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LIFE AFTER DIESELS: NEXT FOR MOTIVE POWER p. 36

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**Riders to
Las Vegas
again?** p. 22

**UP's
new
ops
plan** p. 6

Canadian Pacific's Holiday Train of giving

p. 24



PLUS

Mileposts on the prairie p. 52

Passenger train called 'the Dude' p. 44

Remembering the '20th Century Limited' p. 34

Wyoming: Where the wild things are p. 50

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Trains

DECEMBER 2018

VOL. 78, NO. 12 NEWS AND FEATURES

FEATURES

24



COVER STORY >>

The train that gives back

Canadian Pacific Railway's Holiday Train celebrates 20 years

Greg McDonnell

34

A glass half full

50 years after the end of New York Central's *20th Century Limited*, one can still enjoy the view from the *Century's* observation car, *Hickory Creek*

Karl Zimmermann

36

Diesel demise

Could breakthroughs in battery and hydrogen power doom the diesel to history?

Brian Solomon

44

A private 'Dude'

The members-only train that served the Massachusetts elite

Karl Zimmermann

50

Worthy Wyoming trek

BNSF's Cowley Local, the last daylight train through Sheep Canyon, makes the long and hot journey worthwhile

Tom Danneman

52

Mileposts on the prairie

Under BNSF, a former Minneapolis & St. Louis line survives

Steve Glischinski

56

In My Own Words: Agony on the Michigan Northern

How one cab ride was not the thrilling experience it usually is

Brian Buchanan

◀◀ **ON THE COVER** Canadian Pacific Railway's colorful Holiday Train, led by GP20C-ECO No. 2249, makes a stop in Hamilton, Ontario, on Nov. 30, 2014. Photo by Stephen Host



- 6 UP's new ops plan
- 22 Riders to Las Vegas again?
- 24 Canadian Pacific's Holiday Train of giving
- 34 Remembering the '20th Century Limited'
- 36 Life after diesels: Next for motive power
- 44 Passenger train called 'the Dude'
- 50 Wyoming: Where the wild things are
- 52 Mileposts on the prairie

NEWS

- 6 News & Photos
- 10 Fred W. Frailey
- 16 Brian Solomon
- 18 Locomotive
- 20 Technology
- 22 Passenger

DEPARTMENTS

- 5 From the Editor
- 58 Preservation
- 60 Hot Spots
- 62 Ask TRAINS
- 68 Gallery

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JIM WRINN

Our man in New England

Each day, TRAINS receives dozens of photo submissions from contributors. We use those images at TrainsMag.com and in print. On average, 35 outstanding photographers provide the art for these pages every month, and one, Scott A. Hartley, has been at it for 50 years.

Scott is a tireless chronicler of railroading nationwide, worldwide, and in his home territory of New England. He's one of the faithful who loves railroading, and loves to document it in words and pictures. He is generous with his depth of knowledge. In addition to his scores of published images in our pages — more than 800 at last count, including 17 covers — he's also written more than 120 bylined articles.

We're proud to carry Scott's work, and we look forward to seeing it in print for years to come. I asked him for a favorite image from his early days. He suggested the photo below. He says the picture of a Penn Central Geep (former New Haven) pulling two coaches on the Hartford, Conn.-Springfield, Mass., line was made at one of his favorite train-watching spots where the railroad crosses the Connecticut River. Scott is another reason why TRAINS is and always will be *the* magazine of railroading.

CHANGE IN CUSTOMER SERVICE

While we celebrate Scott's longevity, I want to give you a heads up about a change here at TRAINS and our parent company, Kalmbach Media. Effective with this issue, we're changing our customer service team to SFG in Big Sandy, Texas. This means you'll be talking to new reps and responding to letters and emails at a new address. The contact info is in the masthead at the right. Please let us know how they're doing because we want to make sure your experience with the excitement and enjoyment of railroading at TRAINS in print and on our website is the best one possible.

Thank you for another great year as we share our passion for railroading with you.

editor@trainsmag.com



Veteran contributor Scott A. Hartley made this image of a Penn Central Geep and two coaches on former New Haven rails in August 1971. The image appeared in our news pages.



