

## Eden Train Wreck

### *Dry Creek Bridge Failure*

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On the Denver & Rio Grande Railroad running from El Paso on the Rio Grande River through Pueblo to Denver, Colorado, the World's Fair Flyer was traveling southerly towards Pueblo on the early evening of August 8, 1904, during a severe storm. At approximately 8 miles north of Pueblo, the line crossed an arroyo (generally dry creek bed). The arroyo was about 100 feet wide and 14 feet deep with steep banks.

A trestle had been built on wooden bents to cross the arroyo and on August 26, 1904, the *Railway Age* wrote,

"...a wooden structure, consisting of three spans, each 32 feet in length, and resting upon four bents. Numbering the bents from north to south, one and four consisted of posts standing on blocking and caps above supporting stringers, ties, and rails. Bents two and three consisted of seven piles driven 13 feet into the bottom of the channel and sawed off 6 feet below the surface. On top of these piles rested a sill 12 x 12 and fastened to them with two drift bolts, each 3/4-inch in diameter and 36 inches long, driven through the sills into each of the piles. Resting on the sills of each bent and extending to the cap above were seven 12 x 12 posts, each fastened to the sills with two drift bolts 3/4-inch in diameter and 22 inches long, driven through the sides of the posts obliquely into the sills. The outer posts on each side of the row of seven rested on the sides at an acute angle to afford the structure greater horizontal or side resistance. On top of the posts were placed caps 16 x 16, which were fastened to them by two drift bolts 3/4-inch in diameter and 26 inches long, driven through the caps into the top of each post. The stringers were each 8 inches x 10 inches x 32 feet best Oregon timber. Four of these were bolted together and placed under each rail, making eight in all stretching from bent to bent. The ends of the stringers were joined by butt joints. Resting on the stringers were the ties and on these the rails. The outer one of each set of four stringers was fastened to the cap below by means of a 3/4-inch bolt, with [a] nut on each end, which bolt passed through the cap, stringer, and tie above."

A trestle with two bents in the waterway was standard practice for this kind of inexpensive bridge. The bridge had been in place for years with no signs of weakness. From the record, it does not appear that any significant flooding had taken place during its lifetime. On August 9, 1904, the *Colorado Springs Gazette* wrote,

"The engineer, Charles Hinman, had been given a thunderstorm caution and had slowed the train to 10-15 mph to watch for washaways. After the engine had crossed the creek, a large wave threw the cars over to the right, broke the coupling to the rear 2 Pullman and dining cars, and dragged the engine backwards into the river. The Pullman's porter, Melville Sales of St. Louis, quickly pulled the emergency air brakes saving the remaining passengers. The front Pullman car was left hanging four feet over the edge of what remained of the bridge."

It is thought that a county road bridge that had failed upstream was pushed downstream and may have impacted the Dry Creek Bridge, contributing to its collapse. However, it is unclear if the wave of water that hit the train was associated with the upstream bridge impacting the Dry Creek Bridge.



*Dry Gulch with Pullman cars on the edge of bank and water subsided.*

A wall of water reportedly hit the front of the train as it was passing over the trestle and carried the engine, baggage car, smoking car, and chair car (a car with better, more comfortable seats) into the floodwaters. The two passenger cars were carried downstream by the floodwaters, drowning most of the passengers. The engine was submerged near the bridge; the chair car was found almost a mile from the bridge buried in sand, and the baggage and smoking cars were found more than 4 miles downriver.

Of the hundred or more people in the two cars that plunged into the torrent, only three escaped along with the fireman on the engine. The three did so through the fractured roof of the smoking car and swam to shore. The fireman was thrown free of the locomotive. David Mayfield, the fireman, later stated,

"We did not expect anything at all. We were going along at a good speed all the time and never dreamed that anything was wrong. We thought that if there were any kind of a flood near Eden, the operator there would know, and he would flag us. We passed there but saw no signals of any kind and never felt any fear..."

I scarcely know how it happened, as I was dazed in the mud on the bank of the creek. It all happened so quickly – and, my God, it is so terrible. A little while before we reached the bridge that crosses Dry creek, I turned to Charley Hinman, the engineer, and said to him: 'Charley, is there enough steam to carry us to Pueblo?' Charley said, 'No,' and I began firing up.

Just as I was putting the second shovelful of coal in, the engine gave a lurch upward. I lost my balance and was thrown from the train on the bank of the creek. I must have struck partly on my head, as I was dazed and did not know what happened for several minutes. When I

came to, I saw the Pullman cars standing near me but could not see the engine or the rest of the train. I went up and down the stream looking for my partner, Charley, the engineer.

I didn't notice whether water was running in over the trestle as we approached the bridge but, when I was thrown out, the water was much higher than the tracks."

One of the survivors later wrote, "When the first crash came, we were riding along as smoothly as one could go... It was just as though the train had struck a stone wall. The lights went

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out, the fixtures and everything fell down, and the passengers were thrown forward, and there were the most awful cries for help and the grinding of timbers. I saw the man next to me was down, and I helped him up, but just then, another crash came, and the train seemed to sink about five feet. I lost sight of everybody and couldn't think of anything but to save myself. I remember well the sensations that I had at that time. I knew I was in terrible danger, and my first thought was that I must get out of the car. At the second crash, I was about up to my waist in water. All the time, the grinding and crushing of timbers was going on. In another crash, I was thrown about a third of the length of the car right up against the front door. I grabbed the top of the door, and the car went over in the water three times. My first instinct when the water went up over my head was to hold my breath. I think I was under water for a full minute. The car naturally righted, and when it came up, the water was just about my lips. I could breathe all right and saw the transom was just above me. With my right hand, I smashed out the glass, hoping that I could get out in that way. At that moment, another crash came, and I was struck in the forehead by some floating object and dazed, but managed to keep my head above the water and after a terrific struggle reached the shore."

