

JULY 2021



DESPITE COVID, 2020 SAW SOME SIGNIFICANT ACHIEVEMENTS. AMONG THE MOST NOTABLE WAS THE RESTORATION OF AN ENTIRE 19TH CENTURY RIO GRANDE NARROW GAUGE PASSENGER TRAIN BY THE CUMBRES & TOLTEC. SEE THE HERITAGERAIL AWARDS ON PAGE 7.

Jerry Day photo

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For a rate sheet, email Lynette Rickman
at contact@heritagerail.org.

FROM THE HEAD END

By G. Mark Ray, President, HeritageRail Alliance

The magazine is back! The HeritageRail Alliance is very happy to get back to publishing a quarterly magazine. We really thought a digital product was the future but it just didn't hit the mark for us. We wanted to have something tangible, something you could leave on the lunch room table, or share with your local politician/foundation that you're trying to schmooze for money.

The Alliance actually made the decision last year to restart the quarterly magazine but the pandemic delayed the start. We also took a strong look at the content. Instead of filling the magazine with feature stories, we're going to focus on Recommended Practices including case studies from someone who does a particular practice very well. We'll also share feature stories from the American Alliance of Museums and the American Association for State and Local History. Both of these groups often have very relevant information for us. Also included are Advocacy and Regulatory Updates; a current list of commercial members; and advertisements.

As before, Aaron Isaacs will be our editor. Feel free to reach out to Aaron with any suggestions for improvements or news stories! He will be happy to hear from you.

Diversity and Inclusion in Heritage Railroading

The HeritageRail Alliance was recently asked to publish the results of a non-scientific survey being conducted through a link published on a website bulletin board. Upon review of the survey questions, we declined to do so. It was not because of the topic, but due to the broad nature of the questions. The topic, which resulted in a very toxic discussion on the forum, is something very real and I feel the need to address it.

Originally "Women in Railroading" was to be the subject of this article but I am going to expand the scope to "Diversity and Inclusion in Heritage Railroading."

When I first started my life as a volunteer, I encountered "issues". It seemed that getting to be part of a locomotive crew was a matter of who you associated with, and not on your skill or enthusiasm level, a form of stereotyping. Being given menial tasks also was not very encouraging. Eventually I became involved with the right people and paid my dues to reach engineer status. Along the way I did see women work to become part of the head-end crew only to be told they could never be qualified as an engineer. The reason given was not discrimination. The reason was in the Mission Statement of the organization: To operate a 1930's era passenger train. In the 1930's, operating

steam locomotives was an all-male sport. To comply with the mission statement and achieve historical accuracy mandated the exclusion of women from being engineers. This was kind of ironic given that it was okay to have a woman fireman.

That was 40 years ago and looking back I do feel there was more than "historical accuracy" at work, but rather an excuse to discriminate. Attitudes towards women in the workplace were not like they are today. This is why we must take another look at keeping historical accuracy in context while allowing diversity and inclusion to be a part of heritage railroading.

The story of railroading cannot be told without including sexual and racial discrimination. In the South, an African-American man would never be promoted above fireman. In fact, on some railroads, it was the engineer's responsibility to maintain the water level in the boiler - was this because railroad management did not feel a man of color could handle that responsibility? These stories are best told in a museum setting as part of railroad's impact on social issues.

So how do we manage to maintain historical accuracy while incorporating diversity and inclusion? I group this question into the same realm with "maintaining the historical fabric" during an equipment restoration. What is original? How much of the artifact still exists from when it was factory new? Things change, values change. Change is the one constant in life. Managing change is always the challenge. Changing social values are real and we can manage this.

How do you explain a female steam locomotive engineer running a 1930's era train when you're trying to be historically accurate? Consider this explanation - While the train and costumes are representative of the time-period, crew member selections are made in keeping with our social values of today. Had this type of railroading survived until today, the railroads would have a female engineer so we're proud to have her running our train today.

I am really not aware of any operating heritage railroad in North America that currently has any restrictions based on gender, race or other immutable characteristics, on who can be qualified as a member of an operating crew. However, I do encourage all of you to develop policies on Diversity and Inclusion and ensure your selection guidance is free of restrictions. Finally, you may want to revisit your mission statements or reconsider your definition of historical accuracy.

HERITAGERAIL JOURNAL DEBUTS

By Aaron Isaacs, HRA editor

Welcome to the HeritageRail Journal. Until 2016 HeritageRail Alliance published a quarterly print magazine. We moved it online that year to reduce costs and hopefully reach a larger and younger readership. However, there have been lingering doubts about the decision and there's no question that many of our readers missed holding a print magazine in their hands.

Last year the HRA Board decided to discontinue the online blog magazine and revive the quarterly print publication. The Preservation Projects list of active restoration and capital projects will continue as an online feature at <https://heritagerail.org/projects-in-progress/>.

For new readers, HeritageRail Journal covers railway preservation across North America from the viewpoint of industry insiders. Our target audience is the people who work in the field. We try to bring you the news that doesn't make it into the mainstream railfan press. We also cover industry best practices and HRA activities. Each issue will

include an essay on a section of Recommended Practices for Railway Museums.

HeritageRail Journal will be published quarterly, on or about January 1, April 1, July 1 and October 1. Each member museum or railroad receives 8 copies, mailed to the addresses of your choice. Commercial members will receive two copies. They can go to your office, or you can designate that they be mailed directly to the homes of your directors, volunteers or employees. It's your call. Send your list of addresses to HRA Executive Director Lynette Rickman at contact@heritagerail.org. We'll sell individual subscriptions for \$20 per year. Once again, email Lynette Rickman at contact@heritagerail.org to subscribe.

Advertising

We're selling full page, half page and quarter page ads in the new magazine. For a rate sheet or to purchase ads, email Lynette Rickman at contact@heritagerail.org.

HERITAGERAIL ALLIANCE 2021 FALL CONFERENCE

NOVEMBER 4-6 PHILMONT SCOUT RANCH, CIMARRON, NEW MEXICO

We're doing something different this year. Our venue will be the Boy Scouts' huge ranch in northeastern New Mexico. It hosts the railroad merit badge program. Scouts are rebuilding a portion of the Cimarron & North Western Railroad, abandoned in the 1930s. We'll present a full program of seminars, commercial vendors and, of course, the opportunity

to network with your peers. You can attend in person, or online. We're applying the lessons learned during our online Spring conference. Online attendance is a bargain, and we're hoping to increase the number of participants. Watch heritagerail.org and the next issue of the Journal for details.



RECOMMENDED PRACTICES FOR RAILWAY MUSEUMS 2.0

By Aaron Isaacs, HRA editor

The original version of Recommended Practices for Railway Museums was developed in 1997 by the Association of Railway Museums (ARM). It was intended to provide a pathway to accreditation for the association's members in accordance with the American Alliance of Museums standards and practices. ARM merged with the Tourist Railway Association in 2012 and has since been renamed HeritageRail Alliance.

Based on two decades of experience, it was time to update and refine Recommended Practices (RP), and that happened in 2019. RP is a dense document. Recognizing that most rail preservationists probably won't read it from end to end, this magazine is beginning a series of articles to summarize RP. The goal is to make the document more accessible and understandable. Hopefully more preservationists will also read the full RP. To download a copy, go to heritagerail.org and scroll down to the bottom of the home page.

A quick overview

RP is divided into chapters that cover every aspect of running a railway museum. Here's the list.

- | | |
|---|---------------------------------|
| 1. Institutional Purpose | 8. Funding |
| 2. Governance | 9. Financial Accountability |
| 3. Institutional Code of Ethics | 10. Related Business Activities |
| 4. Staff Structure and Evolution | 11. Accessibility |
| 5. Programs and Support Activities | 12. Corporate Relations |
| 6. Collections Stewardship | 13. Community Relations |
| 7. Museum Facilities and Infrastructure | 14. Advocacy |
| | 15. Disaster Plan |
| | 16. Strategic Planning |

We'll take these one at a time, starting in this issue with Institutional Purpose.

1. Institutional Purpose

The subtitle reads: "Railway museums need a clearly stated purpose, giving them a reason to exist and providing a means from which to set their direction."

It sounds so fundamental—it should be obvious that a new museum needs a clearly stated purpose, but in the beginnings of the preservation movement, that was not the priority. The priority was saving whatever endangered artifact was about to be scrapped. Once acquired, the next priority was finding a secure place to put it. Okay, that done, how could the artifact be restored and potentially operated? Most young museums made it up as they went along.

With the initial emergency and birthing pains over, most new museums kept acquiring more endangered artifacts. This was the "hunter-gatherer" period and it went on for a long time.

As they matured, rudimentary steps were taken toward organization. Non-profit status was obtained (with a few for-profit exceptions). A Board of Directors was organized and publication of a newsletter began. Remember, however, that these new museums were being run by people who came from every walk of life except museum management. They had a lot to learn and the ad hoc, emergency challenges often prevented long-term thinking.

"A clearly stated purpose" requires a mission statement, and mission statements are aspirational. They can include optimistic goals that are expensive to achieve or are beyond the organization's capabilities. With the reality of poverty and all-volunteer staffs, many museums took years to either draft a mission statement, or live up to the one they had. During this unsettled period, many museums strayed, acquiring artifacts or engaging in activities that didn't match the mission statement. As will be discussed in the chapter on Collections, policies like mission statements and collections policies are valuable guard rails that keep you focused on your real purpose.

