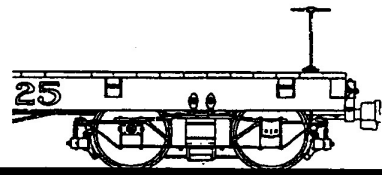


CARTER NARROW GAUGE CHRONICLES



The Newsletter of the Society for the Preservation of Carter Railroad Resources

Volume 24 Number 3

March 2006

MARCH WORKDAY, NEW MEMBER DRIVE, GENERAL MEETING AND POTLUCK

BRAKEMAN CERTIFICATION

The March Workday is scheduled for the third Saturday, the 18th, at Ardenwood Farm, starting at 10:00AM and running to 4:00PM or so. This year we are trying something new. We will be holding a New Member Drive and will need many of you to help talk to people, explaining what we do, equestrian operations, railroad operations, new rail and building construction, etc. We desperately need help in the equestrian operations and we will also need help with the new building and track laying. In between talking to people, there is maintenance work, painting, clean up and general getting ready for opening day.

Andrew Cary will also be conducting brakeman training/certification this Saturday (details inside).

The general meeting and potluck dinner will be held in the granary at Ardenwood, starting at 6 PM. For dinner, Beth Cary has again offered to cook corned beef, cabbage, potatoes, carrots and her wonderful soda bread. If the rest of us bring an appetizer or dessert and your own beverages and some to share, it will be appreciated. The general meeting will start around 7 PM, when everyone has finished eating. PLEASE RSVP to Barbara Culp at (510)785-1343 or general-manager@spcrr.org, so I can tell Beth how many to cook dinner for that evening.

HOPE to see all of you out there on March 18!! Come join us for some fun!

DON'T FORGET TO RSVP!!!!

- Barbara Culp, General Manager

PRESIDENT'S MESSAGE

Welcome to our 30th Anniversary Celebration Year!

This year marks the 30th anniversary of the formation of a group of dedicated railroad individuals who sought to preserve a single 1881 Carter Brothers Railroad Car. That moment in time and that car represent the beginning of the SPCRR as we know it today, the Society for the Preservation of Carter Railroad Resources. In 1978, the SPCRR was registered as a General Non-Profit 501(c)(3) Corporation for the purpose of preserving for, and interpreting to, the public the history of narrow gauge railroading in the San Francisco Bay area, in California, and in the West.

By 1985 over a mile of track had been laid and our famous horse-drawn train began its operations. Twenty years later, we continue to offer horse-drawn train rides each year to thousands of people and have featured two different steam locomotives at our Rail Fairs over the past five years. While our train operations and events are the mainstay of our public image, we have also educated many people, both rail fans and park visitors, about narrow gauge railroading in the late 19th century.

We have acquired many more cars after that first combine/caboose #47, and have become known as the authority on the Carter Brothers cars, construction and materials. Model railroad car kit builders use our cars as prototypes for their models. Many an author has referenced detailed information gained from our accumulated knowledge, patterns, equipment and our members. We are proud of our beginnings, our dedication, and who we have become over the last thirty years. We applaud those members before us who had the foresight to preserve that first car, the energy to lay our first tracks, the commitment to historic railroad preservation, and who have left a strong legacy for the future.

In our extensive collection, we now have several boxcars, combines, handcars, horse cars and locomotives with several other pieces being promised and donated. Five cars have been fully restored to operating condition with another boxcar, SP 10, currently being restored. In addition to the full-scale collection items, we have many patterns, reams of written documentation and thousands of small parts.

Now on to our next historic milestone...the 2006 Groundbreaking and Dedication of the Eastern Terminal of the SPCRR and the erection of the Car Barn to house our most sensitive equipment and artifacts. Plans are being completed this month for the April submittal to the East Bay Regional Parks District for review and approval. Members have been gathering and organizing all the loose rails, ties and other track materials in the Park to the Eastern Terminal site. Other members are currently working to stake the realignment of the curve at end of track in preparation for relocating the track during early spring. The Board of Directors has determined that Groundbreaking will officially take place in May with Dedication Ceremonies to take place over Labor Day during Rail Fair this year!

If you haven't already surmised, this year, 2006, is extremely important for the next phase of the SPCRR. This first permanent building for our collection is the foundation for the SPCRR as a historic museum in addition to our already well-known reputation in the railroad community. Museum status brings with it the possibility of increased funding and grants, direct collaboration with other museums, listings in museum and travel destination publications, increased exposure to potential donors, greater membership, larger active volunteer participation, more interpretation opportunities, and more restoration activities.

What can you do to be a part of our 30th Anniversary Celebration Year?

Be active! Be a volunteer! Be recognized!
Many rewards available! Everyone wins!

