RAILWAY MUSEUM QUARTERLY

TRAINLINE

arm

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The Nelson (B. C.) Electric Tramway Society has returned car #23, which was one-third of the town's historic streetcar fleet, to service. It runs on a two kilometer line along the Kootenay Lake waterfront. For more see page 22. Aaron Isaacs photo.

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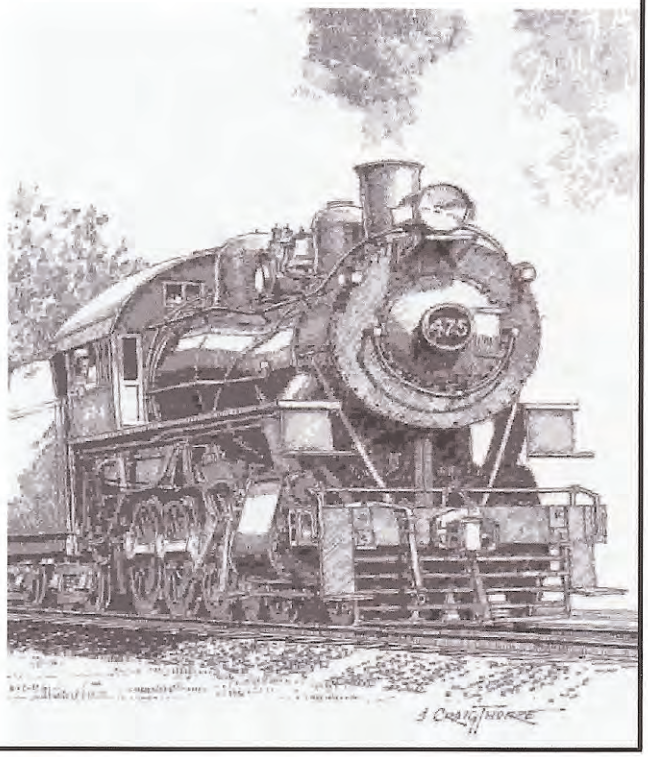

McRAIL is pleased to have played a major role in recent cooperative efforts between ARM and TRAIN and gladly supports this joint publication.

Bob McCarthy

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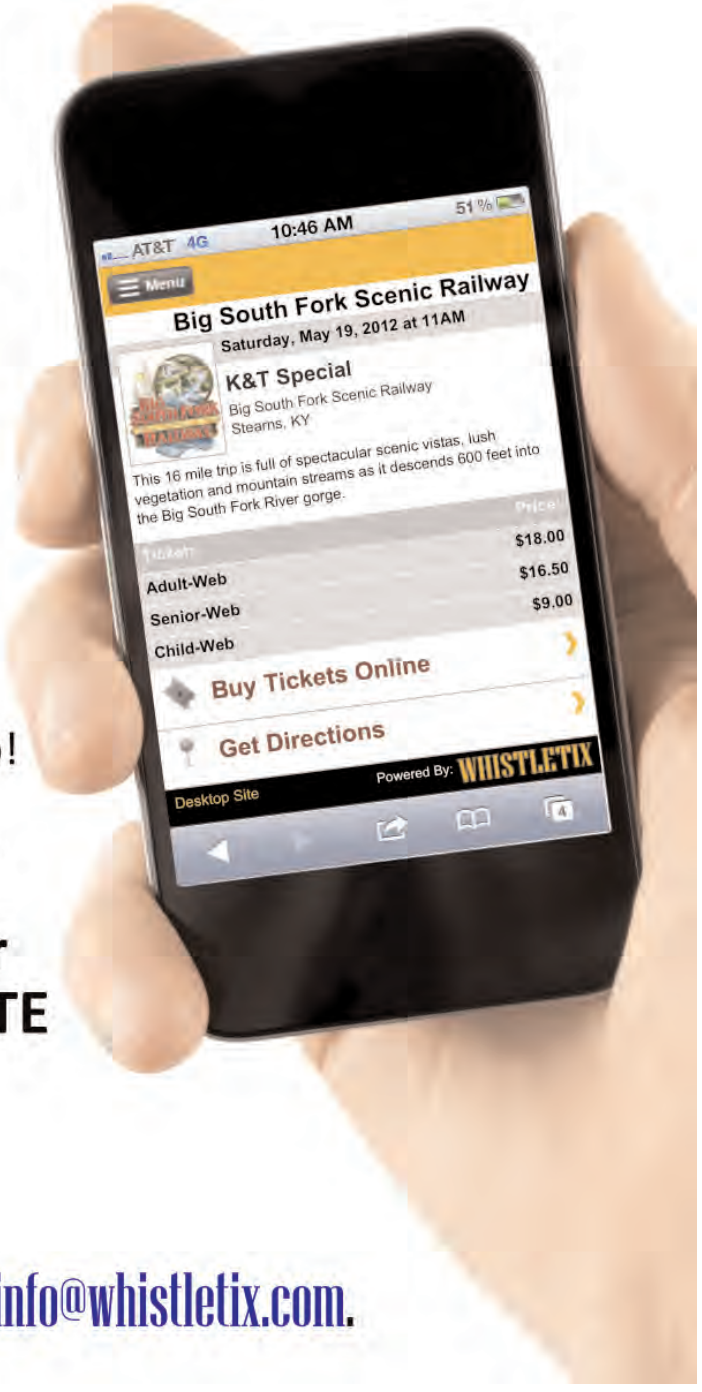

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Membership in the Association of Railway Museums is open to nonprofit organizations preserving and displaying at least one piece of railway or street railway rolling stock to the public on a regularly scheduled basis. Other organizations, businesses and individuals interested in the work of the Association are invited to become affiliates. For more details, or to report address changes, please contact the Association of Railway Museums, P. O. Box 1189, Covington, GA 30015, or email to scg@lagniappeassociates.com.
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The Tourist Railway Association, Inc. is a non-profit corporation chartered to foster the development and operation of tourist railways and museums.

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REPLICATING A STREETCAR HEADLINER

By Dave Wilson,
Baltimore Streetcar Museum

Car 417 is the oldest operating car in the collection of the Baltimore Streetcar Museum (not the oldest, just the oldest operating). We believe that it was built as a horsecar around 1888. It was definitely rebuilt several times in its service life. It was converted to a cable car trailer in the early 1890's, and then to an electric car around 1894. It is being restored to its likely appearance of around 1896.

This has been an ongoing restoration project at BSM for many years. I have personally been involved since around 1978, so you can see that this has not been a quick process. The car had a lot of problems due to it not being designed to carry a trolley base and pole. At one time the roof sag and body distortion was pronounced. We have had good luck with correcting these problems

The restoration work has been focusing on the car's interior lately, and I am happy to report that the reassembly is going reasonably well. Two major pieces of the project are complete; the headliner, and the seat frames.

I have never seen 417 with its original headliner in place. Most of our current active membership has never seen it either. Headliner, for those of you who may be saying "what liner"??, is the ceiling. When 417 arrived at BSM, like most of the cars in the collection which were in outside storage for a time, it had a water damaged headliner. When 417 was in the process of being refurbished around 1971, the damaged headliner was removed and most of it discarded. Two

The fragment of original headliner at left became the template for the replication.

corner pieces were saved in order to provide a record of the car's ceiling decoration.

Most of our wooden cars have a 3-ply birch veneer headliner. I assumed, that like the other cars, 417's headliner was birch as well. Purchasing a 3-ply veneer that goes beyond the standard 4-foot width is the primary issue in replacing damaged ceilings in our cars. The material size needed, while non-standard, was of a size that I was certain that we could obtain, and a source for single ply birch of the appropriate size soon was identified. Laminating the single ply onto the plywood was how I planned to go.

With that path set in my mind, I began to research the decorating issue. A word about the headliner decoration is in order here. 417's decoration consists of a floral motif, rendered in leaf, ink and tinted varnish, in each of the 4 corners of the ceiling. Frankly, I had no idea of how the flower decoration would be accomplished. All I knew for sure is that it was beyond my talents.

The internet is a wonderful thing. Just type what you are looking for and in just a moment you have an answer...sometimes. In this case however, my search would soon place the entire headliner project in the hands of someone else. My search led me to Steve Alexander at Second Empire Furniture. Second Empire manufactures custom furniture and restores antique furniture, and their service line includes gilding. Their location only 4 blocks from the museum was another nail in the coffin of me trying to manufacture the veneer myself. A couple of phone calls to set up a meeting was all it took for me to know that we had stumbled upon the right combination of furniture craftsman and artist. Steve examined the existing remnant headliner, and informed me that it was bird's eye maple, not the birch as I had thought. This makes perfect sense in retrospect since the lower ad rack area in 417 is maple. Steve and his associates were able to do the entire job of manufacturing, decoration and installation of the new ceiling.

MARKETPLACE

By James Porterfield

It's not Lucius Beebe, but . . .

. . . the first few paragraphs of a new book - Marketing Cultural & Heritage Tourism - illustrate why it occupies a prominent place on my desk, bypassing the nearby bookcase altogether.

Starting with the "Introduction and Welcome," the book argues for heritage tourism as an avenue for growth, citing studies that show that heritage tourists are better educated, well-rounded travelers who seek varied experiences built around cultural heritage, and who spend more money than the average tourist. In such an environment, venue operators are encouraged to build partnerships among heritage sites and culinary and lodging experiences that showcase history. Its author, Rosemary Rice McCormick, President of the Shop America Alliance and co-founder of the U. S. Cultural & Heritage Tourism Marketing Council, captures my fancy when she states on page 1, "instead of 'If you build it they will come,' my mantra is 'If you market it effectively, they will come - and spend.'"