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'Hunterizing' Union Pacific

Precision Scheduled railroading heads west to Union Pacific after investor questions

A loaded UP coal train departs Wyoming's Powder River Basin. Executives say they'll work to streamline operations. TRAINS: Jim Wrinn

Hunter Harrison's ideas are descending on Union Pacific — the railroad that has been mired in an operational slump for more than a year. In October, UP executives began rolling out an operating plan based on the Precision Scheduled Railroading philosophy of Harrison, CSX Transportation's late CEO.

"By a number of measures, it's evident that we have not made the kind of progress I expect in improving our service and productivity performance in recent months. We're not meeting the expectations of our customers, and we know we can be better," CEO Lance Fritz told investors and Wall Street analysts in September.

Over time, UP's operating plan had grown too complex, which made it fragile when hit by harsh weather or sharp swings in traffic.

"Unified Plan 2020 is a way of addressing that network complexity," Fritz says. "In a nutshell, it's Precision Scheduled Railroading principles implemented on the Union Pacific network, taking into consideration the unique characteristics of our franchise and our base customers."

The new plan shifts UP's focus from the

movement of trains to the scheduling of individual cars. The railroad aims to speed transit times by minimizing car handling. UP officials say they'll move the same tonnage on fewer, longer trains to cut costs and boost the productivity of crews, locomotives, and freight cars. All are key elements of scheduled railroading.

BY A NUMBER OF MEASURES, IT'S EVIDENT THAT WE HAVE NOT MADE THE KIND OF PROGRESS I EXPECT IN IMPROVING OUR SERVICE AND PRODUCTIVITY IN RECENT MONTHS.

— LANCE FRITZ, UP CEO

But UP will depart significantly from the operating model Harrison developed. UP is phasing in operational changes over 15 months, plans to retain its current lineup of classification and regional yards, and will not rationalize its 32,000-mile network of main lines and secondary routes.

UP executives decided to implement the

new operating plan in three or four phases, beginning on its routes linking the Midwest and Texas, to minimize the potential for disruption. Service suffered at Canadian National, Canadian Pacific, and CSX as Harrison rapidly rolled out systemwide operational changes while leading those railroads. Federal regulators reacted almost immediately to UP's announcement. The Surface Transportation Board is monitoring operating changes through weekly conference calls with senior management at UP.

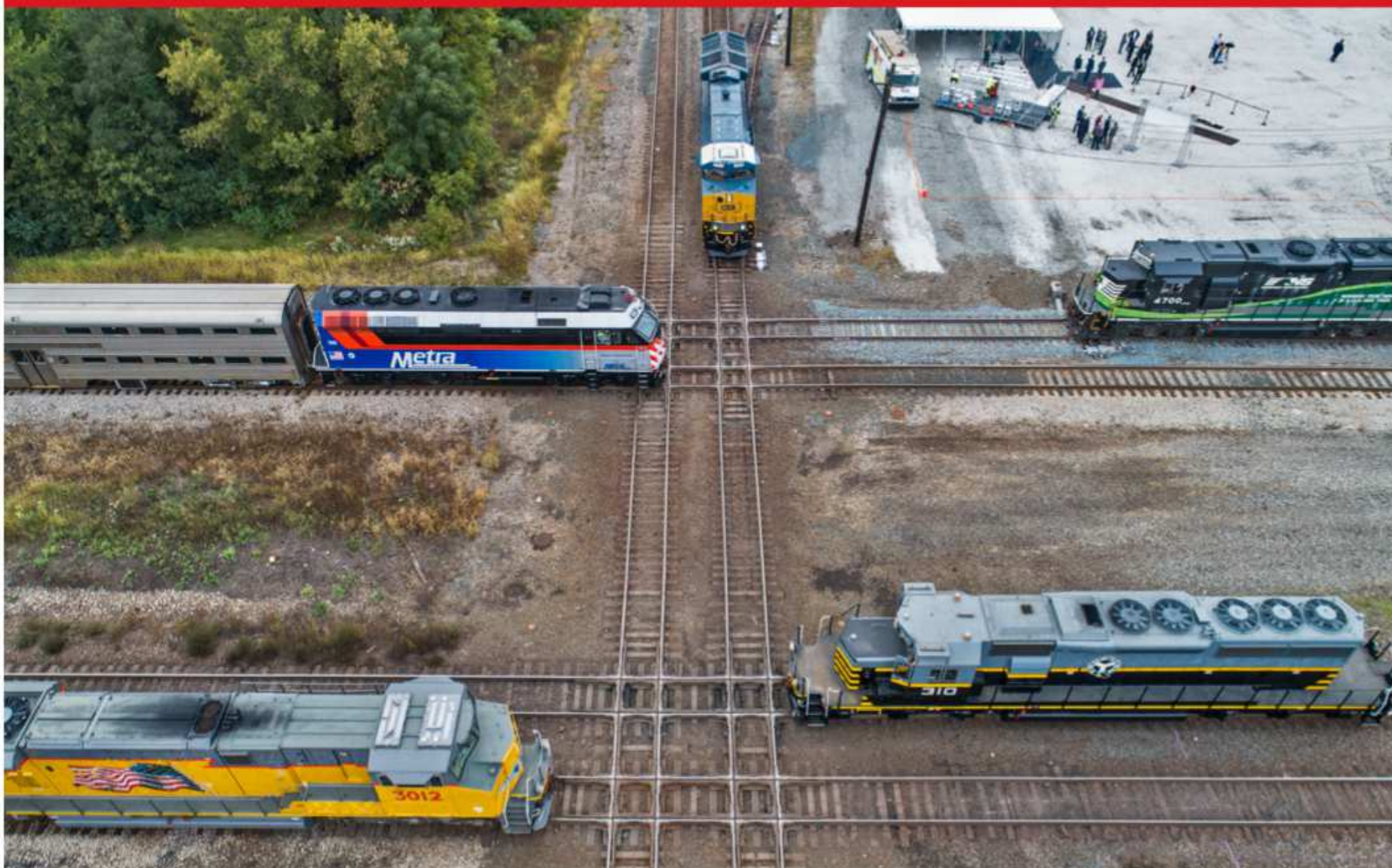
People who worked closely with Harrison tell TRAINS they were skeptical about UP's plans. Their biggest concern? That UP was adopting a watered-down version of Precision Scheduled Railroading.