When all the bodies were recovered, about 100 persons had drowned in the arroyo, which a few hours later was dry once again. A Pueblo newspaper reported, "Deep gloom has settled down upon the city today following the railroad horror, which snuffed out a hundred or more lives yesterday. Many business houses are closed out of respect to the dead, and more than forty private homes are darkened and in mourning."

On August 19, the *Railway Age* quoted J. A. Edson, the Manager of the Denver & Rio Grande, who said,

"...the company was in no way responsible for the wreck at Eden, Colo., on the night of August 7. 'It was one of those unavoidable accidents which are liable to occur on any railroad when a flood of the character that washed out our bridge occurs,' said Mr. Edson. He further stated, says the dispatch, that the bridge was subjected to regular inspections of the company's bridge superintendent and was as safe as any other on the Denver & Rio Grande, or, in fact, on any road, and that no bridge could have withstood the torrent that destroyed this one. The under bents of the bridge, he said, were undoubtedly knocked asunder by the washed-out county bridge, thereby leaving no support."

As was typical in these crashes, a coroner's jury was convened. They met for 11 days and submitted their 11 findings on August 21, 1904. They decided,

(1) The water not being over the tracks at the bridge, but several inches below the banks, neither the engineer nor the fireman could possibly see it. The track being in line and level, nothing wrong with the bridge could possibly be seen by them. When the first impact took place, the Pullman passengers were not thrown forward out of their seats, besides positive testimony on the point, shows the train was running slow according to order, and the crew is therefore blameless.

(2) If the county bridge was a factor in the destruction of bridge No. 110-B, the railroad company was to blame for not constructing a bridge that would avoid or withstand its impact as it knew the county bridge was there.

(3) Had a bridge of one span on abutments with no obstructions in the channel of the stream to obstruct the flow of water or passage of debris, or stone arches of 110 feet, it would have in all human probability withstood the force of both the volume of water and the impact of the county bridge (if the latter took place) and the catastrophe would not have occurred.

(4) Bridge No. 110-B was not of the best class of bridges used by railroads throughout the country.

(5) Inspection close up to the time of the wreck showed bridge No. 110-B to be in its usual condition. Its weakness consisted, not in its condition, but in the cheap, inferior class to which it belonged.

(6) Had the heavy downpour in the vicinity of Eden at 7:13 pm been reported to the train dispatcher at Pueblo, he might have delivered additional caution orders to No. 11 at Buttes before she left at 7:30, and the disaster might have been averted.

(7) The conductor of No. 7 reported water over the track two miles south of Eden on arrival at Pueblo at 7:55 pm and a downpour at Eden and had a night or operator been stationed at Wigwam, eleven miles from bridge No 110-B, or at Pinion, five miles from it, train No. 11 could have been warned, and the disaster averted.

(8) Had a regular system of track-walkers and flagmen, independent of the section men, been maintained by the company over the track in question, especially in the afternoons, evenings, and nights during the rainy season, No. 11 could have been flagged, and the disaster averted.

(9) Had bridge No. 110-B been under charge of the section gang at Eden, one mile away, instead of the one at Pinon, five miles away, No. 11 would have been flagged, and the disaster averted.

(10) Bridge No. 110-B should have been so constructed as to withstand all the water the arroyo could accommodate. On the night in question, the arroyo accommodated all the water that came down, but the bridge collapsed.

(11) If bridge No. 110-B had been a one-span metal bridge with stone abutments, the probability of damage by the county bridge would have been much lessened. Therefore, the jury finds that the appalling loss of life and property at bridge No. 110-B on August 7, 1904, was due to the negligence of the Denver & Rio Grande Railroad Company as set forth in the foregoing statement of findings and conclusions. Newspaper headlines following the findings included,

**RAILROAD IS RESPONSIBLE  
FOR THE EDEN DISASTER**  
Jury Brings in Set of Vigorous Findings, That the  
Bridge was not the right class, That there  
Was No Regular System of Trackwalkers,  
That D. R. G. was Negligent.

Lawsuits were filed, and the total loss to the Company amounted to almost \$250,000 for the lives lost, with some bodies never found. There is no doubt of the seriousness of this disaster. Still, the Coroner's Jury findings #3 and #11 that a single span bridge would have prevented the failure is not provable, as many single span wood and iron bridges had been washed out during major storms around the country. Finding #4 is also questionable, as the bridge appeared appropriate for the loads placed on it. It could be argued that it was an Act of God, and the magnitude of the flood and the washing out of a bridge upstream could not have been foreseen. As to #5, it was not a cheap, inferior class of bridge but one that was appropriate for the site on which it was built.

In summary, the sequence of events leading to the failure could not have been planned. In a failed bridge upstream, riding on a flood of unheard-of proportions hitting the bridge at the moment a train was passing over, it was not, and probably could not, have been designed. It should also be pointed out that Coroner's Juries did not normally have trained engineers on them but were local laypersons who were, after investigating the failure and talking with survivors and experts, called upon to make an engineering judgment. The other judgments they made were very reasonable given the perfection of hindsight. ■



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