McCormick's definition of travel and tourism is inclusive, not exclusive, emphasizing both business and leisure travel, whether domestic or international, that is 100 or more miles in length, and lasts anywhere from one day to a short-stay "hop." It embraces a number of industries, including several that we recognize: railways, amusement parks, museums, retailers, restaurants and entire communities. Her definition of "cultural and heritage tourism," as a subset of travel and tourism, presents even more common ground: "(It) is a branch of tourism that includes experiencing the **performing arts**, **museums** of all kinds, **science and nature centers**, zoos, aquariums, **historic homes and sites**, religious sites, **artists and artisans**, state/national **parks and monuments**, **heritage trails and byways**, and the **special character of a place**" (boldface emphasis added). Finally, she offers that it should combine education, entertainment and preservation in a way that "is experiential, meaning it seeks to involve and engage the visitor."

She then goes on, in 157 pages, to present how you can elevate the importance of heritage tourism as an engine for revenue and economic development. Not surprisingly, the longest chapter is devoted to "Partnership Strategies to Build Tourism Business." In it she describes a three-step process for creating a partnership plan for your organization. Each chapter ends with a block of recommended Action Steps you can employ to generate a sharper marketing focus with your facility.

Meanwhile, the book, clearly the work of a practitioner, is full of checklists, useful observations and how-to tips. You may, for example, want to compare your training program for employees and volunteers who interact with the public with McCormick's 18 steps. Not surprisingly, many of her suggestions address your community at large, not just your facility.

You may not be surprised to learn that among drive-market and group travelers born since 1984, 7 in 10 have been using Facebook for at least the past two years when planning a trip. But did you know that more than 1 in 3 of such travelers over age 64 do so as well? Or that 97% of all travelers, participants in one major survey, use a computer to plan their travel itinerary "with little variance among age groups." Pause to consider how your web presence takes "all age groups" into account.

You will find yourself pausing repeatedly to ponder - excitedly, if you are like me - the relevance of the points McCormick makes to your operation, or to jot down an idea provoked by what you are reading. While neither as exhaustive nor instructional as the Kotlers' Museum Marketing &

Strategy, 2/e, a college textbook, this book has the ring of "practitioner" on every page. For a subject short on materials, it is a welcome addition.

Marketing Cultural & Heritage Tourism is available from the Museum Store Association for $39.95 at http://www.msa.omnistorefront.com/, or by calling 303/504-9223.

Other useful resources:

To further your knowledge of marketing cultural and heritage tourism both domestically and internationally, begin here:

The U. S. Department of Commerce/Office of Travel & Tourism (tinet.ita.doc.gov/) provides links to numerous market research statistics.

McCormick's recommendations often originate with findings presented in a study titled The Cultural & Heritage Traveler Study, available for $55.00 from Mandala Research (http://mandalaresearch.com/index.php/purchase-reports), by contacting Laura Mandala at Laura@MandalaResearch.com or 703/820-1041.

The Museum Store Association (www.museumstoreassociation.org) is committed to advancing cultural commerce through networking, educating and retailing. Check out the MSA Blog tab.

The U. S. Travel Association (www.ustravel.org/) is a "national organization that leverages the collective strength of those who benefit from travel to grow their business beyond what they can do individually."

The U.S. Cultural & Heritage Tourism Marketing Council (www.uscht.com/) is a membership organization "dedicated to marketing cultural and heritage experiences to visitors to and within the United States."

On a related matter:

The Rails-to-Trails Conservancy's web magazine RTCOnline recently offered examples of how local businesses take advantage of nearby rail trails to generate traffic to their outlets. The number of people who use the nation's rail trails is now estimated to be in the tens of millions. Find suggestions for proper - and legal - ways to use signage, how to become bike-friendly so trail users make a point of visiting you, and other creative ways to increase the likelihood trail users will extend their trip to include your venue, at www.railstotrails.org/news/features/trail traffic.html. As a railway heritage site, you have a natural tie-in that will interest virtually all users of rail trails.

By The Way: This column is intended to be a marketing bazaar, a place for you to share what works for you with others who are trying to build their attendance, revenue, or volunteer participation. If you have a successful practice, need a question answered, or want to suggest a topic for a future column, contact me at porterfieldj@dewv.edu or by telephone at (304) 637-1307.

SEASHORE HIRES EXECUTIVE DIRECTOR

By Jim Schantz,
Seashore Trolley Museum

At Seashore Trolley Museum we have taken a critical step toward a major objective in our Strategic Plan: On April 30, 2012 we engaged the services of a full-time, professional Executive Director. We have felt the need to fill this position for years but our work on the strategic plan with facilitator Don Evans has served to underline the need. Over the past year or two we found that we have been falling behind in executing a number of key strategic plan tasks simply because of the lack of management time.

As with so many largely volunteer organizations a tremendous amount of management work at Seashore falls on a few very dedicated individuals, and the reality is that in today's busy world few other members are in a position to step forward and contribute significant time to taking on de-manding management tasks.

From a broader perspective, we are also concerned by the fact that many in management are ageing – the majority are now in their 60s or 70s – and in many cases no obvious successors or back-ups exist. Some areas such as marketing, publicity, and general office administration simply are not receiving as much time as needed, as the few volunteers struggling in these areas regularly remind us!

This all points to the need to begin the transition to professional management. Finding the right person who can work with our wide range of volunteers has been a challenge, but we are confident we have done so and we are heartened by the success a number of our peer museums have had in finding the right executive director for their needs. To name just a few notable successes, the following museums have engaged a professional executive director in recent years and have enjoyed some very positive growth after doing so: Pennsylvania Trolley Museum (near Pittsburgh), Western Railway Museum (near San Francisco), Colorado Railroad Museum (near Denver), Northwest Railway Museum (near Seattle), and West Coast Railway Association (near Vancouver).

Here is a list of bullet points agreed in our strategic planning sessions as to why Seashore needs an executive director:

- To get our lives back
- To help us get to a new board structure; Board=policy, E.D.=Operations
- To coordinate the museum
- To be a new "face" to the community
- To increase public relations and marketing
- To fundraise
- To be there for us day by day
- To streamline board work
- To increase communications to membership
- To be a museum spokesperson

The criticality of boosting attendance, support, and revenue mean that we are initially orienting the

responsibilities of the director to an outward focus – building links in our communities and helping bring new business and opportunities to Seashore. That means traditional areas of the Museum's operations such as restoration activities, operations and training, the library, and buildings and grounds will not report to the director in the initial phases.

The most significant obstacle to bringing a professional director on board is, of course, financial. But the success of our peer museums shows that within a year or two of bringing a director new programs increase revenue sufficiently to cover the cost of the position, but the interim period can be financially challenging.

ALL ABOUT ELECTRIC MOTORS AND INSULATION

By Jeff Hakner,
Shore Line Trolley Museum

With the exception of three trolley cars which were stored on the highest tracks (the ramped inspection pit, and in front of the station in East Haven) Hurricane Irene flooded every car in the Shore Line collection with salt water that was between 6" to almost 30 inches above the top of the rail. This damaged the electrical insulation in the traction motors which propel the cars. The motors are most vulnerable to flooding since they are mounted to the axles and are only a few inches above the rail.

In this article, we look at the science and engineering of the electric traction motor and electrical insulation, and how the museum can repair the damaged motors and return the cars to operational condition. For those of you who don't run trolleys, this applies to diesels as well.

B, I, F

The function of the traction motor is to convert the electrical energy into useful mechanical energy that turns the wheels and propels the car. The fundamental principle of physics which makes this possible was discovered by the scientist Michael Faraday in 1821. Stated in a simple way, when an electric current (represented by the symbol I) is moving perpendicular to a magnetic field (represented by B), a force is exerted on it (represented by F). This force is in a direction which is perpendicular to both the current and the magnetic field, and has a strength which is proportional to the product of the electric current, the magnetic field, and the length of the wire. In mathematical terms: F=L\[mu]I\[mu]B

Faraday also discovered that by passing an electric current through a coil of wire, a magnetic field is created along the axis of the coil, in other words, an electromagnet. This is often visualized by curling one's right hand so that the finger tips point in the direction of circular current flow. The outstretched thumb then points in the direction of the magnetic field.

The type of motor used on trolley cars and all but the newest diesels, known as a D.C. (direct current) motor, has two primary electromagnetic components: the field, and the armature. The field is by field coils (usually 4) which are wound in the form of a donut. Each field coil is mounted with a pole piece through its donut hole. The pole piece, made of a highly magnetic steel, receives the magnetic field created by coiled current. The ends of the pole pieces are curved to match the outer diameter of the armature.

The armature rotates within the magnetic field created by the field coils and their pole pieces. It consists of a number of slots running lengthwise, in which are placed wires. The interaction of the magnetic field, which is radial (going from the surface of the armature to the center), with the lengthwise electric current in the armature wires, creates a force, as described above, which is mutually perpendicular to both field and current, i.e. a tangential force, equivalent to putting ones hand on the

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surface of the armature and pushing, thus causing it to rotate.

The armature, being a revolving body, needs a means to pick up its electrical current. Obviously, a simple pair of wires would quickly become twisted. This function is served by the commutator, a copper cylinder which is divided into a number of segments. Each commutator segment is connected to two of the armature conductors in such a way that the current is forced to flow through all of the armature wires. The commutator is mounted on the armature shaft and rotates in unison with it.

Two brushes, made of a block of carbon graphite, are mounted to the stationary part of the motor on insulated holders, and are pressed against the rotating commutator by springs. Thus the electrical current is led into the armature and led back out of it. The commutator also serves to reverse, or "commute," the direction of current flow in the individual armature conductors, so the motor turns continuously in the desired direction.