The good news is that the hunter-gatherer period is now receding in the rear view mirror. Museums that have survived have matured considerably. They have well-defined management structures and have adopted conventional business practices. One of those is the adoption of realistic long-term planning goals. A few have been able to hire professional management, an asset if the right manager is hired. To be sure, poverty and reliance on volunteer staff is still a challenge, but if the institutional infrastructure is in place, the chances of survival are much enhanced.

Achieving stability makes it much easier to take a longer view of the mission and the mission statement must adapt. Often the early ones said "Our mission is to save the stuff from railroad X or state Y." That's inward looking, essentially meaning "this stuff is just for us". The mature museums recognize that they are educational institutions that hold the artifacts in trust for the public. That's the difference between a hobby club and a real museum. Mission statements have pivoted to language like "preserve and interpret the history of railroad X or state Y". They recognize that the artifacts are tools to achieve a larger purpose.

Clarifying institutional purpose sets the table for other important decisions, such as clear collections policies, sizing the collection to fit the resources, and developing a long-term view that informs every management decision. We're in the perpetual preservation business, a daunting prospect, and making that happen starts with a clear-eyed assessment of institutional purpose.

2021 HERITAGERAIL AWARDS

By Aaron Isaacs, HRA editor

HRA normally hands out awards at its annual Fall conference, but Covid prevented that in 2020. Instead, the awards moved to the 2021 Spring conference, which was held entirely online for the first time. Besides being HRA's editor, I chair the Awards Committee, which selects the recipients. This year's committee members included HRA President G. Mark Ray, HRA Board Members Stathi Pappas and Steven Butler, and Trains Magazine Editor Jim Wrinn.

One note before listing the awardees: We only considered projects that were completed in 2020, which ruled out a couple of prominent ones like Chesapeake & Ohio 2-6-6-2 #1309. It will be considered when we next give out awards at this year's Fall conference.

Significant Achievement-Steam

Three steam restorations were awarded. First was a joint award to the Colorado Railroad Museum and the Strasburg Rail Road for Rio Grande Southern narrow gauge 4-6-0 #20 (Schenectady 1899). It was built for the Florence & Cripple Creek, sold to the RGS in 1916 and retired in 1952. The poverty-stricken RGS ran it with significant defects and patched it together repeatedly, including with parts from other locomotives. The restoration was documented in a pair of soft cover books, one on the locomotive's history and the other a highly detailed and technical retelling of the restoration itself. In it, former Strasburg CMO Linn Moedinger said, "In my fifty-plus years of working on some pretty broken steam locomotives, I have never seen one quite so bad as No. 20."



In better shape than it was in its final decades, the finished product poses at the Colorado Railroad Museum.

The Cumbres & Toltec was recognized for the rebirth of Denver & Rio Grande narrow gauge 4-6-0 #168 (Baldwin 1883). Since 1938 it had been a static display across the street from the Colorado Springs depot. The park sprinklers watered portions of it for decades. It received a cosmetic rehab in 1983 by John Bush, who also oversaw the latest restoration. The work took 27 months and cost \$512,000.

Here's what they did.

- New riveted tender tank
- Rebuilt tender frame
- Total tender truck rebuild
- Total brake system replacement on tender
- New riveted main reservoir
- New wooden cab
- New wooden pilot
- All new plumbing
- All appliances rebuilt
- Extensive frame repairs, welding, replacement
- Total foundation running gear rebuild
- New shoes and wedges, wheel base trammed
- New tires
- Total lead truck rebuild
- Cylinders bored, pistons and piston rods turned, new rings
- Crossheads rebabbitted and machined
- Cross head guide remachined, spring lined, and true to bores
- Port surfaces machined, slide valves machined, new balance strips and springs
- Valve gear rebuilt and retimed
- New replica retreated American iron jacket
- All restored original or replica lighting fixtures
- Boiler patching, rivets, staybolts, etc.
- Form 4 engineering package

This was part of a larger project to restore a 4-car 19th century passenger consist. See the front cover photo.

It's not every year that an articulated gets restored. Black Hills Central #108 (Baldwin 1926) was built for Potlatch Lumber in Idaho. It was sold to Weyerhaeuser in 1934 and ran in Washington state until 1959. It became part of the Northwest Railway Museum collection. Black Hills Central had previously restored an almost identical engine, so it now has two active.



Black Hills Central celebrated the completion of 2-6-6-2T #108 with a double-header last summer. *Keith Anderson photo.*

Significant Achievement-Diesel

It's not a big engine, but Southern Pacific SW1 #1006 (EMC 1939) was restored from the ground up over many years. David Althaus, who supervised the restoration for the Southern California Railway Museum, tells the story starting on page 17.

Significant Achievement-Electric car

Since it reopened the Mountain Avenue line in 1984, Fort Collins Municipal Railway has operated Fort Collins Birney #21. Now they've restored Birney #25. Both were built by American Car Company in 1919 and ran until 1951. The restoration took place inside the original streetcar barn, now used as a garage by the city. Returning #25 to service also required building an addition to the operating carbarn.



Car 25 runs on the revived Mountain Avenue line, where it operated until 1951.

Significant Achievement-Passenger Car

This may be the project of the year, a genuine 19th century narrow gauge 4-car passenger train with locomotive. The raw ingredients were all there. 4-6-0 #168 was stuffed and mounted in a Colorado Springs city park. The four passenger cars were intact but had been converted to non-revenue use or simply stored out of service for years. They are:

- Coach 256 (Billmeyer and Small 1876), converted to an on-ground shed in 1955
- Pay car F (Billmeyer and Small 1878)
- Coach 292 (Jackson and Sharp 1881)
- RPO/baggage 65 (home built 1887)



The 19th century train received new replica passenger car trucks.

All had their passenger car trucks replaced by arch-bar freight car trucks. New replica passenger trucks were built from scratch.

Central of Georgia lightweight combine #390 (ACF 1947) has been restored to its as-built appearance as the lead car of the Nancy Hank II. The little streamliner with the one-of-a-kind paint scheme made a daily round trip between Atlanta and Savannah until 1971. Although not a divided coach with separate sections and restrooms for African-Americans, like many combines it was where African-Americans were segregated away from whites at the front of the train. Car 390 lived on as part of the Southern Railway's steam excursion program. When that ended it went to the Western Maryland Scenic Railroad, then to the Tennessee Valley Railroad Museum. It was completely gutted and rebuilt.

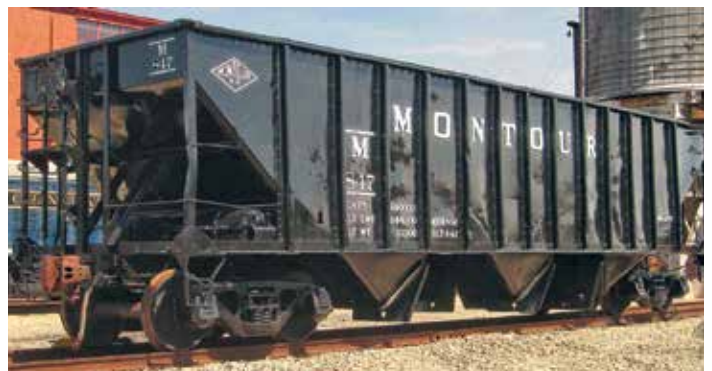


Mike Ray photo.

Significant Achievement-Freight/Non-revenue car

In restoration terms, 2021 was arguably the Year of the Freight Car. Maybe it was because of being locked down by Covid, but quite a few museums spruced up freight cars, especially steel ones. In short order rusty eyesores became attractive exhibits. Two places stood out, Hoosier Valley Railroad Museum and Age of Steam Roundhouse. In the case of Hoosier Valley, this was part of a larger painting program that included a Lackawanna commuter coach and a Nickel Plate caboose.

For its part, Age of Steam has been working on freight cars for the last few years and has restored ten to date. Below and on the next page are three of them.





Significant Achievement-Infrastructure

Mad River & NKP Railroad Museum in Bellevue, Ohio lacked a proper shop building and constructed one this year. Its opening coincided with the arrival from Pennsylvania of Nickel Plate Berkshire #757, which went into the shop and received a cosmetic restoration.



Above: mad River's new shop.

Below: Nickel Plate SD9 #2349 inside the new shop building.



Formerly called the Canadian Museum of Rail Travel, the Cranbrook History Centre assembled several iconic Canadian passenger consists. Unfortunately they were displayed outdoor, which took a toll. The History Centre decided to put its resources into covering the collection. The result so far is completion of Phase One of a large train display shed. Fundraising is underway for Phases 2 and 3.

Significant Achievement-Archives and scholarship

One of HeritageRail Alliance's goals is to be an information resource for the railway preservation industry. To that end an online technical reference library has been created. The first arrivals were steam manuals from Strasburg Rail Road and electric car manuals from Seashore Trolley Museum. This year saw two significant contributions. Rick Ashton's family owned Ashton Valve Company, manufacturers of a wide variety of gauges, safety valves and other steam locomotive components. He has digitized and shared a series of catalogues and other company paper, now online in the library.

Preston Cook worked for EMD and has been dedicated to preserving diesel maintenance and repair documentation and sharing that with preservationists. He has digitized a comprehensive collection of EMD, Alco, GE, Baldwin and Fairbanks-Morse manuals, parts lists and repair bulletins. All are now available on the HRA website with more to come.

