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THEODORE DEHONE JUDAH, RAIL ENGINEER

Talk by E.L. DeRose
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One of my early vivid recollections was the time our fourth grade teacher told us the story of "The Driving of the Golden Spike" at Promontory Summit, Utah, when the East and West lines of the first transcontinental railroad were joined. And then, back in the 1940's when I first met Gladys Pierce she told me the story of her famous uncle, Theodore Dehone Judah, the brilliant young rail engineer who proposed a transcontinental railroad traversing the Sierra Nevada, the Great Basin, and the Rocky Mountains. To achieve such a seemingly impossible feat over great elevations, through hostile Indian country and impenetrable buffalo herds earned him the nickname of "Crazy Judah".

Theodore Judah was born March 4, 1826 in Bridgeport, Connecticut, the son of an Episcopalean Minister. At thirteen he had completed the classic course at Renssalaer Institute in Troy, New York. He took up transit and chain work under the famous civil engineer, A. W. Hall, on the Schenectady and Troy Railroad. In five years he became a surveyor and full fledged engineer. At eighteen he worked on a railroad that was to run from Springfield, Mass. to Brattleboro, Vermont. At twenty he became the assistant to the chief engineer for the Connecticut Valley Railroad, assuming much of the responsibility for layout and building in the Greenfield area. Following his work on the Connecticut Valley Railroad he became at twenty-one the associate

engineer for the Niagara Gorge Railroad with planning and construction under his direction. The purpose of this railroad was to connect the shipping piers on Lake Erie with Lake Ontario, and almost impossible project at best. On completion of this assignment he became chief engineer for the Buffalo, New York and Erie Railroad.

Judah was musically inclined, played the banjo and could play almost any instrument he could lay his hands on. He delighted to use a set of musical finger bowls when at home in Greenfield and had invited guests. He liked to wind up a music box and put under his pillow to lull him to sleep. He was an avid chess player. He was studious, industrious, resourceful, opinionated, humorless and extraordinarily competent.

It was said that "when Judah built he built forever". A corroboration of this is in the stone arches he built and still in use under Main Street, the ones on Arch Street and Country Club Road and the beautiful arched stone railroad bridge over Falls River in Bernardston, the latter being practically maintenance free for almost one hundred and fifty years. One of his reports reads; "the conditions of a first-class road require that all timbers used in work of this kind should be of durable and of a superior quality; that in planning the same, no pains or expense should be spared in rendering the strength and safety of the structure absolutely unquestionable, all other considerations being of minor importance in comparison with that of safety and durability".

It was during the time when Judah was engaged in railroad construction in Greenfield that he met Anna Ferona Pierce at

one of the worship services at St. James Church. The daughter of John J. Pierce, a wealthy man and a granddaughter of Samuel Pierce, the famous pewterer. Anna was beautiful, gracious, well educated, gifted in languages, drawing and painting. She was eighteen when she met Judah in 1846 and he twenty-one. They were the first couple to be married in 1849 in St. James' new stone church now standing at the corner of Federal and Church Streets.

The Sacramento Valley Railroad was organized in California in 1852 to take men and supplies from Sacramento westward to the prolific mining country. Col. C. L. Wilson, a man of vision who had never put his hand to anything that failed, was named president. In 1854 Wilson came to New York to order materials and employ a chief engineer. Governor Horatio Seymour of New York recommended Judah and introduced him to Wilson who was impressed with Judah as a man and as an engineer and hired him for the job. Wilson had already amassed a fortune in transportation in New York City, from operating a trading steamer on the Sacramento River, and from a plank road he built from San Francisco's North Beach to Mission Dolores. He told Judah that each year $50 million in gold was coming out of the sand and gravel in the mining country and the entire economy depended upon carriages, stage-coaches and mule trains carrying men and freight from Sacramento to the gold country over pitted, dusty, sometimes almost impassable roads toward Negro Bar or Marysville and that a railroad was needed that would connect both of these with Sacramento. Following the meeting Judah wired Anna the message "BE HOME TONIGHT. WE SAIL FOR CALIFORNIA APRIL SECOND". LOVE, TED". Judah was twenty-seven.

Years later Anna was to write: "You can imagine my consternation". When Judah arrived home he was aglow with excitement. "Anna, I am going to California to be the pioneer railroad engineer of the Pacific Coast. It is my opportunity, although I have so much here." And later, "Anna, it isn't just this short strip of road for which I shall be chief engineer. Some day the continental railway will be built and I am going to have something to do with it."

They sailed from New York to Nicaragua where they disembarked and traveled to the Pacific side where they embarked on a fast packet to San Francisco. The entire voyage took about six weeks. The trip would have taken approximately seven months if they sailed around Cape Horn. Their ship docked in San Francisco Bay and from there it took them twelve hours by river boat up the Sacramento River to reach Sacramento.

