

Carolina Conductor



Volume 6 Number 11

Monthly Newsletter of the Carolina Railroad Heritage Association, Inc.

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Preserving the Past Active in the Present Planning for the Future

Web Site: hubcityrrmuseum.org

Facebook: Carolina Railroad Heritage Association

Meeting Site:

Woodmen of the World Bldg.

721 East Poinsett Street

Greer, SC 29651-6404

Third Friday of the Month at 7:00 pm

Hub City Railroad Museum and SOU Rwy Caboose #X3115:

Spartanburg Amtrak Station

298 Magnolia Street

Spartanburg, SC 29301-2330

Wednesday 10-2 and Saturday 10-2

Officers:

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Steve Baker - 864-297-0918

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Articles can be submitted anytime.

Snow Sheds

How the CPRR Crossed the Summit

Across the snowy mountains of the world, railroads are protected from avalanches by snow sheds, sturdy roofed structures of a uniquely American origin. Today these protective structures are built from concrete and steel, but they originated from massive galleries of timber that were erected during the construction of the transcontinental railroad.

In 1860, when Theodore Judah was completing his survey of a route for the transcontinental railroad, he recommended a route across the Sierra Nevada Mountains through Donner Pass and Dutch Flats for the best passage. Judah was aware of

the severity of winters at the mountain summit having personally experienced some of its weather extremes. He was also familiar with the history of the infamous Donner Party who had spent the winter of 1846-47 stranded on the eastern side of the summit. Judah had faith in his dream and he had faith in technology, asserting that state-of-the-art snowplows piloted by powerful locomotives would manage the snow. Unfortunately, in his enthusiasm, he underestimated the formidable winter weather.

By 1865, the Central Pacific Railroad was concentrating its workforce on building a series of tunnels to cross the summit of the Sierra Nevada Mountains. Between the tunnels, mountain slopes provided ample surface for tracks, but the extreme weather at the highest ele-



Eight locomotives pushing the snow plow "Sacramento".

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President's Message

October Meeting

The October meeting was held at 7:00 pm at the Woodmen of the World Lodge in Greer on October 18, 2019. The program for the evening was presented by member Jim Pitts. He educated us all on the two foot gauge railroads of Maine.

November Meeting

The November meeting will be held on November 15 at 7:00 pm at the Woodmen of the World Lodge in Greer. The program for the evening will be our annual modellers' night. Bring a model that you are passionate about and share it with the group. Prizes will be awarded.



Calendar of Events

Mark your calendars for the following events:

November 9, 2019 – NMRA Division #7 meeting, Northgate Baptist Church, 633 Summit Dr., Greenville. Starts at 9:00 am.

November 15, 2019 – CRHA/NRHS Regular monthly meeting,

Woodmen of the World Lodge, Greer, 7:00 pm.

November 22nd from 1:30 pm to 5:30 pm & **23rd** from 9:30 am to 4:30 pm, 2019 – P 'n' S T-Trak model railroad at Taylor's Library. Other groups participating will be the Hub City RR Museum/CRHA, the NMRA Palmetto Division #7 and the Model Trains Station.

December 2 – Director's Meeting at Taylors Library.

December 14 – Santa train on the Greenville & Western Rwy.

December 20 - CRHA/NRHS regular meeting, Woodmen of the World Lodge, Greer, 7:00 pm.

December 21 – Santa and Mrs. Claus will be at the Museum.

December 25 – Christmas Day - Museum will be closed.

January 1 – New Year's Day – Museum will be open.

January 25 & 26 – Train Show - Kennesaw, GA.

Presentation at Dayton Mills Elementary School

Dave and Anne Winans gave a talk about the Trans-Continental Railroad to the 5th grade classes at Drayton Mills Elementary School in Spartanburg on October 29th. We appreciate the generous donation from the fifth grade teachers to the Hub City RR Museum.

