INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE TEXAS AND NEW ORLEANS RAILROAD, SOUTHERN PACIFIC LINES, NEAR DELWAU, TEXAS, ON SEPTEMBER 10, 1931.

October 10, 1931.

To the Commission:

On September 10, 1931, there was a derailment of a passenger train on the Texas and New Orleans Railroad, Southern Pacific Lines, near Delwau, Texas, which resulted in the death of 2 employees, and the injury of 1 passenger, 1 mail clerk and 1 employee.

Location and method of operation

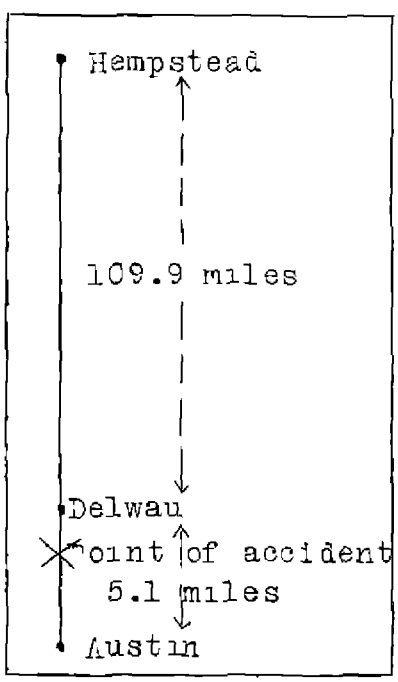
This accident occurred on the Austin Subdivision of the Austin Division, which extends between Austin and Hempstead, a distance of 115 miles, and is a single-track line over which trains are operated by time-table and train orders, no block-signal system being in use. The accident occurred at a point 2,900 feet west of Delwau; approaching this point from the west, there is a 2° curve to the right 1,675 feet in length, followed by tangent track for a distance of 1,401.1 feet, and then a 0° 45' curve to the left 2,757.7 feet in length, the accident occurring on this latter curve at a point 722.6 feet from its western end. The grade is 0.14 per cent descending for eastbound trains at the point of accident.

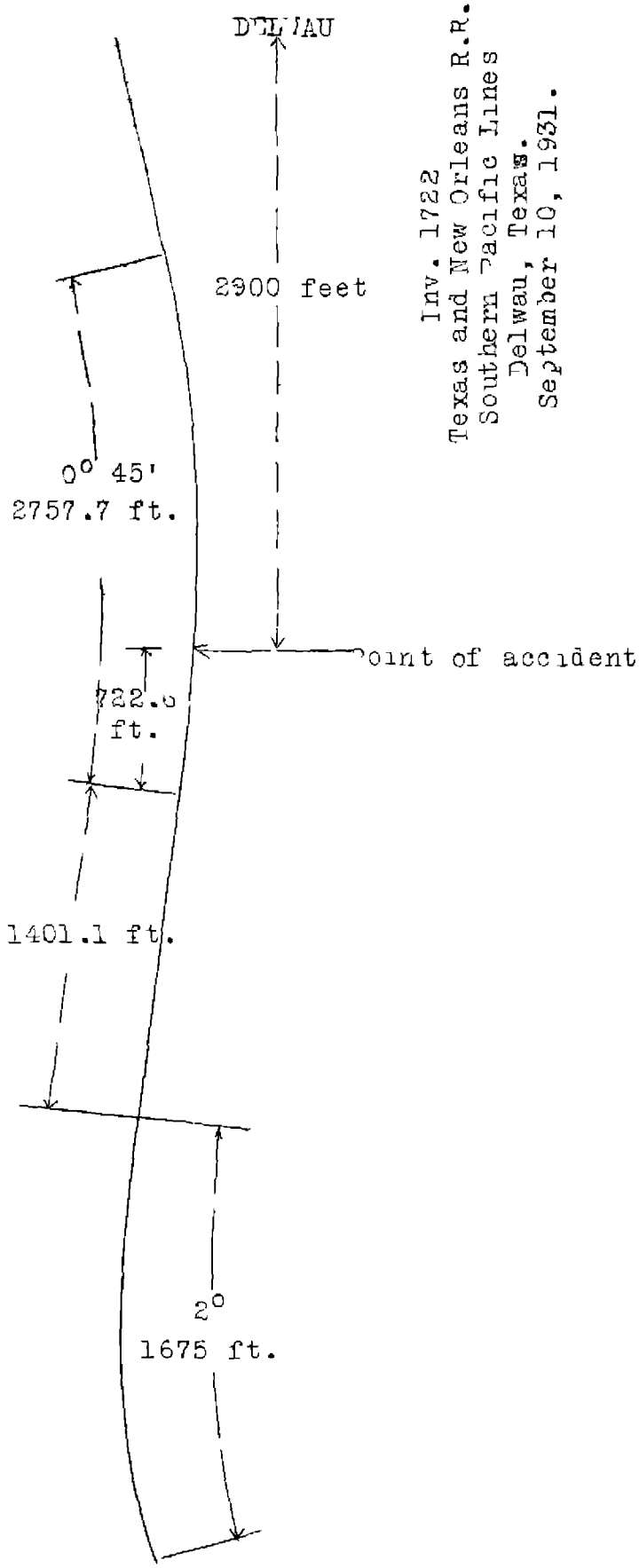
The track is laid with 75-pound rails, 33 feet in length, with an average of 18 ties to the rail-length, single-spiked and tie-plated. The surface ballast, consisting of disintegrated granite, slopes from the top of the ties in the center of the track to the bottom at the ends of the ties. In the vicinity of the point of accident the track was not well maintained, the maximum speed permitted is 45 miles per hour for passenger trains on tangent track and 40 miles per hour on unprotected curves.