After arriving in Sacramento he arranged for men to be placed at important points along the wagon roads that paralleled the proposed railroad. Night and day for a week they would count the stagecoach passengers and estimate the tonnage in the freight wagons. He, himself would go over the route with his surveying instruments and would shortly be able to make a fair estimate of the cost for each mile of road. In less than two weeks he had completed the preliminary survey and on May 30, 1854 he presented it to the directors. Judah wrote "some general facts usually regarded as important elements of success in the future prosperity of any railroad enterprise were briefly:

1st: Ability to run trains with rapidity.
2nd: Capacity to carry heavy loads
3rd: Present economy in cost and time of construction.
4th: Ultimate economy in the cost of operating and maintainance, facts which bear with peculiar weight upon the future operations of your road."

"In the early days of the gold rush all a man needed to make a fortune was a shovel and a pan, and perhaps a mule to carry these meager supplies. But now, in 1854, much of the gold available to the lone prospector had been removed. There was still gold, plenty of it, but now it must be washed out of banks with heavy pressure jets of water or mined from the rocks by traditional deep rock mining. Both of these methods required heavy equipment that was difficult to carry in wagons. Judah was most optimistic, 'With such a road and such a business it is difficult to conceive of a more profitable venture.'"

"He also had studied costs. He found that common labor could be procured for 50 cents a day, skilled labor at $50 a month. The material which had to come around the Horn would be the greatest expense. The freight cost he estimated at $25 a ton. He estimated the material needed--locomotives, cars, bridges, buildings, culverts, turntables, rails, ties, and all things necessary. He had built enough railroads in the East to know the cost of such things. His preliminary estimate was $33,000 for each workable mile of road including rolling stock--an estimate that he was soon to revise upward to $43,500 for each mile and the actual cost agreed closely with this final figure."

Judah had a handsome gold ring made from gold found in the direct line of the railroad. It bore the inscription "Sacramento Valley Railroad March 4, 1855. First gold taken from earth in making a railroad bank."

In June of 1855 the freighter WINGED RACER brought the first rails and rolling stock into San Francisco Bay. On June 15th the schooner JOSEPH HEWITT brought the rails up the river to Sacramento and the following day the schooner THE TWO BROTHERS arrived with the locomotive. Crowds gathered at the wharf to watch the 15-ton locomotive THE SACRAMENTO and 400 tons of rail unloaded. The twenty-two miles of railroad/from Sacramento construction to Folsom progressed rapidly and was completed in February of 1856.

Judah also promoted a survey of a railroad from Sacramento to San Francisco Bay in order to cut hours of transportation between these two points by river boat. Judah was considered the outstanding surveyor and engineer in the entire West.

Judah never lost sight of his dream of a transcontinental railroad and talked about it incessantly. So much so that it wasn't long before he was referred to as "Crazy Judah". Judah, however, was not the first to suggest a cross-country railroad. In 1853 Congress instructed War Secretary Jefferson Davis to send out exploration parties to seek possible rail routes to the West. Five possibilites of routes resulted:

The Southern Trail from Fulton, Arkansas to San Diego
Northern Trail from St. Paul to Vancouver
Mormon Trail from Council Bluffs to San Francisco
35th Parallel Trail from Fort Smith Arkansas to San Pedro, Cal.
Buffalo Trail from Kansas City, Mo. to San Francisco

Davis recommended the Southern Trail but received no support because it favored the South and slavery. Southern leaders said any of the northern routes would encourage more free states. So the railroad was sidetracked and no decision reached by the time the Civil War began in April of 1861.

Then late in the fall of 1861 Theodore Judah arrived in Washington from California, representing a syndicate that included the so-called Big Four inasmuch as the Central Pacific Railroad of California was formed April 30, 1861 with a capital of $8,500,000 made up of 85,000 shares of $100 each. President was Leland Stanford, Governor of California; Vice President, Collis P. Huntington, a hardware store operator; Secretary, Mark Hopkins, a hardware store operator; and Chief Engineer, Theodore Judah. Judah, being known in Washington, declared he could build a railroad with government aid from Sacramento up and over the summit of the Sierra Nevada Mountains, calling for tunnels through the mountains and trestles over the deep gorges. Judah so surprised Congress that they made him Secretary of the House & Senate Select Committee for the Pacific Railroad with office space in the Capitol. Judah is given full credit for the terms of the original Pacific Railroad Act signed by Abraham Lincoln on July 2, 1862 whereby the Central Pacific was to build eastward from Sacramento and a second firm, the Union Pacific Railroad and Telegraph Co. was to be organized to build a line from Omaha, Nebraska. Also, a telegraph line was to be constructed parallel to the railroad. Each of the two companies was granted a right-of-way which was to follow "the most direct, central and practical route" until east and west rails were joined. For each mile of track laid the companies would receive 6,400 acres of public land in addition to a 3-year loan in 6% U.S. bonds. At maturity the railroads were to pay accumulated principal and interest. The value of the bonds depended upon