Friend of Railway Preservation

The Candelaria Foundation is the family foundation of Richard & Carolyn Tower, located in California. Over the last 20 years they've given over \$3 million to railway preservation, including over \$1 million in the last five years.



Lifetime Achievement

Ted Kornweibel is a retired professor of African-American studies at San Diego State University. That, combined with his interest in railroads, made him the foremost national authority on African-Americans in railroading. He wrote the essential book on the subject, "Railroads

in the African-American Experience”, published in 2010 by the Johns Hopkins University Press. He made a national inventory of all surviving Jim Crow coaches and published it in the NRHS Bulletin in 1997 and in Railway Museum Quarterly in 2012. As a volunteer at the Pacific Southwest Railway Museum in Campo, California, he led the restoration of Rockdale, Sandow & Southern Jim Crow combine #3 (PRR Altoona Shops 1886). With the restored car as a teaching aid, he hosted meetings of Black storytellers and others with an interest in civil rights history.



John Bush

John Bush recently retired from a career in railway preservation going back to volunteering at Colorado Railroad Museum in the 1970s. He was subsequently employed by the Georgetown Loop, Valley Railroad, Cumbres & Toltec, White Pass and Yukon, Great Smoky Mountains, and Roaring Camp Railroads. He returned to the Cumbres & Toltec as its president and general manager, retiring from that position in 2020. He also oversaw a number of outside restoration projects. John additionally influenced railway preservation as a board member and president of the Tourist Railway Association (TRAIN). He assisted the merger of TRAIN and the Association of Railway Museums and served on the HeritageRail Alliance board.

2021 SPRING CONFERENCE SEMINARS NOW AVAILABLE ONLINE

THE HERITAGERAIL ALLIANCE CONDUCTED ITS FIRST EVER VIRTUAL EVENT ON MARCH 23, 24, AND 25TH. For those of you who did not participate, recordings of the seminars are *available on-demand* for \$10 per session through the website. Alternatively, all twelve sessions are available in one package for \$65, including the session on Safety, which is considered as so important for everyone in the industry that we are offering it for viewing at no charge on the home page of the website.

To view the seminar list and purchase copies, go to <https://heritagerailalliance.wildapricot.org/Subscriptions-and-Streaming>

ROLLING STOCK ENDANGERED BY IOWA PACIFIC BANKRUPTCY

By Aaron Isaacs, HRA editor

Whenver a museum or tourist railroad goes under, the vintage rolling stock must find a new home or be scrapped. That's what happened when the Indiana Transportation Museum was evicted. The best pieces found homes, but the marginal pieces didn't survive. The Wichita Falls Railroad Museum (see story on page 15) is about to go through the dissolution process, which puts 17 pieces in limbo. A rare complete success was the dispersal of the Lake Shore Electric's former Trolleyville collection.

Unfortunately, there has never been a fire sale like the breakup of the Iowa Pacific empire. A trustee has been appointed to sell the equipment, which threatens to be more than the industry can absorb. Included are 22 diesel locomotives, including 16 E-units, 2 F-units and 5 F40PHs. There are over 100 passenger cars ranging from pristine to derelict. Among them are 17 domes (including sleepers and diners), 23 other coaches, 11 gallery cars, 17 sleepers and 31 other cars with some sort of lounge or dining setup. Among

them are multiple observation cars. Unless buyers can be found, or the trustee can be persuaded to donate or sell for scrap value, much of this fleet will not survive.

We'll try to report on the fate of some of these pieces. As this is written, The North Shore Scenic Railroad has purchased ex-Santa Fe great dome #551 (Budd 1954).



There are also reports in RyPN.org that a number of the better pieces are finding new homes. Reportedly Metra ex-C&NW E8s 516 and 521 have been scrapped.

HERITAGERAIL NEWS

Adirondack Railroad

This is a big year for the Adirondack. The railroad is expanding service north 45 miles to Tupper Lake. This is the final outcome of the long dispute between the railroad and trail advocates who have tried to replace it. The State of New York decided to replace the outer 59 miles from Tupper Lake to Lake Placid with a trail. In exchange, the state is upgrading the rest of the line, thus reopening the dormant Big Moose-Tupper Lake segment. When operations begin in 2022 on the 108 miles from Utica, the Adirondack will become the longest excursion railroad in the United States.

The Adirondack currently runs 63 miles from Utica Union Station to Big Moose. The first 23 miles to Snow Junction, just north of Remsen, is via trackage rights over the Mohawk, Adirondack & Northern. Once on home rails, the base of operations is Thendara, 52 miles from Utica. From there, short shuttles run west 10 miles to Otter Lake and east 11 miles to Big Moose. This year contractors will install over 80,000 ties from Big Moose to Tupper Lake. They will install 10,000 ties and resurface the current active section between Snow Junction and Otter Lake.

In addition to tourist trains, rail bikes use the 6 miles from Thendara to Carter. It's anticipated they will also run out of Tupper Lake.

Alberta Railway Museum, Edmonton, AB

Museum member Les Kozma has released a new book "Northern Alberta Railway Diesels 1952-1980".

Arizona Railroad Museum, Chandler, AZ

Four pieces of equipment received new paint over the winter: 6-6-4 lightweight sleeper Verde Valley (Pullman 1942) in its original two-tone grey Pullman scheme, 1949 wood-sided Southern Pacific sugar beet gondola #359246 in tuscan red and Kennecott Copper Company 20-ton Plymouth #81. In December 2019 the museum acquired two Santa Fe hi-level cars, coach #708 (Budd 1956) and coach/dorm #543 (Budd 1964). The disassembled pieces of Arizona Copper Company 20-inch narrow gauge 0-4-0T #7 (Porter 1896) have arrived at the museum. The locomotive had been abandoned and left outside in 1923. It was recovered in 1990 and donated to the Museum of Discovery in Safford, AZ, but a cosmetic restoration ran out of steam, so to speak. Hence the move to Chandler. Some assembly required.

Bluegrass Railroad Museum, Versailles, KY

Construction has begun on a 60-foot wide by 120-foot long locomotive repair shop. A second open car is being constructed from an Army flatcar. A new display siding is under construction.

Cape May Seashore Lines, Cape May, NJ

Revolution Rail Company is starting New Jersey's first rail bike operation out of Cape May.

Center for Railroad Photography & Art, Madison, WI

In the last two years the Center's collection has doubled from 250,000 images to almost 500,000. This has resulted in a scanning and cataloguing backlog. As of March 2021, here's the status of the latest collections.

Jim Schaughnessy, 20% complete

John Gruber, 10% complete

Ron Hill, 40% complete

Jim McClellan, 20% complete

Daniel Mainey, 40% complete

Karl Zimmerman, estimated start 2022

John Ilman, estimated start 2022-2023

Stan Kistler, estimated start 2022-2023

Colebrookdale Railroad, Boyertown, PA

The railroad has acquired a pair of steam locomotives and has begun raising funds to restore them to operation. They represent typical American freight and passenger power. Well-traveled Lake Superior & Ishpeming 2-8-0 #18 (Alco 1910) was retired in 1962, then sold to tourist operator Marquette & Huron Mountain but never operated there. Sold to the Lakes State Steam Association in 1985, it was stored at Laona, Wisconsin, then resold to the Grand Canyon Railway in 1989. It was restored and pulled passenger trains until 2003. In 2007 it was sold to Iowa Pacific and worked at the Mount Hood Railroad and later the Rio Grande Scenic until 2013. Grand Trunk Western 4-6-2 #5030 (Baldwin 1912) became a park exhibit in Jackson, Michigan in 1958.

East Broad Top, Rockhill Furnace, PA

Since the EBT Foundation assumed control of the railroad a year ago, the pace of revival has dramatically increased. During the several year shut-down, the Friends of the East Broad Top soldiered on, stabilizing buildings, reroofing, replacing windows and painting. They also continued the long-term restoration of coach #14.

The Foundation has brought real money to the table. They've hired contractors to work on the shop buildings and do track repairs, and have begun returning 2-8-2s #14 and 16 to service. All this activity with paid staff and contractors has spurred the Friends' membership, fundraising and volunteer hours to new highs. The latest Timber Transfer magazine reports a doubling of memberships and donations. Before 2020 the Friends volunteered about 2000 work hours per year. That reached about 10,000 hours in the last year.

El Dorado Western Railroad, Placerville, CA

The railroad has opened up 2.5 miles of the former Southern Pacific Placerville branch east from El Dorado station to the end of track at Missouri Flat Road. This coincides with the opening of a new bike trail that follows the railroad.

Fox River Trolley Museum, South Elgin, IL

For decades South Shore Line interurbans #7 and 14 (both Pullman 1926) have been stored at the museum, slowly deteriorating. Now they have been sold to South Shore enthusiast Bob Harris who has assembled a collection of the cars. Car 7 made the trip. Car 14 was too far gone and was scrapped for parts.

Chicago Transit Authority crane flatcar #S-314 was donated to the museum in 1997 but never used. It was needed in 2020 for a track project. That required repairing the engine, radiator and hydraulic lines for the 1953 Baldwin Lima Hamilton crane.

The museum hosted a fund raiser for Michael J. Fox's Foundation for Parkinson's Research. The Foundation volunteers showed up with a Back to the Future replica DeLorean, convertible to run on rails. The tires come off, replaced by specially built flanged wheels. According to the Fox River Lines newsletter, "The car never reached 88 miles per hour, and thus always remained in the present time."