"I think they won't go all-in on it. And it won't work," one person says. "I think the UP can do elements of PSR, but unless they cut bureaucracy and layers, it will fail."

Says another former Harrison colleague: "We think it's mission impossible unless the entire organization embraces it. It's a cultural change."

UP declined to comment on those views. Fritz assured investors and analysts that the railroad fully understands

» 'CREATE'-ing cooperation in Chicago



Locomotives and trains from Union Pacific, Metra, CSX Transportation, Norfolk Southern, and the Belt Railway Co. of Chicago pose on two quadruple-diamonds Oct. 1 to celebrate the groundbreaking on the 75th Street Corridor Improvement Project in Chicago. The \$474-million project to alleviate rail traffic congestion is part of the CREATE or Chicago Region Environmental and Transportation Efficiency program and will be financed by the railroads and U.S., state, and local governments. Marshall W. Beecher

scheduled railroading. UP is applying lessons from its Blend and Balance pilot program, which shifted unit-train traffic to the merchandise network and included daily departures in both directions to keep crews and locomotives in balance.

Nonetheless, industry analysts say UP's conference call — which was light on details — helped create a different impression.

"It has the whiff of going halfway, not being fully committed. They denied it, without specifics," says independent analyst Anthony B. Hatch of ABH Consulting.

The specifics UP did provide also raised questions among analysts.

Financially, UP did not change its operating ratio targets — 60 percent in 2019 and 55 percent longer-term — despite the dramatic financial improvements at Harrison-led railroads.

Operationally, UP doesn't anticipate idling the humps at any of its 14 classification yards or closing or consolidating any of its regional yards. And it will open Brazos Yard in Texas in early 2020 as planned — the railroad's 15th hump yard — to support growth in U.S. Gulf Coast merchandise traffic. This stunned one of

Harrison's former colleagues.

"That's a death knell from the get-go," he says. Harrison idled four out of CP's five humps and eight out of CSX's dozen humps after making significant changes to each railroad's operating plan and train blocking patterns.

But UP is not CN, CP, or CSX. It

CLASS I MERCHANDISE CARLOADS 2017

Union Pacific	4,078,000
BNSF Railway	3,087,793
CSX Transportation	2,762,331
Norfolk Southern	2,491,400
Canadian National	2,464,397
Canadian Pacific	1,333,000
Kansas City Southern	1,294,500

Source: Association of American Railroads and railroad annual reports

operates what's by far the largest merchandise network in the industry, which UP officials have said justifies its strategically placed network of classification yards.

