



NEW MEXICO STEAM LOCOMOTIVE RAILROAD HISTORICAL SOCIETY

CELEBRATING NEW MEXICO CENTENNIAL 1912-2012

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CMO REPORT

It was a hot and hectic summer for our all volunteer 2926 crew. Here, with a bit of editing help from Steve Bradford is the CMO report for three busy months.

High temperature ruled throughout most of the third quarter, but late August and the end of September brought some much needed rain. In spite of the heat, it has been a very busy time for us with several activities running in parallel.

Two projects have highlighted the last three months: 1) the removal of the side rods and their roller bearing assemblies and shipment of the bearings to their manufacturer, and; 2) the welding of patches to the boiler exterior wrapper sheet.



Dave Aungst, manufacturer's representative from Dallas checks a bearing as Bob DeGroft and Dave Van De Valde look on. Aungst was impressed with the condition of the bearings, after the locomotive's many years sitting in the park.

The side rod and bearing project involved removing and cleaning the specialized side rods and the pressing out the bearings from the ends of the rods, packaging and shipping of them to one of the manufacturer's plants.

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OPEN HOUSE 2011

By John Taylor

On October 1, 2011, NMSLRHS held its eighth annual Fall Open House to rave reviews. It was a beautiful Fall day in the Land of Enchantment with balloons in the sky and nary a cloud in sight. After cleaning, rearranging parts, and general housekeeping for the previous two weeks (including special attention to the front of the locomotive which was nearly completely restored, at least cosmetically), a relatively pristine site opened to visitors at 9 AM sharp with approximately thirty-five volunteers on hand to help our guests park their cars, to provide tours and information, and to give out free hot dogs and soda.



These pictures by Dr. Mike Hartshorne show the site hopping. Hidden from view to the right front of 2926 are additional visitors enjoying hotdogs, soft drinks and music.

By 10 AM, the site was really hopping with music provided by Holy Water and Whiskey, Los Radiators, the Territorial Brass Band, and a special presentation of "The Wreck of the Old 99" by our own Doctor Mike. Pete Adair was busy selling T-shirts, mugs, and other artifacts, while Karla DeGroft headed up the kitchen crew. All the while Steve Bradford, Mike Hartshorne, Bob DeGroft, and others explained the complexities of steam locomotive operation to fascinated audiences from 2 to 80 years of age. A special treat this year was an on-site broadcast by famed Albuquerque DJ Bobby Box who helped bring in a considerable number of guests.

Although activity started to die down by 2:30, visitors continued to come through the gate right up to 4 PM when we closed the site, breathed a collective sigh of relief, and started to put chairs, tables, and display materials away.

When we tallied the money and the visitor logs, we found that we had nearly 740 guests on site (plus 35 workers and 25 entertainers) and made a tidy deposit of nearly \$5,000 from donations and sales—not bad for a day's work. More than half of the guests found out about the event by word of mouth from members, previous attendees, or friends. About 25% heard about us on the radio, and the rest found out at various teacher or train events or from our website. Although the lion's share of the visitors were from Albuquerque (predominantly from zip codes in the Northeast Heights), we had nearly 160 from other parts of the state, 60 from out of state, including some from Canada, and one from Germany.

See the back page of this newsletter for more Open House pictures.

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LATE BREAKING NEWS

A major step in the operational restoration of 2926 is the reinstallation of flues and tubes in the locomotive's huge boiler. Equipment for swaging of the flue tubes was needed. A new one would be very expensive. So how about building our own?

As always, we had talent on board to do so—with a little help from a local business.

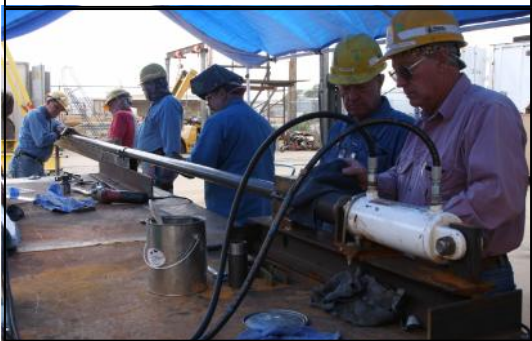
Member Dave Van de Valde designed a swaging tool to use on the flues and tubes. With help from Carlos Osuna, machinist Ralph Johnson and others, the tool was fabricated from bar stock.