Caboose Renovation

Work continues on the Caboose

renovation. 90% of all the welding had been done. All wood and insulation has been removed from the walls and ceiling. We have started applying a rust converter to the corroded metal to help minimize further corrosion. We will be removing the window frames from the caboose in preparation for the installation of the new frames. We need to investigate the doors and door frames to see if any warrant replacing. If you would like to help with the renovation, please contact Duane Heard at 810-623-7444 or Dave Winans at 864-963-4739.

SAVE THE DATE!



Santa and Mrs. Claus will be at the Hub City Railroad Museum on December 21, from 11 am to 1 pm. See the attached flyer about the event. We will have donuts and cider for adults and candy canes for the children.

Election of Directors

All members should have received a ballot for the election of Directors. If you have not received

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Wanted—Articles for the Carolina Conductor

Submit an article of 200 words or more with some photos and captions and see them in print. Every one of us has some unique railroad experience that would make interesting reading for our membership. Your editor always needs more contributions of local railway history and news.

Continued from Page 2 —President

your ballot. Please contact Marv Havens. Ballots will be accepted via mail and at the meeting. The ballots will be counted and the elected Directors will be announced at the November meeting. Jim Hopkins has decided not to run for re-election to the Board. The Directors want to thank Jim for his service to the CRHA as a Director the past 2 years.

Red Caboose Award Nominees

Included with the ballot for Directors is a ballot for the Red Caboose Award recipient for 2019. The three members who were nominated are as follows and please vote for one:

Bruce Gathman

Bruce is a charter CRHA member and is currently on the Board of Directors. Bruce is the editor of the Carolina Conductor newsletter. He maintains the CRHA membership roster and is the member we turn to for any publishing, such as the post cards that we sell at the Museum. He

created the CRHA and Hub City RR Museum logos that we currently use. Bruce manages the annual photo contest that we have held for the past 3 years. As part of the caboose renovation committee, Bruce has spent untold hours working on the caboose. Bruce was the main builder of the HO layout that was located in the caboose.

Marv Havens

Marv is a long time member of the Greenville Chapter NRHS and a charter member of the CRHA. Marv has served on the Board of Directors for a number of years and is currently the Treasurer for both the Greenville Chapter and the CRHA. Marv has been instrumental in obtaining model railroad and railroaders donations that we sell at the Museum and at other events, such as the Easley train show. Marv has taken the lead on the Belk Charity Day Coupon Sales, which has resulted in significant income to the organization. He has used his engineering background to help in the fabrication of new window frames for the caboose.

Bob Klempner

Bob is a Charter member of the CRHA and is currently on Board of Directors for the CRHA and the Greenville Chapter NRHS. Bob is currently the President of the Greenville Chapter NRHS and has served as past President of the CRHA. Bob has volunteered almost every Saturday at the Museum and is our liaison with the City of Spartanburg and Duke Power. Much of what Bob does is in support of others; from opening the Woodmen of the World building prior to the meetings, to providing table and chairs for events at the Museum. Bob provided the Poplar Springs Fire Truck for our Touch a Truck Day at the Museum this past summer. Bob spent many Saturdays working with the caboose renovation committee in removing wood and insulation from the caboose.

Visit the Museum

We have been loaned a steam locomotive bell, with local history, from the Chapman Cultural Center, which will be on display until early January in the museum. Stop by and see the bell and see if you can make it ring. Thanks to Coleen Prettyman with the Chapman Cultural Center for this loan. The Hub City RR Museum is open from 10am to 2pm on Wednesdays and Saturdays.

October Minutes

Minutes of the October Directors' meeting are attached to the email.

Thanks, Dave Winans
864-963-4739
dwinans4739@charter.net



NS train going under Church St in Spartanburg.

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variations impeded progress. Snow-heavy areas were worked in the summer months and, as winter approached, the construction leap-frogged east to lower elevations with milder temperatures. This pattern provided a short-term solution. Workers were digging out snow impacted tracks as late as July, which left only a few months for construction and made winter rail travel on completed tracks impossible.