Here's some of what you can do to join in the year-long celebration:

- Come to the Workdays and General Meetings (fun & companionship available)
- Join the equestrian team (learn to operate & care for our 'live' horsepower)
- Become a locomotive operator or brakeman (training & certification available)
- Become an Interpretive Guide to the public (our newest volunteer position)
- Be a part of the track laying & ballast crew (no experience necessary)
- Help move our car collection & artifacts into the Eastern Terminal Car Barn
- Participate in the planning & execution of our two major fund raising events: Rail Fair (Labor Day Weekend) and Halloween Train (October)
- Become an Eastern Terminal Sponsor with a specified donation this year
- Be an honored guest at the Car Barn Groundbreaking & Dedication
- Plant trees, shrubs, and install irrigation in the new terminal yard this fall
- Perform maintenance on our regular operating cars & equipment
- Take on a behind-the-scenes projects at home (tailored to your interests)
- Coordinate fund raising & grant applications for buildings & acquisitions

Many thanks for all your support both in the past and in our very bright future.

Hope to see you very soon and very often!

- Karen Blanor, President

Brakeman Training and Certification March 18th, 2006

I will be training and certifying brakemen March 18th. This will certify individuals for switching cars using all types of motive force except horses and for braking behind a locomotive. An equestrian endorsement is not included but is available after additional training by the Operations Supervisor. The training will start at 10:30 AM and cover:

1. The SPCRR operating rules
2. Passenger Rules
3. Hand and horn Signals
4. Practical Switch Operation
5. Safe coupling and uncoupling of cars
6. Stopping a car using a hand brake
7. Multi-car operation special rules
8. Special circumstances

The endorsement for horse drawn operation must be made by arrangement with the Operations Supervisor, Mary Jane Gendreau.

A J L Cary
Safety Manager and Trainmaster

FEATURE ARTICLE

Boxcars – The Roof Problem

Part 1

by Randy Hees

Author's Note: The following is a two part article reviewing traditional 19th century railroad technology and car building practice relating to box car roofs. It is part of an ongoing series of articles on wooden railroad cars.

Defining the Problem

If you visit Ardenwood during our winter rainy season, you will find that we have tarped two of our boxcars, SP 10 and SPC 472 (elsewhere in the park Nevada Central 253 is similarly covered). We have done this because their roofs leak. The roof on SP 10 is at best beat up and at worst rotten, but the roof on 472 is new, installed in 1997, and repaired and repainted in 2002. Some of the boards on 472 are showing signs of rot, and the roof will need even more work this spring. Sitting in storage are two more boxcars, SPC 444 and Pajaro Valley Consolidated 215, both currently carrying iron roofs installed after the car bodies became sheds. With the problem identified, we have started a process to research and understand 19th century practice.

Our study of 19th century sources suggest that our problems are not new, nor unique. As early as 1874 the then new Master Car Builder's Association (MCB) had formed a committee to research roofs. Their report, published in the July 1874 National Car Builder stated: *"In the Construction of freight-cars, the roofing is a matter of paramount importance. Experiments, with a view to more satisfactory results, have been made by car-builders with varying success. Almost every kind of material adapted to the purpose has been tried -- double boarding in various ways, and tin and iron on top and underneath the boards. The great difficulty hitherto has been the natural expansion and contraction of the material, under varying extremes of temperature, and the injurious effects oscillations NS vibration when*

the car is in motion, making it almost impossible, apparently, to devise a substantial and durable water-proof roof."

Fifteen years later, in 1889, railroad car expert William Voss wrote: *"A satisfactory if not a perfect freight-car roof is one of the problems still to be solved, and considering the conditions of service involved, it is safe to say that it will remain a problem for some time to come. The first requisite of a good roof is an absolute protection against rain; it must also be reasonably safe to walk over, and consequently of a low pitch and of a material that is not slippery and not liable to be injured by the feet of trainmen; the construction must be such that the vibrations and the twisting of the frame will have no effect on it, and lastly, it must be durable and reasonably cheap."* (Voss, p 30)

As Voss noted, the Railroads were cheap and conservative when considering new designs.