The weather was clear and hot at the time of the accident, which occurred at 1.19 p.m.

Description

Eastbound passenger train No. 42 consisted of 1 combination mail and baggage car, 1 coach, 1 chair car, and 1 business car, all of steel construction, hauled by engine 271, and was in charge of Conductor Nass and Engineman McColl. This train departed from Austin at 1.05 p.m.,





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on time, and on approaching Delwau was derailed while traveling at a speed estimated to have been between 30 and 40 miles per hour.

The engine stopped on its left side across the track headed north, 349 feet beyond the initial point of derailment; the engine truck stopped at a point about 20 feet to the left of the track and about the same distance from the engine. The tender was in line with the engine, upside down, and remained coupled to the engine. The front end of the first car rested on the rear of the tender and the second car and the front truck of the third car were derailed but remained in upright position in general line with the track. The engine and tender were considerably damaged, and the first two cars were slightly damaged. The employees killed were the engineman and fireman, and the employee injured was the baggageman.

Summary of evidence

Conductor Nass stated that he was engaged in collecting tickets and had just stepped into the vestibule between the chair car and the business car when he felt an emergency application of the air brakes; the train traveled about six coach-lengths before it stopped. He estimated the speed to have been about 35 miles per hour at the time of the accident. A cursory examination of the track revealed marks indicating that a wheel climbed the north or left rail, ran along the ball of this rail and then dropped down on the inside of the curve. Conductor Nass had noticed no irregularities in the track just west of the point of accident and he thought that the train rode as smoothly as usual. Conductor Nass further stated that before the departure of the train from Austin an air-brake test was made and a running test was also made upon departing from that point and the brakes functioned properly, while he knew of no condition of the engine that could have contributed to the cause of the derailment.

Brakeman Wright stated that he was riding on the right side in the rear of the third car when he felt an emergency application of the air brakes, the train traveling at that time at a speed of about 30 miles per hour. He immediately looked out of the window and saw the first car leave the track, headed toward the right, and about that time the front end of the car in which he was riding left the rails. Brakeman Wright stated that he noticed nothing unusual just prior to the derailment, no rocking motion of the car in which he was riding, nor did he see any dirt flying prior to the time he felt the brakes apply

in emergency. He had been regularly assigned to this run for the past month and engine 271 had been regularly used on train No. 42, and he had never heard enginemen make any complaint as to the riding qualities of this engine.

Baggageman Copeland stated that he was riding in the first car in the train and the first intimation he had of anything wrong was when he felt a jerk from the engine, followed instantly by an emergency application of the air brakes, and he thought that the engine was derailed at the time the brakes were applied. He estimated the speed to have been between 35 and 40 miles per hour. He had made many trips over this track and noticed nothing out of the ordinary on the day of the accident. The statements of Mail Clerk Feller practically corroborated those of Baggageman Copeland. Mail Clerk Feller added that he had noticed some rough spots in the track on that subdivision but did not think that he had noticed any in the immediate vicinity of the point of accident.

