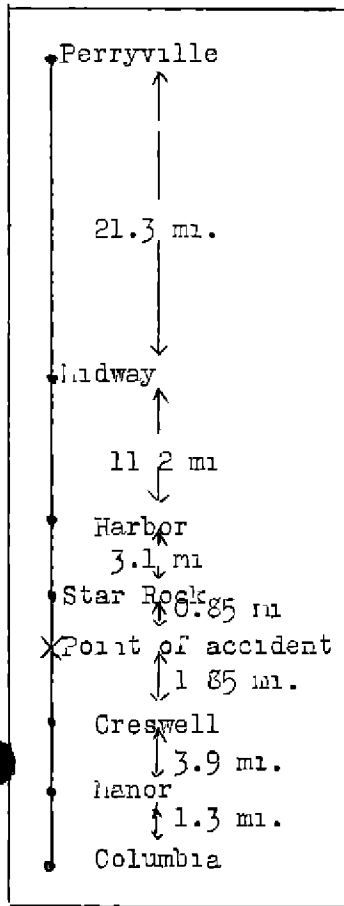
To the Commission:

On June 16, 1931, there was a derailment of a freight train on the Pennsylvania Railroad near Star Rock, Pa., resulting in the death of two employees and the injury of one employee. This accident was investigated in conjunction with a representative of the Pennsylvania Public Service Commission.

Location and method of operation

This accident occurred on the Columbia and Port Deposit Branch of the Maryland Division, extending between Columbia, Pa., and Perryville, Md., a distance of 43.5 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 accident occurred at a point about 4,500 feet west of Star Rock, on the east end of bridge 7.06, which spans a stream known as Mann's Run; the stream flows from north to south down a steep slope and under the tracks of two branches of the Pennsylvania Railroad, flowing first under the Atglen and Susquehanna Branch and then under the Columbia and Port Deposit Branch, following which it empties into the Susquehanna River, which river the tracks parallel. The normal flow of water in Mann's Run can be accommodated by a 6-inch or 8-inch pipe; the water falls down a wall of jagged rock almost vertically from the culvert under the A&S Branch to bridge 7.06 on the C&PD Branch.

Approaching from the west on the C&PD Branch, the track is tangent for a distance of 813 feet, followed by a 9° curve to the left for a distance of 150 feet and then a 1° 52' curve to the right for a distance of 513 feet, the accident occurring on the 9° portion of the reverse curve and the east end of the bridge being approximately 115 feet from the west end of the curve. The grade is practically level. The track is laid with 130-pound rails, 33 feet in length, with about 18 ties to the rail-length and fully tie-plated, ballasted with stone, and well maintained.



Inv. No. 1711
 Pennsylvania R.R.,
 Star Rock, Pa.
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The C&PD Branch in this vicinity is laid on a side cut in the hill at a point about 40 feet above the Susquehanna River and about 60 feet distant from it, while the A&S Branch, a double-track line, is laid about 35 feet above the C&PD Branch and about 80 feet from it. Reconstruction work was in progress in this vicinity, the roadbed and bridge being made wide enough for double-tracking; the bridge had been widened on the side toward the river and decked with a reinforced concrete slab, and the reconstructed bridge had the same length of span as the old bridge, 13 feet 7 inches, although the concrete waterway under the bridge was increased to 7 feet 1 inch in height by virtue of the bridge seats having been raised 14 inches at the time the track was raised, entirely on stone ballast, a month previously. On June 9, the track immediately adjacent to Mann's Run had been lined over to the new concrete slab preparatory to imposing a concrete slab on the remaining portion of the deck, and the supports for the slab were placed on the afternoon of June 15, consisting of four tiers of uprights in the channel of the stream and one tier flush against each abutment. These tiers of uprights were so located that there were five spaces in the water course, namely, one space of 4 feet, in the middle; two spaces of 2 feet 6 inches, one being on each side of the 4-foot middle space, and two spaces of 2 feet 1 inch, these extending from either side of the 2-foot 6-inch spaces to the bridge abutments. At the time of the accident trains were being operated on the temporary alinement of the track on the river-half of the bridge, with the forms and supports in place on the hillside-half, preparatory to pouring the concrete, which it was intended to do on the day of the accident.