The Options

As usual, Voss is the first contemporary source we turned to, to learn what the car builders were trying. *"There are three distinct classes of roofs in use, and their relative value, if measured by the number at present applied, is in the same order as they are mentioned: First, the double board roofs; second, the single board roofs covered with tin or some other sheet metal; and, third. the various roofs of sheet metal, paper or composition, with an outside, and in some instances, also, with an inside covering of boards to protect this material against injury."* (Voss, p 30)

On the other hand, in 1908, Kirkman had identified four possible roof types: *"There are in use four general styles of roof construction: (1) The double board roof; (2) the single board roof covered with tin or other sheet metal; (3) the sheet metal roof protected by a single layer of roughly matched boards; (4) a type of double roof consisting of an inside roof covered with felt, tar paper or asphalted canvas and an outside roof built over it to protect the roofing material from injury."* (Kirkman p 39)

Early Efforts

Canvas covered roofs: The earliest roofs, mostly prior to the Civil War, were canvas or duck, stretched over the single board roof, and painted with multiple coats of a thick waterproof paint. These roofs were fragile, easily damaged, and wore out quickly, but occasionally were used on passenger cars, and were almost universally used on streetcars until after World War II. Two canvas roof can be found in the collection of the SPCRR, one on our 1886 horse car, Oakland Railroad 8 (built by John Hamond, 1886), and the second on the fragmentary remains of San Francisco cable car 512 (Carter Brothers, 1894).

Soldered tin roofs: Soldered tin or terne metal roofs were tried on freight cars, but were found to be easily damaged by brakemen and others walking on the roofs. On passenger cars, where no one walked, tin or trune metal roofs became the standard roof, used by the Carters and others. Both SPC 47 and SP 1010 in our collection carry tin roofs, in the case of car 1010 now 123 years old. Apparently the Carters used tin roofs on the passenger cars they produced, including car 47, but the surviving specifications for a standard gauge car built for the Port Blakely Mill ignore this aspect of the car, only specifying the use of “*ruby and blue glass in the pivoted deck sash.*”)

The Common Double Board Roof

“The double board roof is perhaps the most used. (in 1908) In the construction of this roof only the best seasoned white pine boards should be used. A common practice is to use boards dressed on both sides and edges to a uniform size of about 7/8 x 5 1/8 inches and have two semi-circular grooves of 5/8 inch diameter on one side, near each edge. (running the length of the board). The purpose of these grooves in the top course of boards is to catch and carry off as much of the water as possible, keeping it out of the joints; these same grooves in the under course catch and carry off such of the water as penetrates the joints of the top course. As the grooves in the under course are apt to become clogged with dirt sometimes the two

courses are placed in contact so as to increase the size of the channel for carrying off the water. The boards of both courses are nailed to the plates, purlines and ridge pole. Wooden (sic) screws are sometimes used in place of the nails but they are expensive and troublesome. The edges and faces of the boards are always heavily coated with paint before they are laid. The pitch of the roof varies from 1 ¼ to 2 inches rise per foot. The steeper the pitch the better the protective qualities of the roof but the more dangerous to trainmen who have to pass over it.” (Kirkman pp 39-40)

The Carter Brothers apparently used double board roofs for all of the boxcars they built.

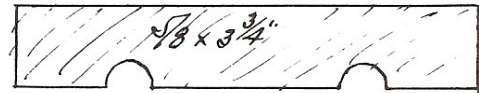
We have two original Carter Brothers documents mentioning boxcar roofs; the first a set of specifications prepared as part of a quote for Pope & Talbot for equipment for their logging line in Washington, which describes the roof as “*Roofing double thick Redwood ¾ in. by 4 in.*”. No details of construction or lumber quality information is provided. Separately, they included drawings of their standard roof board when redrawing their standard 28’ narrow gauge boxcar plan sometime around the turn of the century. The drawing shows a 4” wide board with two grooves, identical to those shown in the Car Builder’s Dictionary (but as a Western builder the Carter Brothers were using redwood in place of the more common eastern white pine called for by Voss and Kirkman.) Late shop inventories are no help, as no roof boards are listed.

At the SPCRR our experience with double board roofs has met with mixed success. When restoring SPC 472, an 1880 Carter Brothers boxcar, we chose to replicate the roof shown on the Carter boxcar drawings. New roof boards were ordered cut from old growth, all heart redwood, the finest available. We read both Voss and Kirkman on the subject. We studied photos of SPC boxcar roofs to learn which way the roof boards were oriented (in all but one case we found the grooves on the top boards were on the bottom, but we did find one photo showing both sets of grooves oriented upward). In the end we placed the grooves on the lower course upward, with the grooves on the upper

course point downward, lining up with those on the lower coarse, forming round holes. It was difficult to make the two layers line up well. We followed the painting instructions carefully. We find the roof leaks, and some of the boards start to rot immediately, while others seem immune.

At least one person has suggested that we should have used quarter sawn or vertical grain lumber. We have reviewed contemporary records, and have found no specification calling for this. They do call for dry material, free from knots or sap, matched and grooved. It is possible that 19th century lumber buyers thought this was so obvious that they didn't need to tell us, but the commonly used illustration of the double board roof shows end grain, and the end grain shown is not vertical grain.

