

**In re Investigation of an accident which
occurred on the Chicago, Rock Island
& Pacific Railway at Mounds, Ark.,
on January 27, 1917.**

March 15, 1917.

On January 27, 1917, there was a rear-end collision between two sections of a passenger train on the Chicago, Rock Island & Pacific Railway at Mounds, Ark., which resulted in the death of 3 passengers, and the injury of 34 passengers and 1 employee. After investigation of this accident, the Chief of the Division of Safety reports as follows:

Eastbound passenger train No. 604 was en route from Little Rock, Ark., to Memphis, Tenn., and consisted of 1 combination mail and baggage-car, 1 baggage car, 2 coaches and 1 chair car, all of wooden construction except the chair car, which had steel platforms and vestibules. This train was hauled by locomotive 675, and was in charge of conductor Hess and Engineman Johnson. On arriving at Brinkley, 55.5 miles from Mounds, train order No. 93 was received, directing them to display signals from Brinkley to Briark for Cotton Belt locomotive 665. Briark is 9.5 miles beyond Mounds. This order also contained "run late" instructions for both sections, and read as follows:

"To C. & E. No. 604 and CB Eng. 665 and 692:
No. six naught four 604 Eng 675 display
signals Brinkley to Briark for CB Eng. 665. First
1st No. six naught four 604 Eng 675 run thirty 30
mins. late Brinkley to Briark. Second 3d No. six
naught four 604 CB Eng. 665 run one hour late Brink-
ley to Forrest City and thirty 30 mins. late Forrest
City to Briark."

In addition to this order, both trains received pink bulletin slow orders covering quite a number of points between Brinkley and Mounds. According to the train sheet, train 1st No. 604 left Brinkley at 7.09 p. m., 44 minutes late, and at Beth, the last open telegraph office prior to reaching Mounds, 13.2 miles distant therefrom, the crew received a copy of train order No. 99, reading as follows:

"First 1st six naught four 604 Eng. 675
wait Edmondson until nine twenty 9.20 p. m."

The train departed from Heth, according to the train sheet, at 8.57 p. m., 47 minutes late, and according to the statements of the crew stopped at Mounds at about 9.30 p. m. While at the station loading and unloading passengers, Train Ed No. 604 was seen approaching, and an attempt was made to start the train, but it had only moved forward 3 or 4 feet when the collision occurred.

Train Ed No. 604 consisted of St. Louis Southwestern locomotive 665 and a caboose, in charge of Conductor Caperton and Engineer Valvin, the entire crew consisting of employees of the St. Louis Southwestern Railway. This crew reached the tracks of the Chicago, Rock Island & Pacific Railway at Cotton Belt Junction, which is 0.7 mile east of Brinkley, at 7.40 p. m., 1 hour and 15 minutes late on the regular schedule of train No. 604. It passed Heth, according to the train sheet, at 9.10 p. m., 1 hour late, and collided with train 1st No. 604 at Mounds shortly after the first section had come to a stop.

Train 1st No. 604 was driven forward about 150 feet, while the locomotive and first car broke away from the train and traveled an additional distance of about 100 feet. The chair car was telescoped by the Cotton Belt locomotive a distance of about 12 or 15 feet, and this car in turn telescoped the coach immediately ahead of it, the coach being practically demolished. Some damage was also sustained by the other cars of the passenger train, while only slight damage was sustained by the Cotton Belt locomotive.

The division on which this accident occurred is a single track line, trains being operated by time-table and train orders. No block signal system is in use, but trains following one another are spaced 10 minutes apart at open telegraph offices. The track is tangent for several miles in each direction, and there is practically no grade. At the time of the accident there was a dense fog.

Engineer Johnson, of train 1st No. 604, stated that his train left Brinkley at 7.15 p. m., and stopped at the coal chute, leaving there at 7.20 p. m. Although the train sheet showed this train as leaving Brinkley at 7.00 p. m., he was positive that it was 7.20 p. m. when it left the coal chute, as he remarked to the fireman that they were 55 minutes late. His train then stopped at Wheatley crossing and at the station, and also at Goodwin and Palestine, none of these stops being of any duration. He stated that the speed of his train from the coal chute to Palestine was about 35 or 40 miles an hour. According to the train sheet, his train arrived at Palestine at 7.40 p. m., although he said it usually took from 25 to 30 minutes to go from the coal chute at Brinkley to Palestine and make the stops en