That tool, and a bit of ingenuity in matching it to a hydraulic unit loaned to us by an Albuquerque based company worked great. Swaging is now underway as pictured below.



Pictured above is the die head for the swaging tool positioned at the end of a flue tube. The borrowed hydraulic press is at right, and a clamp to hold the flue tube at left.

Below, the flue tube swaging will not require such a large crew, but for the first one, everyone wanted in on the action.



BANGING ON A 2900

FEATURING—

CLEM HARRIS

BY MIKE HARTSHORNE

As Mike points out in this article, Clem Harris, the featured member in this issue is half the age of most of the hard core 'Generation I' NMSLRHS members. But it is folks of Clem's generation who will carry the torch forward. And with Micah, Audrey and Samuel, Clem and Paulette are doing their part to pass it on to Generation III. —Editor



Future Engineers? Clem, Paulette and kids with NMSLRHS Secretary Gail Kirby. Since both mom and dad have experience as locomotive engineers, there is little doubt that at least one and maybe all three of the youngsters will follow in their footsteps

In 1975 at the Penrose Hospital in Colorado Springs Clem was born to an Army family. It wasn't long until they moved to Sandusky, Ohio where Clem's mom Janet had a job at American Crown, the company that makes crayons. One of Clem's first memories is of a Conrail derailment (not his fault) that dumped rabbit chow on the ground. His mom brought some home and he took it to day care to feed pet rabbits. Obviously interesting things happened around the railroad.

Back in Colorado in the 1970s and 1980s as a young man, Clem had occasion to visit his great grandparent's Homestead Act cattle ranch in northern New Mexico. It was a great place to watch trains run over Raton Pass.

Things were different for Clem in 1993-1994. He was in City of Tbilisi, in the former Soviet Republic Georgia, where his missionary stepdad and his mom taught English. He did not see much in the way of railroading while he was there.

By the age of 19 he was back in Colorado Springs and by 1996 got his first railroad job. In Texas in June of 1996, Clem hired on as a 21 year old



(Above & Below) First as a student fireman, then hostler, and finally as a full fledged engineer, Clem became well acquainted with the FWWR rolling stock.

student fireman with the Fort Worth and Western.

The FWWR started in 1988, with 6.25 miles of track bought from the BNSF. There were other acquisitions and by 1996, it had more than doubled its trackage with the lease of 28.5 miles from [Dallas Area Rapid Transit](#).

In 1998 the Class III added 134 miles of track acquired from the South Orient Railroad. The FWWR leased two [UP](#) properties, a [yard](#) in 2002, and branch line in 2003. Running 6 days a week, the FWWR was expanding and Clem worked his way up. When he had 40 runs as a fireman he became a hostler. That allowed him to run a locomotive only by itself. The next step was student engineer. Finally after a check ride in April 1997 he qualified as an engineer in his own right. The FWWR ran a GP-7 and a few GP 35's.

Clem also worked for 8 months with the Dallas, Garland and Northeastern Railroad (DGNO). There were trackage rights miles on the old Frisco to Denison, Roy City East of Dallas with runs on BNSF and UP rails as well. They even hauled freight over the Trinity Railway Express commuter corridor. The Colorado/New Mexico boy was surrounded by Texans.

To make a few extra bucks he worked "moonlighting" as an engineer for the narrow gauge line at Six Flags Over Texas theme park. The park used narrow gauge 2-4-2 oil burning (converted from wood fired) locomotives. The locomotives originally dubbed the *Charles Patton* and the *Larry Cochran*. were built for a Louisiana sugar cane plantation in 1897 and 1901 respectively.

A young female fireman (soon to be an engineer), Paulette, wasn't all that happy to have him around. She changed her mind in August 1999, did what young women with a plan are apt to do, and married him in July 2000. He still thinks it was his idea.

By Oct 1999 Clem signed on with Herzog Transit Services with a better paycheck to work on the Trinity Railway Express in commuter service and



qualified as a train dispatcher at the Tarrant County Community College. It was in April of 2002 that the Harris' first daughter, Micah, was born. In January of 2005 daughter Audrey came along.

In September of 2005 Clem was dispatched with two engines and 6 cars (900 seats) to Galveston ready to haul refugees from Hurricane Rita. There they sat waiting until they were re-routed to Houston and assigned to haul 400 Hurricane Katrina refugees being relocated to Dallas.