Apparently our experience with these roofs is consistent with those of our 19th century predecessors. While it is comforting to know we have accurately reproduced a 19th century roof, it is frustrating to have to suffer through the leaks and have to continually repair it. At some future date we will likely lift the top layer of boards and add a membrane of some type to make the roof more weather tight, much as described later by Kirkman.



Carter roof board detail, 1901
Dr. Fisher Collection, CSRM Library

Next time we will review other options tried.

Sources for this article included

Carter Brothers, Specifications for Passenger Cars and Combination Passenger and Baggage Car, Platform Car and Box Car and Hand Car and Push Car- all for 4ft. 8 1/2 in. gauge. (n.d.) (from the University of Washington Libraries, for cars for the Pope & Talbot Lumber, Port Bakely Washington.)

Carter Brothers, Drawings for 28' narrow gauge boxcar body (n.d. c.1901) (from the Dr Fisher Collection, CSRM)

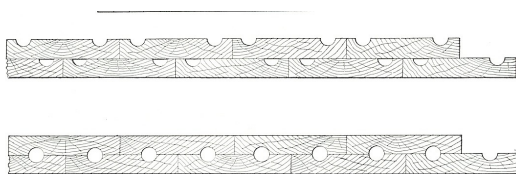
Forney, Matthias, The Railroad Car Builder's Pictorial Dictionary, (The Railroad Gazette, New York, 1879, reprinted by Dover Publications, New York, 1974)

Forney, Matthias, The Car Builder's Dictionary, Revised and Enlarged (The Railroad Gazette, New York, 1888, reprinted by Newton Gregg/Publisher, Kentfield CA, 1971)

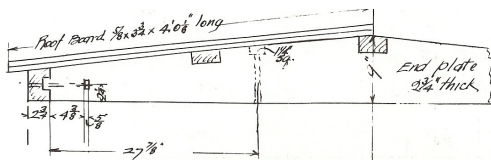
Kirkman, Marshall M., The Science of Railways, Cars Their Construction, Handling and Supervision, (two books in one volume, Book 1, - The Railway car, its Construction and Handling, and Book 2 - The Car Service Department, Edition 1908, The World Railway Publishing Company, New York and Chicago, 1908)

National Carbuilder, Van Arsdale Press, particularly: July 1874, pages 102, 103, CAR-ROOFS a report to the Master Car Builders Association by Mr. C. A. Smith

Voss, William, Railway Car Construction (R. M. Van Arsdale, New York, 1892) (This landmark work originally appeared as a series of 20 articles published in the National Carbuilder from February 1888 to December 1891. Those articles published in a single volume in 1892. They have been reprinted in Newton Gregg in his Train Shed Cyclopedia series (No. 29 (1975) & No. 39 (1976)) and by the Orange Empire Railroad Museum recently)



"Double Board Roof" illustration from Kirkman



Carter Bros. boxcar roof design

Society for the Preservation of Carter Railroad Resources

PO Box 783, Newark, California 94560

The Society for the Preservation of Carter Railroad Resources is a non-profit museum specializing in the preservation and interpretation of early western narrow-gauge railroad equipment, especially that built by the Carter Brothers of Newark, California.

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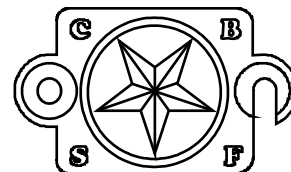
Membership

A contributing membership in the S.P.C.R.R. is \$20 (US) per calendar year and entitles you to the newsletter, calendar and direct mailings regarding special events. You also have the satisfaction of knowing you are helping conserve and restore our collection. Life memberships are available for \$250 (US).

Requests for membership or information should be sent to the address above or to membership@spcrr.org. A membership form is on our web page at www.spcrr.org.

The Society for the Preservation of Carter Railroad Resources is a registered 501(c) non-profit organization. Membership dues and contributions are tax deductible.

The *Carter Narrow Gauge Chronicles* is the newsletter of the S.P.C.R.R. It is currently published on a monthly basis. The submission deadline is the 3rd Friday of each month – submissions should be sent to newsletter@spcrr.org or the PO Box.



Upcoming Work Days, Meetings and Events at Ardenwood

SPCRR Work Day & General Meeting	Saturday, March 18
First Day of Operation	Thursday, April 6
Gathering of the Clans	Saturday, April 8
SPCRR Work Day	Saturday, April 15
SPCRR Work Day	Saturday, May 13
Fire Truck Day	Saturday, May 20

Other Events of Interest

NRHS Feather River Excursion	Sat-Sun, April 1-2
WP Railroad Historical Society Convention, Chico	Fri-Sat, April 7-8
SBHRS Open House, Santa Clara Depot	Sat-Sun, April 8-9

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Please Forward