route. The next stop was at Forrest City, and according to the train sheet the train left that point at 8:05 p. m. He stated that between Forrest City and Mounds his train made eight stops. These were not long stops, Engineer Johnson saying that he thought, on the average, it took about two minutes to make a stop and to start. The speed of this train was 25 or 30 miles an hour in some places between stations; and he said that it was between Madison and Widener that the weather began to get a little hazy. He did not remember the time his train left Hoth, the last open office, but as near as he could remember it was 8.55 or 8.57 p. m. His train stopped at Edmondson, 2.5 miles from Mounds, and at that time picked up a flagman who had been left by the crew of local freight train No. 82. This flagman told him that train No. 82 had gone ahead of him, and to watch out for it at stations. The flagman also said that train No. 82 left Edmondson at 8.58 p. m., and as it was then 9.25 p. m., he figured that the freight train was 25 minutes ahead of him, and he knew there would be no delay to his train, on account of the freight train being so close to the terminal, and he therefore did not notify the conductor that he had picked up the flagman. Leaving Edmondson at 9.25 p. m., his train made an ordinary run to Mounds, consuming about five minutes, no fuses thrown off by the freight train ahead being encountered. Approaching Mounds, which is a flag station, he shut off steam a little earlier than usual, and reduced the speed approaching the station, as a matter of precaution. A white lantern was waved by people who were waiting to board the train, and he thought that he saw this lantern when about 100 yards from the station. After coming to a stop, he released the brakes, placed the reverse lever in the forward position and turned around on his seatbox. He then saw a proceed signal given and at the same time saw the reflection of the electric headlight of the approaching train; he did not hear any whistle signal sounded. His train had just started to move ahead when the collision occurred, after being stopped only about 30 seconds. He did not look at his watch when arriving at Mounds, but, judging from the time his train left Edmondson and the time consumed en route to Mounds, he thought the collision occurred at about 9.30 p. m. He also judged the time of the collision to have been 9.30 p. m. from the fact that after it occurred he secured his torch, got off the locomotive, walked back to where the train had broken in two, saw the steam escaping from the steam-heat hose, returned to the locomotive and turned the angle cock between the tender and the first car, boarded the locomotive and told the fireman to shut off the steam heat, and then looked at his watch, at which time it was 9:35 p. m. Engineer Johnson further stated that under train order No. 93, the two sections were scheduled to run 30 minutes late between Forrest City and Briark, and he was 50 minutes late on his schedule; yet he did not think it necessary to have his train protected by flag, saying that it was making schedule time, and, in fact, had made up five minutes between the coal chute at Briarkley and Mounds; and as it was not being delayed he did not think there was any opportunity of the second sec-

tion, which was one hour late out of Brinkley, overtaking his train; and he therefore did not sound any whistle signals for the flagman to protect the rear of the train.

Fireman Harg stated that his train left the coal chute at Brinkley at 7.20 p. m., arrived at Palestine at 7.40 p. m., and at Forrest City at 8.05 p. m., at which point it stopped for a few minutes. In making the stops between Brinkley and Forrest City he did not think more than three minutes were lost in stopping and again attaining full speed. At 8.15 p. m. the train left Madison, at which point it began to get a little hazy. The train stopped about two minutes at Beth, and at this point he noticed that the marker on the rear of the train on his side was burning. The fog here was not so very thick, but after leaving Proctor and Edmondson it was very dense. At Edmondson the flagman of train No. 82 was picked up, and he notified them that that train was ahead. Only a short stop was made at Edmondson; he compared time with Engineman Johnson when leaving there, and it was then 9.25 p. m. This was the last time he looked at his watch before the collision occurred, and he also said that when leaving Edmondson he noticed that the marker on his side was burning. He thought the train lost about a minute, or a minute and a half, coming into Mounds, on account of the instructions received from the flagman of train No. 82, saying that the speed was reduced before reaching the west switch. He saw the switch light on this switch when about 200 or 300 feet from it, and at about the time the train passed over it he saw the white lantern waved by the passengers who were flagging the train. He did not notice the markers at Mounds, and did not hear the second section whistle as it approached. He thought the collision occurred within 30 seconds after his train had been brought to a stop; and that it was about 9.25 or 9.30 p. m. He thought about three or four minutes elapsed between the time of the collision and the time the engineman told him to shut off the steam heat. No fuses were encountered at any point.

Conductor Hess stated that his train left the station at Brinkley at about 7.10 p. m., leaving about two minutes after he registered out, but he did not remember the time he registered, neither did he notice the time his train left the coal chute. The train stopped for the crossing at Wheatley, and again for the station; also at Goodwin and at Palestine. He did not know at what time the train left Forrest City, but thought it made about the usual run between Brinkley and Forrest City. It stopped at Beth at about 8:54 or 8:55 p. m., and departed at 8.57 p. m. The next stop was at Jonquil, less than a minute being used at this point. The next stop was at Proctor, at which point it was hazy. Coming into Edmondson he personally saw the flagman throw off a 10-minute red fuse, this being at a point about one mile west of the station, and he stated that at this time he noticed that the markers were burning in proper order.

