INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE CHICAGO, MILWAUKEE & ST PAUL RAILWAY NEAR SACRED HEART, MINN, ON NOVEMBER 15, 1925

DECEMBER 10, 1925

To the Commission

On November 15, 1925, there was a head-end collision between a passenger train and a freight train on the Chicago, Milwaukee & St Paul Railway near Sacred Heart, Minn, which resulted in the death of 3 employees and 1 mail clerk, and the injury of 15 passengers, 5 employees, and 1 mail clerk The investigation of this accident was made in conjunction with representatives of the Minnesota Railroad and Warehouse Commission

LOCATION AND METHOD OF OPERATION

This accident occurred on that part of the Hasting & Dakota Division extending between Minneapolis and Montevideo, Minn, a distance of 133 1 miles In the immediate 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 about 3 3 miles east of Sacred Heart Approaching this point from either direction the track is tangent for several miles, while the grade is slightly undulating, with a maximum gradient of 0 4 per cent, this gradient extending only for short distances

Between Sacred Heart and Renville, a station 6 9 miles east of Sacred Heart, there is a sidetrack more than 2 miles in length, which is shown on the time-table as O'Connor Siding, the eastern end of this sidetrack is 1 4 miles from Renville At a point 5,785 feet west of the east sidetrack switch there is a crossover connecting with the main track, while the west sidetrack switch is 7,101 feet west of the crossover That part of the sidetrack west of the crossover is used as a storage track while that part east of the crossover is used as a passing track The switch at the extreme western end of O'Connor Siding will be referred to in this report as the west storage-track switch The point of accident was on the main track

at a point 1,250 feet east of the west storage-track switch and 5,850 feet west of the crossover switch which marks the western end of the passing track

The weather was clear at the time of the accident, which occurred at about 1 35 a m

DESCRIPTION

Westbound passenger train No 17, en route from Minneapolis to Tacoma, Wash, consisted of 1 mail car, 1 baggage car 1 mail car one dynamo-baggage car, 2 coaches, 1 tourist car, 1 dining car, and 2 sleeping cars, hauled by engine 6305, and was in charge of Conductor Harrington and Engineman Fillmore The first two cars were of steel-underframe construction with reinforced ends, while the last car was of wooden construction All the other cars were of all-steel construction At Olivia, Minn, which is 111 miles east of Renville, the crew in charge received a copy of train order No 2 Form 19, directing them to wait at O'Connor Siding until 1 30 a m for train No 264 Train No 17 left Olivia at 1 10 a m according to the train sheet, 18 minutes late and when passing Renville the crew received a clearance card, Form A, which stated that the signal was displayed at stop 'for No 17 to meet No 264 as per order No 2 block clear except No 264" Train No 17 passed Renville, according to the train sheet, at 1 26 a m, 18 minutes late passed the west passing-track switch at O'Connor Siding after the time specified in the train order, and collided with train No 264 while traveling at a speed estimated to have been about 20 or 25 miles an hour

Eastbound freight train No 261 consisted of 95 cars and a caboose, hauled by engines 8100 and 8052 and was in charge of Conductor Trueman and Enginemen Bucklin and Young This train passed Minnesota Falls according to the train sheet at 1 11 a m, 1 hour and 10 minutes late As the train passed the station, which was the last open block office the crew in charge received a copy of train order No 2 Form 19 previously referred to, together with a copy of a clearance card, Form A, calling attention to the order and stating that the block was clear except for train No 17 Train No 264 passed Sacred Heart at about 1 25 a m, 1 hour and 5 minutes late, at which time under the rules it should have been clear of the main track and collided with train No 17 opposite the storage track at O'Connor Siding while traveling at a speed estimated to have been between 15 and 20 miles an hour

Engine 6305 was not derailed but was badly damaged, while its tender was destroyed as was also the case with the first car in this train, other cars in train No 17 sustained minor damage Engine 8100, the lead engine of train No 264, was not derailed, but engine