Clem must have done well for Herzog since they assigned him to the New Mexico Railrunner. His first day on the job was December 5, 2005. He and Paulette considered living in Santa Fe but found the Albuquerque west side a better solution. Official passenger service started on the Railrunner on July 17th, 2006 with Clem at the top of the engineer roster that now has him as a Designated Supervisor of Locomotive Engineers responsible for training conductors and engineers. He has kept his dispatcher status and conducts classroom rules instructions for train crews.

In October 2006 Clem joined the NMSL&RHS as an active and interested member. He was elected as a member of the Board three years ago. Clem's professional trajectory at Herzog is still climbing but probably the best thing that has happened is the first Harris son, Samuel Trescott, born in March 2009.



Big sister Micah looks on as Dad and little brother Samuel pose next to the enormous drive wheels of AT&SF 2926.

Clem's daughters remind me a lot of him but Samuel is clearly a chip off the old block (I really wanted to say blockhead). Clem wants the 2926 to run as much as any man alive. His 36 years are about half the average of the hard core of 2926. That means he could be running this project long after some of us are gone. He better do it right as a lot of us will be watching. (Obviously, if heaven is worth going to it has great viewing for rail fans.)

(Continued from Page 1)

These are not ordinary side rods and bearings. They are U.S. patented, lightweight, roller bearing rods. All were painted over the years (many times) by the city of Albuquerque Parks Department. They have now been cleaned and the many layers of paint removed. The important work of restoring them completed, their nickel-steel alloy metal shines as they await refurbishment of the bearings before being re-installed on the engine.

The 2926 and all the 2900-class, as well as the ten 3776-class engines were equipped with the alloy rods in an upgrade program conducted between 1946-48. They were an expensive “after-market” addition. We have heard (but never seen) hard documentary evidence that they cost between \$10-15K per locomotive, and that’s in 1946 dollars. They were an expensive addition and an important one. They are irreplaceable now. So having the specialized roller bearings thoroughly evaluated and repaired as necessary is a very high priority for us.

Extracting the bearings and assemblies has been a major project during the three months since the last newsletter. It required fabrication of individual bearing puller tools for each driving wheel. Once extracted, almost two months were required to prepare the 3000 lbs of bearings and assemblies for shipment to a bearing plant in South Carolina.

Randy McIntire led the effort to construct thirteen special wooden shipping crates custom designed for each different bearing assembly. Each crate contained the bearing assembly, races and spacers removed from eight driving wheel crank pins. Six boxes were required to accommodate the bearings from each side of the locomotive.

The final box contained the two cross head bearing sets used to connect the main rod to the piston rod, one on each side of the engine and other parts. The manufacturer’s representatives cautioned that they should be packed in such a way as to prevent jiggling during shipment. Randy’s team ensured that would not



Above: Roger J. puts finishing touches on cleanup of a shiny 2926 side rod.

Below Left: One of many bearings still in place, awaiting puller. Right: Sanchez and Traudt work with one of the NMSLRHS custom built bearing pullers.



Left: Big bearing in shipping cradle, with Randy McIntire and Pete Ormson working on crate.

Right: Finished crate with bearing and related components packed.



The entire 2,980 pound shipment fit onto two pallets and was shipped to the the bearing company plant in Union, South Carolina. The company has agreed to examine and evaluate the condition of all the bearings, races, and spacers, and to make recommendations to NMSLRHS as to just what repairs or refurbishment might be needed.

Con-Way Freight of Albuquerque provided the shipping by truck at no charge. Con-Way is one of North America's leading freight trucking companies, and an international leader in LTL (Less Than Truckload) shipping. Our priceless bearings received first class treatment on their trip to the bearing plant. Con-Way assistance is greatly appreciated.

A major project running in parallel with the rods and bearing project is the rear wrapper sheet welding project led by Danny Romero's team. The wrapper sheet is the exterior, curved steel sheet closest to the rear end of the boiler. It is flat on either side and curved on the top. The steel firebox is suspended inside this part of the boiler with hundreds of flexible and rigged stay bolts.



Above: Welding patches on the engineer's side wrapper sheet. Here, John G. and Danny R work (Left) inside and (Right) outside the firebox. Below: Next, on to the big patch on the fireman's side of the wrapper sheet.