the terrain, ranging from $16,000 per mile in level areas to $48,000 per mile in mountainous areas. Pennsylvania legislators inserted a rule that all rails and other iron works be American made. The Act also stipulated that President Lincoln was to select the gauge, or width between the tracks. Lincoln chose a 5-foot gauge but Congress overruled him and voted a 4 foot, 8-1/2 inch gauge which was to become standard among all U.S. railroads.

The Central Pacific broke ground before a large crowd on Sacramento's Front Street January 8, 1863 after Stanford and his associates had raised sufficient money to start the first 40 miles. Each of the Big Four had his separate role. Charles Crocker was to lay and grade track. Collis Huntington was to busy himself in New York so he could interest eastern investors and purchase equipment. Mark Hopkins, a shy man, remained in the background as Secretary-Treasurer. Governor Stanford, as President of the Central Pacific, would be effective in obtaining financial aid from California state, country and city governments. Ground was broken at Omaha in November, 1863 but at the end of 1864 the Union Pacific had not yet laid any rails.

Judah planned fifteen tunnels through the Sierra Nevada; the longest was 1,659 feet near the summit of Donner Pass. The highest point of the CP was 7,042 ft. above sea level. Thirty-nine miles of snowsheds had to be built to protect the road from deep snow and avalanches.

On his return to California Judah became disenchanted with the Big Four. They made decisions on engineering matters without consulting him. He was impatient to forge ahead and

he felt they were not interested in building a transcontinental railroad but were seeking government help to build only a short line as far as Nevada where they could reap profits from the gold and silver mining operations. It finally came to an impasse and the Big Four offered to buy Judah out for $100,000, Judah retaining options to buy out their shares for the same amount each. Judah accepted the offer and headed back east to find backers who would help him buy out the Big Four. The backers were apparently lined up and Judah would have had an easy time for raising the money needed. He died Nov. 2, 1863 of yellow fever, contracted while crossing the Isthmus of Panama, soon after arriving in New York. Anna Judah wrote: "He had secured the right and had the power to buy out the men opposed to him and the true interests of the Pacific Railroad at that time. Everything was arranged for a meeting in New York City on his arrival, of gentlemen from Boston and New York who were ready to take their places.... That was why he made any sort of a settlement with the company. He wanted money to go hand in hand with his brains and he knew what he could do. It was all laid out."

The transcontinental railroad eventually went on to completion at Promontory Summit, Utah, on May 10, 1869.

Anna Judah returned to Greenfield following her husband's death and lived in the Pierce homestead which was on the site of the present Greenfield Junior High School. She lived a quiet life, somewhat resentful of the poor recognition her husband received for his tireless efforts and achievements. It has been said the transcontinental railroad might not have been built for another twenty years had it not been for his persistence.

Other vestiges of Theodore Judah are in evidence today. There is a fine monument erected to his memory in Old Sacramento at the terminus of the first California railroad. In the California Railroad Museum in Sacramento his picture is prominently displayed together with a record of his achievements. There is a Judah Street in San Francisco paralleling Golden Gate Park. In St. James Church, Greenfield, there is a beautiful hand-carved black walnut Eagle lectern bearing the inscription: "In memory of Theodore Dehone Judah... Christmas 1872...Gift of A.F.J."

Theodore Judah and his wife, who died September 2, 1895, are buried in Greenfield's Federal Street Cemetery along with members of the Pierce family. The monument is in the shape of a church and the plot is enclosed with square iron rails.

Historical Society has -
Theodore Judah's coffee cup with his name printed in gold.
Anna Judah's scrapbook of wild flowers collected as she camped with him on Judah's survey thru the Sierra Nevada mts.
Photograph file: Eagle lectern, cemetary monument, Judah interior of home.
Railroad Bridges: Arches over. Main St, Arch St
Hitching Post - see front hall & photo file.

Bibliography

Rails from the West by Helen Hinckley
The Big Four by Oscar Lewis
How Rails First Crossed America by Paul Ditzel
Boston Sunday Globe article by Jeannette P. Fish
Greenfield Recorder articles by Irmarie Jones and John A. Senior

Note: Promontory Summit, Utah, is on a desert plateau, nearly a mile above sea level, north of Great Salt Lake. It is 1,086 miles west of Omaha and 690 miles east of Sacramento.