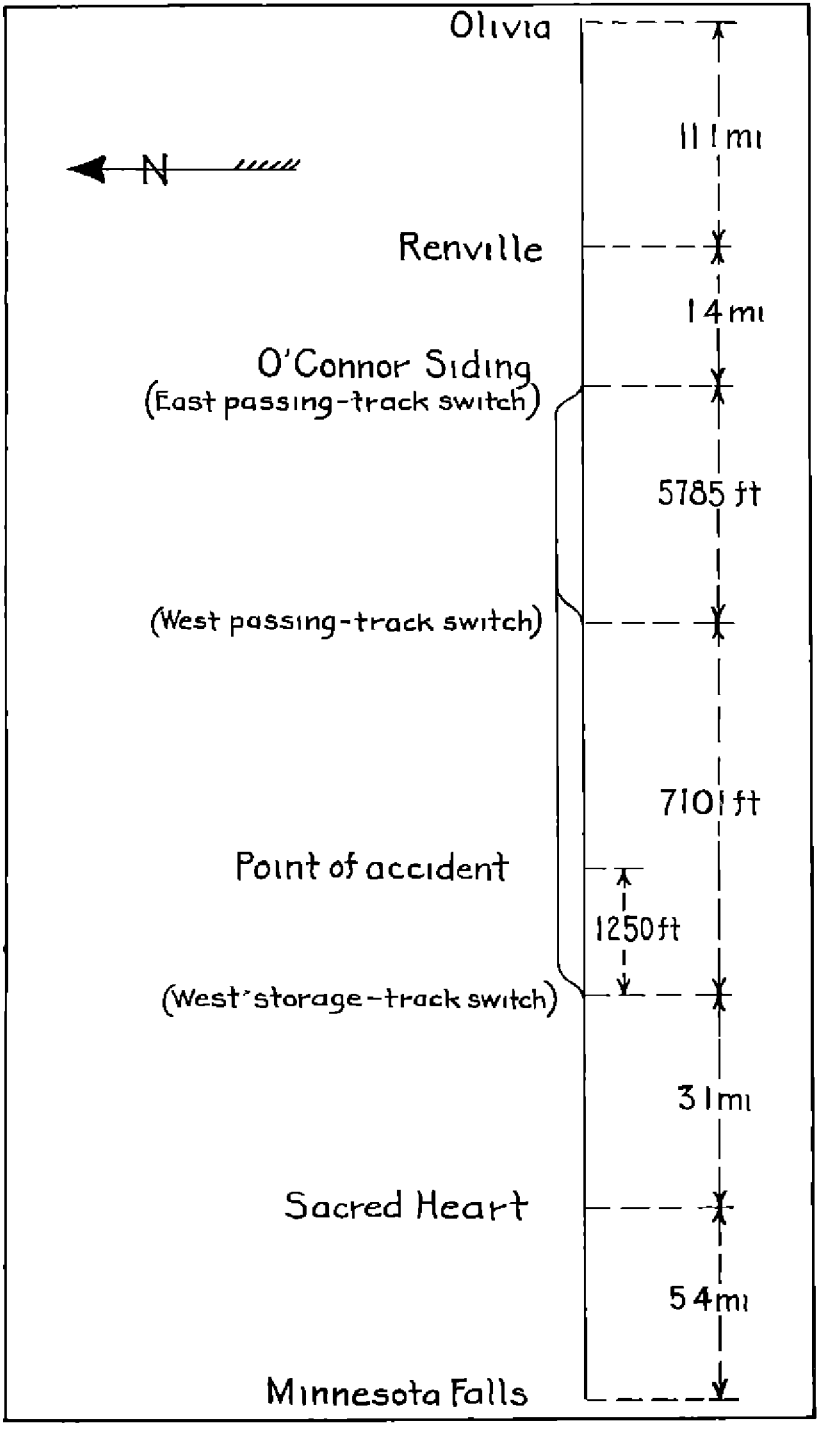

Diagram showing relative location of points mentioned in this report

8052 was derailed and turned over on its right side, both of these engines being quite badly damaged The first 10 cars in train No 264 were derailed, 3 of them being destroyed and the others more or less badly damaged The employees killed were the engineman of train No 17, the engineman in charge of the s cond engine of train No 264, and the head brakeman of train No 264, who was riding on the lead engine

SUMMARY OF EVIDENCE

Fireman Jarvis, of train No 17, said he received a copy of train order No 2 at Olivia, which was read by Engineman Fillmore, while at Renville he received the clearance card and read it to the engineman The train passed Renville at a speed of about 15 or 20 miles an hour, and Fireman Jarvis said that shortly afterwards he looked ahead and saw the headlight of train No 264, but supposed that train was waiting at Sacred Heart, while he fixed the position of his own train at this particular time as approaching the west passing-track switch at O'Connor Siding He said this was his first trip in passenger service since the practice was adopted of running engines through from Minneapolis to Aberdeen, and he was anxious to have the fire in good condition when arriving at Montevideo, where another engine crew would take charge of the engine, and he stated he put in a fire and was preparing to shake the grates when Engineman Fillmore made a service application of the air brakes, followed almost immediately by an emergency application Upon getting on his seat box he saw train No 264 a short distance away, and jumped just before the accident occurred He was unable to make any estimate as to the speed of the train after leaving Renville, and he did not know the time at which his train passed O'Connor Siding, but thought it passed Renville at about 1 35 a m, and that the accident occurred at 1 36 or 1 37 a m In view of the distance between the two points, however, more than 3½ miles, it is obvious that Fireman Jarvis's estimates as to time are not correct It further appeared from the statements of Fireman Jarvis that there was no conversation between Engineman Fillmore and himself concerning either the nonarrival of train No 264 at O'Connor Siding or the presence of a headlight in the distance, that he did not know whether or not this headlight disappeared from view, inasmuch as he did not continue to watch it and was not on his seat box at any time after leaving Renville, and that he had not noticed any whistle signal sounded immediately prior to the occurrence of the accident Fireman Jarvis also stated that Engineman Fillmore apparently was in good physical condition, that the engineman was on his seat box between Renville and the point of