"Humps are volume related," Hatch says. "UP has volume!"

Harrison's former colleagues questioned why UP would introduce the new

operating plan in phases, beginning with the Mid-America Corridor linking Wisconsin, Chicago, and Texas.

"Significantly, I can't see UP doing this as it plans: on a piecemeal basis, with the full implementation put off until 2020. You'll end up with different parts of the UP system — as well as Class I and shortline interchange partners — hitting up against each other," says a former Harrison colleague.

UP's announcement came two months after the railroad reported record second-quarter financial results. On UP's earnings call, Wall Street analysts peppered Fritz with questions about why his railroad couldn't be more like CSX. Cowen & Co. analyst Jason Seidl says UP's announcement was a reaction to investor pressure. And, he says, it was timed to head off the potential for activist investors to swoop in and demand change.

"UP is going this route because Wall Street is demanding it. I wouldn't want to be a UP customer at this juncture," a former Harrison colleague says. "With tight transportation markets in both rail and truck, there will be few alternatives to pick from if UP fouls up. And it will." — *Bill Stephens*

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NEWS PHOTOS



>> FIRST DAY A Decatur & Eastern Illinois Railroad crew moved the railroad's first train from Decatur, Ill., to Paris, Ill., on Sept. 9. The road is part of Watco. Steve Smedley

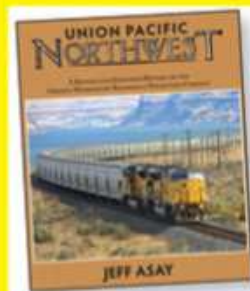


>> LOOK, SPECIAL! Union Pacific SD70AH No. 1943 led an office car special on CSX Transportation tracks through northern Indiana on Sept. 21 and 23. John E. Troxler

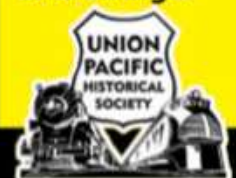


>> SIGNAL ENCOUNTER BNSF Railway SD40-2 No. 1714 leads a special by a semaphore signal at Galisteo, N.M., on the Southwest Chief route Aug. 31. Leslie Savoye

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» NEWS BRIEFS

BNSF, CSX launch LA-to-Ohio service

Midwest shippers can expect stepped-up intermodal service from Southern California now that **CSX Transportation** and **BNSF Railway** are teaming on a direct route between Los Angeles-area container terminals and CSX's Northwest Ohio Intermodal Terminal in North Baltimore, Ohio. Service was slated to begin Oct. 29 with five departures a week in both directions. The direct lane moves through Chicago and is for domestic and international container shipments only.

The **Eno Center for Transportation** says U.S. transit and commuter agencies may soon be caught in the crossfire between Washington politicians and **China** when it comes to new rail equipment. The Eno Center released a report in September that suggests members of Congress are looking at ways to prevent agencies from using Federal tax dollars on equipment produced by Chinese companies. The state-owned **China Railway Rolling Stock Corp.** already owns plants in Illinois and Massachusetts and has won multi-million dollar contracts for new transit cars from the **Massachusetts Bay Transportation Authority** and the **Chicago Transit Authority**. The center raises economic and national security concerns with Chinese corporations providing products at lower costs to cash-strapped agencies while possibly building market dominance over other suppliers. China is the world's most populous authoritarian nation.

Federal Railroad Administration Administrator **Ron Batory** says he is "totally committed" to cutting the number of suicide deaths on railroad property 50 percent by 2026. Batory was the keynote speaker for a conference hosted by the **DuPage (Ill.) Railroad Safety Council** in September 2018. The biennial conference brings together transportation and safety professionals for conversations on trespass prevention, mental health, and law enforcement officers' role in preventing suicides and trespassing on railroad property.



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Big trains, short sidings. What happens?

