

Placer-Sierra Railroad Heritage Society



<https://www.psrhs.org>

January 2023 Newsletter

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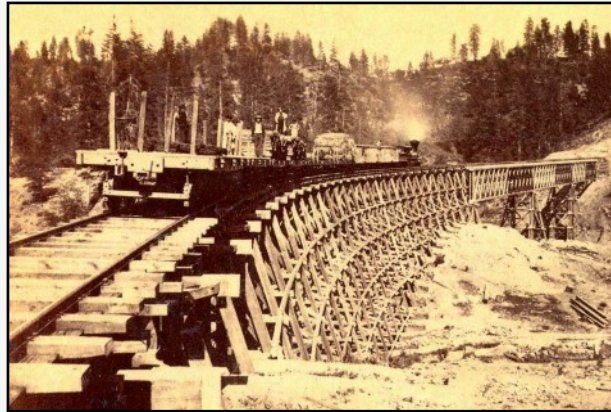
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Hart image #041 shows Long Ravine trestle and Howe truss bridge, completed in 1865. This issue features photos and articles about Howe trusses as background for our January program,

Scheduled Events & Notices



HAPPY NEW YEAR!! Welcome to another year exploring regional railroad history.

Jan 24 PSRHS Monthly Meeting, 7PM – Program: Chuck Spinks - “The Early Bridges of the Central Pacific Railroad”

Feb 28 PSRHS Monthly Meeting, 7PM – Program TBA

May 16-21, 2023 Joint Meeting of Southern Pacific Railroad History Center, Pacific Coast Chapter R&LHS, and the National Railway Historical Society – Nugget Casino Resort in Sparks, Nevada, see Page 2 for web site & details

A reminder to renew your membership for 2023 or join PSRHS if you are not already a member. See the box at the bottom of page 4 for details.

Thank you for helping support our local railroad history activities.

Preserving Railroad History on the Donner Pass Route



Placer-Sierra Railroad Heritage Society

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PSRHS MONTHLY MEETING

TUESDAY, JAN. 24, 7PM

Auburn Veterans Memorial Hall

January Program: Chuck Spinks will discuss “**The Early Bridges of the Central Pacific Railroad.**”

Most were Howe trusses – Chuck will include some background on those, but the presentation will be mostly photographs by various early photographers. See **page 4 for a Hart photo of the Howe truss at Long Ravine.** An article on Howe trusses appears on page 5.

November Meeting Recap: The November meeting was our annual potluck dinner. Members, family and guests enjoyed a variety of side dishes to accompany the ham main course. A selection of railroad songs provided background for good food and conversation. A big thank-you to Mona Anderson for organizing this year’s event and bringing the ham. And thanks to all who brought side dishes, salads and desserts to share.

BOARD MEMBER ELECTIONS

At the November potluck dinner, Chuck Spinks conducted a brief business meeting to address board positions. Those present voted to extend the term for board member David Ferreira for another three years. Two other board members whose terms expired in 2022 were not present at the November meeting. Their board positions will be discussed at the January meeting.

RR SIGNAL DISPLAY FOR COLFAX

At the November meeting Jim Wood discussed an offer from Union Pacific to donate a vintage searchlight signal to be displayed at an appropriate site in Colfax. A similar signal is to be displayed at Truckee along with an earlier semaphore signal. Jim noted that PSRHS owns a vintage semaphore signal and proposed that the two signals be provided to the City of Colfax and displayed near the vintage SP passenger station.

Jim Wood, Dick Dorn and Roger Staab presented the proposal at the December 14 meeting of the Colfax City Council. The display concept was well received by council members, but the proposed display site will

first be reviewed by an advisory group tasked with developing an overall plan for the City’s downtown.