The trolley car circuit

All electric current flows in a complete circuit. Electricity originating at the museum's power substation flows through the trolley wire and enters the car through the trolley pole. It flows through the controller, resistor grids, and each motor in series, then returns via the axles, wheels and running rails to the substation to complete the circuit.

In order for the electricity to do its useful work, it must flow through all the required components. Let us say that one attached a heavy wire directly between the trolley pole and the axle. Then this would create a short-circuit, and would rob the motors of their power. The car would be unable to move.

Why insulate?

The motor itself contains a portion of the complete circuit. We say that the motors used on trolley cars are series-wound because they are wired in such a way that the current must pass through all of the field coils and the entire armature winding before exiting the motor.

The armature is made of steel, which like all metals conducts electricity. The copper conductors in the armature slots must be insulated. If they were bare, then they would contact the steel of the armature structure, and the electrical current, which is supposed to pass through all of the armature conductors, would be short-circuited, and would pass through the steel, through the armature shaft, through the bronze armature bearings, through the steel motor case, through the bronze motor support axle bearings, and then into the axle, wheels and rail. Likewise, the field coils must also be insulated or they will ``short out'' to the pole pieces and/or motor case.

Any short-circuit within the motor will rob one or more of its electromagnetic components of electrical power, and the motor will then be ``dead,'' ``grounded-out'' or ``burned out'' -- unable to produce mechanical power. Furthermore, the grounded-out motor will also rob the rest of the motors on the car of power, rendering the entire car immobile (although most cars have an emergency switch inside the controller to ``cut-out'' the offending motor and allow the car to limp back to the shop).

Insulating materials and breakdown

The materials available for electrical insulation when the trolley car motors were manufactured, in some cases over 100 years ago, were primarily organic, such as paper, fiber board, rubber, or cotton. By themselves, these materials are entirely unsuitable for the rough service to which a trolley car motor is subjected. However, after the armature was assembled, it was

HOW ABOUT DIESEL LOCOMOTIVE MOTORS?

By Preston Cook

Jeff Hakner's motor article is generally applicable to DC locomotive traction motors, but there is one additional point that might be worth presenting. As motor design got increasingly sophisticated there was more use of laminations in the construction of armatures and poles to direct and limit the effect of eddy currents in the steel structure and improve the efficiency of the motor. These laminations are coated with an insulating material to keep them separated electrically from each other. Once a motor has been immersed, particularly in salt water, if there are any gaps in the glyptol where the water got access to the exposed surfaces or edges of the laminations there will eventually be rusting even if you wash the motor out really well. Over the long term this is likely to cause operating problems because it will allow eddy currents to migrate between the laminations and cause hot spots in the structure. The higher the power of the motor/locomotive the more likely this is to contribute to an eventual failure that will require rebuilding the motor and probably installing a new armature and/or field poles. In a trolley with light load carrying relatively few passengers this would be much less of a problem than in a locomotive that gets worked comparatively hard.

soaked, while hot, in a vat of insulating varnish. This varnish, once it cured, cemented the various insulating materials into a fairly impervious solid mass. Thus absolutely no current jumps from the copper wire in the center to the grounded steel.

Over time, however, the repeated heating and cooling of the armature winding, as well as naturally occurring chemical processes, deteriorate the insulation. Small ``pinhole" cracks start to develop. This, in and of itself, is not a problem with 600 volt motors because the voltage is not high enough to jump through the air.

However, there is always some moisture in the air, and some of it will condense within the cracks, leaving a film of water. This, combined with the trace impurities, creates a conductive path. Since there is up to 600 volts of potential between the copper and the steel, a tiny current will flow.

There is not just one crack, however, but thousands. A test that we can perform on the motor is to apply a test voltage (usually 500 volts) with a special instrument known as a megohmmeter, or ``megger." The megger is capable of reading the total leakage current, which is the sum of all the leaks from all the tiny cracks. This sum is still, however, very small (on the order of microamperes), and the megger is therefore a sensitive device. The test voltage divided by the total leakage current is, by Ohm's Law, the insulation resistance, which is usually expressed in megohms.

The megger reading is of more value in trending insulation condition than making an absolute determination. Still, the industry standard for 600 volt motors is that they should not be operated with readings of less than 1.0 megohms. These low readings indicate that the motor is laced with many, substantial cracks and/or conductive contamination, and is likely to fail under power. The total leakage current is a minute fraction of the actual useful current that flows through the motor windings, and operation of a car with low megger readings may not produce any immediate problem.

However, whenever the motor is taking power, a destructive internal process is then taking place. The leakage current through each crack, small as it is, causes the carbon atoms

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in the insulating materials to be pulled out and carried along. This process is known as carbonization of the fault. The carbon makes the fault even more conductive, which causes a heavier leakage current to flow, which causes a faster rate of carbonization, etc.

Eventually the leakage current becomes so great that a sudden failure of the insulating material occurs. This often takes place at points of high mechanical stress, such as the corners of the armature winding. The resulting electrical fault causes a very large current to flow, if only for an instant, which generally fuses the copper to the steel structure of the motor. The fault is now permanent, and the motor is ruined.

Running the motors with bad insulation readings is therefore a game of roulette. Once the motor is grounded-out, the only repair is to ``rewind'' the motor. Remember how we all used to rewind films, audio cassettes, and VHS tapes? If only it were that simple!

Rewind

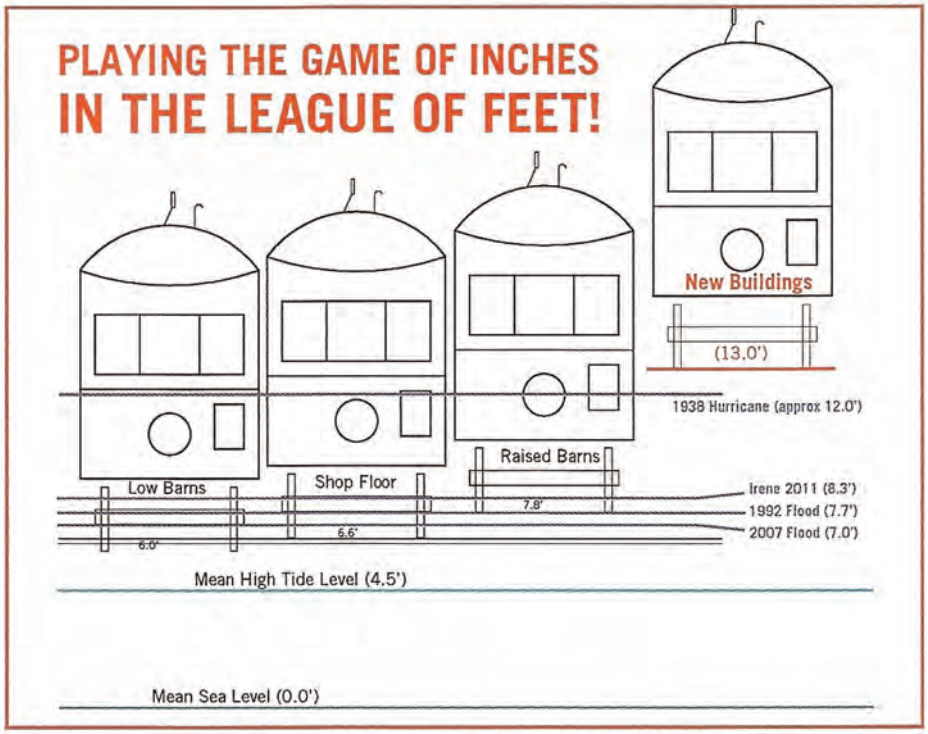
At one time, motor rewinding was merely a nuisance, and one for which most trolley companies were prepared. Because their fleet generally contained only a few distinct motor models, they could stock several rewind ``kits'' containing all the required coils and insulation pieces, which were readily available from the motor manufacturers (General Electric and Westinghouse were the market leaders). Likewise, the craft of D.C. motor repair work was a common one and taught in many trade schools.

Today, D.C. motors are much less prevalent. In recent years, advances in electronic control have made A.C. induction motors much more suitable in a variety of applications formerly a stronghold of the D.C. motor, such as elevators, steel mills and electric railways. The replacement parts for historic trolley car motors have not been available for decades. Thus what would have been a routine job becomes a very specialized and expensive task, running from $10,000 for a small motor to over $50,000 for a larger one.

To rewind an armature, first the old winding must be stripped off. It is generally difficult to separate the coils from the insulation in a way that does not ruin the coils, so all new coils need to be made up. The coils have a complex shape to allow them to fit properly in the armature. To replicate them requires a custom set-up, as the fixtures for making the old coils no longer exist. Once a set of coils has been wound and given the first application of insulation, the armature core is prepared with insulating pieces in each slot, and at other places where the winding is supported. These too, are custom pieces which once would have been available in a kit from the manufacturer.

The coils are placed in the slots and the leads are soldered to the commutator. Sounds simple, right? As an example, one common trolley car motor has 37 slots and 37 coils, each with 3 leads on each end. The coils are placed in the slots in two layers, and each of the 111 commutator bars receives two leads. All of this must be put together in exactly the correct sequence, or the motor will run badly, burn out quickly, or just run backwards.

The winding is given a preliminary test to check for crossed wires or short circuits, then baked and impregnated with insulating varnish. Banding is applied to keep the winding from loosening. The armature is placed on a balancing machine, similar in principle to that used for a tire, and balancing weights are applied. Finally, the armature is given a high-voltage breakdown test, installed into the motor frame, and given a run-in test. As one can see, this is a very labor-intensive and costly process. It therefore behooves us to maintain these antique motors and avoid risking a ground-out.