At Edmondson the train stopped about one minute, leaving at 9.25 p. m., and about five or six minutes were consumed in making the run to Mounds. He did not notice whether or not the train slowed down between the two stations, and he did not know whether or not the flagman threw off a fusee approaching Mounds. The train arrived at Mounds at about 9.30 p. m., or half a minute thereafter. The flagman at this time was on the head end of the rear car and both of them descended to the station platform. He did not hear the approaching train whistle, the first he knew of its approach being when he saw the electric headlight. He at once gave a proceed signal to the engineer, and the train had just started to move when the collision occurred. He stated that he was knocked down by a piece of wreckage, but after getting up and lighting his lantern he looked at his watch and it was then 9.29 p. m., or a few seconds thereafter. There were only two or three passengers waiting to board the train at Mounds, and the train started to move ahead before all had gotten on. Conductor Hess further stated that he did not know a flagman had been picked up at Edmondson, and that if he had it might have made a difference about leaving a fusee approaching Mounds. He stated, however, that his train had made about the usual running time between Brinkley and Mounds, having lost only three or four minutes, and that it was in no danger of being overtaken at Mounds if the fusee thrown off west of Edmondson was observed. At Mounds there was no opportunity of sending out a flagman before the collision occurred. He also stated that the flagman had six fusees when he started; that there had never been any difficulty in procuring as many fusees as were necessary, and that he had never been criticized for excessive use of fusees. Conductor Hess thought that if the schedule showed a station to be a stopping point for a passenger train, that was sufficient protection while at such scheduled stopping points, whether on time or not.

Flagman Mangrum stated that he entered the service of the C. R. I. & P. Railway on January 10, 1917, and that while he carried a standard watch it had not been compared; nor was he furnished with a comparison card when he went to work. He did not know the time his train left Brinkley, Forrest City, or Beth, but said it stopped at Beth about three minutes. He first noticed fog at Madison, and at Edmondson it was very thick. Between Forrest City and Edmondson he threw off fusees, at Madison, at Round Pond, at Beth, and at a point about one mile west of Edmondson, saying that the conductor had cautioned him when leaving Forrest City to watch out for the following section, and to use fusees; the conductor again cautioned him when leaving Widener. The train stopped at Edmondson about one minute, leaving there at 9.25 p. m., and he said that he did not throw off any fusees between Edmondson and Mounds, as he thought that if the fusee west of Edmondson was observed it would give all the protection needed. When arriving at Mounds he was on the front platform

of the rear car and at once descended to the station platform, to assist in handling passengers. His attention was at once attracted by the sound of a locomotive working steam, and on looking back he saw the electric headlight of the approaching train, apparently two or three car lengths distant. He started toward it, and had about reached the rear of his train when the collision occurred. He said there were several passengers to get on, but that they saw the approaching train as soon as he did and remained on the station platform. He did not hear the approaching train whistle. When he looked at his watch, about a minute or two after the collision, it was 9.30 p. m. He thought that if he had started back as soon as his train stopped he would not have had time to go more than two car lengths. Flagman Mangrum further stated that he had nine fuses when starting the trip, six of his own and three that he secured from a porter. He had never had any difficulty in obtaining fuses and he did not have any conversation with the Cotton Belt crew about there being any difficulty in obtaining them. He did not have any yellow fuses, although required to have them. He also stated that at Loucke, west of Brinkley, the marker on the left side had gone out, but after cleaning it, he lighted it and it burned properly. The last time he noticed the markers was at Edmondson, and at that point they were all right.

Train Auditor Prentice stated that the train stopped about two minutes at Beth, but that he did not notice the time either there or at any other point. He noticed that the speed of the train was reduced over a bad spot in the track, but thought it was operated about as usual between Edmondson and Mounds. At the time of the accident he was in the fourth car of the train. He did not hear any whistle signal sounded by the approaching train, and while he was not paying particular attention, yet he did not think his train had stopped over 30 seconds before it started to move ahead; the collision occurred at 9:30 p. m. He also said that his watch had not been compared within the past week, but he thought it was about 25 or 30 seconds fast. At Mounds the fog was so thick that he could not see lights in stores located about 75 feet from the track.

Chief Train Auditor Kirehoff stated that there had been no delays in the handling of passengers; the train stopped at Edmondson at 9.23 p. m., and departed very shortly afterwards. When the accident occurred he was riding in the forward end of the fourth car. He did not hear any whistle signal sounded by the approaching train and did not look at his watch at the time of the collision. The weather was very foggy and he did not think he could see more than 25 feet.