The council’s favorable response to the proposal is noted in an article about the meeting in the January 2023 issue of Colfax Connections, a newsletter about Colfax happenings published by the City. **Key parts of the PSRHS railroad signal display proposal can be found on page 3 of this newsletter.**

MEMBERSHIP RENEWAL TIME

If you have not already done so, it’s time to renew your membership in PSRHS. Member dues are our primary source of revenue for PSRHS field trips, restoration projects, purchase of historic photos, and publication of our monthly newsletter and other documents covering local railroad history. You can renew by check payable to PSRHS, PO Box 1776, Colfax, CA 95713, or on our secure web site <https://www.psrhs.org/> using pay pal. Yearly dues amount can be found in the box on page 4.

Thank you for your support of PSRHS and our mission Preserving Railroad History on the Donner Pass Route.

SPRHC/R&LHS/NRHS JOINT MEETING

Sparks, NV May 16-23

A reminder that the Southern Pacific Railroad History Center, Pacific Coast Chapter of the Railway & Locomotive Historical Society, and the National Railway Historical Society welcome all to attend their 2023 joint meeting at the Nugget Casino Resort in Sparks, Nevada between May 16 and May 21, 2023.

The event will feature presentations focused on SP’s last 25 years, and tours of nearby railroad sites of interest. Attendance at many of the activities is limited, so early registration is recommended.

Handouts for the event will be available at our January meeting, or you can visit the event’s web site for further details.

<https://www.splives.org/sprhc-rlhs-nrhs-joint-meet-may-2023>



Passing Scene – Signal Display for Colfax

The photos below are part of the proposal presented to the Colfax City Council for displaying two vintage railroad signals next to the Colfax Passenger Depot. Units to be displayed are a searchlight signal that operated at Norden to be donated by Union Pacific, and an earlier semaphore signal purchased and donated by PSRHS. The proposed display site next to the depot has underground conduit for electrical power, allowing the signals to be made operational and powered up for special events. PSRHS proposes to develop installation drawings for City approval, solicit donations of materials, and assist Union Pacific signal personnel in display installation.



Proposed Signal Display Location by Colfax Passenger Depot

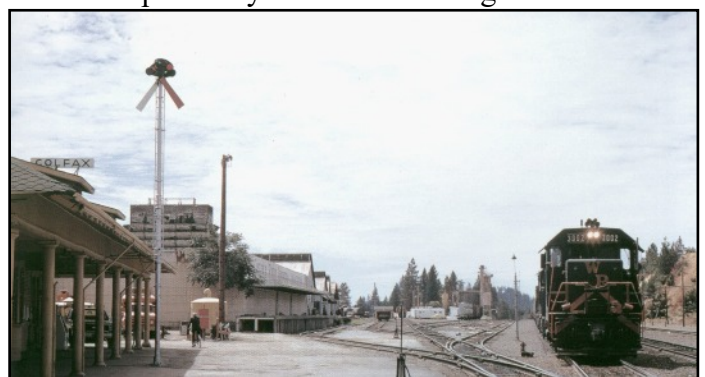


Semaphore for Truckee Display

Searchlight Signals at Norden



Semaphore-style Train Order Signal at Colfax



Amazon Smile Fund Raising

We are now part of the Amazon Smile fund raising campaign. We receive a donation to the society based on your purchases. Please feel free to copy and paste the link below and include it in all your emails.