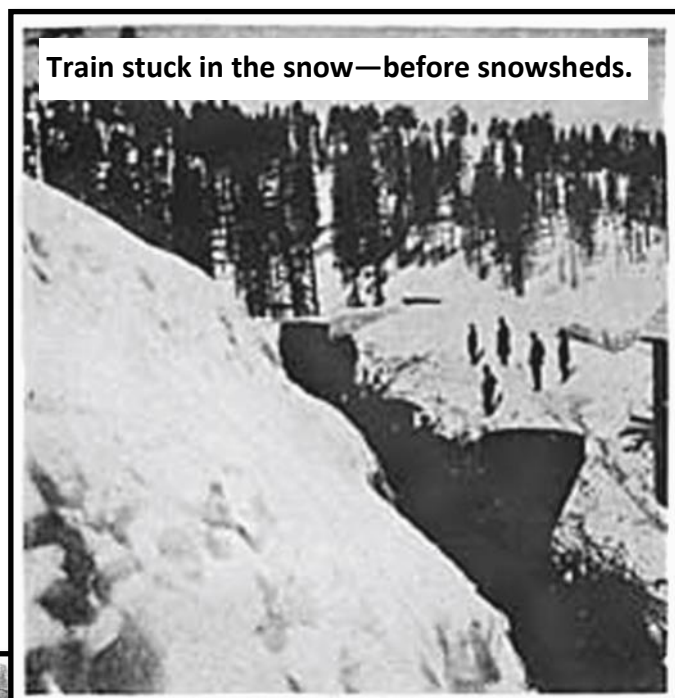
By the autumn of 1866, the Central Pacific was preparing for the onslaught of snow. *The Sacramento*, the Central Pacific's original locomotive but by then retired, was returned to service to deliver a gigantic snowplow with enough size and power, railroad administrators believed, to conquer the deepest blizzard. The plow was a heavy load for the locomotive. Scouts rode ahead to warn teamsters of their advance because the noise so terrified horses and oxen, that they would run wild. The journey took six weeks, from early November to mid-December and the winter snows were beginning in earnest by time the *Sacramen-*

to reached its destination and the plow put to work. The plow was mounted on a standard railcar, but the car was hidden by the body of the structure since it was intended to operate close to the track. It measured 10 feet wide, 11 feet tall, and 30 feet long. The front was a huge wooden wedge, reinforced along the edge by iron plates that sloped down to the rails. The lower portion of the wedge would scoop

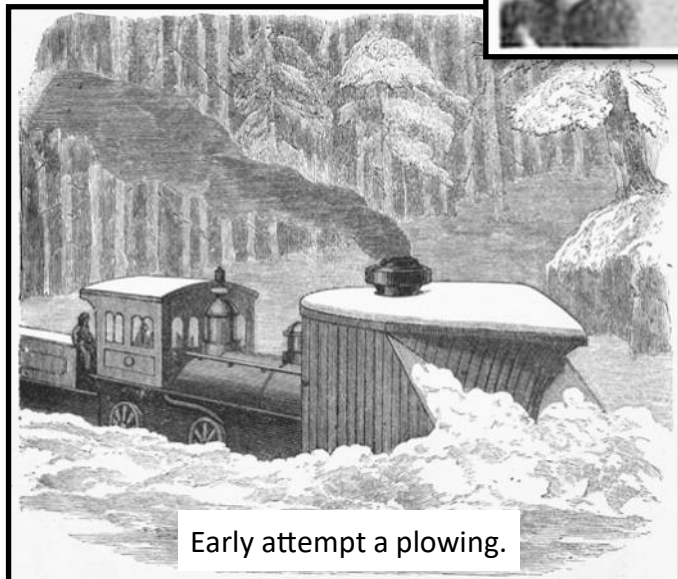
10 years and even the giant snow plow was no match for it.