Colored Train Porter Young stated that his train stopped seven or eight minutes at Beth, being delayed on account of

unloading a coffin, having to back up for the purpose. When the collision occurred at Mounds, he was on the ground opposite the train, and did not hear any whistle signal sounded, or see the second section when it approached. He did not know how many white passengers were handled, but stated that only one colored passenger got off, and that two got on.

Flagman Parker, of local freight train No. 82, stated that he boarded the locomotive of train 1st No. 604 at Edmondson and looked at his watch for the purpose of determining how the wait order would affect the train. According to his watch it was 9.23 p. m. when the train departed from Edmondson. His watch had not been registered since January 9th, but he had compared it with employees several times during the day. He noticed the marker on the engineman's side was burning, but did not notice the other marker. He thought about six minutes were used in making the run from Edmondson to Mounds, no fuses being encountered at any point. He did not know at what time the train stopped at Mounds, or at what time the collision occurred, but stated that there was an interval of about one-half minute between them. The fog was so dense that he could only see about two or three car lengths. He also stated that he had never had any difficulty in obtaining fuses.

Engineman Velvin, of train 2d No. 604, stated that his train arrived at Brinkley at 7.10 p. m., left the station at 7.35 p. m., and Cotton Belt Junction at 7.40 p. m., Cotton Belt Junction being 0.7 mile beyond Brinkley station. The train stopped at the crossing at Wheatley, and at about 7.50 p. m. stopped at the station, being delayed here about three or four minutes on account of having train orders to deliver to the crew of a freight train. The conductor of his train also had other train orders, which he expected to deliver at some point between Brinkley and Forrest City; and he stated that he slowed down at Goodwin, but did not find the freight train there, and proceeded to Palestine. At this point the orders were delivered, another delay of about three minutes resulting. No stop was made at the station at Palestine. When his train came to a stop at the crossing at Forrest City, at 8.30 p. m., it was just one hour late on the schedule time of train No. 604. After leaving Forrest City nothing was seen of any train ahead and he continued to operate his train about on the schedule time of train No. 604, being about one hour late most of the time. He stopped at the drawbridge at Madison, and then observed the slow order over the bridge, and he also slowed down to five miles an hour between Madison and Widener, over the four bridges, and also over the two bridges west of Round Pond. He also slowed down at Round Pond, and east of Cicalla. At Blackfish, which is the next station east of Round Pond, he looked at his time card and figured that the first section was 20 minutes ahead of him, thinking that that train was running just 30 minutes late, as provided by the "run late" order. According to this, his

train was 50 minutes late at Blackfish, which would make its time at that point 8.45 p. m. The weather began to get foggy and he stated that he used caution through the various stations. It was 9.08 p. m. when he passed Heth, and he stated that he slowed down just before reaching that point, and passed through there at a speed of about 10 miles an hour. He slowed down again for the crossing just beyond Heth, passing over it at a speed of six or eight miles an hour. He thought that at this point he could see about three car lengths, and he kept the engine bell ringing continuously from Heth to the point of collision. At Jonquil, the next station beyond Heth, he slowed down to six or seven miles an hour. While he did not notice the time passing Edmondson, he said that he was about one hour late and was not making up any time. He thought he used 21 or 23 minutes between Heth and Edmondson, passing Edmondson at a speed of about 12 or 15 miles an hour. He did not look at his watch, but thought it was about 9.31 or 9.32 p. m. He slowed down considerably between Cicalla, the first station west of Heth, and mile post 21, which is between Proctor and Jonquil, but did not know how much time was consumed between these points. Between mile 27.20 and 28.13 the speed was 12 or 15 miles an hour, while afterwards he stated that he could not say he reduced to 15 miles an hour,--that it might have been faster, but was not over 16 or 20 miles an hour. He did not notice the time consumed between Edmondson and Mounds, but thought it was four or five minutes, saying that the maximum speed was 25 or 30 miles an hour for a short distance. Approaching the station at Mounds, he sounded the station whistle and also a road crossing signal, while the bell was ringing. He first saw the rear end of the train ahead when about 75 feet from it, the electric headlight shining on the rear of the train at about the same time that he saw one red marker. He did not know whether or not the other marker was burning. Immediately upon seeing the rear end of the train he made an emergency application of the air brakes, but the speed was not materially reduced. He thought the speed had been about 20 miles an hour when he saw the train ahead. He stated that while he had slowed down at other points, he did not know why he approached Mounds at a high rate of speed. After the accident he descended to the ground, met Conductor Carterton, and compared watches with him; it was then 9.50 p. m. Previous to this he had compared watches with the fireman and at that time it was 9.57 p. m., which he said was the time the collision occurred. With regard to speed, Engineman Valvin stated that he thought his train might have run at a speed of 26 or 27 miles an hour in some places, but he did not think it exceeded 24 or 25 miles an hour the greater part of the time, while the maximum speed attained was 35 miles an hour. On account of the fog he did not make the maximum speed allowed, and stated that he observed all of the 5-mile-an-hour slow orders. After leaving Drinkley he did not receive any orders; all train order signals were clear; and he did not see any fuses or run over any torpedoes. He considered that he was taking the precautions required in foggy weather, and ex-

