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**(Transcontinental Railroad - Crossing the Sierras) [Railroad Engineer's Diagram of
Tunnels 6-13]**

Stock#: 92288
Map Maker: Anonymous / Harding
Date: 1867 circa
Place: n.p.
Color: Pen & Ink with Wash Color
Condition: VG
Size: 67.75 x 6.5 inches
Price: SOLD



Description:

The Transcontinental Railroad Crosses Donner Pass.

Remarkable manuscript cross-section of the Transcontinental Railroad showing its course over the Sierra Nevada mountains. This drawing comes from the collection of U.P.R.R. Assistant Engineer Henry Harding, who was instrumental in the Transcontinental's westward path across the Plains.

This engineer's sketch, replete with calculations and corrections, shows the railroad going up the gentle western slope of the Sierras, before descending along the steeper eastern side. As the track descends, the railroad enters tunnels No. 6 through 13, tunnels built hundreds of feet underground and blasted through solid granite at a tremendous cost to human lives. Tunnel No. 6, one of the most notable feats of railroad engineering and Chinese labor, is shown with its central shaft drilled in October 1866 which allowed for four faces to be excavated simultaneously. Place names annotated include "Summit," "Donner Peak," "Strong's Canyon," and "Stormy Point."

The cross-section was included in the papers of Henry Harding, who was assistant engineer to Union Pacific chief engineer Grenville Dodge. Harding was employed in the service of the railroad between 1865 and 1860 and was notable for planning the progress of the railroad through the Wyoming area.

A reduced diagram of some parts of the tunnels would be published in 1870 as part of a lecture given to the American Philosophical Society *Tunnels of the Pacific Railroad*.

Tunnels Through the Sierra Nevada and the Transcontinental railroad

The crossing of the Sierra Nevadas was a crucial accomplishment for the Central Pacific. The mountain



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range presented a formidable obstacle for the construction of the railroad, with steep inclines, rocky terrain, and harsh weather conditions. An initial lack of men to work the route, and the painfully slow progress of tunneling, led to despair among the Big Four of the railroad.

The race between the Central Pacific and Union Pacific railroads to complete the transcontinental route was intense, with each company racing to build as much track as possible to gain a financial advantage. When it became apparent that crossing the Sierras would take more time than initially anticipated, and that the Union Pacific was making fine progress through the Plains, the railroad leadership worried that they would never make it out of California before meeting the Union Pacific.

The railroad addressed its labor shortage by hiring Chinese workers, which led to conflict with the initial, predominantly Irish, workforce. A second decision, to create a vertical shaft into the center of Tunnel 6 so that four faces could be worked at once, sped up progress.

Despite one last major obstacle, the extremely severe winter of 1866-67, the Central Pacific made it out of the Sierra Nevada and made fine progress to Promontory Point, where it finally met the Union Pacific.

Detailed Condition:

Pen and ink with light wash color on three sheets of 19th-century graph paper. Some minor toning and soiling.