The winter of 1866-67 was the worst on record. There were 44 snowstorms, ranging in severity. The smallest was a squall with only ¼ inch of snow accumulation, but the largest lasted two-weeks and dropped at least six feet of snow. The total snowfall that winter accumulated to 40 feet. Tunnels were cut through the snow so that the men

could continue the arduous job of boring the granite tunnels at the summit. Snow slides cost both lives and labor with scores of men lost that winter. When the timber trestle at Cisco was destroyed during an avalanche, management at the Central Pacific understood that something must be done, not just to continue building the railroad, but in order for



Train stuck in the snow—before snowsheds.



Early attempt a plowing.

up snowdrifts and on the upper portion, a jutting prow would part the drifts, throwing the snow as far as 60 feet. But on December 28, 1866, a town on the west side of the mountains, Cisco, California, experienced its largest snowfall in

trains to travel during the long winters on the operational tracks.

Over a lunch meeting in Sacramento, Charles Crocker and Leland Stanford discussed the situation, knowing they were facing serious consequences. Lost time from a construction hiatus during the long winter, lost revenue from track closures, and lost credibility for the entire project were weighed against the tremendous expenses to be incurred with the construction of snow barriers

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ers. Experienced in the design of bridges, tunnels, and trestles, Acting Chief Engineer Lewis M. Clement, proposed the implementation. Arthur Brown, who oversaw the on-site construction, had the experience deemed necessary to plan and supervise the building process. Brown and his crews needed to cover a total of 37 miles in a 40-mile stretch, a project that lasted three years.

With only five months of hospitable weather and no time to waste, the first five miles of experimental sheds were erected in the summer of 1867. The winter of 1867-68 showed that the structures were not sturdy enough to withstand the weight of avalanching snow. With modifications in place, the construction of permanent snow sheds began in earnest the following summer.

Two types of barriers were constructed. One type, the snow sheds, consisted of wooden galleries with roofs that followed the slope of the mountain. With the shed roof in place to extend the slope of the mountains, avalanches would pass over the tracks without dumping their heavy load. The second type consisted of large walls made of masonry. Built across ravines, these barriers prevented the snow sheds from taking a direct hit from slides. Eighteen miles of rails were



Inside of an early snowshed.

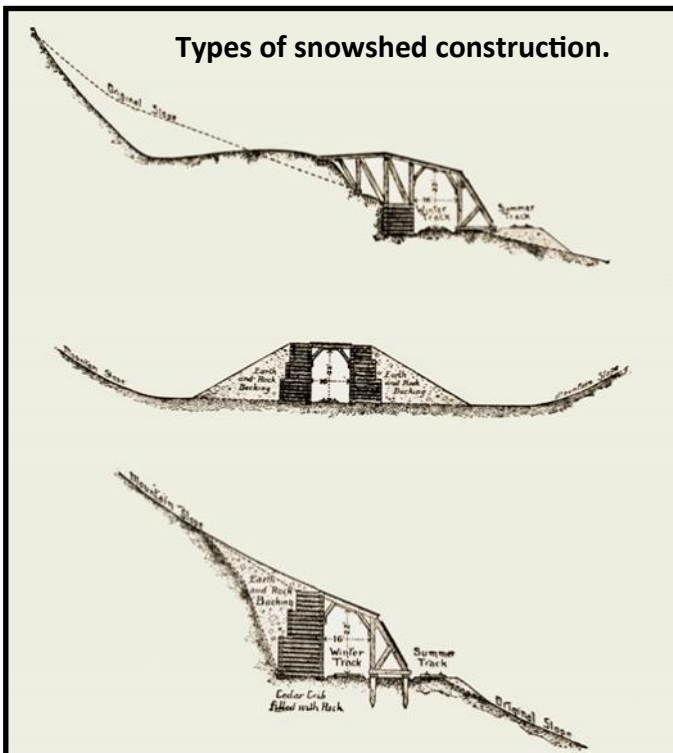
covered that summer using massive amounts of timber for the beams and crossbeams.