pected that if the first section was delayed for any reason it would be protected by herpetoses, fuses, or a flagman. He would not expect to find the first section at a flag station, as such as at a regular station, unless it was protected by flag, saying that when on his time the train should be protected at flag stations. Engineman Veivin stated that he did not have time to look over the general order and notices on the bulletin board at Brinkley, and that he did not sign them, although required by rule to do so. This was his first trip over the Rock Island tracks in about seven weeks. He also said that he compared his watch and made a notation of the same on the register at Pine Bluff.

Fireman Walker stated that his train left Brinkley, on the Cotton Belt, at 7.35 or 7.36 p. m. It stopped at the crossing at Wheatley, and again just beyond the station to deliver orders. He did not notice the time at Wheatley or at Goodwin, where the train slowed down. The next stop was at Palestine, where train orders were delivered to the crews of two trains, about a minute or so being used for that purpose. He did not notice the time at this point. The crossing at Forrest City was reached at 8.27 p. m., and at that point he compared watches with the engineman, his watch being 30 seconds faster than that of the engineman. A stop was made at Madison for the drawbridge, and a slow-down was made between Madison and Widener, the train passing over the long trestle west of Widener at a speed of seven or eight miles an hour. It was in this vicinity that fog was encountered. Between Widener and Round Pond another slow-down was made, while the speed did not exceed 20 miles an hour at any point. The next place where he noticed the time was at Beth, the train passing there at 9.08 p. m. In the vicinity of Jouquill the speed was pretty low, while between Beth and Proctor it averaged about 20 miles an hour. Approaching Mounds the engineman sounded the station whistle when about one mile from the station, while just before the markers of the first section were seen the engineman sounded a road crossing signal. He stated that he saw the marker on his side when about two or three car lengths from it, and that the speed was about 20 miles an hour at the time, while it had been between 20 and 25 miles an hour when passing the west switch. After the accident he opened the injector and put on the blower, and then shut it off; the engineman then opened the firebox door and flames came out in the cab, setting fire to the curtain. At first he stated that it was during all of this that he compared time with the engineman, while afterwards he said they compared time by the light coming through a crack in the firebox door. In any event, it was 9.37 p. m. when they compared watches after the accident. The engineman played the squirt hose on the fire for a period of three or four minutes before getting off. Fireman Walker further stated that after leaving Madison the train ran from 20 to 25

miles an hour, and that the speed was reduced through all stations. At no point were any fuses or torpedoes encountered.

Conductor Caperton, of train Ed No. 604, stated that his train left Brinkley at 7.35 p. m., and that he registered out at 7.40 p. m., in order to cover the time occupied in going to Cotton Belt Junction and passing over to the Rock Island tracks. The train left Cotton Belt Junction at 7.40 p. m., and was delayed a minute or two in delivering orders at Wheatley, leaving there at 7.50 or 7.52 p. m. A stop was made at Palestine, a delay of a minute or two being encountered at that point, but he did not remember the time of departure. It was 8.27 p. m. when the engineman whistled for the crossing at Forrest City, and a stop was made at the crossing. He did not know at what time the train left Madison. Between Madison and Widener the speed in some places was 25 miles an hour, while it was reduced at other points. Between Brinkley and Forrest City the speed at times was 30 miles an hour, or probably no higher than 25 miles an hour, while east of Forrest City it was not over 25 miles an hour at the most. Between Madison and Heth, the speed was 20 or 25 miles an hour - perhaps a little faster. He did not remember the speed between mile 27.20 and 28.13, or between mile 21.30 and 22.30, but he stated that the train did not run very fast between Cicalla and mile post 21. The train slowed down for the crossing at Heth, and also for a spur. He thought the engineman ran very carefully, and that the speed was not more than 10 or 12 miles an hour through stations. The train passed Heth at 9.08 p. m.; and he stated that he checked the time at that point and found his train to be 28 minutes late on the order, or 58 minutes late on the time-table schedule of train No. 604. He did not know at what time his train passed Proctor or Edmondson. Approaching Mounds, the engineman sounded station and road crossing whistle signals, and the bell was ringing. He thought the speed at the time of the collision was about 20 miles an hour; and said that when he looked at his watch before getting out of the caboose it was 9.37 p. m. Conductor Caperton also said that the weather was very foggy, and he did not think a red lantern could have been seen more than three or four cars lengths, while an electric headlight could not be seen much farther. He did not sign any bulletins at Brinkley before starting over the Rock Island tracks, and said that as far as the bulletins were concerned he was not familiar with conditions prevailing between Brinkley and Memphis. He saw the engineman looking over the bulletins but did not look them over himself, on account of not having time, the operator having told him to proceed as soon as possible with the train orders which were to be delivered to the trains at Wheatley and Palestine. He was not familiar with the Rock Island tracks, and could not tell exactly where he was, and consequently was unable to locate the points covered by the