Doug Rundell photo.

Golden Gate Railroad Museum, Schellville, CA

The museum has completed its move from temporary quarters at the Niles Canyon Railway to a newly created site on the old Northwestern Pacific in Schellville, CA. They've built a small yard and are returning a trio of Southern Pacific San Francisco gallery commuter cars to operation. The plan is to run excursions several miles to Buchli Station Road.

Halton County Radial Railway, Milton, ON

Starting in 1919 the Toronto Transit Commission began replacing its CLRV and articulated ALRV streetcars with low-floor articulated Flexity Outlook cars by Bombardier. Halton County preserves the transit history of Toronto, so it worked with TTC on a donation. It received the following cars: CLRV 4003 (1977, one of the 6 SIG prototypes) CLRV 4010, 4039, 4155, 4178 (UTDC 1977-1981) ALRV 4204 (UTDC 1987).

Being the generation that replaced the PCC cars, the CLRVs are more complex and loaded with electronics. They ran only in Toronto. Keeping them running for the long haul would require spare parts. We pick up the story as related in the Radial Report newsletter. "What to do? The TTC was approached; they replied, yes you can have the parts, but you take all of them or none of them. As you might imagine, the volume of parts...required to maintain a fleet of 200 plus cars is staggering." The museum agreed to take all the parts, which have arrived in multiple semi trailer loads.

Minnesota Streetcar Museum, Minneapolis, MN

When Twin City Rapid Transit streetcar #1239 (TCRT 31st Street Shops 1907) was initially restored from a stripped body to full operation, it was backdated to something resembling its original configuration as a two-man "gate" car. All passengers entered and left via a pair of wire gates in the rear. The car was placed on a pair of kit-bashed trucks cobbled together in the late 1970s from unpowered Chicago 4000-series L car trucks and a pair of ancient motors from a local power plant steeple cab. They were noisy and slow but did the job for 40 years before finally wearing out. MSM is building a replica set of the appropriate Baldwin #5 trucks, mostly from scratch.

Car 1239 experienced a number of changes over its life, including a different paint scheme in 1920 and rebuilding to one/two-man operation in 1935. As originally restored, it was a mix of periods. So the decision was made to make it internally consistent. That led to selecting 1921 as the backdating year. As such it received the simplified post-1920 paint scheme. Although it had double-stream rear gates until 1935, it was restored with triple-stream gates, because that's all that were available. New cars constructed with triple-stream gates showed up around World War I, so on 1239 they're meant to be representative.

Until 1935 1239 had a hot-water heating system including a Baker heater on the front platform. None was available for years, until it was discovered that Strasburg Rail Road makes replicas. A non-functioning replica was ordered and is currently being installed. Six missing interior light fixtures were installed, two-each behind the three destination signs. Car 1239 is probably a year away from completion.

Middleton Railway Museum, Middleton, Nova Scotia

Canadian National 4-6-0 #1521 (Montreal 1905) has been moved to the museum. Retired in 1959, it was displayed in Gravenhurst, Ontario until sold to a private individual in 1969. It was placed in a Nova Scotia park 54 kilometers from the museum in 1989.

Monticello Railway Museum, Monticello, IL

The museum has received two diesel locomotives. Illinois Terminal SW1200 #1210 (EMD 1955) was part of the Flexicoil-trucked group that helped dieselize the interurban's freight trains. Chicago & Illinois Midland ordered the only two RS1325s from EMD in 1960.

National Museum of Transportation, St. Louis, MO

The museum has issued its 2020 annual report, including the following accomplishments: Rock Island Aerotrain #3 (General Motors 1955) is being restored. The old exterior paint has been stripped, body metal repairs are complete and most of the train has been primed. Union Tank Lines tank cars #14387 and 3882 have been repainted, as has URTX Milwaukee Road refrigerator car #37467. Underway is Kansas City Birney 1533 (American 1919) and Baltimore & Ohio camelback #173 (Mount Clare Shops 1873). A \$45,000 grant from the federally-funded Institute of Museum and Library Services is funding a complete new set of interpretive signs for over 100 pieces displayed outdoors.

New England Steam Corporation, Winterport, ME

Although the main activity is the ongoing restoration of Maine Central 4-6-2 #470 (Alco 1924), NESCO recently received an archive gift from Pan Am Railways, all the out-of-date drawings stored at the Waterville Shops. They are being inventoried and conserved, with many to be made available to researchers in digital form. Among them are paint schemes for first generation ALCO, EMD, and GE Diesel locomotives, elevation drawings for HH-660 ALCO switchers, RS-11 road diesels, a variety of truck plans dating back to 1910, Maine Central's wooden sled plows, Portland Terminal and B&M Diesel switchers, steam locomotive 0-6-0 switchers and tenders, firebox and boiler blueprints for "W" class 2-8-0 freight locos. Track plans and layouts of abandoned roundhouse facilities have been found.

Niles Canyon Railway, Sunol, CA

The railway extends in both directions from the Sunol depot. Most trains run the seven miles west to Niles. Track is gradually being relaid to the east, with the goal of five miles to reach Pleasanton. So far it extends three miles to a point just beyond the Verona Road grade crossing. The railroad had been running shuttles east from Sunol to the end of track using California Western "Skunk" railcar #M200 (built 1927). However, with Covid seat spacing the car doesn't have enough capacity, so the railroad is considering a pull-out, push-back move using the regular Niles train between trips.

If you've wondered about the restoration of Southern Pacific 2-6-0 #1744, the boiler is being repaired at Stockton Locomotive Works in Colorado. The running gear is at Niles Canyon.

For the first time, Niles Canyon Railway track was ultrasound tested for imperfections in the rails. This is a procedure that is required of Class 3 and above railroads on a bi-annual basis, to allow for greater track speed. The process looks for internal flaws in the metal itself. The service was donated at no charge by Smith & Emery, which has been in business since The Transcontinental Railroad was laid. The company just purchased a new unit for their fleet and wanted a place to field test the equipment before going out on a paying customer's job.

Here's a cautionary item. The railway has removed the directory of Board members and department heads from its Club Car newsletter, because the info was used by internet scammers to disguise their phishing emails behind museum members' addresses.

Northern Central Railway, New Freedom, PA

The renamed Steam Into History has completed another replica 1860s-era coach, complete with coal stove. It has acquired ex-Pennsylvania Railroad GP9 #7249 (EMD 1959). It operates on the county-owned former Pennsy that ran between Baltimore and York, PA. The track is intact all the way, but has needed restoration. From New Freedom it was initially opened to Hanover Junction, where Abraham Lincoln was famously captured in a photograph on his way to give the Gettysburg address. The junction's pre-Civil War depot is intact and houses history displays. Last year operation was extended north from Hanover Junction to Seven Valleys, about three miles. This year will see another two miles opened to Hyde Tunnel. The last couple of miles into York, the ultimate destination, is still in active Genessee & Wyoming freight service and it's unclear how access will be resolved.

North Shore Scenic Railroad, Duluth, MN

In addition to acquiring an ex-Santa Fe super dome, the railroad has completed the restoration of Northern Pacific lightweight coach #517, in the process converting it into a table car. Station manager Josh Miller says the car received “new floor, painted walls, rebuilt window frames, fixed shades, replaced all lights to LED, completely re-did the entire electrical system, replacing old wires and stuff. We replaced the Waukesha with an all new AC system, blowers, etc. Air brake work (not sure exactly on that), and polished the entire car giving an appearance of a new paint job, but it wasn’t painted on the outside at all. We also replaced the toilets and sinks and such, redid some plumbing, and painted the restrooms.”



Josh Miller photo

Orrville Railroad Historical Society, Orrville, OH

The Society had a long history of running mainline excursions using its passenger cars. That ended in 2014 when five of the cars derailed during a deadhead move and were damaged. Excursion-friendly Ohio Central was sold to Genesee & Wyoming in 2008 and that reduced excursion opportunities. ORHS sold the passenger cars.

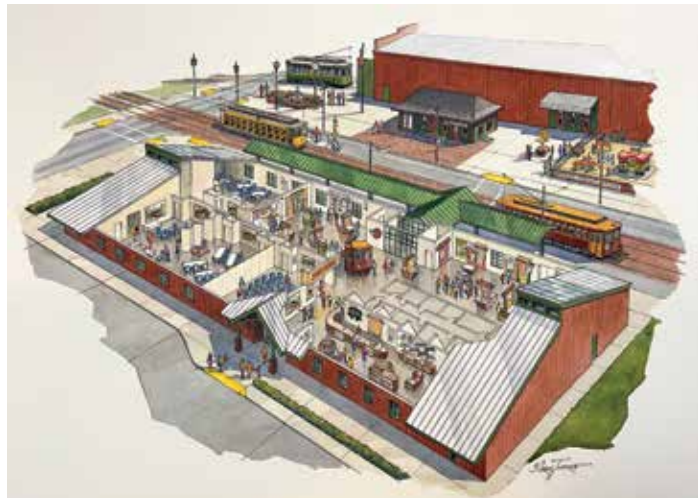
Redirecting its efforts, in 2015 the Society acquired the 17-acre DABO, Inc. industrial site, along with a mile of abandoned but intact ex-Pennsylvania Railroad track that had been dormant for decades. It’s the stub of a branch line that still serves industries on the southwest side of Orrville. Within it is a small rail yard. Restoration began in 2018. So far the project has installed 1000 ties, surfaced, tamped and lined 2000 feet of track, spread 300 tons of ballast, rebuilt four grade crossings and constructed a new siding. On the property and acquired as part of the deal were three rail cranes; Pere Marquette 250-ton steam wrecker #DK-8 (Industrial Brownhoist 1945), Nickel Plate 250-ton steam wrecker #X50006 (Bucyrus Erie 1944) and Baltimore & Ohio 250-ton diesel wrecker #X-216 (Industrial Brownhoist 1952). Retired about 40 years ago, they had sat ever since and the track they were on had sunk into the ground. The steam cranes have since been sold for scrap, bringing in \$75,000 which will be used to further improve the site. The diesel crane has been retained. In 2020 the bridge over Sugar Creek was re-decked and received new rail, extending the track ¼ mile to the edge of the property.