The final 14 miles of snow sheds were built by the winter of 1869. Six trains were used to haul materials. At first the timbers were milled in Truckee, California, but they could not keep up with demand, so much of the lumber was hand-hewn from the nearby

forests. By the time the sheds were completed, they had used 65,000,000 feet of 12" by 14" timbers and 900 tons of iron for bolts and spikes. An estimated 2,500 laborers worked on the project. The standard for labor was \$2.50 to \$3.00 a day, but to entice workers to the project, they were offered \$4 a day, about what a man could expect to earn in the mines. The total cost of 37 miles of tunnel was unprecedented, estimated at over \$2,000,000. Despite the expense, E. B. Crocker (brother to Charles Crocker) wrote to Collis P. Huntington, "Those snow sheds will pay for their cost in a single winter."

Before the construction of snow sheds, ice impacted tracks were cleared either by plow or more often by shovel wielding laborers. One seven mile stretch of the ravine beyond Reno had a 30-foot snow accumulation which was cleared by Chinese work crews. The implementation of snow sheds

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was a success. The winter of 1869, trains were blocked for a mere four days. Since then snow sheds have been protecting mountain rails around the world, first in the Canadian Rockies and later in Japan and the Alpine regions of Europe.

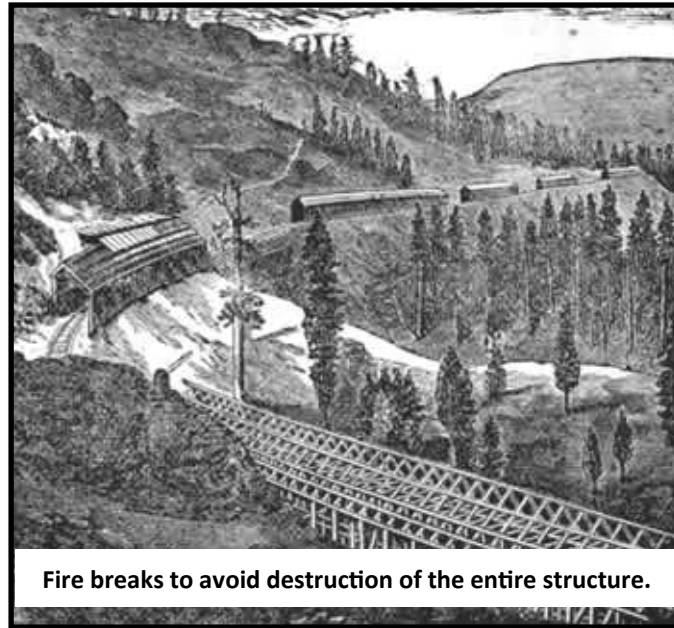
The Longest House in the World

By Fitzhugh Turner

The Boomer Brakeman, a Paul Bunyan of western railroad lore, is supposed to have made the run over the Sierra Nevada mountains just once. For nearly forty continuous miles, in the 1890's, the main line of the Central Pacific Railroad was covered by wooden snowsheds—a railroad enshrouded in one long, twilight forty-mile tunnel protecting the tracks and the transcontinental trains against some of the heaviest snows known to man.

After his trip “over the hill” from California to Nevada, the Boomer Brakeman is supposed to have hunted up the division superintendent and to have offered his resignation. “Blinkety-blank damnation,” the Boomer Brake-man is said to have thundered. “I’ve railroaded in the deserts of Arizona! I’ve railroaded in the mountains of Montana! I’ve railroaded in the Colorado canyons! I’ve railroaded all over the blinkety-blank West, but I’ll be blinkety-blank damned if I’m going to railroad in a barn! I quit!” and he highballed it over to Ogden and went to work for the Union Pacific.