slow order which he held. He also said that it was difficult to secure Rock Island time-tables at Brinkley, but that there was no difficulty in obtaining them at Mac Bluff, the starting point of his train.

Head Brakeman Perry, of train 2d No. 604, stated that his train left Brinkley at 8:40 p. m., was flagged across the crossing at Wheatley, and then made a stop to deliver orders to a freight train. The train slowed down to 10 miles an hour through Goodwin, running slowly the entire length of the passing track, about one mile, expecting to find the other freight train to whom train orders were to be delivered. His train then proceeded to Palentine, where the orders were delivered to the crews of two freight trains. A stop was made at Forrest City, and by his watch it was 8.29 or 8.30 p. m. The correct time, however, according to the conductor's watch, was 8.27 p. m., and he then set his watch to agree with that of the conductor. A stop was made at the drawbridge at Madison, while several slow-downs were made en route. The maximum speed was not over 25 or 30 miles an hour, while the train was slowed down through stations and observed slow orders between stations. He thought the train ran about 20 miles an hour from the drawbridge at Madison to Widener. He did not remember if the engineman reduced speed at the west switch at Mounds, but thought the independent air brake was applied, and then suddenly an emergency application was made, the collision occurring almost immediately. After the accident he got out of the caboose, went to the locomotive and up into the cab, and looked at his watch by the fireman's torch, and it was then exactly 9.37 p. m. He said the fog was so dense that he did not think markers could have been seen more than 100 feet. He did not have a Rock Island time-table or book of rules. He did not look at the bulletins or general notices posted at Brinkley, and did not read the slow order held by the conductor.

Middle Brakeman Parker stated that the train ran carefully between Brinkley and Mounds, the speed being 20 or 25 miles an hour. The train slowed down through stations, and the engineman sounded all station and road crossing signals. He did not remember whether or not the engineman sounded the station and road crossing signals approaching Mounds, and he did not know whether or not the bell was ringing. The speed at the time of the collision was 10 or 20 miles an hour. On account of the fog, markers could be seen a distance of only about 100 feet. After the accident he went back to flag, and when he was relieved shortly afterwards, he returned to the scene of the accident and heard the conductor say that the accident occurred at 9.37 or 9.40 p. m. He also stated that he did not see the slow order held by the conductor; that he did not know whether or not the engineman observed it; and that he did not have a watch.

Flagman Ross stated that the first stop to deliver

orders was at Wheatley, while he did not know where the next stop was made. At the crossing at Forrest City the conductor and Brakeman Perry compared watches, and he thought they said it was 8.27 p. m. He stated that the train did not run fast anywhere between Forrest City and Mounds, while the highest speed between Brinkley and Forrest City was not more than 25 or 30 miles an hour. The speed was reduced at each station, some of the stations being passed at a speed of 8 or 10 miles an hour. The speed was also reduced at several points between stations, but he did not know what distances were covered at low speed, or what points were affected by the slow order. At some places, however, the speed was so low that he spoke about it to the conductor. He thought the fog was encountered at Forrest City, but was not positive of it, on account of not being familiar with the road. When about one mile from Mounds, the speed of the train was reduced, this being at about the time the engineman sounded the station whistle, which was followed by a road crossing signal. He thought the speed was about 18 or 20 miles an hour when the accident occurred; and said that he did not think markers could be seen more than one or two car lengths. Flagman Ross further stated that he did not have a watch or a Rock Island time-table; that this was his first trip over the Rock Island tracks; and that he did not know the names of the stations.

Operator Soper, located at Beth, stated that train 1st No. 604 was at his station about two minutes, and that he delivered to the crew a copy of train order No. 99, this order being made complete at 8.47 p. m. He was not positive, however, as to the time. Train 2d No. 604 passed at 9.10 p. m. running at a moderate rate of speed. At the time these trains passed his station the fog was not dense enough to obscure signals, and for this reason he made no report of it to the dispatcher.