It was raining at the time of the accident, which occurred about 1.35 a.m.

Description

Eastbound freight train extra EH-2 consisted of 71 cars and a caboose, hauled by engine 266, and was in charge of Conductor Bard and Engineman Cantwell. This train left Columbia, 7.9 miles west of Star Rock, at 1.09 a.m., according to the train sheet, passed Creswell, the last open office, 2.7 miles west of Star Rock, at 1.30 a.m., and shortly thereafter was derailed by a washout at the east end of bridge 7.06 while traveling at a speed estimated to have been between 18 and 20 miles per hour.

Engine 266 came to rest in an upright position and in line with the track, with the front end down in the hole that had been scoured out by the washout, the top of the smoke stack being several feet below track level; the rear end of the engine rested on the east abutment of the bridge and north of the wing wall, which wall was not disturbed. The tender was derailed, but remained coupled to the engine

and came to rest on the bridge; the cistern was torn from its frame and was shoved into the engine cab. The first five cars and the forward truck of the sixth car were derailed. The employees killed were the engineman and fireman, while the employce injured was the conductor, who was riding on the engine at the time of the accident.

Summary of evidence

Conductor Bard, of extra EH-2, stated that it was raining at Columbia, but not hard enough to need a raincoat. At Manor, 1.3 miles east of Columbia, a message was received to run carefully and look out for an obstruction about 2 miles west of Harbor; this would have located the obstruction at a point about 1 mile east of Star Rock. Between Manor and Creswell, a distance of 3.9 miles, the speed was about 35 miles per hour, but he estimated the speed to have been reduced to about 15 to 20 miles per hour on passing Creswell. Approaching Mann's Run he was standing on the fireman's side, next to the hillside, and although he looked out he did not see anything unusual, and the first intimation he had of anything wrong was when he felt himself hurled through space, as a result of the accident, at which time the speed was 18 or 20 miles per hour. Conductor Bard stated that the headlight was turned on full and illuminated the track properly, that nothing unusual was noticed en route, such as uneven track or any undue amount of water coming down the hillside at any point, and that the engineman and fireman were both apparently wide awake and on the alert, the engineman having spoken to the conductor about the message prior to passing Creswell, saying that "whatever it is we are not going to hit it." After passing Creswell nothing was said, the engineman then giving his entire attention to looking ahead, and the conductor heard nothing whatever to indicate that the engineman might have observed an unusual condition. Conductor Bard further stated that after leaving Columbia they did not run into any unusual showers; it had not rained hard enough at any time to indicate that there was an unusual storm; in fact, there was nothing to cause anxiety as to washouts or other track obstructions.

Brakeman Kreps and Flagman Sullivan, of extra EH-2, were riding in the caboose; they estimated the speed to have been about 20 miles per hour at the time of the accident. After the accident Brakeman Kreps went forward to where the engine was derailed and at that time the water was so high that it was running over the tops of the rails, and it was still raining hard. Flagman Sullivan, on the other hand, said it was raining when they were at Columbia, just an ordinary shower, that no severe storms were encountered after leaving that point, and that it was not raining when his train came to a stop at the point of accident.