Oyster Bay Railroad Museum, Oyster Bay, NY

The long restoration of the Long Island Rail Road Oyster Bay depot is nearing the point that the museum is about to move into its visitor center, currently housed in a nearby storefront.

Pennsylvania Trolley Museum, Washington, PA

Following years of fund raising, the museum has broken ground on its 21,000 square foot Welcome and Education Center, shown here in a cutaway drawing.



Portola Railroad Museum, Portola, CA

The museum has finished converting Missouri Pacific baggage car #14144 into the Arthur Walter Keddie Library. Retired from maintenance of way service, the car was donated by Union Pacific. The interior was gutted and new walls, floor, ceiling and lighting were installed. The car has been wired for electricity and an HVAC system and security system have been installed, along with new shelving. The car is ADA accessible.

Pullman National Monument, Chicago, IL

After standing for more than a century as an icon in the Pullman community, the Administration Clock Tower Building was seriously damaged by fire in 1998. The State of Illinois reconstructed the building in 2005 and transferred it to the National Park Service (NPS) in 2015 to serve as the anchor for Pullman National Monument. The NPS is developing and will manage the Clock Tower Administration Building in cooperation with the Illinois Department of Natural Resources (IDNR), the owner and operator of the adjacent Pullman State Historic Site. In 2018 NPS awarded a \$2.2 million contract for the roof replacement and window repair and replacement.

In 2020 a further NPS \$5.8 million contract was awarded to stabilize the Clock Tower Building and develop a visitor center for Pullman National Monument. The project started in February 2020 and is scheduled to open in the fall of 2021.

The Illinois Department of Natural Resources (IDNR), who owns and manages the adjacent grounds and buildings, is also targeting their site improvements for completion at the same time. The center will also have exhibits, a small store, public restrooms, and a park office. Improvements will include site signs, sidewalks, landscaping, lighting, interpretive waysides, and public parking.

Railway Museum of Eastern Ontario, Smiths Falls, ON

The museum has acquired Cornwall Street Railway steeplecab locomotive #17 (Baldwin Westinghouse 1930). It had originally been Salt Lake & Utah #106, then Grand River #230. Although Cornwall's streetcars quit in 1949, a freight operation continued until it was purchased by Canadian National and dieselized in 1971. #17 was placed on outdoor display and predictably became an eyesore, hence the decision to donate it to the museum. The city is paying for the move.

Reading Railroad Heritage Museum, Hamburg, PA

A new 70 x 150 foot 4-track railcar protection building has been erected. The tracks still have to be installed using volunteer labor. It's the first weather protection for any of the museum's 70 pieces of rolling stock.



Richmond Railroad Museum, Richmond, VA

AdvanSix Corporation has donated an operating GE 45-ton centercab diesel. It had worked the Cogentrix power plant until it was shut down in 2019. It joins the rest of the museum's rolling stock at the Hallsboro Yard in Midlothian, VA.

Tennessee Valley Railroad Museum, Chattanooga, TN

The museum has purchased a 12,000 sq. ft. building near its Grand Junction headquarters and is using 3000 sq. ft. for storage. Much of the rest of it is leased to the Southern Railway Historical Association to house their offices and archives. In 2019 they relocated from the Southern Museum of Civil War and Locomotive History in Kennesaw, Georgia. This year will also see the Louisville & Nashville Historical Society moving into the building, which has been named the Center for Southeastern Railroad Research.

There is obvious synergy in co-locating historical societies at railroad museums. The Northern Pacific and Great Northern societies occupy the Minnesota Transportation Museum's Jackson Street Roundhouse. The Illinois Railway Museum is building a new building which it will partially lease to the Milwaukee Road Historical Society. The Grand Trunk Western Historical Society rents space in the Durand, Michigan Union Station. The Nickel Plate and Erie-Lackawanna historical societies are located in the Western New York Railway Historical Society's Heritage Discovery Center in Buffalo.

Texas Rail Preservation Association, Houston, TX

February 28 saw the move of Southern Pacific 2-10-2 #982 (Baldwin 1919) from its home in a Houston park to the TRPA's temporary storage site. The locomotive had been donated to the City of Houston in 1957. The organization is trying to lease a permanent museum site.

20th Century Electric Railway Foundation shutting down

The premier funder of American trolley museums is shutting down. The private foundation is owned by a pair of octogenarian trolley fans in California. They have decided to disperse their remaining funds to an unspecified list of U. S. trolley museums.

Wichita Falls Railroad Museum, Wichita Falls, TX

This static display museum has closed permanently. Its volunteers aged out until none were left. It occupied a city-owned building, and the city has inherited its 17 pieces of rolling stock. The city has tasked the Museum of North Texas History, also located in Wichita Falls, with determining the collection's future. It includes Fort Worth & Denver 2-8-0 #304 (Brooks 1906), which was retired to a local park in 1955. There is also Missouri-Kansas-Texas NW2 #1029 (EMD 1947) and a heavyweight RPO, baggage car, and sleeper, three Burlington modernized heavyweights including two Chicago commuter power cars, two gutted troop sleepers, four cabooses and the stripped shell of a Dallas streetcar.

Wiscasset Waterville & Farmington Railway Museum, Alna, ME

Here's an unusual piece of preservation. Until recently, the Mount Washington Cog Railway had a trackside phone system comprised of Army surplus magneto telephones, technology that dates to World War II. The Cog has switched to a radio/cel system and the WW&F has acquired and is installing the magneto phones about 700 feet apart along its line. The battery powered phones are push-to-talk and the caller signals the distant party by cranking the generator (magneto).

Meanwhile, construction continues on a pair of rolling stock replicas, coach #9 and steam locomotive #11.

STARTING A PORT JERVIS RAILROAD MUSEUM

By Aaron Isaacs, HRA editor

Ever try starting a railroad museum in the middle of a pandemic? When husband and wife team Rudy Garbely and Carolyn Hoffman began their push to create a new museum in Port Jervis, New York, it was 2019. Then the virus hit, but they kept at it and the goal, though not yet accomplished, seems within reach.

First, some background. Since 2009 the couple has been running Operation Toy Train, a special that travels through northern New Jersey and southern New York the first two weekends in December. Each year donors bring over 25,000 toys to the train, which turns them over to the Marine Corps Reserve Toys for Tots Foundation, to be distributed to needy children. The train stops at 24 locations where toys can be dropped off starting in October. Santa and Marines are present. It works because the railroads donate the use of their tracks, equipment and train crews. Trains have run on Norfolk Southern, New York Susquehanna & Western, Morristown & Erie, Middletown & New Jersey and Metro North. New operator Dover & Rockaway has joined the effort. Sponsors cover most of the other operating costs.



Operation Toy Train owns some rolling stock. Garbely and Hoffman thought it was a shame that it sat on an industrial spur for 50 weeks a year. Why not create a railroad museum and show it off to the public? By happy coincidence a potential museum site already

existed and its owner backed the museum idea.

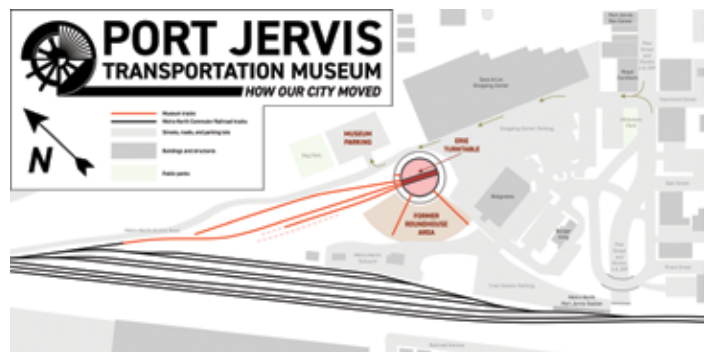


Operation Toy Train's boxcars in service.

The site is the former Erie engine terminal in Port Jervis, New York, end of the New York City commuter zone. The city bought the site from Conrail in 1987 with the eventual goal of establishing a museum there. The roundhouse is gone, but the turntable, two roundhouse stall tracks and three yard tracks are in place. The turntable was restored

to operation in 1996. There's a live connection to the Metro North commuter train layout yard.

Operation Toy Train submitted its museum proposal to the City in June 2020. Until recently there was an obstacle to overcome—the tracks were already occupied by vintage rolling stock, including an ex-Erie E8, an Alco RS3 and five coaches. They belong to James Wilson, who brought them there in 2007 for a tourist train that never materialized. The City signed a storage agreement for one year but the equipment had not left the site since then.