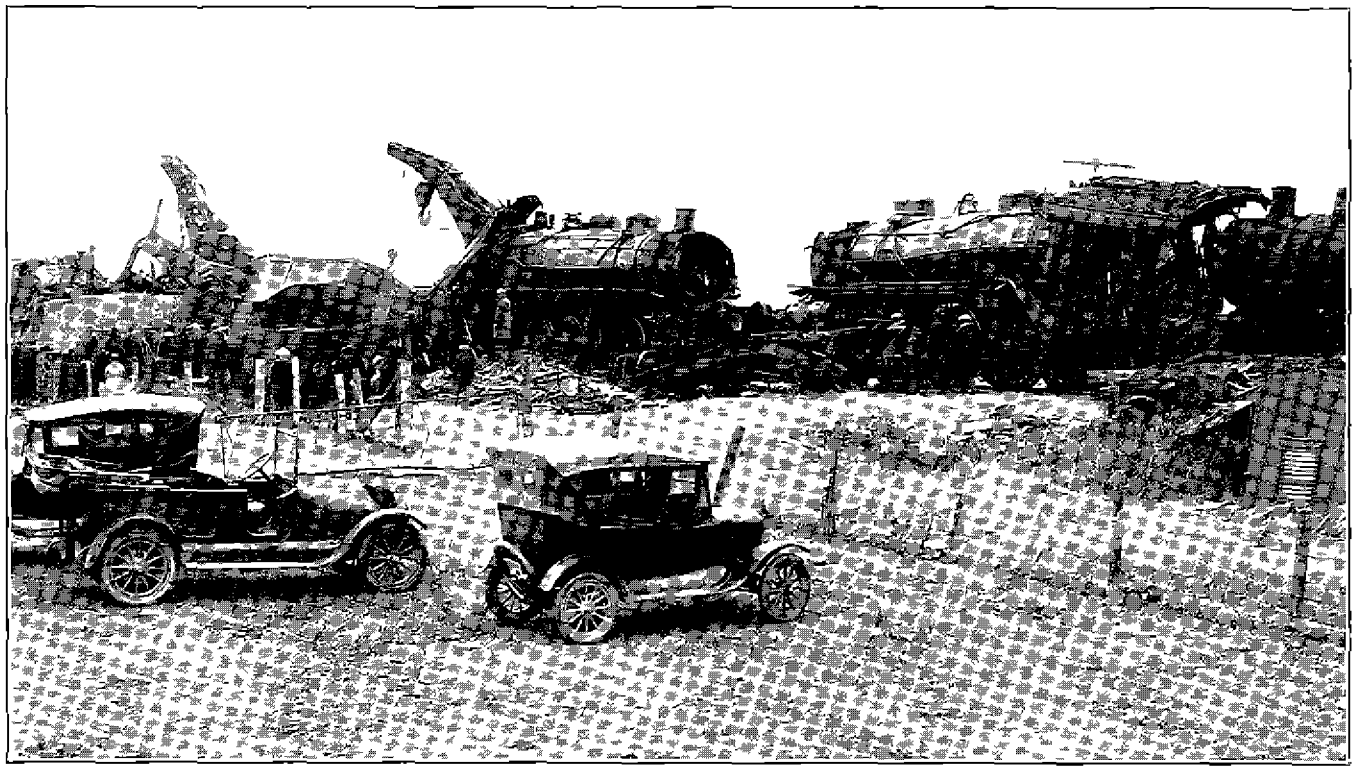

FIG No 1.—View from south side of track looking westward front of engine which appears on extreme right belongs to relief train

accident, that apparently he was awake and attending to his duties at all times, and while he could not say positively that Engineman Fillmore sounded the whistle signal to indicate the approach of the train to a point where train orders were to be executed, yet he felt sure this signal must have been sounded or he would have noticed it Fireman Jarvis thought that when looking west from Renville a headlight could be seen as far as the curve at Sacred Heart a distance of more than 6 miles