Forty miles of railroad can be a long stretch when it twists along the sides of mountains and winds its way through canyons in curves and grades that hold trains to the slowest speeds. It seemed even longer, years ago, when the entire distance was one great wooden “barn,” the twilight broken only by the deeper darkness of an occasional tunnel. This



Fire breaks to avoid destruction of the entire structure.

was the Sierra Nevada stretch of the first transcontinental railroad—originally the Central Pacific; now the Southern Pacific. The snowsheds covered not only the tracks but also turntables, depots, section houses, sidings, even homes of the hundreds of railroad people who lived and worked on the mountain line. Children were born and grew up in the sheds, and some railroad men spent years of their working lives in what they sometimes called “the longest house in the world.”

Most of the sheds are gone now, but railroad passengers still complain about the wooden walls that for short distances block their view of the spectacular Sierra. Tenderfoot easterners still find it difficult to believe that enough snow can fall in California to make sheds necessary. Fifteen or twenty feet of snow on the level stretches is nothing unusual in these mountains, and drifts sometimes reach several hundred feet in depth.

The line over the rugged Snowy Peaks was the big hurdle for the Big Four—Leland Stanford, Collis P. Huntington, Mark Hopkins, and Charles Crocker—who built the Central Pacific. Crocker had charge of construction, and he had no idea when work started

in 1863 that anything like snowsheds would be involved.

His chief engineer, the brilliant Theodore Judah, reported: “It will be necessary only to start an engine with snowplows from the summit each way at the commencement of a storm, clearing the snow as it falls. A similar course of procedure at each successive storm

will keep the track open during the entire winter.”

Starting confidently to meet the Union Pacific, building from the east, Crocker’s men ran their line from Sacramento over the flat California valley and into the foothills along a fork of the American River, climbing through the little towns of Auburn and Colfax into the abrupt canyons of the higher mountains.

In general, the railroad builders retraced the route of the covered-wagon emigrants. Along the American River for nearly eighty miles they went, climbing from close to sea level to more than 5,000 feet, thence across a wooded mountain ridge to the nearby canyon of the Yuba River, and up along the Yuba 21 more miles to Summit, altitude 6,900 feet.

At Summit, they encountered the steep granite cliffs that, on a fall day two decades earlier, had stopped the tragic Donner party. To bypass the dills, the surveyors ran the line to the side of adjoining Donner Peak, then twisted it downward in a slow grade, taking sixteen miles of right of way to make six miles of progress. Below the

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peak they picked up the Truckee River and followed its canyon down the more gradual eastern slope to Lake's Crossing (now Reno) and the Nevada desert.

Work went slowly. In many places, coolies tied to ropes had to be lowered over mountainsides to scoop out the right of way. It was May 10, 1869, before locomotives from East and West were bunted together at Promontory in Utah, gold and silver spikes were driven, bottles of champagne were broached, and word was flashed to President Ulysses S. Grant and the rest of the waiting world that the Atlantic and Pacific were connected by rail.

During the first years the Sierra lay relatively low. Little work was done in the mountains during the winters, but railroad men were on the scene. Although they were not much impressed by the Sierra storms, they did come to recognize that some little protection might be needed for the new track. Judah's successor as chief engineer, S. S. Montague, first mentioned snowsheds in a report written in 1865, four years before the line was completed: The heavy snowfall in the vicinity of Summit, will render Unnecessary to provide a substantial protection, either of timber or masonry, to insure the successful and uninterrupted operation of the road during the winter months. That portion of the line requiring this unusual protection does not exceed one hundred yards.

A hundred yards indeed! When they reached the high mountains the C.P. authorities saw what snow can be, and they began throwing up snowsheds with everything they had. By 1869, when the first through train made the first through trip, they were already completing nine miles of sheds, and they would build many more miles before they were through.