The City gave Wilson a deadline of October 14, 2020 to remove his equipment from the site, and later extended the deadline to November 1, 2020. The City filed a court case in January to declare the equipment abandoned on their property and to take possession of it. Wilson finally complied in late April and moved them out. This clears the way for the new museum to move in.

This is not the first case of Wilson abandoning rolling stock. He's the former owner of the New York & Greenwood Lake Railroad, and recently lost control of 13 pieces of equipment stored in Passaic, New Jersey. The NY&GL operated the ex-Erie 1-mile Dundee industrial spur, famous with local railfans for its stretch of street running. The only shipper was a construction debris transfer station that closed in 2009 and the railroad effectively shut down that year. Meanwhile the equipment sat in the Passaic yard. The railroad was seized from Wilson by the IRS in 2017 and in 2018 was sold by the IRS for the value of back taxes to a property developer called Passaic Street Properties (PSP), which wanted to develop it. Although he had lost control of the railroad, Wilson still owned the rolling stock, but did not remove it. PSP took him to court in the summer of 2020. The equipment was eventually declared abandoned, giving PSP ownership, and they immediately donated all thirteen railcars/locomotives to Operation Toy Train. The equipment was removed on October 3rd.

OTT is retaining five pieces, including a Canadian National heavyweight baggage car #1001 (Canadian Car & Foundry 1939), Erie cabooses C121 (Erie Dunwood Shops 1941), C262 (Dunmore Shops 1946) and C340 (International Car 1953) and 60-foot TTX flatcar #2112 (Pullman Standard 1965). It found homes for the other eight pieces. With this acquisition, OTT now owns 11 pieces.

The Port Jervis museum proposal has one additional wrinkle. There is already a railway museum in town, the Tri-States Railroad Preservation Society. It owns no rolling stock, but has a collection of small artifacts. It occupies a city-owned building the city would like to redevelop. The plan is to incorporate Tri-States into the new museum. As Garbely said to me, "We'll bring the big stuff and Tri-State can bring the small stuff."

Conrail Historical Society

When I called Garbely and Hoffman to gather info for this story, I didn't realize Garbely is also president of the Conrail

Historical Society, editor of its magazine and Hoffman is on their Board. That came up because one of the Passaic pieces went to the Conrail Historical Society.

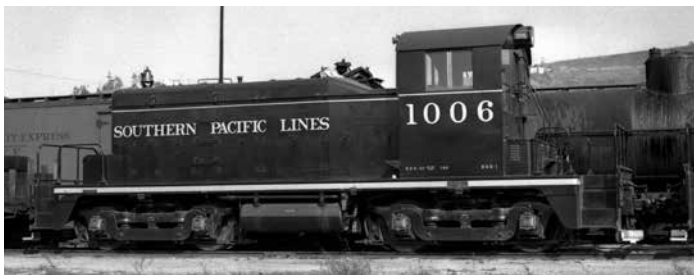
It's a young group, since Conrail only became history in 1999. The Society started in 1995. Besides publishing the magazine, it has restored caboose #21165 (International Car 1969), originally built for the Erie-Lackawanna. The car is currently leased to the Allentown & Auburn.

Penn Central 86-foot auto boxcar #243880 (Sam Rea Shops 1970) has been placed the Cumberland Valley Rail Trail trailhead in Shippensburg, Pennsylvania, adjacent to the existing Penn Central boxcar that houses the Cumberland Valley Railroad Museum. The #243880 will get an HVAC system and will be converted to a 10,500 cubic foot Conrail museum and archive. The project is partially funded by a \$100,000 tourism grant from the Cumberland Area Economic Development Corporation / Cumberland Valley Visitors Bureau.

RESTORING SP 1006

By David Althaus, Diesel Foreman, Southern California Railway Museum

Electro Motive Corporation (EMC), the predecessor of Electro Motive Division of General Motors (EMD), commonly loaned locomotives to railroads for evaluation, knowing that the railroad would most likely place orders for more of that model. A SW1 model switcher locomotive, built in January of 1939, was loaned to Southern Pacific Lines (SP) and a few months later, SP bought it and placed its first order for six more of these locomotives. SP EMC SW1 #1006, which is owned by the Southern California Railway Museum, was one of those first six. The photo shows 1006 on its delivery run. Note the canvas cover over the exhaust stack.



Southern Pacific #1006 as delivered in 1939.

SP operated the locomotive for several years around the Oakland, CA area and then transferred it to its Pacific Electric subsidiary in Los Angeles, where it was in use until

1967 when it was sold to Bethlehem Steel in Vernon, CA. Bethlehem Steel did not have the facilities to maintain their locomotives and relied on National Metal & Steel Corp for the maintenance. In 1985, Bethlehem Steel sold it to National Metals for scrap. The Orange Empire Railway Museum (OERM) bought it in Feb of 1986, just prior to it being cut up for scrap. It was then in storage at the museum until 1990, at which time its restoration program was started. This photo was taken in Sep 2000, at the time when our restoration project first began to take shape.



As received by the museum before the start of restoration.

It had led a rough life at the steel mill and the scrap yard. We stored it from 1986 until 1990, when I first wrote the restoration proposal. The museum board of directors gave their approval for the project and we started the planning process.

When the locomotive arrived at OERM, the Diesel engine was operational. However, the rest of the locomotive was in dire need of being restored. The restoration planning began in 1990 as we searched for a spare truck frame. The steel mill had T-boned one of the frames and bent it to the point that the brake shoes slid along the outside of the wheels when applied. Shortly after searching for a new frame, a donor from the Pennsylvania area provided two complete truck assemblies plus a replacement fuel tank. Those trucks were shipped to us in a gondola and the task then became an effort to build two functional trucks from four totally worn-out ones.

While at the steel mill, the locomotive body work was severely damaged. A side-swipe accident stoved in the side of the cab, bent the main frame rail, crushed the air tank which, in turn, crushed the fuel tank. Both were replaced. The access step areas on all four corners had been crushed and replaced with amateur welding and totally mismatched parts. The hand rails were all demolished and replaced with galvanized pipe. The front and rear cab doors were rusted so bad that large holes left the cab open to the elements. The windows were all broken or missing. The interior was littered with trash that filled two 55 gallon drums. The brake stand portions had been removed and replaced with an On-Off ball valve that provided either no brakes or fully applied brakes.

Many of the gauges were missing or incorrect. The cab heater motor was frozen. The wheel slip relay and the ground fault relays were both missing. The sliding windows were frozen on their tracks. The outside metal roof had been cut back to install sunshades. That modification allowed rain to drain inside the outside walls. The radiators had large, smashed portions in each of the segments. There was over an inch of dried oil and grease on the floor of the engine compartment. The air compressor air filters were completely rusted out. The lower parts of the fan belts that drove the cooling fans were submerged in what appeared to be concrete.

One headlight housing was fractured into many pieces. The bell and cradle were missing. The horn was stolen by one of the locals in the town next to us. A museum member bought it back for \$5 from a yard sale. The guy that stole it had no idea how much compressed air it needed to work. So he just sold it.

There were large areas on the rear deck that were totally rusted away. The coupler pockets were broken into many pieces. One friction bearing brass was installed backwards and could not be removed without removing the complete wheel combo. That reversed bearing ruined one wheel set. The eight journal boxes were a mixed batch of anything the scrap yard could find. And the list goes on and on.

The first effort was to remove the engine hood to provide access for cleaning and refurbishment of the engine area.



Stripped to the frame and primed.

Many manhours were spent removing years of accumulated leaking oil. At the same time, the cooling fans radiators, grills, air cleaners, fan drive shafts, etc, were removed. That left the complete front of the engine compartment bare.

The interior of the cab was stripped of all the oak trim and Masonite boards. Much of the oak trim had rotted away due to leaking window seals and no drains inside the walls. The Fireman's side wall had been crushed inwards, which sheared all of the interior wall tube framing. That also severely bent the front door frame. All new wall framing was installed and the outside skin replaced. The door frame was bent back into position and then welded in-place with the new wall framing.



The restored cab interior.

Some of the Masonite pieces were reusable but many had to be replaced. The real problem was associated with the two ceiling Masonite pieces. They were over 11 feet long and replacements were not easy to find. They had to be reused. All of the reusable Masonite was stripped of 12 coats of old paint and holes filled. However, the ceiling panels form an arc and the pieces are very flexible. That required the use of a flexible hole filler that would not crack or break loose when the panels were reinstalled.

The locomotive has dozens of individual pieces of oak trim in the cab. Many were reusable but some were not. A friend on the east coast had refurbished his SW1 locomotive and was able to provide patterns for our missing oak trim. But, just like the Masonite panels, the oak trim had 12 coats of paint over the original varnish. The good aspect of that was that the painted wood was in perfect shape.

The truck refurbishment was one of the more difficult portions of the project. The four trucks that we had to work with were all in very poor condition. The only answer was to totally disassemble all four and pick the best parts to try and rebuild two. During that process, it became clear that not all AAR switcher trucks are the same. All parts are not interchangeable. Specifically, the brake hangers represented about five different designs. They had various lengths and curves. Fortunately, all of the required parts for the trucks can still be purchased at very good prices from Hadady. We bought brake hangars, straddle bars, equalizer



This is the pile of parts that we had to work with.

bar mounting bolts, center bowl liners, etc. We would have had a very tough time rebuilding the trucks if we had not been able to buy those parts from Hadady Corporation.