Conductor Harrington, of train No 17, said the train passed Renville at a speed of about 10 miles an hour, that Head Brakeman Cadwell received the clearance card from the operator and handed it to him, and that as the train was passing the station he looked at his watch and noted that it was 1 28 a m He then went through one of the coaches into the vestibule waiting for the train to reach O'Connor Siding and he said the train passed the east passing track switch at 1 32 a m Conductor Harrington then went back through the cars and had reached the dining car when he felt the air brakes being applied in emergency the collision occurring almost immediately afterwards, and after regaining his feet he noted that it was 1 38 a m He had not noticed any whistle signals sounded before the accident occurred Conductor Harrington's estimates as to speed were conflicting At one point he said the train was traveling at a speed of 25 or 30 miles an hour when approaching O'Connor Siding and at a speed of 15 or 20 miles an hour between the east switch at that point and the point of accident, while in another part of his statement he said the speed was 10 or 15 miles between Renville and O'Connor Siding and about 25 or 28 miles an hour between that point and the point of accident He was unable to estimate how fast the train was moving when the accident occurred

Head Brakeman Cadwell thought that it was 1 29 a m when he received the clearance card at Renville, and was satisfied that his train could not reach O'Connor Siding before 1 30 a m, the time named in the wait order, and his statements indicated that he did not again look at his watch His first warning of danger was when the air brakes were applied, followed in about two seconds by the shock of the collision which occurred while his train was traveling at a speed estimated by him to have been slightly more than 25 miles an hour Baggagemaster Osterwind knew nothing about the order received for his train and had not noticed the time at which his train passed any of the various points en route, he estimated the speed at the time of the accident to have been between 20 and 25 miles an hour and that the shock of the collision came almost simultaneously with the application of the air brakes It appeared from the statements of Flagman Rohl that he had not been shown the