Canadian National makes it work. Here's how

What do you do when demand exceeds capacity? The usual answer is to throw money into longer sidings, double track, and the like. More than a decade ago, Canadian National faced this issue along the 1,200 miles across Northern Ontario, between Winnipeg, Manitoba, and Toronto. CN wanted to run long trains, but the standard siding was 6,400 feet and not one of its 126 sidings between terminals could hold even an 8,000-foot train. Yet CN began running 10,000-foot, and then 14,000-foot trains anyway. Now long trains in this land of short sidings is the norm and an object lesson of how to accomplish more with less.

The instigator of all this was (no surprise) ex-CEO Hunter Harrison, intent on wringing efficiencies from formerly government-owned CN while at the same time adding capacity as traffic across this corridor grew. It began with a pair of westbound intermodal trains, 111 and 101, running out of Toronto at "oversiding" length and on each other's blocks. But that created a crew imbalance that zeroed out much of the cost savings. So CN began running eastbound supersized trains, too.

With westbound supertrains having preference, this meant that eastbounds exceeding 6,400 or so feet had to divide themselves between two sidings, a maneuver consuming 2-to-3 hours.

THE TRICK IS TO KEEP ALL THE LONG TRAINS RUNNING TO THEIR SCHEDULES SO THAT THEY SHOW UP FOR MEETS WHEN EXPECTED.

This is how they did it: The inferior eastbound train set off its head end at Siding A — whatever wouldn't fit in Siding B. Then it cleared the opposing trains in Siding B. Once the westbounds were gone, the locomotives retraced to Siding A to pick up the front of the train and returned to Siding B, backing onto the tail-end cars. Hint: It helped if a supervisor aided the crew.

You can't pull off meets like this many times a day and keep a railroad fluid. In fact, double-siding events of this sort no longer occur. Between 2009 and 2018, Canadian National extended 10 sidings to 12,000 feet or longer (that's about one every 120 miles). Plus, the railroad looked for places where long auxiliary tracks extending from the east end of 6,400-foot sidings would permit an eastbound train of up to 12,000 feet to tuck

itself away in two pieces and recouple after a meet. Voilà, another seven places to meet long trains. Plus, CN and Canadian Pacific share tracks for 100 miles around Parry Sound, Ont., operating directionally. Finally, the crew-change points of Capreol, Hornepayne, Armstrong, and Sioux Lookout can all hold a long train, although the inferior train must double over at Armstrong.

Still, there are several instances of distances of 70 or more miles between meeting points for oversiding trains. With as many as five

NEW Calendar for Train Enthusiasts!

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such trains operating in each direction, not to mention six to eight other trains each way of up to 6,250 feet and VIA Rail's *Canadian* two or three times a week, it all seems too chaotic to work.

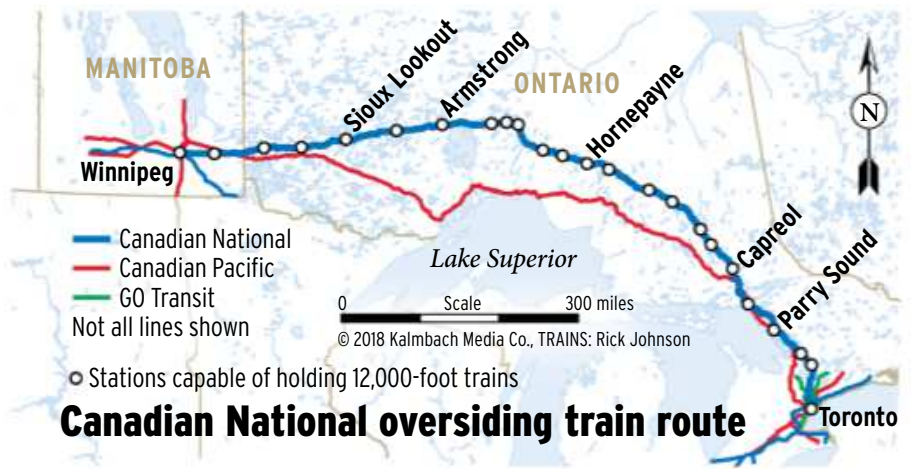
But Canadian National has made it work. First of all, the long westbounds are sent west from Toronto in batches of two or three trains, one close behind the other, the first batch about 2 a.m. and the second about 11 a.m. This minimizes the instances that long eastbounds have to clear. Then someone (I wish I knew who) figured out that if Transcona Yard in Winnipeg shoots out 12,000-foot eastbounds at specific times (2:30 a.m., 10:30 a.m., 2:30 p.m., 5:30 p.m., and 9:30 p.m.), they'll all find places to meet the westbound parades across the next 1,200 miles.