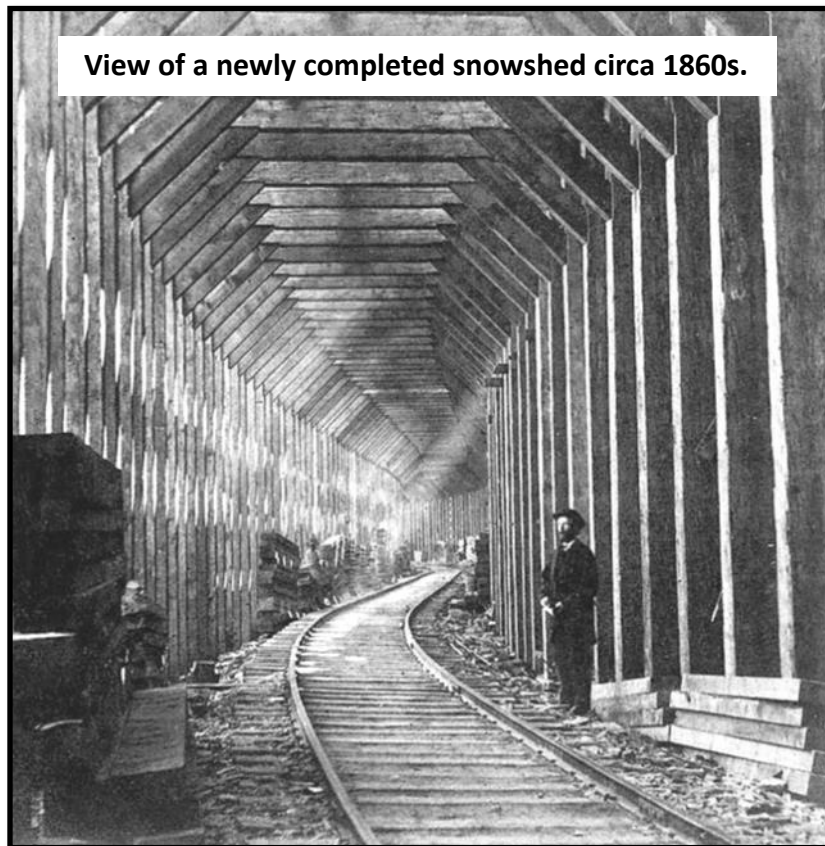
During the first summer, the transcontinental railroad was a proud success, at least at the western end. Trains

clear as much track as possible at each drive, then back off and take another run at it. The trouble was that often the whole procession, except where the snow was light, chugged to an ignominious halt, with the plow itself, or some of the locomotives, derailed and helpless. Yet the buckers, and the partially completed snowsheds, were all the protection the railroad had.

That first winter offered only a hint of what the Sierra could do. A strong hint, perhaps. The fall months passed without major incident. By late January 1870, the railroad men were breathing easy. Then on February 9, a mile above Emigrant Gap, California, an avalanche started high on the mountain, gathered trees and boulders and incredible quantities of snow, and piled on to the right of way, after sweeping a hundred feet of track and three hundred feet of the new snowsheds into the canyon below.

There was no going around, of course; there was nothing to do but stop the trains and clear the blockade. Bucker plows, men with shovels, and repair gangs were hurried into action. They had barely mobilized when a storm came up. Clinging to the hillside, the men shoveled as best they could. But the snow fell as fast as they could clear it, and the wind whipped up drifts that blocked the track all the way across the mountains. Transcontinental traffic was stopped dead, with a through passenger train stalled at Truckee, California, thoroughly snowed in.

Bucker plows and their crews attacked the blockade from both sides of the mountain, but they could make only



View of a newly completed snowshed circa 1860s.

ran without mishap. Then came winter, and the first snow. The railroad men had armed themselves with primitive plows, known as "buckers," or "pushers," or "pilot plows." These were V-shaped wooden rams mounted on railroad wheels and driven by a string of locomotives. A bucker made an impressive sight as it drove into a snowbank with all the force of six to a dozen hard-puffing little engines. The idea was to

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slow headway. Four days after the slide, with the weather clear, they had managed to free only a few miles of track. Two days later they were still seven miles apart. By this time the passengers stranded at Truckee were growing cold, hungry, and exasperated.