<https://smile.amazon.com/ch/68-0488569>

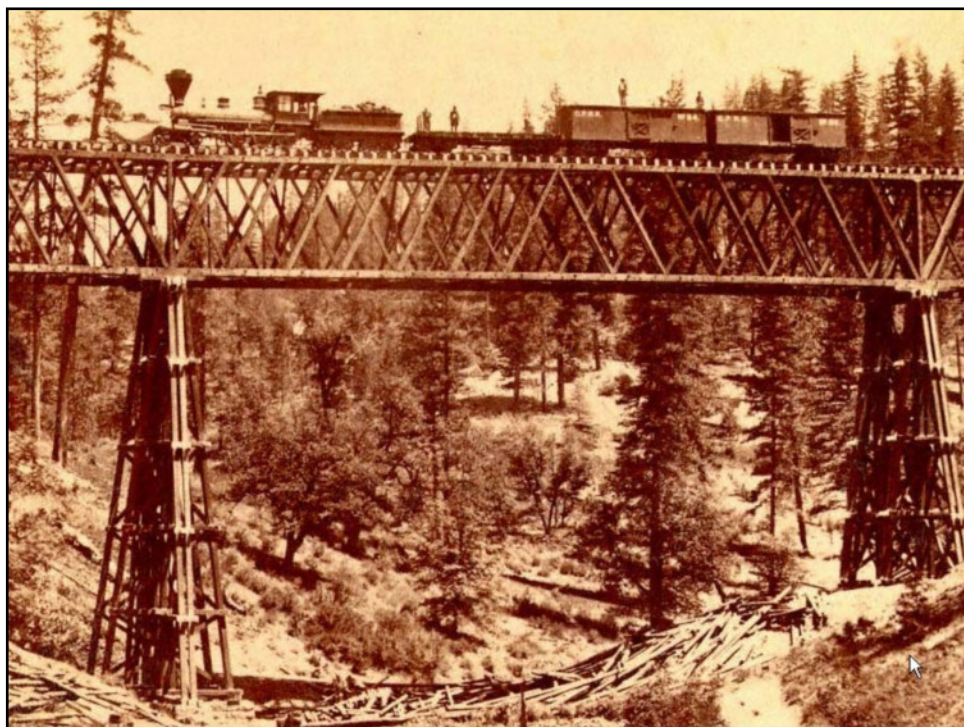


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From the Archives - Long Ravine Bridge & Trestle

Hart image #042 shows the newly completed Long Ravine Howe truss bridge east of Colfax. The Chief Engineer's Report of December 1865 described the Central Pacific's crossing over Long Ravine as a 500-ft curved trestle and 3-span Howe truss (see Hart image #041 on page 1). Not long after its completion the Howe truss and support bents were enclosed to lessen the impacts of weather on the wood structural members. By 1876 the adjacent curved trestle was filled in, but the wooden Howe truss remained in place until around 1890, when it was replaced with an iron bridge. After 1876 NCNG tracks ran under the Howe truss. bridge Early Central Pacific bridges are the subject of the presentation at the January PSRHS meeting. *PSRHS Collection*



Accidents/Other Incidents. *Auburn Journal*, Apr. 18, 1917 – **“BOLT FOUND ON SWITCH IN AUBURN YARD – Laid Across Two Rails at Subway, on Top of High Embankment Near Station.** Whether an attempt was made to wreck a Southern Pacific train on the high embankment at the subway ... or whether the thing was merely the prank of some thoughtless person, has not been determined, but the fact remains that a large bolt was found ... lying across two rails at a switch at the subway... The bolt, in the position in which it was found, might or might not have caused a derailment... A wreck at the point where the bolt was found would probably have plunged a train down the embankment, which is some twenty feet high at that point ...”

Membership Information

Individual Members = \$25.00/yr
Each Additional Family Member = \$5.00/yr

- Monthly Meetings (4th Tuesday) and Newsletter
- Member Activities, History Pubs and Field Trips
- Display and Restoration Projects

PSRHS, P.O. Box 1776, Colfax, CA 95713
or join/renew online at <https://www.psrhs.org/>

Reader comments, additional details, etc., are invited on any newsletter items or photos. Please forward comments, suggestions or information for inclusion in future issues of the newsletter to:

roger.staab@psrhs.org



Howe Truss Bridge

Chuck Spinks, PE
chuck.spinks@outlook.com

During the transition from all wood truss bridges in the early to mid-19th century to all metal trusses in the later 19th century, the Howe Truss bridge, with its combination of wood and metal, was the most common bridge type for railroads in the U.S. It was easy to construct and adjustable. Howe's design did not require skilled carpenters to notch and peg wood joints, but instead used iron rods and easy-to-use junction boxes at the joints.

From the June 28, 1879 copy of *Engineering News*:

“The Howe truss may justly be termed the most perfect wooden bridge ever built: others have been designed of greater theoretical economy, but for simplicity of construction, rapidity of construction and general utility it stands without rival.”