Eastbound freight train B-10, the last train to pass over Mann's Run prior to the accident, passed Creswell at 12.15 a.m. The engineman and fireman, together with the conductor, who was riding on the engine, said that when the head end of their train passed Mann's Run there was a storm raging which seemed like a cloudburst. Due to the storm, they were unable to see track conditions ahead for any great distance; no water running over the track was noticed, nor were there any other unusual conditions. Brakeman Rutter, who was riding in the caboose, said that at the time his train was in the vicinity of Creswell it was raining very hard, as bad a storm as he had ever seen. After passing Creswell it seemed as though the water was striking the caboose and the caboose gave a lurch, at a point he judged to have been 2 miles or more from Creswell, and he thought it was going over the bank. It seemed as though the roadbed was giving way and there was a sound of rushing water, but after traveling a short distance, not over four car-lengths, the track then appeared to be all right. The speed at the time was about 15 miles per hour; he looked out, but could not place the exact location where the lurch was experienced, as it was too dark, and the lighting of a fusee did not help to any extent. It was felt that the track was not in safe condition for a following train, however, and Brakeman Rutter wrote a message, timed 12.20 a.m., to the effect that they were not to let anything east of Creswell or west of Harbor until the track had been inspected, as it was thought that the rear end of train B-10 was going over the bank at a point about 2 miles east of Creswell. This message was weighted with the lead from a torpedo and thrown off at Harbor, 5.8 miles east of Creswell, and the brakeman also shouted up to the operator at that point, saying that the operator was moving around in the tower and waved his hand to them, but as the operator was not seen to come out and pick up the message it was decided to apply the air brakes from the rear and bring the train to a stop, which was done at the east end of Harbor siding. Brakeman Rutter started to get off the caboose, in order to report the matter by telephone from that point, and he then found that the left rear step had been torn off the caboose and the front step on that side was cracked. On arriving at the telephone he rang the operator at Harbor and asked if anything had passed Creswell since B-10 passed that point. On being informed that nothing had passed Creswell, Brakeman Rutter said he told the operator to hold everything east of Creswell and not to let anything pass west of Harbor until they examined the track, saying that he also told the operator that the track was rough at a point about 2 miles or more west of Harbor, that it seemed to him to be a washout, and that the steps had been broken off the caboose. It will be noted that when Brakeman Rutter telephoned the operator he changed the location from that given in the message, which was 2 miles

east of Creswell, to a point 2 miles west of Harbor, and he explained this by saying that it did not seem to be so long from where it happened until Harbor was reached. Brakeman Rutter further stated that while at Harbor he looked over the rear portion of the train and saw apparently where the rush of water had opened the journal box lids on about the last 15 cars, the journal boxes being splashed with mud.

Flagman Haberkam stated that the speed was about 20 or 25 miles per hour when the lurch of the caboose was experienced, at which time the rain was coming down in torrents and it sounded as though the water was running very high, and that he shouted to the brakeman to apply the air brakes from the rear, but then the caboose righted itself and the flagman suggested that there was nothing wrong with them and that they would drop off a message at Harbor, which was done. Flagman Haberkam did not go to the telephone at the time the train was brought to a stop at Harbor, having gone back to flag, but said that he told the brakeman to tell the operator not to let anything come east of Creswell or west of Harbor until some one investigated to see what caused the lurch and broke off the caboose steps.

Operator Johnson, at Harbor, stated that when Brakeman Rutter came on the telephone at the east end of Harbor siding, the brakeman told him train B-10 had struck something about 2 miles west of Harbor, breaking off the caboose steps and that the track had better be inspected before anything was let in there, advising the operator to notify the dispatcher to have the track inspected. The operator promptly telephoned the dispatcher, and gave him the information including the brakeman's suggestion not to let anything in between Creswell and Harbor until the track was inspected. The dispatcher then instructed the operator to go after the track foreman, who did not have a telephone in his house and lived about one mile from the tower. The operator returned with Acting Track Foreman Good about 1 a.m., and then the foreman started westward, the operator informing the dispatcher that the foreman was on his way to inspect that portion of the track which had been reported by Brakeman Rutter. Operator Johnson further stated that he was in the tower when train B-10 passed and he heard the brakeman and flagman shout to him, but did not understand what they said. Shortly afterwards the operator took his lantern and went out to look for a message, but found nothing, returning to the tower just as the brakeman called up from the east end of the siding; the message was not subsequently found. Operator Johnson said that when he went on duty at 12 o'clock midnight there was just an ordinary rain falling, and that the intensity of the rain subsided around 2 a.m.