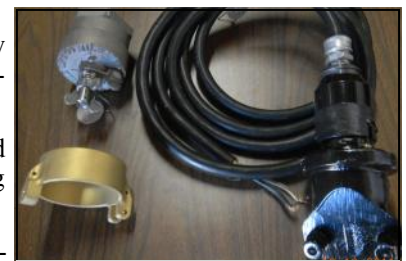


Because this project involves part of the pressurized portion of the boiler and operates at 300 lbs per square inch great care must be taken when doing this highly specialized welding. This is work that only our volunteers from the Plumbers and Pipefitters Union Local 412 are certified to perform. The three small rectangular patches on the engineers side were completed since the last newsletter, to include new stay rod being welded in place of rigid stay bolts.

Work then began on the large area to be patched on the fireman's side. The patch is now tack welded in place while work is done to prepare the patch for welding of stay rods. It is anticipated that work on this large patch will be done by the time the next newsletter is published.

Meanwhile work continued on many other fronts. Dick Downing from Indiana provided materials and made three tamper caps for the three boiler safety valves. These prevent tampering with the pop off settings or movement of the valves that would alter the settings.

Dick also refurbished two oiler cups, one for each crosshead guide. Also rebuilt the cab-to-tender electrical connection plug. He did this work back in his home in Indiana and he brought



Some of Dick Downing's fine work

(Continued on Page 7, Column 2)

RESURRECTING AN ICON

The Knowledge Base: A Tool Critical
The Operational Restoration Of 2926

The NMSLRHS has now completed a decade of work on the 2926 restoration project. A necessary first step in the process was building an infrastructure. That infrastructure included creatin of a large tool and equipment inventory. In addition to power tools, hand tools and related equipment, there is another critical tool.

That tool is knowledge. Without knowledge of long forgotten details relating to the design, fabrication and operation of 2926, the restoration would be in trouble. Getting 2926 back under steam and meeting FRA specifications would be doubtful, if not impossible.

To build that knowledge base, we have generated and acquired a massive amount of information and data. Here is a look at that aspect of the 2926 restoration infrastructure.

Rule Number One

General Rule Number One in the restoration of a complex decades-old machine is **‘When you take it apart, make sure you know how to put it back together.’** Unlike your old Ford truck, you won’t find a handy workshop manual at the local parts store.

From the very start, the 2926 restoration crew has followed that axiom. To ensure accurate knowledge of how to **‘put it back together’**, We recorded in detail how we took it apart. All tasks to remove and disassemble parts and accessories were documented.

Each task included: 1) before and after digital photos; 2) a detailed report of removal/disassembly activity, including the how, the what and who was involved in the task; 3) a numbered metal tracking tag on each item; and 4) where and how the item is stored. All that information was entered or scanned into a searchable database. In the absence of a ‘handy 2926 workshop manual’, anyone reassembling or reinstalling those items can rely on the database for guidance.

But is that enough to make sure it all comes back together and functions as the builders intended when they built the locomotive more than sixty years ago?

Wouldn’t it be nice to have a bit more detail of the designer/builder intentions?

How about some engineering specifications?

In this issue, Part I of a two part article addresses those questions. Many people and organizations played a role in the search and acquisition of the basic original knowledge to support our own on-site due diligence in the removal and disassembly process. Leading the external search and acquisition was our own Albert Leffler, a fan of 2926 since his childhood in Albuquerque.

NO. 2926 AND THE QUEST FOR MECHANICAL DRAWINGS: Part I

Introduction

Whether a building a home or a steam locomotive, the step-by-step task of construction is guided by blueprints carefully put together by a team of designers, engineers and draftsmen. In building a steam locomotive, the factory or railroad’s own backshop would refer to hundreds, if not thousands, of blueprints, more commonly known as mechanical drawings. At the time, most mechanical drawings were initially produced and also reproduced on starched linen. Steam locomotive No. 2926, along with just about every other steam locomotive owned by the Santa Fe Railway was designed in-house by Santa Fe engineers in Topeka, Kansas. The Baldwin Locomotive Works in Eddystone, PA built most of Santa Fe’s locomotives working primarily from the mechanical drawings produced in Topeka.