Two of the four duplex brake cylinders were the incorrect model. Replacements were located in Pennsylvania and shipped to us.

The engine blower seals were bad which meant the blower needed to be rebuilt. It was removed and used as a core for purchasing a rebuilt replacement. However, when we tried to mount the replacement on the Diesel engine, we found that the drive gear was mounted on the wrong side of the refurbished blower. Research then revealed that the 1939 and older SW1's, and possibly other EMC prime movers, used a different cam gear arrangement to drive the blowers. Our SW1 with an EMC 567U block engine required a right hand mounted blower with a left hand drive gear arrangement. Preston Cook provided a Maintenance Instruction detailing how to modify one version into the other. Once that was done, the blower fit correctly. The blower supplier commented that in their 40 years of working on blowers, they have only seen a couple with right hand mounts and left hand drives.



This shows the wear on one bolt that was found. It was typical of everything on the trucks.

After the Diesel engine was ready to operate, water was added to the cooling system. And as expected, all the cylinder liner seals were dried up and leaking. That meant that all the liners had to be removed for resealing. During that process, the heads were checked to make sure the valves were seated properly. Many were found to be partially sealing and one valve stem was bent. Many of the valve springs were not within specification and were replaced. Fortunately, the engine had been upgraded from a 567U model to a 567UB. What that meant was that the liners and heads had been replaced with newer versions that used more reliable head gaskets.

Once the engine was reassembled, and all of the cooling, fuel, and lubrication plumbing was in place, an attempt was made to start the engine. New injectors had been installed

so they were preset to the correct specifications. When the engine was started, it barely ran. We again checked the injector settings and everything seemed to be correct. Finally, out of frustration, an injector was removed and a feeler gauge used to absolutely prove that we were at top-dead-center for the injector settings. That was when the big surprise showed up. At top-dead-center for the correct piston, the flywheel degree marker showed it at being 30 degrees. Not zero degrees where it should have been. After rechecking everything, we realized that someone in the past, most likely National Metals, had mounted the flywheel one bolt hole off of alignment. There are 12 bolts involved and they were off by one mounting hole. Our easiest answer was to move the degree pointer so that it matched the zero-degree position. Once that was done, the engine ran perfectly.

After the engine was running correctly, the next step was to test it for proper loading. This model locomotive uses a bank of resistors, synched to the governor, to match the generator field coil current to the rate of fuel use. The original load regulator bank had many burned out resistors so a replacement regulator was used. It was a later model regulator from a newer EMD locomotive but the resistance settings were correct. The mounting however was clocked 90 degrees from the original regulator. Once that was installed, it was noticed that the load regulator was not moving as it should. Investigation revealed that a needle valve seat on the governor pilot valve was plugged. Once that was cleaned, the engine loaded properly. There is additional mechanical linkage involved to set the correct loading. That still needs to be reviewed.

The final major task was to paint the locomotive. Earlier, the cab interior was painted green and all of the oak varnished with numerous coats. But the exterior of the locomotive was a larger task than we wanted to tackle. A contractor was retained for that effort. We did not want to use plastic stick on lettering and chose to use masked lettering as was originally done when the locomotive was originally built. We were very lucky to find that Charles Givens had a full collection of old SP fonts. He agreed to provide all of the lettering documents that we needed. After we received his files, we took them to a print shop where they were reproduced into masks for application to the locomotive. We took those masks and carefully measured them and compared them to the positions they were to be placed on the locomotive. From those measurements, we knew what percentage we needed to have the masks adjusted by. The print shop reran those files using the new calculations. Once we had the new masks, we tested them again and found them to be exactly perfect for size.

The contractor then painted aluminum paint in the areas where the lettering masks needed to be applied. Once the masks were in place, the whole locomotive was painted black. Of course there were many other steps involved.

There were many days spent sanding and priming the surfaces before any paint was applied. Shortly after the black paint was applied, the lettering masks were removed, revealing the excellent looking lettering.

The final touch was to install newly refurbished class lights. The original class lights were meant to be kerosene lanterns. However, we decided to use electrical lamps instead. SP had installed electrical class lights previously and had wired them directly into the front headlamp using large diameter flex tubing. Even though that was their way of doing it, we decided to try something that provided a cleaner look. We use very small flex conduit and routed it from the class lights, back into the engine compartment, and then connected them to the headlight wiring. We also welded security tabs onto the class lights and installed padlocks to keep the lights from being stolen.

An original builders plate was located with a collector in Northern California. He agreed to sell it to us for \$1500. That was outside our budget so we couldn't do it. However, we did have access to another plate from another locomotive and used that to cast polyurethane replicas. They have the correct numbers and paint scheme but should be immune from possible theft.

The next work was to install all new glass in the cab. Back in those days, there was no such thing as FRA approved glazing. The original glass was standard safety glass, just like used in automobiles back then. All of the window retention brackets and rubber seals were designed for that ¼" thick glass. However, we did not have access the correct shape sealing rubber. We had a company make an extrusion die for the correct shape and then extruded 1500' of the new

seal material. We have enough left over for two or three more complete installations.

The final outcome was more than we expected. The engine runs perfectly and everyone enjoys operating it and seeing it in use after so many years of work.



Restoration complete.

And I could go on for a few more pages of what we did. Essentially, there was no part of the locomotive that didn't need work to some degree. It was all done by a bunch of volunteers. We had never tackled a project to this extent, so it was a real learning curve for us. When it was all done, those of us that had lived with the project for so many years realized what a tremendous effort we had put into it. Best guess is that we spent about \$80,000 on the project. Of that, about \$30,000 was for painting.

"A LESS PRETENTIOUS LITTLE SNORTER" - A BRIEF HISTORY OF THE VIRGINIA & TRUCKEE'S FIRST LOCOMOTIVE.

By Todd Moore, Nevada State Railroad Museum

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The Nevada State Railroad Museum's newest addition is a full-size replica of the Virginia & Truckee Railroad's first locomotive - *Lyon*. We examine the origins and history of the replica locomotive that now resides in the Museum.

In the last forty years, there have been several replicas of historic steam locomotives constructed in the United States. The majority of these have been based upon the *Jupiter* and 119 replicas commissioned by the National Park Service for Golden Spike National Historical Park in the 1970s. These follow the 4-4-0 "American" wheel arrangement that was popular during the early days of steam railroading. Recent

replicas such as the Central Pacific *Leviathan* and Northern Central *York* locomotives use the same patterns and plans as the National Historical Park locomotives. The *Lyon* is an exception.

The *Lyon* replica is the brainchild of Stanley Gentry of Clear Lake, Iowa. Gentry grew up in Coleville, California, not far from Carson City. He has had a lifelong love of railroads in general and the Virginia & Truckee Railroad in particular. As a successful manufacturer of circuit boards for the electronics industry, Gentry's manufacturing plant in Mason City, Iowa was a hotbed of creation and productivity

during the 1980s. Throughout Iowa's long and cold winters, however, Gentry spent much of his spare time at his computer dreaming about re-creating one of the Virginia & Truckee's original locomotives. At first, Gentry considered building a 1.5" scale "live steam" model of the *Lyon*. Soon, he decided to set his sights higher and began planning for a full-size operating replica instead.

Gentry chose to replicate the *Lyon* because it was the Virginia & Truckee's first locomotive and has several advantages over a 4-4-0 locomotive. First, *Lyon* is small by standard gauge locomotive standards. It weighs less than 30 tons and is less than 35 feet long without its tender. This means that it can be much more easily and less expensively transported by truck from place to place. Ease of transport is a major concern for privately owned locomotives that often travel to events around the country.

Second, *Lyon* represents a locomotive type, the 2-6-0 "Mogul," that used to be very common in freight service on railroads yet has few operating examples in preservation. Among the Virginia & Truckee Railroad's original 29 locomotives, 17 were Moguls, representing over half of the fleet. Only the *Empire* (at the California State Railroad Museum in Sacramento) and *Tahoe* (at the Pennsylvania Railroad Museum in Strasburg) are preserved but neither is in operable condition.

Third, the *Lyon* represents an even rarer specimen - the California-designed and built steam locomotive. During the mid-1800s to the late 1970s, California was a manufacturing powerhouse, yet very few of the locomotives built there still exist today. For example, the Virginia & Truckee had five California-built locomotives, but the Museum's *Dayton* is the only one still in existence.

Replicating the *Lyon* also presents some major challenges. The greatest of the challenges is a lack of good data about the original. The records of *Lyon*'s builder, the Union Iron Works, were almost entirely destroyed in the Great San Francisco Earthquake and Fire of 1906. Only a single *Lyon* drawing exists. It is an ink on linen plan view preserved in the archives of the California State Railroad Museum. The NSRM collection also contains a record of the 1869 purchase contract between the V&T and Union Iron Works

spelling out general details of the locomotive. Moreover, less than a dozen photos of the *Lyon* or its twin, the *Ormsby*, are known to exist. Only one of these (a photo depicting *Ormsby* at a Lake Tahoe logging operation in the 1870s) shows an operating locomotive, the rest show derelict locomotives that



Lyon's twin, V&T No. 2, *Ormsby* at Gardner's Landing, near South Lake Tahoe, California.

are either in the process of being scrapped or are missing key original parts.