Dispatcher Parsons stated that about 12.35 a.m. Operator Johnson informed him that the brakeman of train B-10 had reported that the caboose steps had struck some object, breaking the steps, about 2 miles west of Harbor, and that the track should be inspected. The train dispatcher conveyed this information to Chief Dispatcher Kennedy, who authorized the dispatcher to have the operator at Harbor go for the track foreman, to patrol the track as far as 2 miles west of Harbor and to report promptly if anything unusual was found. A message was also put out to extra EH-2 at Manor, 3.9 miles west of Creswell, to run carefully 2 miles west of Harbor, where something had been reported as obstructing the track. Dispatcher Parsons did not hear from Acting Track Foreman Good until after the accident had occurred, the acting track foreman having patrolled the track westward as instructed to cover the point 2 miles west of Harbor and then continuing beyond to Star Rock, but this territory did not include Mann's Run, which is about 0.85 mile west of Star Rock. Dispatcher Parsons maintained that the information given him by the operator at Harbor did not, to his recollection, include anything about not letting any train in between Creswell and Harbor, that there was nothing in the information to indicate that something was wrong with the track or that the caboose had lurched unusually, and that he felt it was safe to allow a train to proceed east of Creswell, as there was no indication of anything serious obstructing the track. Train Dispatcher Parsons further stated that he had received no report of any unusual weather conditions from the operators at Creswell, Harbor, or other points, the operators only reporting that it was raining.

Chief Dispatcher Kennedy stated that the dispatcher advised him that the brakeman of train B-10 had reported to the operator at Harbor that something had struck their caboose and broke off the steps, about 2 miles west of Harbor. Chief Dispatcher Kennedy was laboring under the impression that a fallen rock had broken off the caboose steps, no report having been made to him of any unusual weather conditions, saying that there had been cases from time to time where fallen rocks had caused similar damage to trains; he thought that a message to run carefully looking out for an obstruction, such as was given to extra EH-2, was all that was necessary. Chief Dispatcher Kennedy further stated that had he received the brakeman's information not to permit trains to enter the block between Creswell and Harbor until the track had been examined, he would not have permitted extra EH-2 to have passed Creswell, and it was not until several days after the accident that he learned of the message that had been thrown off when the caboose of train B-10 passed Harbor.

Operator Wagner, at Midway, stated that he answered the telephone at the time brakeman Rutter, of train B-10, was calling Harbor; Operator Wagner heard the brakeman inquire of Operator Johnson at Harbor whether any following eastbound train had left Creswell, and then heard the brakeman tell Operator Johnson that everything had better be held east and west as something had struck and broken the caboose steps about 2 miles west of Harbor. Operator Wagner then cut over on the dispatcher's wire about the same time that Operator Johnson did, and heard Operator Johnson tell the dispatcher what the brakeman had reported, including the information that everything had better be held east and west.

Operator Kreidler, at Creswell, stated that it started to rain about 11 p.m., and that about 11.50 p.m. there was a heavy rain, lasting for a short time, and that it was still raining hard at the time train B-10 passed, at 12.15 a.m. Operator Kreidler further stated that at the time extra EH-2 passed, at a speed of not over 20 miles per hour, the headlight on the engine was burning brightly.

Acting Track Foreman Good said he was told an obstruction had hit a caboose and that he was to inspect the track 2 miles west of Harbor. He found nothing wrong, continued to Star Rock and there learned of the accident from Flagman Sullivan. On proceeding to the scene, he found that the water had been flowing over the track and that there was about 6 or 8 inches of water above the sub-grade. The entrance at the mouth of the water course under the bridge was blocked with stone, gravel, tree stumps, and other debris from the hillside, causing a dam, and the water had backed up and run over the tracks, also washing out the roadbed. It was about one and one-half hours before the water receded to normal again.

Field Representative Kriechbaum, of the chief engineer's department, stated that when he left the bridge about 5.15 p.m., June 15, the mouth of the stream was perfectly clear of all obstructions and debris, with no loose lumber lying around. On his arrival at the scene of the accident about 7 a.m. the next day, he found that some of the false work had been carried away and that the mouth of the bridge was blocked with debris, but not with false work, and in his opinion the false work did not contribute toward blocking the water course.