One of the daunting tasks in the restoration of No. 2926 was to locate as many of the mechanical drawings as possible that were related to the 2900 class and perhaps the other 4-8-4 classes operated by Santa Fe. When Santa Fe transitioned entirely to Diesels and most of their steam locomotives were scrapped, the many thousands of steam locomotive mechanical drawings located in shops around the Santa Fe system were systematically disposed of with the exception of handfuls that were somehow squirreled away.

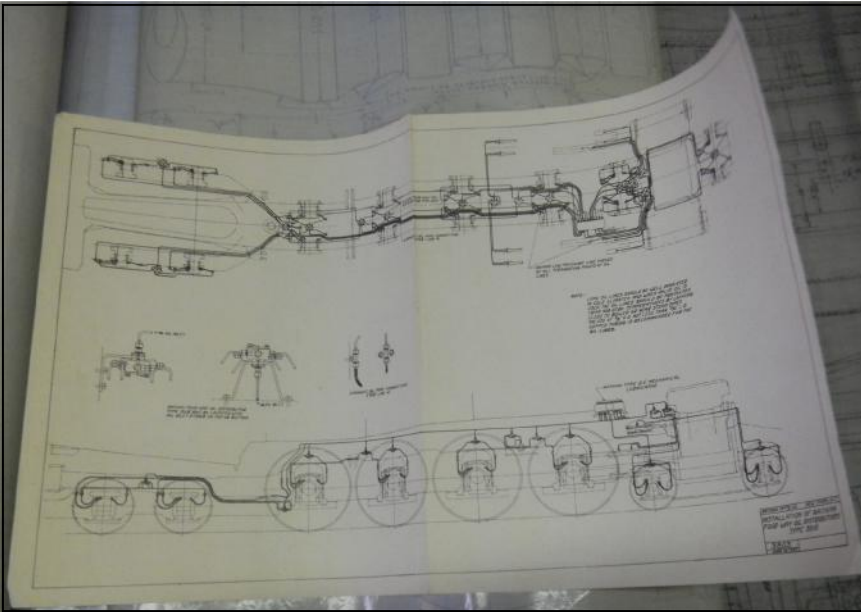
It is unknown how many mechanical drawings were necessary to build No.2926. Also, how many additional drawings were produced with revisions such as the change to lightweight nickel-alloy rods, or the addition of the smokestack extension. Through the years, NMSLRHS has managed to collect about 500 relevant mechanical drawings. The story of the NMSLRHS collection involves eBay, an Astrophysicist, a Santa Fe passenger car modeler and enthusiast, a co-founder of the world’s largest ticketing company, a former Santa Fe Railway employee, a choral conductor on the staff of St. Olaf College, the Chairman of the Chicago Chapter of the Railway and Locomotive Historical Society, a leading Santa Fe locomotive historian and author, the world’s number one visual pop-artist, an art-fabricator company, a Kansas-based railroad consulting company, the Santa Fe Railway Historical & Modeling Society and the Temple Railroad and Heritage Museum in Temple, Texas.



A small sample of perhaps thousands of mechanical drawings that were the baseline reference used to keep the trains running throughout the AT&SF system. Fortunately, Bob and Karla DeGroft had some vacant warehouse space that allowed NMSLRHS members to spread the drawings out for review.

eBay

It is true that almost anything can be found on eBay. Many of the cab gauges missing from 2926 (not the originals) have been found on eBay along with various appliance technical manuals, specialized tools, classification lights, the headlight and rear tender light. Many of our mechanical drawings also came from listings on eBay, although in an unusual way.



To a casual observer, the above drawing might look like just a weathered piece of scrap. To the NMSLRHS crew, it a very valuable piece of information. It is a complete drawing of our locomotive's Nathan Four Way Oil Distribution System. The system, state of the art in 1944, meant the 2926 operating crews would spend much less time with a long-spout oil can, manually lubricating a lot of oil thirsty mechanical points.

Sometime in the late 1990s, groups of ATSF steam locomotive mechanical drawings, most on musty starched linen, begin appearing on eBay. For most people, this was a time of slow connections and dial-up modems. But someone somewhere had in his possession a significantly large number of mechanical drawings and every week or so would put a group of drawings up for bid. Fortunately, with each group came a reasonably detailed description of the mechanical drawings included. Imagine the excitement of seeing drawings listed for the 2900 Class!