When I heard about this operating plan, I thought it was insane. So I developed a dispatching simulation covering the 600-plus miles between Hornepayne and Winnipeg, populated it with five supertrains in each direction according to their schedules, and threw in all the other traffic. Then I ran the software to see what happens.

Eureka! The plan works, so long as everything goes right. The trick is to keep all the long trains running to their schedules so that they show up for meets when expected.

But let's be realistic. This is Northern Ontario, where minus-35 degrees is considered normal for months of the year. Air brakes go crazy. Snow fouls the switches of backtracks. Locomotives fail and so do freight cars. Talk to the rail traffic controllers who dispatch this district from Toronto and they'll tell you winter is hellacious. The plan regularly falls apart. In such instances, controllers scale back meets, reduce train lengths to fit in shorter backtracks, or split trains into two to accommodate being out of their time slots.

I'm certain there are loads of people reading this who work for



the big U.S. railroads and are shaking their heads in disbelief. Why not just spend whatever it takes to tame this beast — that's the American way, they're saying. What they probably don't want to admit is that CN's business has grown faster than that of any of the American railroads during this century, by a long shot. It is expanding capacity rapidly where it needs to, which is west of Winnipeg. The fact of the matter is that Northern Ontario is the part of Canadian National between Toronto and British Columbia that works best of all right now — yes, even with so few places to tuck those big trains away. And it works because some smart minds figured out how to make it work, assisted by engineers and conductors who rise to the challenge. We on the other side of the border could learn from their example. **I**

Fred W. Frailey is author of "Twilight of the Great Trains." Reach him at ffrailey@gmail.com.



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BNSF Railway C44-9W No. 5501 brings up the rear of a train passing a Union Pacific train at Caliente, Calif. Scott A. Hartley

Farewell to BNSF's leader

BNSF Railway Executive Chairman Matt Rose says he'll retire in April 2019

BNSF Railway Executive Chairman Matthew K. Rose, who will retire in April, is being praised for a nearly two-decade leadership tenure defined by strong growth, service, and the sale of the company to Berkshire Hathaway.

"I think he and his management team took BNSF to a higher level," says Rob Krebs, who put BNSF together and was Rose's predecessor as chief executive. "I don't know how it can get much better. The combination of service that they have been able to provide, together with reduction in costs that continued after I retired, made the company the leader in the United States and maybe the best freight operation in the world."

Like a hotshot Z-train, BNSF under

Rose's leadership overtook rival Union Pacific to become the largest railroad when measured by volume and revenue.

BNSF's traffic grew at more than twice the rate of the closest U.S. railroad, Norfolk Southern. And it was second only to Canadian National in overall growth, largely due to CN's development of the Port of Prince Rupert, British Columbia, into an intermodal juggernaut.

Surpassing UP — which boasts a larger network that reaches virtually every major market in the West via its own rails — was no small feat.

"It proves that BNSF is the premier rail carrier in the country," Krebs says. "It means two things. First, you made the necessary investments to accommodate it. And

secondly, you have customers who want to use the system."

Rose has said that beating UP was never a consideration. Instead, BNSF focuses on bringing more traffic to its railroad — whether it comes from the highway or is market share gained at UP's expense.

Independent analyst Anthony B. Hatch says Rose has been a "seminal leader" for BNSF and for the industry thanks to his efforts to influence transportation policy in Washington. "Under his leadership, BNSF became perhaps the leader of the railroad renaissance," Hatch says. "He picked up on Krebs' intermodal development and ran with it — making BNSF the pre-eminent intermodal leader in the world, really."