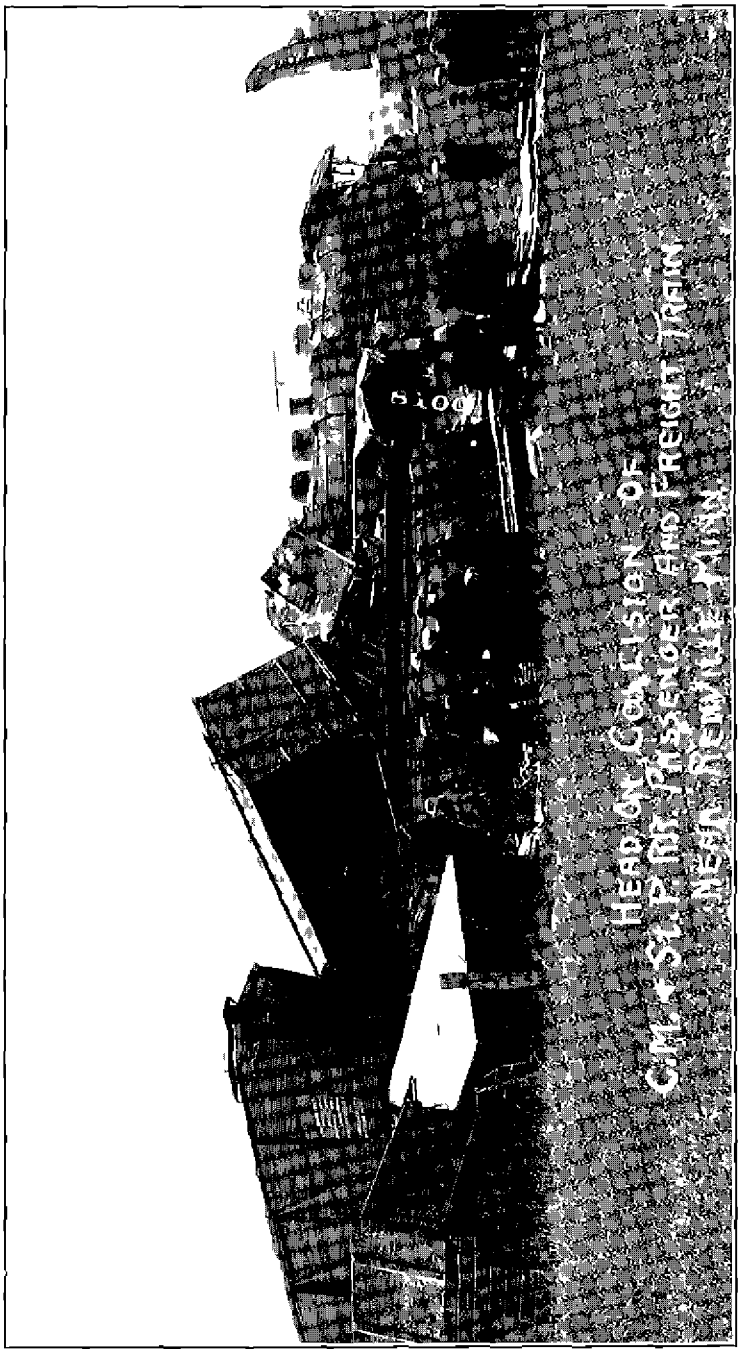

FIG No 2—View from south side of track looking eastward

order received by the conductor at Olivia and that he did not know the time at which his train passed either Renville or O'Connor Siding, he was looking out of a window when the accident occurred and estimated the speed at the time to have been about 20 or 25 miles an hour

When interviewed in the hospital several days after the occurrence of the accident Engineman Bucklin, in charge of the lead engine of train No 264 said his train left Montevideo, which is 17 1 miles west of Minnesota Falls, at 12 15 a m and that when coming into Minnesota Falls, the eastern end of a short section of double track, he saw that his train would not be able to go any farther without being on the time of train No 17 As his train was brought to a stop he saw that the train-order board was being manipulated in such a manner as to indicate that there was orders for his train He then proceeded and when the engine was passing the office the operator handed on a copy of the order directing train No 17 to wait at O'Connor Siding until 1 30 a m After reading the order he noted that he had 16 minutes in which to be clear of the main track and told the fireman he did not think they could make it, with which idea the fireman agreed Engineman Bucklin decided, however, to proceed to Sacred Heart, a distance of 5 4 miles, head in at that point and send out a flag Flag protection would be necessary in view of the fact that the passing track at Sacred Heart, according to the timetable, would hold only 78 cars The train made good time after leaving Minnesota Falls, and he said that on reaching Sacred Heart at about 1 25 a m he saw that there was not time enough to send out a flag and decided to proceed toward O'Connor Siding, although he knew that under the rules his train should be clear of the main track at 1 25 a m, or five minutes before the time named in the wait order His idea was that he would be on straight track after leaving Sacred Heart and would then have an opportunity of seeing what was ahead of his train Shortly after entering on the long tangent which begins about one-quarter mile east of the station at Sacred Heart he saw the headlight of train No 17, apparently at a point east of Renville, and he then watched this headlight continuously, and he said that after a while it disappeared from view When he reached the west storage-track switch the idea came to him that if he did not watch out he might overrun the west passing-track switch and therefore he made an application of the air brakes Suddenly the headlight of train No 17 appeared again, apparently near the east switch of O'Connor Siding His train had proceeded a short distance farther, its speed being reduced to about one-half that at which it had been running previously, when he realized that the headlight of train No 17 was but a short distance away and he said he at once

placed the brake valve in the emergency position, the collision occurring very shortly afterwards, at which time the speed of his train was about 15 or 20 miles an hour He was unable to say exactly when the accident occurred except that it was between 1 30 and 1 35 a m When told that Sacred Heart was the place at which he should have stopped and then being asked why he did not cut off his engine at that point and go ahead to provide flag protection, he replied, "Well, why didn't I stay at Minnesota Falls? There is where I should have stayed" When questioned further in connection with the statement that the headlight of train No 17 disappeared from view, he said that this might have been when the train ran down through a sag west of Renville, and he also explained that occasionally a headlight will go out and then light up again He said that the headlight on his own engine was in good condition and had not given him any trouble at any time He also stated that he had told both the fireman and the head brakemen to look back for signals when passing around the curve leaving Sacred Heart, but that they said they did not see anything

Fireman Donovan of engine 8100, did not remember the exact time at which his train left Minnesota Falls, but said he remarked to Engineman Bucklin that they had 16 minutes in time on train No 17, he also stated that if he were an engineman he would want 30 minutes in which to go from Minnesota Falls to Sacred Heart with a similar train handled by two engines Fireman Donovan said he had no discussion with the engineman, however, as to where they would go for train No 17, and that when he saw the headlight of train No 17, after passing around the curve east of Sacred Heart, he supposed that that train was then at a point east of Renville and still refrained from discussing the matter with the engineman, saying that the engineman also saw the headlight and he supposed the engineman knew what he was doing Fireman Donovan said he continued to watch this headlight and after a while it disappeared and then reappeared Shortly afterwards he took some fusees out of his seat box, giving some of them to the head brakeman, and lighting one of them when in the vicinity of the west storage-track switch, but even after passing this switch he did not make any comment either to the engineman or to the head brakeman about stopping or providing protection in any way Finally he apparently realized that train No 17 was closely approaching, called a warning to the others on the engine and jumped just before the accident occurred, while the train was traveling at a speed estimated by him to have been not over 20 miles an hour