There were three individuals doing most of the bidding against each other and at some point the three bidders got in touch with each other. The earliest bidder was Dr. Donald Lamb, professor of Astronomy and Astrophysics at the University of Chicago. Dr. Lamb is an avid Santa Fe Railway enthusiast and historian. His bidding on the drawings was basically to keep them out of the hands of collectors where they might never see the light of day again. Also bidding was avid Santa Fe Railway enthusiast Robert Krave. His chief interest was in Santa Fe passenger cars. He too, wanted to keep the drawings out of the hands of collectors. The final bidder was Albert Leffler, an NMSLRHS member and co-founder of Ticketmaster. Albert was nine years old when he watched No. 2926 move into its new home in Albuquerque's Coronado Park. He very much wanted the drawings specifically for the restoration.

Don Lamb reached out to Albert to see what his interest in the drawings might be. When he was told they were for the restoration of 2926 he said he was relieved and would stop bidding. Don then donated to NMSLRHS copies of the several 2900 class drawings he had won.

Similarly, Robert Krave contacted Albert and between the two of them decided for any group having 2900 or related drawings Albert would bid high,

and conversely, for any group without 2900 class drawings, Robert would bid high. Between the two of them, they purchased hundreds of drawings. The Temple Railroad and Historical Museum now has Bob's drawings: the Robert Krave Collection of Mechanical Drawings.

The true origin of the drawings listed on eBay is unclear. It may be urban myth, but perhaps the best story is that a lady who worked at one of the Santa Fe departments in Topeka. She would grab drawings by the armful as they were being tossed into dumpsters. Her purpose was to use the backs of them for scratch paper for her children or grandchildren. Fortunately, most of the mechanical drawings wound up in her attic. After her passing her heirs consigned them to a railroad artifact broker who listed them on eBay.

Whatever the source, it was a treasure trove. NMSLRHS members are forever grateful to Dr. Donald Lamb and Robert Krave for their generous help. As for Albert: he wasn't finished collecting yet, not by a long shot.

To be continued...

Part II of the saga of the Quest For Mechanical Drawings will appear in the next newsletter.

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(Continued from Page 5)

them with him on his most recent visit. Dick has another good reason to visit Albuquerque. His grandchildren here like to have Grandad visit regularly.

Downing takes a few measurements as he plans to machine 2926 parts.



Other 3rd Quarter activity.

Other ongoing activity involved salvaging of the bifurcates from the old super heater units for use in building new units.

Also, valve gear linkages have been removed and cleaned, driving wheels painted, and permanent water connection to the site established. Many preparations were made in September for the Annual 2011 Open House.

Queen For A Day



The star of the show was 2926 herself, with restored front facing parts back in place for the show. Everyone, young and old, posed for pictures. Since 2926 is a 1944 'War Baby', one of our guests recreated a famous "We Can Do It" WWII defense plant poster. For those too young to remember, Rosie the Riveter is a US icon, representing the American women who worked in factories during WWII while their men were away at war. This Rosie managed to get Albert Leffler to carry her lunch pail. (More info on Rosie at <http://www.rosietheriveter.org/> and at Rosie the Riveter WWII/Home Front National Historic Park, Richmond CA)

MUSIC, MUSIC, MUSIC



Music is a popular part of all NMSLRHS Open House events—even Mike Hartshorne's singing of "The Wreck of Old 97". It was the same this year, with visitors resting, visiting and munching hotdogs while listening to our friends from the music scene. Pictured here in order of appearance are: 1) **Holy Water & Whiskey**, <http://www.holywaterandwhiskey.com/file/Welcome.html> ; 2) **The NM Territorial Brass Band**, <http://sites.google.com/site/newmexicoterritorialbrassband/> ; and 3) **Los Radiators**, <http://www.losradiators.com/newmusic.shtml>

SMALL MODELS FOR THE SMALL FRY



Jon Spargo's model of 2926 was interesting, but the two little guys on the right were fascinated by two versions of Thomas The Tank Engine doing their thing on matching tracks.



HOSTED BY OUR TALENTED, HARD WORKING VOLUNTEERS



Ace machinist Dick Downing from Indiana heats up the franks while Becky Moore of Socorro prepares the chili sauce. Meanwhile, next to the chow line, the NMSLRHS store is open with Pete Adair, Steve Bradford and Gayle Van Horne selling, cups, hats, T-shirts, and a lot of train art to a steady stream of rail fans.