Armed with copies of the *Lyon* drawing, contract and all known photos, Gentry set off to work in the late 1980s making construction drawings for each of *Lyon*'s many components. He also began to search for a railroad shop that could partner with him and assist in building the larger and heavier components of the locomotive. Gentry chose the Strasburg Rail Road shops in Pennsylvania. Under the experienced eyes of Linn Moedinger and Kelly Anderson, Strasburg began construction of *Lyon*'s frame, wheels, steam cylinders and boiler in the 1990s.

One of the guiding concepts of the *Lyon* replica has been to follow original construction methods and materials as much as possible. Variations are made only when required by modern safety regulations or when necessary due to the cost or the difficulty of construction. One example of this concept in application is in the locomotive boiler. *Lyon*'s original boiler used riveted construction. This



Fred Haberkamp drilling holes for staybolts in *Lyon* boiler while at the Kloke Construction shops.

means that the pressure vessel was comprised of many smaller pieces of iron or steel that were joined together with rivets, which are metal pins with formed heads that hold the pins in place and stitch the pieces together. Modern construction methods allow the replica *Lyon*'s boiler to be constructed of much larger individual

pieces that are welded together. This construction method is generally less expensive and stronger. Most of the boiler will not be visible on the completed locomotive, so the concession to modern methods will largely be out of sight. Nevertheless, the replica boiler uses threaded "stay bolts" to resist the forces of steam pressure and, as with the original *Lyon*, the "crown sheet" of the replica *Lyon*'s fire box utilizes "crown bars" instead of radial stay bolts to secure the area above the wood fire.



The crown bars inside the replica *Lyon* boiler.

The locomotive's major components, such as the driving wheels and steam cylinders, were manufactured using authentic materials and methods. These involved pattern makers to make wooden versions of each component. Those wooden versions were then used to make negative impressions in sand molds. Foundry workers next poured

molten iron into the molds to create castings of each part much as the original Union Iron Works did in 1869. Many of the castings on the *Lyon* replica were poured in an Amish-owned foundry near Lancaster, Pennsylvania. Other parts of the locomotive, such as the cylinder saddle and “house brackets” that support the cab, are weldments. A weldment is an assembly of rolled or otherwise formed sheet or bar metal that is welded together to simulate a casting. Each weld on a weldment has to be carefully ground and finished to ensure that it resembles a casting as much as possible.

The tender of the locomotive was constructed in large part by Gentry and his family in Iowa. The tender frame was assembled from hardwood timbers that were sawn in a steam-powered sawmill and then assembled by hand using the same joinery and other methods as the original builders.

By the late 1990s, a rolling *Lyon* chassis was completed by the Strasburg Rail Road shops after an investment of nearly \$1 million. Unfortunately, competition from overseas manufacturers had hurt Gentry’s circuit board manufacturing business and made it impractical for him to complete construction on his own. Ownership of the *Lyon* was transferred to a non-profit charity, the Iowa Trolley Park, which is operated by the Mason City & Clear Lake Electric Railroad Historical Society in Iowa.

After many years languishing in storage in Pennsylvania, *Lyon*’s chassis and boiler shell were moved to the Iowa Trolley Park in the early 2010s and joined with its tender for the first time. Work resumed in various locations around the country. Near Chicago, construction of the boiler and tender water tank were completed at the shops of Dave Kloke, led by supporter Fred Haberkamp. In California, project supporters and NSRM volunteers Rory Hawkins, Robert Lamont, Todd Moore, Jim Wilke and others completed construction of the *Lyon*’s distinctive smoke stack as well as the valve chests, smoke box front, builder’s plates, throttle valve and many other parts. In Iowa, Gentry and a team of Iowa Trolley Park supporters



Stan Gentry drilling holes for *Lyon*’s smoke box door ring.

began construction of the tender braking system, cab brackets and steam piping for the boiler. The NSRM’s Chief Mechanical Officer, Chris DeWitt, was instrumental in providing guidance to everyone who continued the work on the *Lyon* replica.

By 2019, the *Lyon* replica was approximately 80% complete and nearing the date when it could be steamed up for the first time. Nevertheless, much work remains to be done. The Board of Directors of the Iowa Trolley Park determined that transferring the locomotive to the Nevada State Railroad Museum in Carson City would be best for ensuring that the locomotive was completed in an historically accurate fashion and provide the best context for displaying it and interpreting its history. The locomotive arrived in Carson City in March 2020.



Robert Lamont constructing *Lyon*’s smoke stack spark arrester.



Lyon being reassembled in Carson City, March 2020.

The Iowa Trolley Park and the NSRM have commissioned a feasibility study of the *Lyon* to help define the direction that the project will take in Carson City. It is expected that the study will help the Museum determine the historical appearance that will be represented by the completed replica and help focus the Museum’s fundraising and construction efforts. It is hoped that the *Lyon* construction will be far enough along by 2022 that the locomotive can play a meaningful role in celebrations to commemorate the 150th anniversary of the completion of the Virginia & Truckee Railroad that year.

If you would like to contribute funds toward the completion of the *Lyon* replica, the Friends of the Nevada State Railroad Museum has established a fund for that purpose and your donation may be tax-deductible. Donations should be clearly earmarked for the *Lyon* project and mailed to the NSRM Friends, P.O. Box 1330, Carson City, NV 89702.

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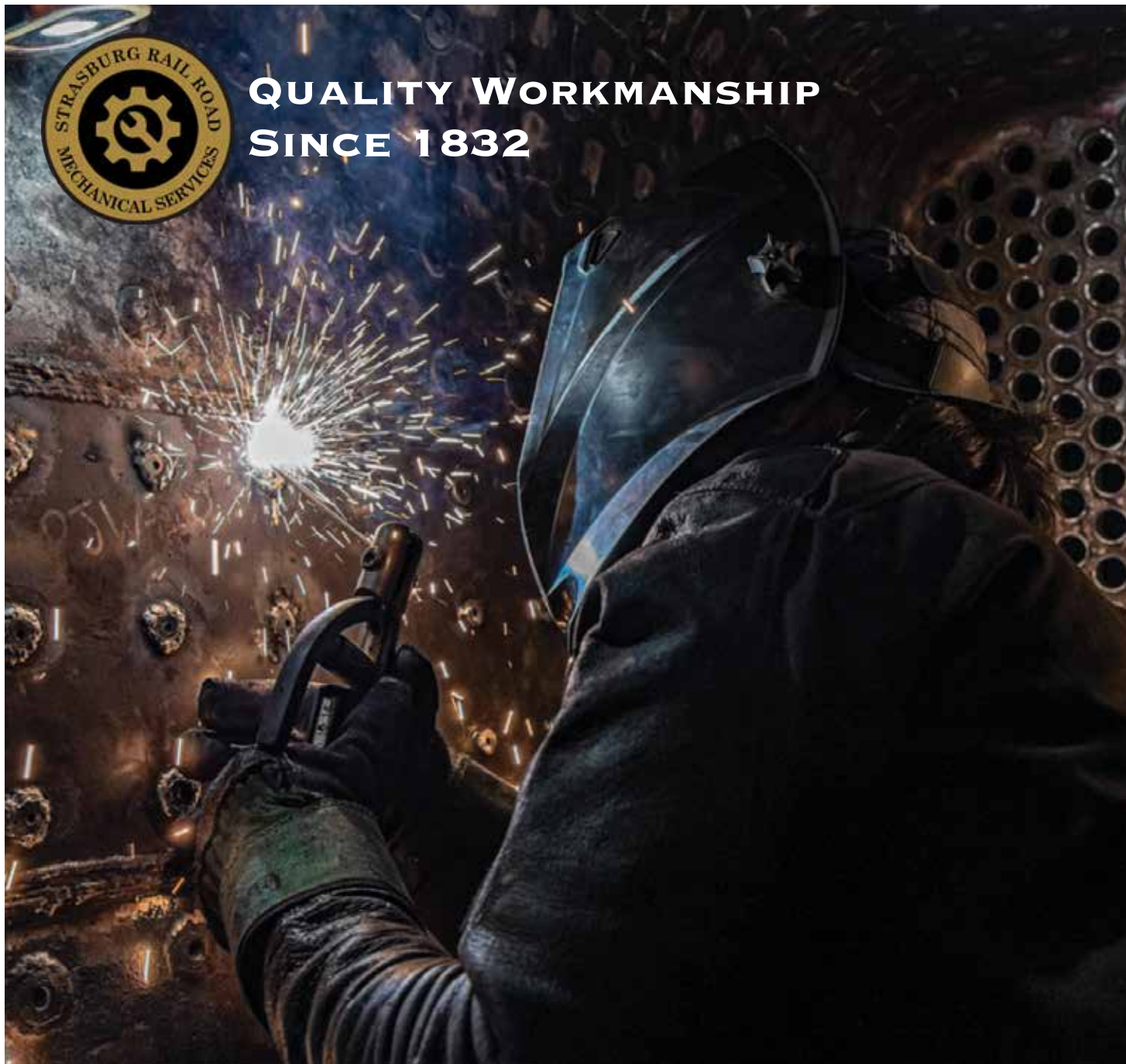
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Building the Museum of the American Railroad in Frisco, Texas is a major undertaking. Site work, drainage and track laying have been the emphasis to date. That phase will soon be completed. The string of Metra Electric double-deck MU cars on the center track was brought in to provide temporary space for meetings and educational programming. Meanwhile the restoration of a Santa Fe Alco PA from a shell continues.



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