Fireman Skramstad, of engine 8052, the second engine in train No 264, said a copy of train order No 2 was delivered to his engine as

well as to the lead engine and that Engineman Young asked him how far it was to O'Connor siding, not being very familiar with this part of the road, and Fireman Skramstad said that after looking at his watch, at which time it was 1 15 or 1 16 a m, he told Engineman Young they would not have time to go to O'Connor siding and that probably Engineman Bucklin intended to head in on the passing track at Sacred Heart Fireman Skramstad noticed that the engineman of the lead engine was not stopping at Sacred Heart, and after passing the west switch at that point he again looked at his watch and it was then 1 25 a m He said he and Engineman Young were depending on the crew of the lead engine, as those men were more familiar with the conditions in this locality, and that he told Engineman Young that Engineman Bucklin apparently was going to the west storage-track switch at O'Connor siding, telling him this switch was 1 or 2 miles beyond Sacred Heart As a matter of fact this switch is 3 1 miles beyond Sacred Heart After the train had proceeded a short distance beyond Sacred Heart, Fireman Skramstad again looked at his watch and told Engineman Young that then time had expired and he said Engineman Young shut off steam, while on looking ahead the fireman said he saw a fusee burning on the lead engine which looked as if the man holding it was going along the side of the boiler toward the pilot, supposedly to open the storage-track switch and then to flag train No 17 While looking ahead at this time he also noted that the headlight on the lead engine was burning properly Fireman Skramstad was telling Engineman Young about this fusee when the engineman asked him if they had not passed the switch, apparently having heard the engine go over it The speed at this time was about 20 miles an hour and on looking out of the window it seemed to the fireman that the headlight of train No 17 was very bright, and he said that in the meantime Engineman Young had cut in his brake valve and applied the air brakes in emergency Fireman Skramstad then called to the engineman that he thought there was going to be a collision, got down on the steps, and jumped He had not noticed any application of the air brakes by the engineman of the lead engine Fireman Skramstad was under the impression that his train did not have to be clear of the main track until the time shown in the wait order, which was 1 30 a m, and having been mistaken in his idea of the distance from Sacred Heart to the west storage-track switch he thought that when his train passed Sacred Heart at 1 25 a m there was time enough for it to go to that switch for train No 17 It also appeared from his statements that at no time after leaving Minnesota Falls had he received a signal from the rear end of the train, although he said he had looked back on various occasions When looking ahead at various times after pass-

ing Sacred Heart he had seen the headlight of train No 17, but he said it had appeared to be very dim, which he supposed was due to the distance and also to the fact that he had been working on the fire in his engine

Conductor Trueman, of train No 264, said it was 1 05 a m when his train stopped at Minnesota Falls He got off the caboose, started ahead and had gone about four or five car lengths when the train started to move As the caboose passed the station he received a copy of train order No 2 from the operator and at that time looked at his watch and saw that it was 1 11 a m On going inside of the caboose he read the order and while he knew he did not have time enough to go to O'Connor Siding, as it would take from 20 to 25 minutes to go from Minnesota Falls to O'Connor Siding, without getting into clear, he thought there was time enough in which to go to Sacred Heart and head in on the passing track at that point When entering Sacred Heart, however, he saw that the lamp on the west passing-track switch was displaying a clear indication showing that the switch had not been opened Realizing that his train was not going to stop he lighted some fusees, went out on the caboose platform and placed one fusee on each side of the caboose as a stop signal to the engine crew, this being done at about the time the caboose was passing the station moving at a speed of about 20 or 25 miles an hour He then went back inside of the caboose for the purpose of stopping the train by means of the conductor's emergency valve, but the flagman said it probably would result in derailing the train, and after reaching the conclusion that the lead engine had been cut off and sent on ahead to O'Connor Siding for the purpose of providing flag protection against train No 17, he decided to let his train proceed, although he knew it was then on the time of train No 17 When the train was close to the storage-track switch at O'Connor Siding he felt a jar as if the straight air had been applied and within two or three seconds there was another jar and the train came to a stop, at 1 35 a m He estimated the speed at the time of the accident to have been about 20 miles an hour Conductor Trueman further stated that he did not give any proceed signals either at Minnesota Falls or at Sacred Heart, saying it was not customary to do so inasmuch as signals given from the rear of the train could seldom be seen by the engine crew The statements of Flagman Null corroborated those of Conductor Trueman