Conductor Basley, of train No. 68, stated that his train left Edmondson at 8.53 or 8.55 p. m., passing Mounds at 9.12 or 9.15 p. m., and arriving at Hulbert, 4.3 miles beyond Mounds, at 9.20 p. m. No fuses were thrown off between Edmondson and Mounds. Conductor Basley said that he instructed the flagman left by him at Edmondson to say that they left at 8.58 p. m., and to watch out for them at stations. He thought that markers in excellent condition could have been seen about 150 yards in the fog.

The statements of Colored Section Foreman Ward, located at Edmondson, indicate that the markers on both sections of train No. 604 were burning when they passed that point. He thought that there was an interval of about three or five minutes between the two trains. The speed of the second section was so great that he thought it would overtake the first section before the latter reached Mounds, and he said that if he had had a lantern he would have flagged it. He also said that he did not see any burning fuses while walking from the

station to the section house, a distance of about three telegraph poles.

Agent Wainwright, at Edmondson, stated that he went off duty at about 8.00 p. m. He was awakened by the conductor of train No. 82, who wanted him to call the dispatcher and obtain an order, which would enable his train to run ahead of the two sections of train No. 504. He then received train order No. 99, which provided that the first section would wait at Edmondson until 9.20 p. m., this order being made complete at 8.48 p. m. At the time the two sections of train No. 504 passed his station he was asleep.

In summing up the statements of the various employees involved in this accident, it is apparent that there is a decided conflict as to the time when the accident occurred. According to the statements of the crew of the Rock Island train it was about 9.30 p. m., while according to the statements of the Cotton Belt crew the accident occurred at about 9.37 p. m. The testimony of the crew of train 1st No. 504 indicates that their train did not actually leave Brinkley at the time shown on the train sheet, the train leaving the station one or two minutes after registering out and being further delayed at the coal chute. It is therefore believed that this train left Brinkley at about 7.20 p. m., while the second section reached the Rock Island tracks at Cotton Belt Junction at about 7.40 p. m. The trains therefore were about 20 minutes apart leaving Brinkley, the first section being 55 minutes late, while the second section was 1 hour and 15 minutes late. After leaving Brinkley, the only open telegraph offices were at Forrest City, Madison and Beth, and the testimony of the crews of the two trains indicates that the train sheet figures are practically correct as to the time the trains left these various points. The first section is believed to have left Forrest City at 8.05 p. m., and the second section at 8.32 p. m. At this point the first section was 37 minutes late on its schedule and the second section 1 hour and 4 minutes late, the first section having made up about 18 minutes on its schedule, while the second section had made up about 11 minutes, the time interval between these two trains thus having been increased from 20 minutes to 27 minutes. The two trains left Madison at 8.14 p. m. and 8.40 p. m., respectively. At this point the first section was 56 minutes late on its schedule, and the second section was 1 hour and 2 minutes late. The second section had therefore gained one minute more than the first section, between Forrest City and Madison, the time interval between the two trains being reduced to 26 minutes. According to the train sheet figures at Beth, the first section left that point at 8.57 p. m., 47 minutes late on its schedule, and had lost 11 minutes between Madison and Beth. The second section passed at 9.10 p. m., 1 hour late, having made up two minutes between Madison and Beth, or having made a net gain

on the first section of 15 minutes, the interval between the two trains therefore being reduced from 25 minutes to 15 minutes. If the figures of the Rock Island crew are correct and the accident occurred at 9.30 p. m., then their train was 50 minutes late at Mounds, having lost three additional minutes between Heth and Mounds, while the second section was also 50 minutes late and had made up 10 minutes between Heth and Mounds, or a net gain of 15 minutes on the first section, thus completely closing up the time interval. If the figures of the Cotton Belt crew are correct, the accident occurred at 9.37 p. m., and the first section therefore was 57 minutes late on its schedule, having lost 10 minutes between Heth and Mounds, while the second section was also 57 minutes late and had made up only three minutes between the two stations, or a net gain of 15 minutes. Assuming the figures of the Rock Island crew to be correct, then their train had lost 14 minutes on its schedule between Madison and Mounds, and was in danger of being overtaken by the second section, while the second section had made up 12 minutes between the two points, and while the average speed of the second section would not have been in excess of the 40 miles an hour allowed by time-table rule, yet in order to make up for the various slow-downs which the engine crew claims to have made, it is possible that this speed of 40 miles an hour was exceeded by them at some point. On the other hand, however, if the statements of the Cotton Belt crew are correct, then the Rock Island train had lost 21 minutes between Madison and Mounds, instead of 14 minutes, while their own train had made up only five minutes, instead of making up 12 minutes; and in this event there is little doubt that they could have made up these five minutes, making the slow-downs required, and without violating any of the speed restrictions, inasmuch as their train consisted only of a locomotive and caboose and the speed could be reduced or increased very quickly.