Assistant Superintendent Kelley and Assistant General Manager Mims stated they were riding in the observation end of the business car or last car in train No. 42 at the time of the accident and very soon after its occurrence they made an inspection of the track and found marks on the ball of the north or left rail indicating that a wheel had mounted the rail and that after running along the top of the rail for a distance of 18 or 20 feet it dropped off on the outside of the rail, on the ties, and continued toward the left for a distance of 100 feet, at which point there were marks indicating that another wheel had been derailed. A short distance beyond, the marks indicated that the right wheel had slued toward the left rail, shifting the tie plates and working the left or north rail out of line. They were of the opinion that the engine truck was the first to be derailed, and estimated the speed at the time of the accident to have been between 35 and 40 miles per hour. They thought that irregularities in the track contributed to the cause of the derailment. Assistant General Manager Mims walked back more than one-half mile but found no evidence of anything dragging or anything to indicate that there had been an obstruction on the track. He observed the position of the throttle in the engine and found it nearly wide open with the reverse lever four or five notches from center in forward position.

Section Foreman Gaddy, in charge of the section on which this accident occurred, stated that his section consisted of 9 miles of main track and 1 mile of siding, and for the past year his force had consisted of four laborers. With that force he could maintain the track in pretty good condition under ordinary weather conditions; on September 1, the force had been increased to eight laborers for the purpose of cutting brush and burning grass. At the time of the accident he was working on the adjoining section and did not arrive at the scene of the derailment until several hours after its occurrence. He immediately made an examination of the track and found irregular elevation, but thought that the track was safe for a speed of 40 miles per hour, saying that he had passed over this portion of the track on his motor car on the morning of the accident and had not noticed anything wrong with it at that time. Section Foreman Gaddy further stated that he had not worked on the track in the vicinity of the point of accident for the last three or four months, but about two weeks prior to the occurrence of the accident he did some work near the west end of the curve involved and at that time he ran the level board on the curve and found nothing that appeared at all bad.

Roadmaster Atwood stated that he arrived at the scene of the derailment several hours after its occurrence and looked over the track but took no measurements; however, he observed that one of the joints on the outside of the curve was a little below level. He had been over this section of track on a motor car on September 8, but noticed no rough condition in the track at that time. The soil in that vicinity in very hot weather cracks and settles, but at the point of accident this trouble is not chronic. These settling conditions sometimes develop quickly and he felt sure that cracks could be found under the track. He was of the opinion that track conditions contributed to the cause of the accident but he did not believe they were the sole cause. Roadmaster Atwood considered Section Foreman Gaddy one of the best section men they have, and said that since he had been allowed four additional men in his force he had been required to help the foreman on the next section, although he had instructions to keep a close watch on his own section.

Division Engineer Williams made an examination of the track, took measurements with a surveyor's level and found that the elevation of the outside rail at the point of accident was 1-7/8 inches, while at the first joint west of that point it was 3/8 inch lower than the inside rail,

a net variation of 2-1/4 inches within a rail-length. The proper elevation for this curve should have been 1 inch. Division Engineer Williams was of the opinion that track conditions of this character could have caused the accident.

Engineer of Maintenance of Way Craft found that the ballast, ties, spikes, gage and alinement of the track were in good condition. He considered the irregularity in surface of the outside rail to be sufficient to cause a rather sharp swing, but the irregularity, being practically all in the high rail should not be of sufficient seriousness to cause derailment of the engine truck unless accompanied by some mechanical imperfection. He could think of no condition of track that would have a tendency to throw the front end of the engine toward the inside of the curve, saying that the engine truck, hugging the high side, would have a tendency to go toward that side instead of toward the low rail.

Assistant Superintendent of Motive Power Carson stated that he arrived at the scene of the accident about 6 p.m. on the day of the accident. His examination of the engine disclosed the throttle to be practically wide open, the reverse lever five or six notches ahead of center, and the brake valve in the running position. He found nothing about the engine that, in his opinion, would cause the derailment.