The Howe Truss was used throughout the world in areas where wood was plentiful and ease of construction was important. This was especially relevant for the Central Pacific and Union Pacific Railroads in constructing the first transcontinental railroad in the 1860s. All of the longer span bridges on the Central Pacific were Howe trusses. Unlike the Union Pacific, which frequently used temporary trestles to speed construction, the Central Pacific, with only a couple of exceptions, built more permanent Howe bridges with the initial construction. They used wood trestles where they planned on adding fill later.

William Howe patented his combination truss in 1840 as an improvement over the all-wood Long Truss which was patented in 1830 by Steven H. Long. Steven Long worked for the B&O Railroad in 1830 when he constructed railroad bridges using his new design. Long's truss used “X” bracing between vertical wood posts, with the “X” bracing in compression and the vertical wood in both compression and tension. The weakness in wood trusses was the connection of the wood tension posts or braces to the other truss elements. Howe's solution was to replace the vertical wood posts with wrought iron rods threaded at the ends to allow for adjustments.

The wrought iron vertical tension rods are the defining element of Howe's truss. A truss without these metal rods is not a Howe truss. By threading the ends of the rods, the bridge owner was able to adjust the compression on the “X” bracing of the bridge by tightening the nuts at each end to maintain the camber of the bridge.

References

- A Context for Common Historic Bridge Types, National Cooperative Highway Research Program, October, 2005.
- STRUCTURE Magazine, Historic Structures, Springfield Bridge for Western Railroad, Frank Griggs, Jr., Dist. M.ASCE, D. Eng., P.E., P.L.S., November, 2014.
- Historic American Engineering Record, Bushing Bridge HAER-IN-33, 1973, and Pine Bluff Bridge HAER-IN-103, 2002.

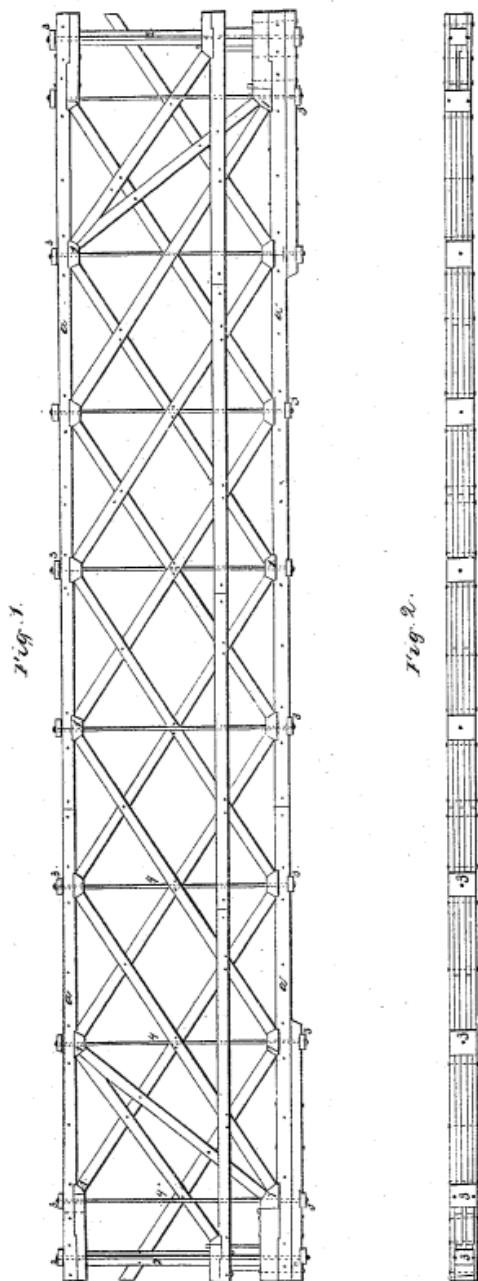
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W. Howe. Truss Bridge.

N^o 1711.

Patented Aug. 3, 1840.



William Howe's 1840 patent.

It replaced the vertical wood posts with threaded wrought iron rods.

This patent showed the wood bracing crossing two panels. This was soon changed in 1841 to using the "X" bracing in single panels.

M. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