Operator Martinson, on duty at Renville said train No 17 passed his station at 1 26 a m, moving at an unusually low rate of speed, apparently killing time He estimated this speed to have been about 10 or 15 miles an hour, and said that when the engine passed the station the headlight was burning brightly On

returning to the inside of the station he looked out of a window, and saw the headlight of train No 264, apparently on the curve at Sacred Heart

Operator Greene, on duty at Minnesota Falls, said train No 264 approached that point prepared to stop, but that he gave the crew a signal to proceed, and the train passed the station at a speed of 8 or 10 miles an hour, at which time the headlight on the lead engine was burning brightly

CONCLUSIONS

This accident was caused by the crew of train No 264, attempting to go to O'Connor Siding for train No 17, an opposing superior train, without sufficient time, for which Conductor Trueman, and Enginemen Bucklin and Young are responsible

There is little that can be said in explanation of the action of Engineman Bucklin in trying to make the movement in question or of the failure of Conductor Trueman to stop the train at Sacred Heart by means of the conductor's emergency valve There was no misunderstanding on their part as to what was required under the terms of the wait order, and they also understood that under the rules their train was required to be clear of the main track five minutes before the time specified in the wait order, while there was a doubt in the mind of Engineman Bucklin, at least, as to whether he would be able even to reach Sacred Heart The passing track at Sacred Heart was not long enough to hold his train, which would have made it necessary for him to send a flagman ahead to stop train No 17 and "saw by" at that point, but nevertheless he decided to try to reach that station Having succeeded in this attempt, his further action in continuing beyond that point is without justification Conductor Trueman said he thought there would be time enough in which to go to Sacred Heart but that when he saw the engineman was not going to stop at that point he decided to stop the train himself by means of the conductor's valve, after talking with the flagman however the conclusion was reached that the emergency application of the brakes from the conductor's valve might derail the train, while Conductor Trueman also concluded that as the enginemen were experienced men the lead engine probably had been cut off and sent on ahead to O'Connor Siding for the purpose of flagging train No 17 and holding it at that point until train No 264 could arrive Nothing appeared in the record which justified Conductor Trueman in reaching any such conclusion, and for his failure to take the proper steps to bring his train to a stop at Sacred Heart he is equally responsible with Engineman Bucklin for the occurrence of this accident

The statements of Fireman Skramstad, of the second engine of train No 264, indicated that Engineman Young might not have been as familiar with this particular territory as the other members of the two engine crews and tends to show that there was considerable conversation between him and Engineman Young as to where their train was going for train No 17 and as to the time available for the movement in question While under such circumstances Engineman Young may not be considered to be as greatly responsible for the occurrence of this accident as Engineman Bucklin, yet he had a copy of the wait order and presumably was in possession both of a watch and a time-table, and had he desired he could easily have determined for himself whether or not his train had time enough to go to O'Connor Siding for train No 17

While there was some conflict in the statements of the various employees as to the time at which train No 17 passed Renville and also as to the time at which the accident occurred, the weight of evidence clearly indicated that train No 17 did not pass the west passing-track switch at O'Connor Siding prior to the time specified in the wait order, and it seems probable that it was not far from 1 35 a m when the two trains collided

Attention is called to the fact that Fireman Skramstad said he thought his train could occupy the main track up to the time named in the wait order, whereas under the rules it should have been into clear, or protected by flag, five minutes prior to that time The reason for such a misunderstanding is not clear in view of the fact that he had been employed in engine service since 1909 and had been promoted in 1915

The main track of this railway is tangent from a point about one-quarter mile east of Sacred Heart to a point nearly 3 miles east of Renville, an aggregate distance of approximately 9 5 miles, the point of accident being about 3 5 miles from the western end of the tangent, and it appeared that each engine crew saw, or could have seen, the headlight of the opposing train when the two trains were approximately 7 miles distant from each other The testimony was to the effect that the two engine crews of train No 264 watched the headlight of train No 17 practically all the time after it came within their view, and, while no definite statement can be made concerning the engineman of train No 17, the testimony of the fireman of that train indicated that the engineman was on his seat box, apparently alert, and at all times properly attending to his duties, and it seems more than probable that he also had noticed the headlight of the opposing train In spite of these facts, however, the evidence is equally clear that none of the engine crews realized that the opposing train was close until a few seconds prior

to the occurrence of the accident, the testimony of the three surviving members of the engine crews of train No 264 indicating that their train was some distance east of the storage-track switch, located only 1 250 feet from the point of accident, before they realized that a collision was imminent, while the statements of the fireman of train No 17 as well as of the members of the train crew of that train indicated that there was a very short time interval between the application of the air brakes and the shock of the collision