To prevent a recurrence of disastrous flooding, Shore Line Trolley Museum is raising money to build new carbarns on the highest piece of their property. This will raise the tracks above the previous high water, the 1938 hurricane. Shore Line drawing.

Drying out

Our museum has been successful at returning to service some cars which were flooded. This repair, and the reasons why it is considered a temporary measure, are explained below.

When a motor is flooded, water permeates the cracks in the insulation, as illustrated previously. By heating the winding, the moisture will evaporate. This takes time, as the water vapor must escape back out the tiny cracks. While higher heat speeds up the process, the older insulating materials will be damaged by continuous exposure to high heat. Airflow across the surface of the winding helps to carry the moisture away and also accelerates drying.

The tidal flooding experienced in August is the salty water of the Long Island Sound. Salt is an especially difficult problem because it greatly increases the conductivity of water contamination. The motor can be completely dried out, yet over time when the moisture returns through condensation, and wicks into the cracked insulation, megger readings can plummet quickly.

Therefore, the museum's process has been to flush the motors while still on the cars with clean fresh water, either with a garden hose, a sprayer, or a steam cleaner. This removes most of the salt contamination, although without disassembly it is difficult to flush all of the recesses of the motor. If the car is light enough to put on our inspection pit, and has the older style split-frame motors, then the motor can be swung open without removing it from the car, giving better access for steam cleaning.

The motor must now be dried. Our early attempts using kerosene-fired ``torpedo'' heaters gave poor results, because it was difficult to sustain and supervise a continuous heat for the time required, and because of the risk of overheating. After receiving advice from Donald Curry of Seashore Trolley Museum, from David Garcia of Orange Empire Railway Museum, and from the New Orleans historic trolley system (via Bill Wall), this author constructed a number of electric heaters which are powered from a standard clothes dryer/welder outlet. They deliver about 200 CFM of forced air, heated with 3800 Watts, into a length of 6" flexible metal duct. This is connected into one of the motor inspection handholes using a suitable sheet-metal adapter, and other motor openings are either sealed or opened as needed to force airflow through the entire motor. The heated air enters the motor at about 50-70 degrees above ambient, and thus there is no danger of overheating the insulation.

The process takes days, or sometimes weeks. At first, the megger readings go down, because the motor is soaked, and because megger readings go down with increasing temperatures. The readings are checked daily and trended. When they start to go up dramatically, most of the moisture has been expelled, and when the improvement starts to level off, the winding is as dry as it can be using this process, and so the heaters are removed. Once the winding cools down to room temperature, another megger reading is taken. If it is acceptable, the motor is allowed to return to service.

The permanent repair

Unfortunately this process can only be described as a temporary fix. Because cracks in the insulation are still present, and trace amounts of salt and other contaminants remain, the motor must be checked frequently. Over time, as the winding re-absorbs moisture, the megger readings may go down, and the motor may need to be dried again, or risk destructive in-service failure.

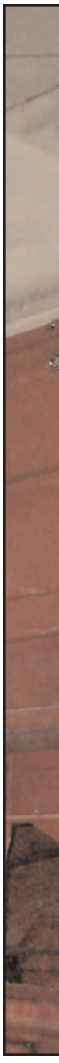
To make a permanent repair to the flooding damage requires a considerable expenditure, but less than that of rewinding the motor if it fails. The motor must first be removed from the car: Jack up car body (weight 5-20 tons), disconnect brake rigging pull rod from truck, tag and disconnect motor lead wiring, roll out truck, unbolt and remove motor gear case (heavy and very dirty), unbolt and remove motor axle bearing caps (heavy), unbolt and remove motor suspension bolts and springs, lift motor from truck (weight 1,500 to 5,000 pounds), repeat for other motor in truck if applicable, roll truck back under car and lower jacks.

Now the motor is sent to a motor repair shop, as the museum does not have the necessary supplies and equipment. Once there, the armature is removed from the frame. It is steam cleaned or immersed in a cleaning bath, then placed in an oven where the temperature is regulated to be just at the safe point of about 175 degrees. A vacuum is applied for 60-90 minutes, which expels all remaining moisture or air pockets. The vacuum is cut off and the armature is flooded with insulating varnish under pressure, which helps to force the varnish into all of the cracks. pressure is maintained for about 90 minutes, then the excess varnish is drained. The armature is returned to the oven to cure the varnish. This process is known as VPI (Vacuum Pressure Impregnation).

Because VPI removes the contamination and seals the cracks, the motor, thus treated, will have very good megger readings, which will tend to hold up over time.

The same process is performed with the field coils. In some cases, they can be cleaned and VPI treated while mounted in the motor, but otherwise each coil must be disconnected and removed. Of course, at the conclusion of this treatment, everything must be reassembled and tested.

Just the VPI treatment can cost from $5,000 to $8,000 per motor. When the value of the skilled labor required to remove and reinstall the motors on the car is factored in, the tab runs to nearly $100,000 for a typical 4-motor trolley car.



Before photos by George Niederauer. After photos by Stefan Niederauer.

This page: Before and After

RESTORING D&RGW DROP BOTTOM GONDOLA # 871

By Dennis D'Alessandro, Durango Railroad Historical Society

Four and a half years ago D&RGW #871, a 1904 drop bottom gondola, and D&RGW #1400, a 1902 high side gondola, were leased and eventually purchased from the Durango & Silverton by the DRHS. Both cars were removed from the D&S tracks at Rockwood and transported to private property east of Durango. The 871 was located under the tent that once housed locomotive D&RGW 315 in Santa Rita Park on the south side of Durango, and the 1400 was parked behind it, out in the open. It wouldn't be until the following April before the disassembly and evaluation of the 871 would commence. Our plan was to restore the cars to their late 1920s appearance (after they were rebuilt by D&RGW in 1925) and to operating condition.

When originally built the 800 series cars were designed to carry coke. They had slatted coke racks that raised their sides to the height of boxcars and a roof walk but no roof. The winding shafts for the doors were hidden in the hollow A frame along the centerline. In 1918 the coke racks were removed and the winding shafts were moved to the outside sill. In the 1925 rebuild 5-inch side boards were added and under frames were stiffened with two 8-inch steel channels.

All restored drop bottom gondolas that I have analyzed appear to have been restored to more or less the "as-found condition." Instead of restoring 871 to the as-found condition in 2008 we would rebuild it as close to possible to the appearance and structural

June 8. Done. Ron Nott monitors gondola tracking as it is pulled onto the roll back trailer. Duane Danielson photo.

integrity of its final rebuild in 1925; in other words eliminate the repairs that used non-standard parts. Easily recognizable were the many shop repairs made during decades of service. As the car was dismantled all parts were analyzed for originality. If a part was determined a non-original type replacement, it was discarded and an original part substituted or replaced by the fabrication of an original copy. No attempt was made to duplicate repairs.

Without conclusive evidence, my belief is this particular rail car was damaged in a derailment or other accident and was repaired, but not completely, just good enough to get it back into service. Noticeable damage was to the winding shaft at the left corner of the B (brake wheel) end. It had been severely bent; the winding shaft lever at the same location had been broken in two, then brazed back together. The truck frame in the same corner had also been bent; no attempt to repair it was apparent. At the opposite end of the car, the A end, a large hole at the bottom of the end wall was hastily patched with a board placed inside the car only partially covering the hole; it still would have leaked part of any load.

The brake cylinder reservoir had 11/13/63 painted on its side as the last brake service date.

One thing to keep in mind about drop bottom gondolas is the amount of parts that make up these cars. There are literally hundreds of nuts, bolts, washers, lock nuts, and wood, steel, wrought iron, and cast iron parts. They are quite complex in design and very labor intensive to build – and especially to restore.

Work progressed slowly as the 871 was dismantled. The water supply from a well eventually dried up. Water was extremely important at the time of dismantlement because of the necessity to use torches and grinders in a semi arid environment. Fire danger was always present and two fires had to be put out. Even though the car was under a shelter, weather was always a factor especially during the winter and spring. Cold or hot temperatures, mud, rain, snow, wind, and lack of facilities all became factors that hampered progress. In addition, the uneven and loose ground became treacherous when moving heavy objects. Access underneath the car was difficult with very confined space and a rocky surface. After the 871 was moved to an airplane hanger in December of 2011 work progressed rapidly. Our usually worst two seasons of the year instantly became our most productive period. The first four months in 2011 produced twelve work sessions; in 2012 that number increased to forty-nine sessions. In addition, the lengths of the work sessions inside the hanger were much longer, sometimes double, with much less fatigue on the work force.

It is nearly impossible to record every little detail and still maintain a short article instead of a book, so only the important and major details are recorded in this report. Some of the more obvious repairs that were not duplicated in the restoration were: (1) an 11 x 24 x 1/4-inch T steel plate that covered a burn hole on an upper side plank, (2) three non standard (for this car) axle journal boxes, (3) a 2 1/2-foot timber that had been installed in place of a rotted out or damaged section of the wood center sill, which supports door hinges, (4) the arch and top bar of the truck that had been damaged, (5) a hastily fabricated brake hanger bracket.

During disassembly our initial plan was to reuse all wood that could still perform its intended function. As it turned out only the three 10-inch wide side planks on the left side was thought to be reusable. They were usable for static display but questionable if a load were going to be considered. The rest of the wood, especially the doors, center flooring, center sills, center floor timbers, wood center sills, and hinge blocks, were rotted beyond reasonable consideration. In the end 100% of the wood was replaced. Less than five percent of the steel parts were replaced if one discounts the original parts that were replaced with like parts from derelict freight cars. And lastly, all of the fasteners were replaced, using only new square head bolts and nuts in conjunction with proper sized washers, making this car as strong, durable, functional and historically accurate as it was when rebuilt in 1925.