It is clear that even according to their own statements, the train operated by the Rock Island crew was losing time, and that when slowing down for the purpose of making stops it was in danger of being overtaken, within the meaning of rule No. 98-b, which reads as follows:

"Should the speed of a train be reduced and its rear thereby endangered, making it necessary to check a following train before a flagman can get off, a burning fusee shall be thrown off at intervals to insure safety."

Even if this train had made schedule time between Edmondson and Mounds, or even between Heth and Mounds, yet it had been considerably delayed between Madison and Heth, and inasmuch as the second section had orders to run only one-half hour late from Forrest City, the crew of the first section must have known that their train was on the time of the second section, and that this is a fact is apparent from the statements of the conductor and flagman that the conductor twice cautioned the flagman about watching out for the second section and throwing off fusees, this precautionary advice having been given when leaving Forrest City, and again when leaving

Widener. If the accident occurred at 9.37 p. m., then the Rock Island train was being delayed to an even greater extent than indicated by their own statements.

The crew in charge of train 1st No. 604 knew that there was a following section, knew that their train was losing time and that it was then running on the time of the following section, which had orders to run only 30 minutes late, whereas their train, according to their own statements, was 50 minutes late. Under these circumstances a fusee should have been thrown off when the train slowed down preparatory to making the stop at Mounds. It is claimed by them that a fusee was thrown off at a point about one mile west of Edmondson, and that if this fusee had been observed it would have afforded sufficient protection for the stop at Mounds. If this fusee had burned for its entire length, this is probably true, provided their statements that a fusee was thrown off are correct, and also provided that the accident occurred at 9.30 p. m., as claimed by them. On the other hand, however, the engine crew of the second section claimed that no fusee was seen; and, if the accident occurred at 9.37 p. m., as claimed by them, it is probable that the fusee, if thrown off, had burned out before they passed it. In either event, however, the fact that fusees had been thrown off at a previous point did not relieve the crew of the Rock Island train of the duty of properly protecting their train when stopping at Mounds. Conductor Hess had no duty to perform relative to the handling of the transportation of the passengers on this train, as there was a train auditor on the train for that purpose. Proper regard for the safety of his train, particularly in view of the dense fog prevailing at the time, should have prompted him to make certain that Flagman Mangrum would drop a burning fusee from the rear of his train when the train began to slow down approaching Mounds, and had he done so, and had the warning signal been observed by the following train, it is probable that the accident would have been averted.

The direct cause of this accident was the failure of Flagman Mangrum properly to protect his train, and the failure of Conductor Hess to make certain that his train was properly protected as required by rule 99-b, when stopping at Mounds.

Conductor Hess was employed as a brakeman on July 26, 1913, previous to which he had had several years' experience as a brakeman and conductor on other roads. He was promoted to conductor on August 4, 1915. On September 15, 1915, he was given 30 demerits for violating rules Nos. 86 and 99, rule No. 86 being the rule governing the time by which inferior trains shall clear the time of superior trains running in the same direction.

Flagman Mangrum was employed as a brakeman on August 1, 1914, previous to which he had had over seven years' experience as a brakeman on other roads. He was dismissed in October, 1914, on account of a reduction in force; his services had been satisfactory. On January 10, 1917, he was reemployed as a brakeman. His record was clear.

At the time of the accident these employees had been on duty about 6 hours, after a period off duty of over 48 hours.

This accident once more calls attention to the inadequacy of the time-interval system of spacing trains. Under such a system the movements of trains are restricted only at open offices, at which points trains going in the same direction are required to be spaced 10 minutes apart. While this system of operation may afford protection in the vicinity of open offices, the long distances between such offices, especially at night, makes it possible for a train traveling at a high rate of speed to overtake a train traveling at a low rate of speed, and makes advisable the adoption of some form of block signals that will provide a space interval rather than a time interval between trains.

Traffic of such density as exists on this line would seem to warrant the use of a block system for the protection of trains. One of the reasons given by the crew in charge of train second No. 604 for not reading and signing for the bulletins posted at Brinkley was the instructions from the operator to hurry with the train orders that they had to deliver to a number of trains that were in sidings at which there were no open telegraph offices. There is no reason why a manual block signal system could not be introduced on this division; the maintenance of a few more night offices, is all that would be required to secure the additional factor of safety afforded by such a block system.