First Assistant Superintendent of Motive Power and Equipment Brown stated that he arrived at the scene of the accident on the following morning, at which time the wreckage was being cleared up. He made an examination of the engine and it was his opinion that the left front engine-truck wheel was the first to be derailed, basing his opinion on the marks on the ties and the position in which the engine and equipment stopped. Other indications were sliding marks on the right hand side on top of the center casting of the engine truck, a heavy mark just above the right front brake hanger, and the fact that the front pedestal binder bolts were bent inward, indicating that they might have struck the rail. After engine 271 had been taken to Austin, Assistant Superintendent of Motive Power Brown made a careful examination of it but did not find any condition that would contribute to the cause of the derailment, this also was the case with the examination made by Fuel Engineer Meister.

Engines 271 and 272 were assigned to four passenger runs between Austin and Hempstead, being pooled between four enginemen. Engineman Morris stated that on each trip that he operated engine 271 he would report it as nosing and swinging, and it was held in Austin for one trip, evidently in order to correct that condition, and on its next trip he thought he noticed an improvement, but on September 9 he reported it at Austin to be again riding roughly. He stated that the track is rough in some places on that division, but about the same as it always had been. Engineman Bailey stated that he had made several reports of rough riding of engine 271, although he attributed this partly to the track, which he thought was not as good as it was the previous year. He operated engine 271 from Hempstead to Austin on the morning of the accident and observed that the track was getting a little rough in the vicinity of the point of accident, but not bad enough to report, and he thought it safe for the maximum speed allowed. Engineman Smith, who operated train No. 42 on the day before the occurrence of the accident, stated that he noticed nothing unusual, that the track was not rough, and that he noticed nothing wrong with the riding qualities of engine 271. He was of the opinion that if there was any difference between the two engines, that engine 271 was the best riding engine.

Roundhouse Foreman Coker stated that engine 271 had been reported as riding hard and nosing by Engineman Morris, and he had corrected the nosing by adding more weight to the engine truck. The right front engine-truck wheel had been running to the right, so he had placed a shim back of this wheel between the jaw and box in order to throw the wheel ahead, and subsequent inspection showed that the condition had been corrected. Engineman McColl, who was killed as a result of the accident, had stated to him two days previous to the accident that the engine was riding well.

Engine 271 is of the 4-4-0 type, having a total weight, engine and tender, loaded, of 250,730 pounds. Inspection of this engine subsequent to the accident disclosed nothing that would have contributed to its cause. None of the engine-truck wheels or driving wheels had more than one-half inch lateral; all driving wheel wedges were snug but none of them stuck, and all wheels were in proper gage. On account of the damaged condition of the engine truck, the wheels could not be properly gaged or trammed;

the right front wheel of this truck had been crowding the rail and was considerably worn but not enough to take the gage. All other flanges and all tires were in good condition.

The investigation disclosed that the first indication of derailment was a flange mark on the ball of the north or inside rail of the curve. This mark followed along the ball for a distance of approximately 18 feet to the point where it crossed the rail and then appeared on the tie-plates and ties on the outside of the rail. A corresponding flange mark appeared on the gage side of the right rail 5 inches from its base. These single marks gradually diverged to the left for a distance of approximately 101 feet, to where another pair of wheels was derailed. These marks continued to diverge to the left for an additional distance of approximately 82 feet to the point where the left wheels left the ties, and the track was then demolished for a distance of 150 feet. On the day following the accident, measurements were again taken for a distance of 10 rail-lengths west of the point of accident, using an ordinary trackman's level, and they corresponded to those made by Division Engineer Williams on the previous day; at the point of accident the elevation of the outer rail was 1-7/8 inches; at the next joint westward it was 3/8 inch low, and at the next nine joints the elevation varied from 3/8 inch to 1-1/2 inches. The gage and alinement were fair, the gage being from 1/16 to 3/8 inch wide, a few ties were centerbound, and the track was generally rough and the rails considerably line bent.

Conclusions

This accident was caused by the uneven surface of the track.

Examination of the track subsequent to the occurrence of the accident disclosed that at a point approximately 83 feet west of the initial point of derailment the superelevation was 1-1/4 inches; approximately 33 feet west of the point of derailment the south or outside rail of the curve was 3/8 inch below the north rail, and it then increased to 1-7/8 inches above the north rail in a distance of 33 feet. It is believed that these irregularities in the south rail caused engine 271 to sway and rock to such an extent that the left front engine

truck wheel mounted the north rail, where it rode for a distance of 18 feet before dropping off on the ties, continuing on the ties until the entire truck was derailed, damaging the track and causing the derailment of the engine and cars.

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.