The first step in the final drive to complete the car was finishing the underframe. Two truss rod assemblies needed to be replaced. We were permitted to remove two assemblies from a burnt car at Tacoma on the D&S. Only problem was one rod was fractured. An attempt was made to save the rod but the high carbon content of the original wrought iron didn't make welding an option even though it was tried. It then became necessary to fabricate a new rod out of 1018 steel. The rods are 1 1/4 inches in diameter, but the threaded ends are larger. Both ends were built up with weld and machined down to 1 1/2-inch diameter, then the threads were cut.

All the original brake rigging was used except for three replacement brake shoes and all fifteen pivot pins in the linkage. New oversized pins replaced the conglomeration of worn out bolts and rivets previously installed as repairs. One-inch and 1 1/8-inch rivets were used as copies of the original pins. Rectangular slots were cut into the end of the rivet/pins to accept original type split keys. When brake components were replaced in service and parts didn't line up properly, it appears it was a common practice just to use a smaller pin if it helped to correct any misalignment, rather than correct the fit by heating and bending the components. Elongated holes in levers, connecting links and pivot bars were either drilled over sized or welded closed, then redrilled to make the hole round again. Connecting links were heated and altered to obtain a proper relationship with its connection point. The intent was to reduce the enormous amount of slack in the brake operating system.

After the replacement truss rod was built and the basic bends were installed in it, all the rods were slightly reshaped for a better fit. The rods were heated at specific locations and bent to seat firmly in their saddles, queen posts, or to clear obstacles that had interfered with them previously. The side sills were installed next. Having the doors removed made the job of working on the end and side planks a lot easier and safer.

The side sills were a task just from their sheer size and weight. These two 4 x 10-inch beams are 31 feet 5 inches long. Having a small crane available made the work much easier. Notches were made for each sill bracket on a cross beam. A sill is held in place by three bolts at each end and two bolts at each sill bracket. Each sill was primed and painted with a top coat on the outside and stained clear on the inside. The stain protects the wood but still maintains an original non-painted look.

The twelve drop doors are operated by chains wrapped around four 2-inch diameter, 15-foot long solid steel (heavy!) winding shafts. The shafts are held in place by twelve brackets, each bolted to a side sill with three bolts. The one winding shaft that was bent was heated with a torch and straightened.

The steel post brackets riveted at the ends of the cross beams (steel I beams) that support the ten body posts were cut off, shortened, and welded back together to narrow the brackets to produce a tight fit on the posts. Two 5/8-inch bolts secure each post to its bracket on a cross beam.

Three 2 1/2 x 10 planks on each side are 31 ft 5 in. long. The top plank is only 5 inches high. Each plank bolts to all five posts per side plus the two corner posts with two 1/2-inch diameter bolts per post. Side planks are sandwiched between posts and a 30 x 2 1/2 x 1/4-inch steel side plank tie straps on the outside, all bolted together. All fourteen side plank tie straps were replaced because they were in such poor condition that they were structurally unsound.

End planks, 93 x 2 1/4 inches, fit between the ends of the side planks. The bottom plank is 6 inches high, the middle three planks 10 inches high, and the top plank 5 inches high. All except the top plank are bolted to two corner posts and two equally spaced intermediate posts. The top end plank connects to the top side board by two steel corner brackets, one on the inside and one on the outside, and bolts to two extension posts bolted to the two intermediate posts.

Some cars in the 800 series used two tall (i.e., full height) intermediate posts and others, like 871, used two short posts with spliced extensions for the top plank. On some cars the side posts are short and extension posts are added to them. On 871 the side posts are tall one-piece units.

Next it was time to install the new center flooring. These planks are 36 inches long on 871 (I've seen others with only 30-inch planks) and 1 3/4 inches thick. They are shiplapped, so the edges overlap. The planking and floor timbers were drilled, then the planking was nailed into place down the center of the car.

All of the hardware was installed as the side and end planks were mounted: grab irons, corner braces, uncoupling rods, winding shaft lever brackets, side plank tie straps. Some of the last hardware parts installed were the brake shaft stirrup, upper shaft bearing, brake shaft and wheel, and the brakeman's platform. To be historically correct the carriage bolts securing all parts were cut off with a torch if they were too long, and most were. Although not impossible it is impractical to carry every length of bolt needed. It is cheaper and less confusing to carry a few selected lengths and cut off excess length after installation. Burning the bolts off also deforms threads, locking the nuts in place.

With the drop doors still removed the final coat of paint was applied to the entire outside of the car. The correct color is oxide red with white lettering. The herald displayed between the late 1920s and up until the late 1930s was used to be consistent with the restoration time period. Trying to figure out the correct lettering and spacing became a research project because of variances between cars in placement and information. No actual photos of the 871 in that time period were found, so we had to rely on our judgment based on old pictures of sister cars. The dimensions we found painted on the sides of 871 were the benchmark, but we painted what was thought to have been the correct historical lettering on this car. One controversy was whether the bottom of the doors were painted or not. It was finally verified that they were painted the same as the sides.

The previously built doors were installed to finish the wood parts installation. Several door hinge pivot pins had been replaced in service with old bolts as quick fixes. Those parts were replaced with original type door hinge pins. Two winding chains connect the outer edge of each door to a winding shaft for securing the door and as the means to pull each door closed. Half of the chains needed new end loops fabricated. If an end loop had failed in service, it appears it was eliminated if the chain was still long enough to fit the span for an open door, or perhaps a longer chain was substituted. An end loop connects a chain to a door U bolt located at the outer edge of a door strap hinge. All door U bolts were replaced. All chains were reconnected to the doors and winding shaft.

New brake hoses were installed on the freshly lapped air cocks at both ends of the car. The brake system was then charged with air to test its operation. After a couple of air leaks were corrected the car was ready for a bearing run in.

At this point the 871 was complete, and it was time to move the car from the hanger to its new home in Silverton via a roll back trailer. It will be displayed on the Silverton Northern track and join locomotive 315 and the motor car Casey Jones in what is the beginning of the Silverton rail park museum – as a joint project with the San Juan County Historical Society, which now owns the name "Silverton Northern Railroad."

WEST FROM WINNIPEG

By Aaron Isaacs

Winnipeg Hydro #3 about 1961 (above), and (top) reboilered and somewhat backdated on the Prairie Dog Central. The same combine trails it in both photos. Below: Wying the engine at Grosse Isle.

A family trip west provided your editor an opportunity to see the Canadian prairies and Rockies, visiting railway museums and tourist railroads en route. There's a great deal of preservation in the western provinces Due to time constraints I had to bypass many worthy attractions, so my apologies to whoever was missed.

Prairie Dog Central

The first stop was a reunion with the oldest regularly operating steam locomotive in North America. Winnipeg Hydro #3 was built by the Scottish builder Dubs for Canadian Pacific in 1882. Reboilered in 1909, in 1918 it was sold to the City of Winnipeg and found a second career as the heavy power on the Hydro's roller coaster line from Lac du Bonnet to Point du Bois east of Winnipeg. I rode behind her in about 1961 on an NMRA excursion. It pulled a single well-maintained open platform wood combine originally built for the Keweenaw Central (Pullman 1908).

The combine continues to trail #3, which recently received a new boiler. It is followed by a string of ancient wood coaches that survived as part of the highly eclectic roster of the Greater Winnipeg Water District Railway. All have their original walkover seats and were never demoted to work train service. They are:

#104 Canadian Northern (Crossen Car Co. 1906), then Canadian National 3402, to GWWD 1954.
#105 Canadian Northern (Barney & Smith 1901), then CN 3422, to GWWD 1954.
#106 Canadian Pacific (Angus Shops 1912), to GWWD 1956
#107 Canadian Pacific (Angus Shops 1911), to GWWD 1956

Midland Railway of Manitoba #1685 at the Prairie Dog's Inkster Junction terminal.

When it comes to running vintage wood coaches, I believe the Prairie Dog's consist is the fifth largest in North America, after Strasburg, Durango & Silverton, White Pass & Yukon and Deadwood Central. Trailing the coaches is a Canadian Pacific caboose (Angus Shops 1912).

The former Canadian Northern Oak Point sub heads northwest from Winnipeg, arrow straight and tabletop flat. The Society owns the outer 16.5 miles of it. A paved highway follows it directly for most of the way.

The train I paced was an ice cream social special. At Grosse Isle the railroad has constructed a dining hall and the passengers assembled there for ice cream. Meanwhile, the consist pulled north a few hundred yards where #3 turned on a wye (the former junction with the abandoned line to Hodgson) and coupled onto the rear of the train for the ride back. The line continues another five miles beyond Grosse Isle to a point two miles past Warren.

I followed the line back to the operating base at Inkster Junction. Steam doesn't run every day, so the Society uses a pair of GP9s. Grand Trunk Western #4138 (GMD 1958) wears CN/GT colors. A rarer bird is #1685 (GMD 1957), the only locomotive of Great Northern, later BNSF, subsidiary Midland Railway of Manitoba, the connection from Winnipeg to the American border. It was donated by BNSF in 2010.

Saskatchewan Railway Museum

This modest static display museum has collected artifacts and created displays that do a well-rounded job of telling the railroad story. It is located at the site of the former Canadian Northern Hawker station, in open country eight miles west of Saskatoon. It's one of those stations that were established when the line was built but never developed a town. The secondary CN line is still active and maintains a live connection to the museum.