Examination of conditions immediately after the accident and before anything was removed disclosed that the basin between the bridge and the foot of the rock slope was full of stone, sand, gravel, tree stumps, and other debris, that had washed down from the hillside so that the water course at the entrance to the bridge was entirely closed; in fact, in looking through the water course under the

bridge, from the exit toward the entrance, no light was visible on account of the obstructions. Some of the stones weighed in excess of 500 pounds. The abutments and wing walls of the bridge were not disturbed. The pool in the basin was about level with the under sides of the decking of the bridge and what water was then reaching the bridge was seeping through the debris in the basin. Underneath the bridge the water course was clear. Although there was no weight on the supports except the reinforcing iron, nor were the supports anchored to the concrete bed of the stream in any manner, yet the uprights for the support of the concrete slab were in place with the exception of the first three pieces in the middle tier, which had been dislodged. On the west end of the bridge, where the track remained in place, the roadbed was washed out for a distance of about 100 feet, reaching its greatest depth of 3 feet at a point near the bridge. On the east end of the bridge, where the derailment occurred, the roadbed was washed away for a distance of about 50 feet from the abutment, for depths varying from 15 to 20 feet or more. The material was washed out from the east abutment of the bridge to the bottom of its foundation and in passing around the wing wall had scoured out, for a distance of 30 feet beyond, the wing wall, the heavy loose rock fill and natural ground to a depth of 12 feet below the bottom of the wing foundation. The severity and extent of the scouring was indicative of a very heavy flow of water over a period of time.

Conclusions

This accident was caused by a washout.

It appeared that no trouble had been experienced with washouts at Mann's Run since the year 1916. The track in this vicinity was examined on the day before the accident and found to be in good condition, the water course was clear, and the bed of the stream had been cleared for about one-half mile from the railroad about two and one-half months prior to the occurrence of the accident. The indications were and the evidence of the crew of the preceding train, B-10, confirmed the fact that a local cloudburst occurred in the immediate vicinity of the bridge a short time before the accident, washing down tree stumps, stones, gravel, etc., to such an extent as to block the opening under the bridge, with the result that the water scoured out the roadbed at the east end of the bridge, causing the derailment of train EH-2.

Brakeman Rutter and Flagman Haberkam, of train B-10, had no difficulty in realizing that something was wrong when the rear of the train passed the point in question, for it appeared to them at the time that the caboose was going to be derailed, and when they dropped off a message at Harbor, they had the location of the trouble determined

with reasonable accuracy and said that trains should be held until the track had been examined. The message was not found, however, and after stopping the train Brakeman Rutter telephoned the operator at Harbor, but said that the trouble was about 2 miles west of Harbor, instead of 2 miles east of Creswell, and then mentioned the damage to the caboose and the fact that the track was rough and trains should be held until an examination of the track had been made. While the dispatcher denied being told to hold all trains, he did say he was told by the operator that the caboose had been damaged and that the track should be examined. When reporting the matter to the chief dispatcher, however, he did not say anything about the necessity for examining the track, and the result was that the only instructions issued were to examine the track 2 miles west of Harbor, where it was supposed that there was an obstruction which had damaged the caboose. It is believed that Brakeman Rutter gave the operator sufficient information to have averted the occurrence of an accident, and while the operator may not have passed along to the dispatcher all the details which had been given him, yet the dispatcher's own statement indicates that he was told the track should be inspected, and in addition there were the statements of two operators that he was also told to hold everything until such an inspection had been made. Under the circumstances it is believed that Dispatcher Parsons was negligent in the performance of his duties and that had he possessed a proper realization of his responsibilities, he would have seen to it that the chief dispatcher was fully informed of all the circumstances and that no train was allowed to proceed over this section of track until it was known that a movement could be made in safety.

All of the employees involved were experienced men, and at the time of the accident none of them had been on duty in violation of any of the provisions of the hours of service law.

Respectfully submitted,

W. P. BORLAND,
Director.