Hatch also credits Rose for the way

CLASS I RAILROAD CARLOADS

Railroad	2000	2017	% change
BNSF Railway	8.1 million	10.2 million	26
Canadian National	3.7 million	5.7 million	51
Canadian Pacific	2.3 million	2.6 million	10
CSX Transportation	7.3 million	6.3 million	-13
Norfolk Southern	6.8 million	7.6 million	11
Union Pacific	8.9 million	8.5 million	-4

Source: Class I railroad annual reports and the Association of American Railroads

CLASS I RAILROAD REVENUE

Railroad	2000	2017	% change
BNSF Railway	\$9.2 billion	\$21.3 billion	137
Canadian National	\$5.4 billion	\$13 billion	140
Canadian Pacific	\$3.6 billion	\$6.5 billion	79
CSX Transportation	\$8.1 billion	\$11.4 billion	39
Norfolk Southern	\$6.1 billion	\$10.5 billion	71
Union Pacific	\$11.8 billion	\$21.2 billion	79

Source: Class I railroad annual reports

BNSF redesigned service to agricultural shippers, which helped to end — or at least reduce — the century-old hostility between grain shippers and railroads.

BNSF's philosophy is that customer service drives profitability, the virtuous cycle of reinvestment, and provides the railroad with a social license to operate. This goes against the grain of the current trend at the publicly traded Class I railroads, which is to reward investors as quickly as possible through a combination of share buybacks, cost-cutting, rate increases, and a focus on the operating ratio.

"Everybody's desperate for profits. You can't have sustainable profits if you don't have good service first," Krebs says. "And that means it takes investment and a culture that only accepts superior service and putting our customers first. And that's what BNSF has continued to do — and it's paid off."

This long-term view of the business is one of the things that attracted Berkshire Hathaway Chairman Warren Buffett to take a stake in BNSF in 2006, then buy the entire railroad in 2010.

"It was a very lucky day for me and for Berkshire Hathaway when I met Matt Rose," Buffett says in a statement. "Under Matt's management, BNSF has become a major source of profit and pride for Berkshire. And, as a citizen, Matt has been an exemplar for corporate leadership."

Buffett said the acquisition of BNSF, which was announced in 2009 in the depths of the Great Recession, was "an all-in wager on the economic future of the United States." At the time, Rose said, "We admire Warren's leadership philosophy supporting long-term investment that will allow BNSF to focus on future needs of our railroad, our customers, and the U.S. transportation infrastructure."

Rose has said that BNSF operates under Berkshire Hathaway ownership the same way it did as a publicly traded company.

"I mean, at the end of the day, we still hold ourselves accountable to the same stuff we used to," Rose said last year. "We need price. We need volume. We've got to be judicious with capital."

Rose became CEO in 2000 and was named executive chairman in December 2013, when Carl Ice was promoted to chief executive. As executive chairman, Rose stepped back from day-to-day matters to focus on planning, market positioning, and public policy issues affecting BNSF and the railroad industry. The executive chairman position was created for Rose and will not be filled upon his retirement, BNSF says.

At one time, Rose was considered a possible successor to Buffett, who is 88. Earlier this year Berkshire promoted two other executives to vice chair positions, signaling



Matt Rose, right, and Berkshire Hathaway founder Warren Buffett pose in this undated photo. BNSF Railway

they were potential replacements for Buffett and his partner, Charlie Munger, 94.

No reason was given for Rose's retirement at age 58.

"I have been incredibly fortunate to work alongside some of the most talented people in the transportation industry," Rose said in a statement. "Through my 26 years at BNSF — 19 in leadership — I have seen enormous change in our economy. Our company has navigated those changes well and now is extremely well positioned for the next several decades. It has been an honor to lead this organization."

Under Rose, BNSF was a technological leader, racing out to full deployment of positive train control long before the other Class I railroad systems. It also was an early adopter of devices, such as drones, to inspect track and bridges. And BNSF sought a labor agreement, unsuccessfully, that would have permitted the use of one-person crews on PTC-protected lines in the Pacific Northwest.

BNSF also credits Rose with developing leaders within the company, ensuring that it has a strong management pipeline. Insiders praise Rose for his people management skills. They also say he was a rare railroad CEO who excelled at all aspects of the job, from operations and marketing to finance and government relations.

Rose's tenure was not all smooth sailing. The harsh 2013 to 2014 winter, combined with a record grain harvest and the spike in crude oil traffic in the Dakotas, brought Chicago to a standstill and BNSF to its knees on the Northern Transcon linking the Windy City and the Pacific Northwest. Federal regulators held hearings as shipper discontent boiled over.