A six-car freight train behind Canadian Pacific S3 switcher #6568 (Montreal 1957) greets visitors next to the CN highway crossing. The rolling stock collection of three locomotives, one heavyweight sleeper, four cabooses, and 15 freight cars typify Canadian rolling stock. There is one unusual piece—a portable power plant owned by Canadian Utilities Limited (CCF 1928). Also, when the Prairie Dog Central reboilered #3 in 2004, the old 1909 boiler wound up here, where it makes an effective display.

Where this museum excels is its collection of buildings. The Grand Trunk Pacific interlocking tower from Oban, Saskatchewan has its armstrong plant intact. The GTP and the other CN predecessor Canadian Northern had different approaches to the standard plans for country depots. GTP would immediately build a substantial Type E with agent's apartment, represented here by the 1913 station from Argo, Sask. Until the business justified something bigger, Canadian Northern would ship in a small portable station on a flatcar and the museum has restored one of these, along with a Canadian Pacific portable station. There is also a GTP express-baggage shed from Unity, SK. There is a Canadian

Overviews of the Saskatchewan Railway Museum, which occupies the former Hawker Station site. The Canadian National at right is still active.

Nelson Tramway's carbarn. Below: The middle of the line cuts through a shopping center parking lot.

National enginemen's bunkhouse from Saskatoon, a small Canadian Northern bunkhouse, and a CN tool shed/motor car house.

There are other interesting display items—the CN CTC board from Saskatoon, and a big air hammer from the CP Saskatoon roundhouse.

Traction is represented by the restored bodies of Saskatoon double truck streetcar #51 (National Steel Car 1927), which sits on a pair of non-original trucks, and detrucked Calgary, later Saskatoon single trucker #40 (Preston 1911).

The museum site has one other story to tell. It was originally named Eaton until 1919, and from 1914 to 1920 served as one of 26 internment camps for civilians of enemy alien origin—former nationals of countries then at war with Canada. It was an action similar to the internment of Japanese-Americans during World War II. In Saskatchewan, they were Ukranians, the Ukraine being part of the Austro-Hungarian empire at the time. In 2004 a monument to the detainees was erected near the museum entrance.

Nelson Tramway

Nelson, British Columbia, current population 10,000, was the smallest Canadian city to retain streetcars after World War II. They lasted until 1949. The line rostered three cars.

The Nelson Electric Tramway Society formed in 1988 to restore the body of car #23 (Stephenson 1906) to service. The double truck semi-convertible was purchased second hand in 1924 from Cleveland. A carhouse was constructed in Lakeside Park and #23 was fully restored.

Victoria, BC Birney car #400 (Preston 1921) came to Nelson after its body had been completely restored in 1972 by the Provincial Museum. At Nelson its power truck was replicated and the car was made operational. Today it serves as the backup to #23.

The two-kilometer line follows the Kootenay Lake waterfront. After looping under the Nelson bridge on the east end of town, it lays over and boards passengers in a public alley. After a block of alley running that passes the carhouse, it follows the south edge of Lakeside Park. At Poplar Street it runs through a shopping center parking lot, following a city easement. This is the most challenging section for the motormen, with autos on the track and entering from all directions. After clearing the lot, the track runs side-of-the-road between Lakeside Drive and the water, looping at Hall Street, a few blocks below downtown.

HERITAGE RAILNEWS

B & O Railroad Museum
Baltimore, MD

The museum has acquired MARC auxiliary power control unit #7100, which was originally B & O F7A #293A (EMD 1951). Retired in 1975, it was rebuilt by Morrison-Knudsen. The prime mover was removed and replaced with a diesel generator to provide head end power to MARC coaches. However, it still looks very much like an F-unit.

Berkshire Scenic Railway Museum
Lenox, MA

New Haven wood baggage car #3884 (1894) has been donated by Railroad Museum of New England. The car received a steel underframe in 1926 and later ran in work train service as #W-298.

Branson Scenic, Branson, MO

The railroad has scrapped Kansas City Southern sleeper Arthur Stillwell (Pullman 1948).

Cass Scenic Railroad
Cass, WV

Non-operational S. A. Agnew Lumber Company Shay #3 is being cosmetically restored.

Center for Railroad Photography and Art

The Center continues to expand its activities. Last June, a new exhibit of 1930s John Barriger photos debuted at Knox College in Galesburg, Illinois. It traveled to the annual Lexington Group meeting in Peoria and then to the Barriger Library in St. Louis. The Center's other traveling exhibits feature the work of O. Winston Link, David Plowden and Joel Jensen. The exhibit "Faces of Chicago's Railroad Community", Photographs of Jack Delano" will open October 19, 2013 at the Chicago History Museum. Meanwhile, cataloguing of donated collections from Wallace Abbey, Fred Springer, John Bjorklund and others continues.

Conway Scenic Railroad
North Conway, NH

A pair of GP9 locomotives has been acquired from the Finger Lakes Railroad. #1751 has passed through the Montreal, Maine & Atlantic Derby Shops for repairs. #1757 has yet to be shopped.

C. P. Huntington Railroad Historical Society , Huntington, WV

In 2007, the Society acquired four coaches from Virginia Railway Express. All were originally Budd RDC cars, built for the Boston & Maine in 1956. Over the years they were extensively rebuilt and lack the mid-car roof hump. One of them, now named "George C. Davis", has been renovated with new seats and windows, made Amtrak compatible and entered service this year.

Cumbres & Toltec Scenic Railway

Over the last 16 years, the C&TS has lurched from one management, financial and operational crisis to another. From its 1970 creation until 1996, management was stable under Kyle Railways. That changed when Willis Kyle retired. His company chose not to continue as the operator, because of lack of capital investment by the bi-state commission that oversees it.

George Bartholomew succeeded Kyle. During his tenure the railroad deteriorated noticeably and there were allegations that he bled the treasury. His contract was terminated in 1999. After Bartholomew's departure, no viable for-profit companies bid on the contract. All objected to the commission's requirement that all physical plant and equipment maintenance be paid from operating revenues. Decades of deferred maintenance made this financially impossible. Absent an operator, the 2000 season was almost canceled.

Into the breach stepped the Friends of the Cumbres & Toltec. Known for their huge week-long work sessions, the Friends' role had been restricted to restoring and maintaining the non-revenue rolling stock and physical plant. They created a new entity, the Rio Grande Railway Preservation Corporation (RGRPC) to run the railroad. The Friends' role was expanded to include fund raising and repair to the passenger coaches.

The RGRPC began to dig out of the hole left by the previous operator. They were making progress when 2001 brought a double whammy that came close to killing the railroad. The FRA embargoed portions of the line for bad track. Then a terrible drought caused the Forest Service to shut down the railroad as a fire hazard.

Lacking enough cash flow to continue, the RGRPC resigned as the operator and requested a new agreement that would place greater responsibility on the commission to fund the maintenance backlog. The commission responded by rebidding the contract without RGRPC. Not surprisingly, no qualified operators bid. In the meantime, Bill Richardson became New Mexico governor and his appointees to the commission changed the game in favor of the railroad and the Friends. RGRPC was again selected to be the operator, but the business arrangement changed. Now its role would be as a fee-for-service management company, with the burden of properly funding the overall railroad shifted to the commission.

Thus began several years of management peace and relative financial prosperity. In 2006, RGRPC was reorganized as the Cumbres & Toltec Management Corporation, still a creation of the Friends. Meanwhile Colorado and New Mexico provided unprecedented funds to rebuild the railroad. By 2009 the track was in its best shape in decades—maybe ever—and the number of

operational locomotives was rising again. The oldest, #463, began a complete rebuild.

In 2011, American Heritage Railways, owner of the Durango & Silverton, became the new management company with a five-year contract. It seemed like a logical fit, placing both pieces of the Rio Grande narrow gauge under common management. American Heritage's marketing and special events savvy would be a welcome addition to the C&TS norm of simply train rides.

Unfortunately, the Lobato Trestle burned that year, putting a major crimp in operations and diverting everyone's attention to funding and rebuilding the bridge. That was accomplished, but this year American Heritage owner Alan Harper suddenly, and publicly, announced that his company would withdraw after the 2012 season. He accused the commission of micromanaging and excessive bureaucracy. Sources familiar with the C&TS told Trainline/RMQ that Harper, accustomed to unfettered control of his railroads, hadn't anticipated the built-in constraints associated with a government-owned historic property.

At this time it appears the Commission will now operate the railroad directly for the first time.

On October 10, 2012, a request for proposals was issued for architecture-engineering services for a proposed Chama Roundhouse and Visitor Center. The goal is to reconstruct the historic Chama roundhouse as a multi-purpose facility which will include a visitor center, a greatly enhanced repair shop for the railroad, and space for the Friends' restoration work.

Downeast Scenic Ellsworth, ME

Tie replacement has allowed the railroad to open the wye at Washington Junction, Maine, permitting the turning of equipment for the first time. The wye was last used by Maine Central in 1970.

Fayette Central

Tourist trains won't run in 2013 due to a sharp increase in freight traffic over the former B&O line.

Golden Gate Railroad Museum Sunol, CA

A few years ago the museum acquired former Southern Pacific F units #6378 and 6380 (EMD 1952), which had been retired from short line Louisiana & North West. #6380's engine was badly damaged and it was determined that replacement was the only viable way to return the unit to service. An anonymous donor has recently given a rebuilt EMD 16 cylinder 567C engine, main generator, auxiliary generator, air brake system and other components. After a couple of other projects leave the shop, the restoration of #6380 will begin.

Historical Museum at Fort Missoula Missoula, MT

Missoula streetcar #50 (American 1912), after years of restoration, has been moved to its new storage/display building at the museum.