The fact that opposing engine crews have great difficulty in telling whether or not trains are close to each other was brought out in the investigation of the head-end collision on the Chicago, Rock Island & Pacific Railway near Plains, Kans, on April 19, 1922, and of the head-end collision on the Minneapolis, St Paul & Sault Ste Marie

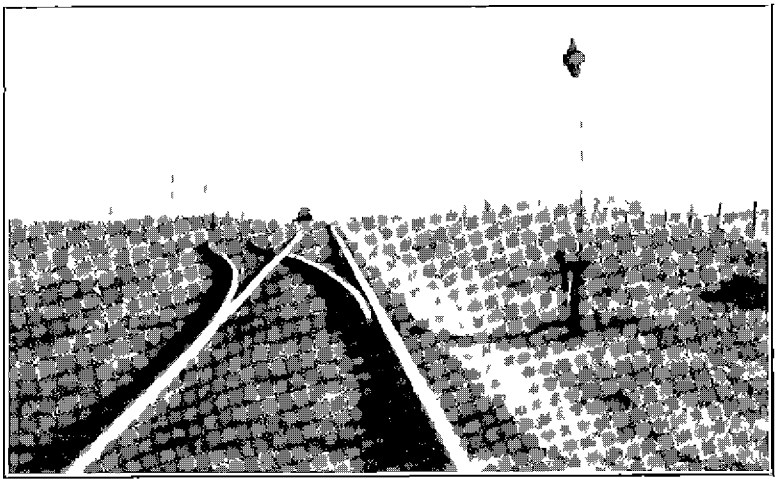

FIG No 3—Looking toward point of accident from west storage track switch

Railway near Thorpe, Wis, on December 14, 1922 In the case of the accident at Plains there were two stations 7 16 miles distant from each other, the point of accident being nearly half way between the two points, and it appeared that before leaving their respective stations the engine and train crews of each train saw the headlight of the other train and supposed that the opposing train was waiting at the next station, the error not being discovered by the enginemen until very shortly before the accident occurred In the case of the accident at Thorpe the track was tangent in both directions from the point of accident for a distance of about 2 miles, there was an ascending grade east of the point of accident and on reaching the summit of this grade the engineman of the westbound train saw the headlight of the opposing train and applied the air brakes, although unable to stop before the accident occurred the crew of the opposing train, however, at first thought the westbound train was waiting at Thorpe,

about 1½ miles distant, not discovering their error until just before the accident occurred

In the case of the accident here under investigation tests were made to ascertain if at any time the headlight of an approaching train would become invisible on account of variations in grade, and also to ascertain to what extent the location of an opposing headlight could be determined Observations were made from the point where the profile showed the tracks to be at the lowest level, this point being about 900 feet east of the west passing-track switch, or about 6,750 feet east of the point of accident With respect to the visibility of the opposing headlight it was found that when observations were made from a point as low as 7 feet above the ground the headlight of an eastbound train was always within view after it had reached the tangent track east of Sacred Heart, slightly more than 4 miles distant Inasmuch as the line of vision of an engineman is about 12 feet above the ground this test indicated that the headlights could have been seen at all times from any point on that end of the long tangent With respect to the ability of enginemen to determine the location of an opposing headlight, it was found that it was impossible to do this, there being no apparent change in the location of the headlight or any increase in the intensity of the light, from the time it first appeared more than 4 miles distant until it was close enough to reflect on the rails at a distance of less than 1 mile even this reflection however could not be seen by an engineman if his own headlight were burning, neither would it be visible if each of the opposing engines was running on a slightly ascending grade

While the track in this vicinity is crossed by a public highway there is no highway closely paralleling the track, and the subsequent investigation failed to develop anything in the way of other lights which could in any way confuse an engineman All the headlights of the three engines involved in this accident were Pyle 250-watt headlights, those on engines 6305 and 8052 were equipped with Golden Glow reflectors, while that on engine 8100 was equipped with a silver-plated copper reflector

Had an adequate block-signal system been in use on this line, this accident probably would not have occurred, an adequate automatic train stop or train-control device would have prevented it

The employees involved were experienced men, at the time of the accident they had been on duty periods ranging from about 2½ hours to about 7½ hours after periods off duty ranging from 8 hours to 48½ hours

Respectfully submitted

W P Borland, *Director*

WASHINGTON GOVERNMENT PRINTING OFFICE 1926