Finally, the Central Pacific officials sent men to dig out the snowbound train. It ran as far as the tracks had been cleared; then the conductor told the passengers to get out and walk. Some

were poorly clothed for a hike through snowdrifts, but they made it. Men, women, and children, with railroad guides breaking the way, walked from station to station along the snow-buried track to Emigrant Gap, occasionally through snowsheds, occasionally in the open. There, a train from the valley picked them up and carried them on down to Sacramento. It was nine days after the slide before through trains were running again, and during that time successive hundreds of passengers

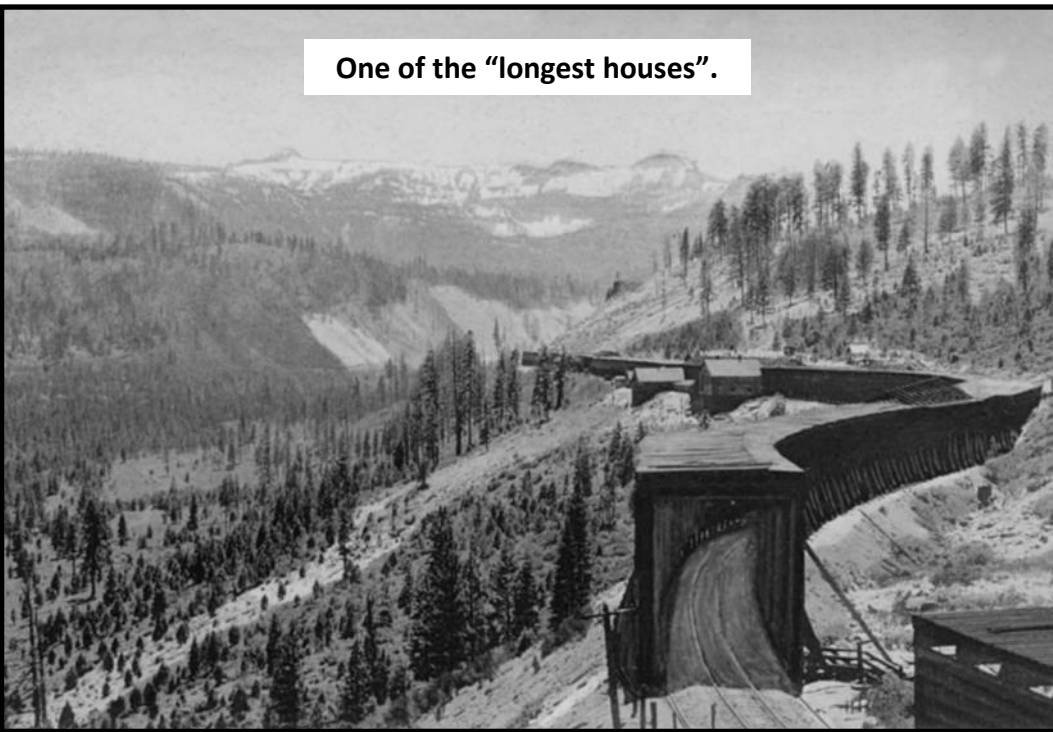
were forced to walk decreasing distances from train to train.

That little taste of winter needled the C. P. officials into greater action, and as soon as the snow melted, they turned to building snowsheds with a vengeance. Expert workmen were scarce in California, so the railroad imported scores of Canadian woodsmen. Sawmills were set up in the forests along the right of way, and the track between Blue Canyon, on the western slope, and Andover, on the east, buzzed with the sounds of carpentry during those summers. It was one of the hip-pest barn-builder bees of all time.

The weather god of the Sierra regarded all this activity with what could have been an amused smile, for the C. P. designers were showing themselves novices at fighting snow. Their peaked-roof shed, like a big "A" straddling the track, left a space between shed and mountainside. When winter came, the Sierra summoned up its blizzards to pack snow tight in this space. During the cold weather no snow reached the track. But then came spring.

Ed.—As the suspense builds, read the conclusion next month.

One of the "longest houses".



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