Kentucky Railway Museum New Haven, KY

As part of an effort to retire heavy debt, the museum has sold eleven pieces of equipment for scrap. Included were:

U. S. Army Fairbanks-Morse switcher #1846
An Army Alco S1 switcher
Two Department of Defense GE 45-tonners
Two ex-Chesapeake & Ohio MOW coaches
Two kitchen/commissary cars
Three DoD heavy duty flatcars
Also sold was Canadian National 1954 sleeper/lounge Cape Tormentine, which was located in Florida.

Midland Railway, Baldwin City, KS

It looks like the Fremont Dinner Train is moving from Nebraska's Fremont & Elkhorn Valley to the Midland. Douglas County has awarded a $54,000 grant to install a switch and 750-foot siding at Baldwin City to house

the dinner train.

Privately owned Rock Island commuter coach #2507, long part of the regular consist for years, has now been donated.

A major scrapping program of derelict equipment has thinned the collection and raised considerable revenue. Included were:

Rock Island MOW car #3106, originally coach #3025 (Standard Steel Car 1913), later rebuilt as a diner.
Mobil Oil tank car #11173
Darby steam wrecking crane #D-22
A former Alton Railroad turntable
A Union Pacific transfer table
Rock Island 1943 outside braced wood caboose #17762, built from a 1912 boxcar
A Reading gondola
Amtrak coach #2368, originally Santa Fe sleeping car Regal Ruby
Santa Fe caboose #999425

Midwest Railway Preservation Society Cleveland, OH

The Society has acquired three ex-Pennsy, ex-Amtrak stainless steel cars. According to Railpace, they were stored on the Delaware Coast Line Railroad.

Niles Canyon Railway, Sunol, CA

McCloud River fire tank car #1711 (McCloud shops 1941) has been acquired. It is a steel tank mounted on a flat car, and can double as an auxiliary water tender.

Clover Valley 2-6-6-2T #14 had its first successful running test on August 25th.

Pacific Southwest Railway Museum Campo, CA

Recent land acquisitions are expanding the museum's site from 12 acres to almost 40 acres. They have made a lease/purchase agreement on 6.25 acres containing a three bedroom house and barn, and the owner of an adjacent 12.9 acre parcel has agreed to sell. Fund raising for the down payments has begun.

North Carolina Museum of Transportation, Spencer, NC

Back in January we reported that the State of North Carolina had cut its regular support of NCTM from $1 million in 2011 to $500,000 in 2012, and that all funding would disappear in 2013. After much lobbying by the museum and its supporters, the state budget has restored $300,000 for 2013. The museum's newsletter describes this as a "$300,000 recurring appropriation."

Oregon Electric Railway Museum Brooks, OR

The new visitor center building, which replicates a Southern Pacific two-story wood depot, is nearing completion.

Platte Valley Trolley, Denver, CO

The trolley runs north-south along the west bank of the Platte River, across from downtown Denver. During football season it transports large numbers of fans between Mile High Stadium and remote parking to the north. Until three years ago, it would periodically run west for a couple of miles on the inactive Associated Railroads, the former Denver & Intermountain interurban to Golden. That track has now been removed and a new light rail line to Golden is being built on the right of way. The Platte Trolley's track currently ends at Colfax Avenue, just south of the stadium. The plan is to extend the trolley track west a short distance to Decatur Street.

Fully restored Denver & Intermountain interurban #25 (Woeber 1911) has been sold by longtime owner Rocky Mountain Railroad Club to the City of Lakewood. The car is currently stored in a building at the Federal Center in Lakewood. The City has plans to build a new display carbarn for it, possibly connected to the new Golden LRT, which is being built where the car once ran.

Prairie Dog Central, Winnipeg, MB

With the closure of Manitoba Hydro's railroad between Pointe du Bois

and Slave Falls, several pieces of non-revenue equipment have been acquired. They include a 35-ton 4-wheel diesel locomotive, a hi-rail inspection SUV, a ballast regulator, a tamper and a heavy duty hi-rail truck with a crane.

Railroaders Memorial Museum
Altoona, PA

The museum has completed and opened its new seven-stall roundhouse.

Seashore Trolley Museum
Kennebunkport, ME

Seashore has acquired ex-Philadelphia, ex-Kansas City PCC cars #2278 and 2289 from Electric City Trolley Museum. The latter is in poor shape and will be used as a parts source.

South Dakota State Railroad Museum, Hill City, SD

The large collection of Bernard Carey, a second-generation employee of the Chicago, Rock Island and Pacific Railroad, has been donated. Carey was the last depot agent in the Sioux Falls office when the Rock's agency was closed in 1971. The donation includes historic documents; photos; oil cans, locks, keys and lanterns; standard depot clocks; telegraphy equipment; an 1880s depot "barrel" stove; and period office furniture — some of which date to eastern Dakota Territory in the 1880s. Railroads represented in this collection include Rock Island, Burlington, Cedar Rapids & Northern, Great Northern, South Dakota Central, Milwaukee Road, Chicago, Minneapolis, St. Paul & Omaha/Chicago & North Western, Illinois Central and Burlington Northern. A large collection of historic barbed wire also was donated to the museum's agriculture section.

Southern Prairie Railway, Ogema, SK

The railway is a fairly young organization. It acquired the 1912 CPR Simpson, Saskatchewan depot in 2002 and moved it to Ogema in 2005.

Scheduled excursions began in June 2012. The train consists of a Central 44-tonner (GE 1945) recently acquired in 2010 from the Conway Scenic, Canadian Pacific lightweight baggage car #4747 (CC&F 1952), a Lackawanna MU trailer from the Gettysburg Railroad and a Pacific Great Eastern home-built caboose from 1956.

Timber Heritage Museum
Eureka, CA

The Samoa roundhouse and shops complex is rented by the association from the Humboldt Bay Harbor District. The initial lease was year to year and initially the Harbor District made no promises of renewal. In June the lease was renewed through the end of 2013. Furthermore, the association will gain access to all the historic buildings on the site for storage of its collection. The $39,600 annual rent will continue to be paid through sweat equity, as association volunteers restore the six buildings.

Toronto Railway Heritage Association, Toronto, ON

The last RMQ reported on the dispersal of the railcars that were part of the Ossawippi Express Restaurant in Orillia, ON. We missed TRHA's acquisition of the Canadian Pacific wood passenger car Nova Scotia. It was originally the Sans Pareil, built in 1896 for the Dominion Atlantic.

United Railway Historical Society

Pennsylvania Railroad GG1 #4877 has been cosmetically restored and repainted in the original Brunswick Green "cat's whisker" color scheme.

U. S. Army Transportation Corps Museum, Fort Eustis, VA

The museum has opened its new Rail Pavilion building and unveiled cosmetically restored RSD1 diesel locomotive #8011 (Alco 1942). Originally built for the Atlanta & St. Andrews Bay, it was drafted for the war effort, equipped with six-wheel trucks and a reduced clearance cab and deployed in Iran.

Virginia Railroad Museum
Portsmouth, VA

This is a new museum, featuring cosmetically restored Norfolk & Western 4-8-0 #1134, one of the "lost engines of Roanoke".

West Coast Railway Association
Squamish, BC

Kids love miniature trains. During this year's Day Out With Thomas, the MiniRail that circles the Heritage Park

continued to charge its normal $3.50 fare. Over four days it carried 6300 of the 10,700 people who also bought Thomas tickets. MiniRail revenue was just short of $20,000.

In 2006, the train set of defunct tourist railway Waterloo & St. Jacobs was donated. It included FP9A units #6508 and 6520, along with three former Canadian National, later VIA lightweight coaches. The museum had to raise the funds to transport the consist from Ontario to British Columbia. Two of the cars were moved, but the locomotives and three cars stayed put, racking up storage charges with each passing month. The problem has finally been solved. FP9A #6508 has been sold to Ontario Southland Railway. The proceeds will pay to move the remaining pieces, all painted in the classic CN green, gold and black scheme.

Western Pacific Railroad Museum
Portola, CA

The fire that destroyed the museum's former Western Pacific Hospital in 2011 was ruled an arson. A suspect confessed to setting the fire, plus another at a local school. He was convicted of a felony and sentenced to jail plus probation. Cleaning up the site cost the museum $46,000.

Several years ago the museum changed its name and mission to concentrate solely on the history of the Western Pacific and its subsidiaries. Since then it has been rationalizing its collection to reflect that focus. Milwaukee Road U25B #5057 is being sold to the Cascade Rail Foundation in Cle Elem, WA. The sale is due to be completed in March 2013. They are also in the process of deaccessioning two Southern Pacific SD9s, #4404 and #4450, as well as a former SP Baldwin AS-616, and Alco Navy MRS-1 #544.

They have acquired WP Pullman business observation car #106, known on the WP as the "Charles O. Sweetwood" and originally part of the Pullman lease fleet under the names "Pioneer" and "Davy Crockett". It was used by the WP's Eastern Division Superintendent until it was loaned to the Red Cross during the Korean War and used for blood drives, the first railcar ever used in the capacity. It was named after a WP carman who went to Korea as a medical corpsman and was killed in action.

A second new arrival is SW1500 #1503, the last switching locomotive acquired by the WP. It is currently Union Pacific #1042. It was donated by the UP and is now back to full operation at the museum. In WP days, it was used extensively in the Bay Area, including the isolated trackage in San Francisco that was reached by WP's car ferry "Las Plumas". A trade with the Dakota Southern is bringing in Tidewater Southern GE 70-tonner #743 and a tamper.

Wiscasset, Waterville & Farmington Railway Museum, Alna, ME

A new restroom building is under construction, with completion expected in 2013.

New National Historic Landmarks

The U. S. Department of the Interior has announced that the Cumbres & Toltec and the Nevada State Railroad Museum's Virginia & Truckee McKeen car #22 have been designated as National Historic Landmarks. The designation's primary impact is the prestige of being listed as one of the 2500 most significant historic resources in the country.

New event idea

The Railway Museum of San Angelo held its 2nd annual Fry an Egg on the Track Day. Children touring the museum receive a certificate for an egg. At 2 p.m. they gather trackside to see who can fry an egg on the rail head. Prizes are given in the 2- to 8-year-old group and the 9- to 16-year-old group for those who fry an egg first.

This former Portugese streetcar has just been rebuilt by Gomaco for the Issaquah Valley Trolley in Washington. Using a generator on a trailer, It runs on a mile of former Northern Pacific track. IVT photo.

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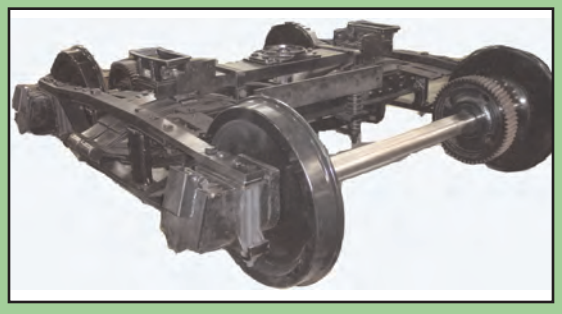

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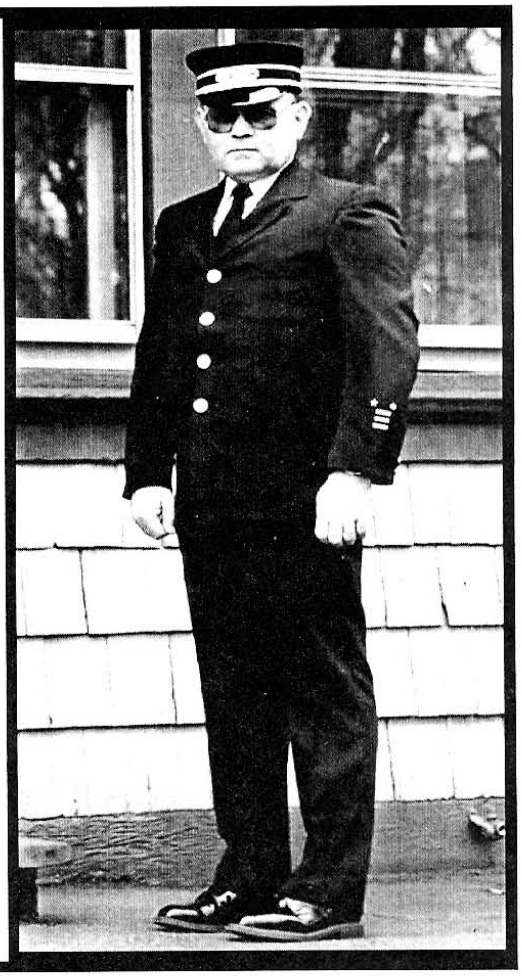

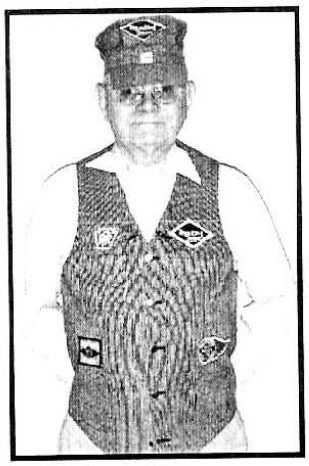

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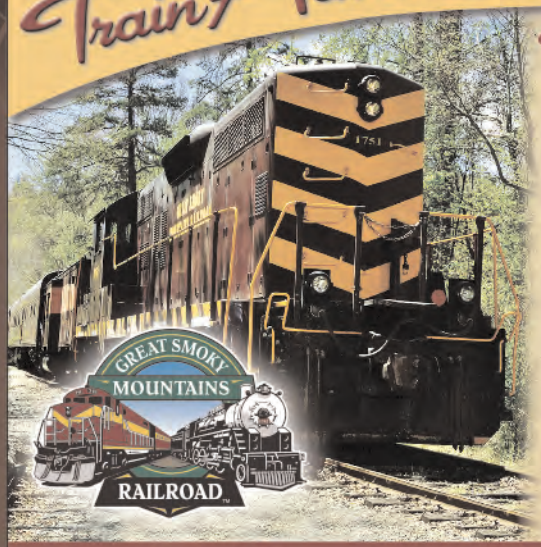

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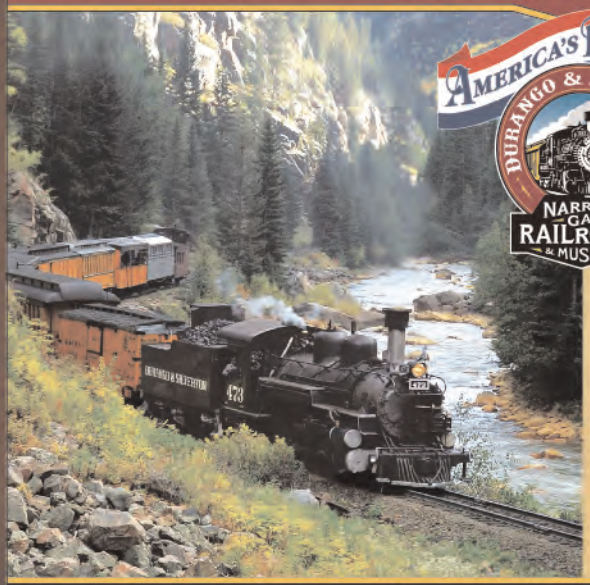

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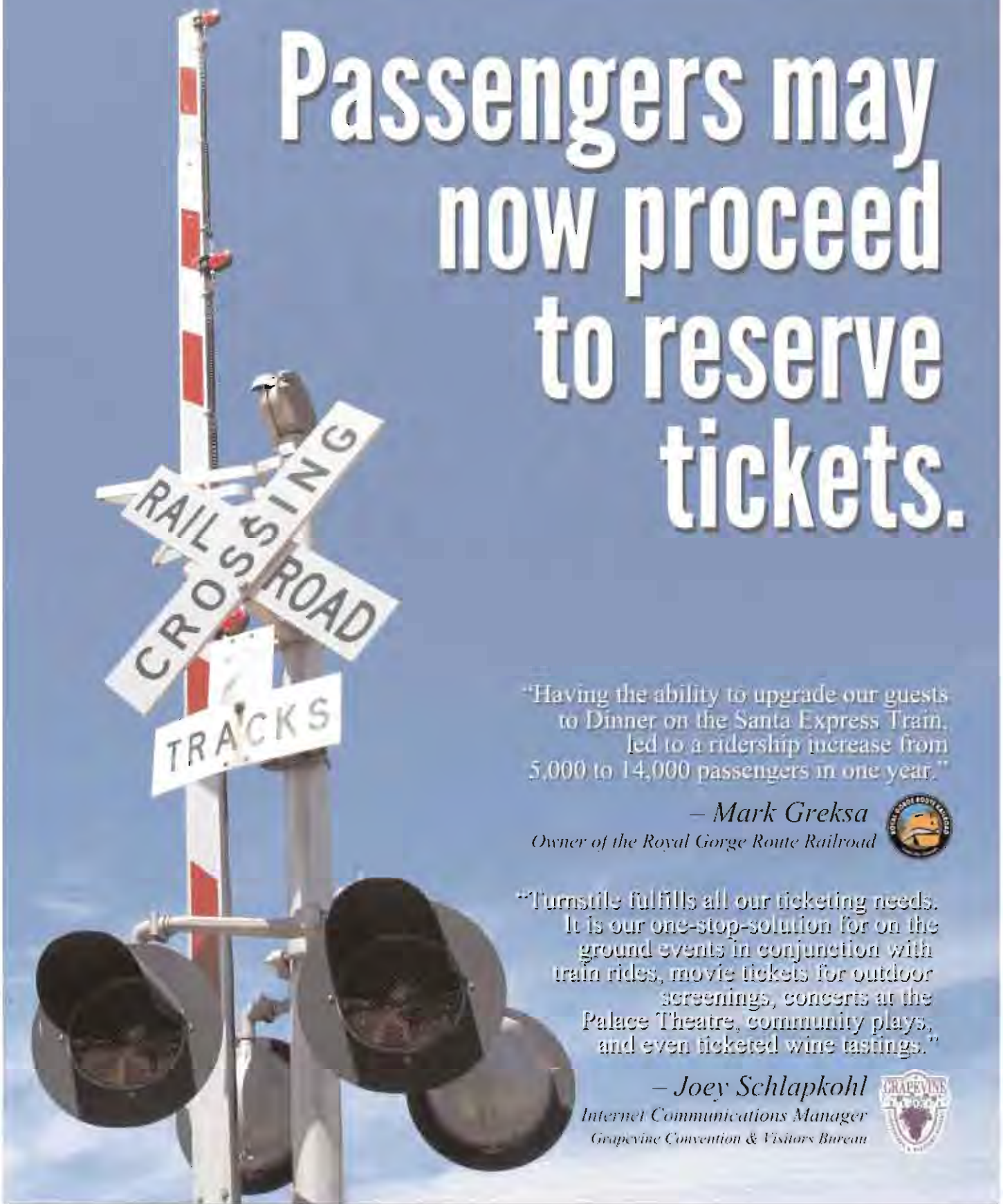

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