BNSF responded by spending \$1 billion on capacity improvements, including double track, passing sidings, and centralized traffic control. — *Bill Stephens*

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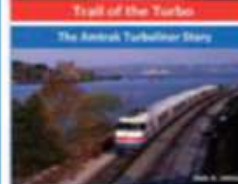
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Western Maryland Scenic's Chesapeake & Ohio 2-6-6-2 No. 1309 test fires at Ridgeley, W.Va., on Oct. 3. Chase Gunnoe

Big steam outlook for 2019

A lot of big excursion locomotives are looking for work; the Year of the Articulated looms

The list of impediments to big steam operations on the main line is a long one: Amtrak's ban on chartered trains, positive train control's complexity and cost, scarce passenger-car inventories, insurance costs, a lack of Class I railroad sponsors, and the sweeping Hunterization of the railroad industry. But with the right finesse, imagination, and will power, railfans could still see big steam locomotives — other than the Union Pacific Big Boy No. 4014 and 4-8-4 No. 844, which are givens for the 150th anniversary of the transcontinental railroad next May — in action in 2019.

Here are the positive signs:

- Despite significant obstacles, three big mainline locomotives, Milwaukee Road

4-8-4 No. 261, Nickel Plate Road 2-8-4 No. 765, and Pere Marquette 2-8-4 No. 1225, each found its way onto public excursions this fall on regional railroads, tourist lines, or commuter agencies. The lessons: Those who want to run badly enough will find a way to do so; partnerships with other railroad entities are critical.

- Two big locomotives steam tested for the first time in 63 years. In Ridgeley, W.Va., Western Maryland Scenic Railroad's Chesapeake & Ohio 2-6-6-2 No. 1309 was test fired on Oct. 3. Meanwhile, in New Mexico, Santa Fe 4-8-4 No. 2926 saw a test fire in late August. The implications: Two more locomotives that will turn your head when they pass are coming on line soon.

- A significant project in Tennessee, the effort to restore Nashville, Chattanooga & St. Louis 4-8-4 No. 576 was closing in on its self-imposed \$500,000 fundraising goal before withdrawing the locomotive from the city's Centennial Park and placing it in a restoration shop. The aim is to run it on tracks used by Nashville & Eastern's freight trains and the Music City Star commuter trains. The takeaway: Money is out there for big steam projects that are well managed. Also, like No. 1309, which has its own railroad in the form of the Western Maryland main line, No. 576 will have a friendly railroad to run on.

- The Virginia Museum of Transportation's Class J 4-8-4 No. 611 got firebox work this year that will have it ready to run when the call comes. The moral to this story: Be ready for opportunity when it comes along, and you never know when it may come along.

At the least, steam lovers will find much joy in 2019, the Year of the Articulated. With Oregon Coast Scenic's 2-4-4-2 *Skookum* (see the ad on page 16 for a TRAINS-sponsored event with this locomotive), UP's Big Boy, Western Maryland's beast of the East No. 1309, and South Dakota tourist line Black Hills Central's second 2-6-6-2T, No. 108, there will be plenty of cylinders and siderods to enjoy. — *Jim Wrinn*



Norfolk & Western No. 611 ferries home to Virginia at Jamestown, N.C., on Sept. 26. Two photos, TRAINS: Jim Wrinn



Fort Wayne Railroad Historical Society's Nickel Plate Road No. 765 visited Ohio's Cuyahoga Valley Scenic in September.

» OBITUARY

John Gruber Photography pioneer



John Gruber is among the few railroad photographers who have had a profound and lasting impact on the craft. He arrived in the 1960s with a new approach to photographing the railroad scene, then founded the leading organization devoted to preserving and promoting the art form.

Gruber died Oct. 9, 2018, in Madison, Wis., after a brief illness. He was 82.

Born in Chicago in 1936, Gruber spent most of his life in Wisconsin, moving with his family in childhood to Prairie du Sac, Wis. The state's most prominent carriers, Milwaukee Road, Soo Line, and Chicago & North Western, were favorite targets of Gruber's throughout his life.

A Chicago, North Shore & Milwaukee Railroad trip led to Gruber's first photograph published in *TRAINS*: An image of shivering railfans shooting an excursion on the interurban line at Northbrook, Ill., in February 1960.

That photo sparked a relationship with Editor David P. Morgan, who liked Gruber's approach, especially his pioneering use of both telephoto lenses and his talent for getting up close and personal with professional railroaders. The editor wrote that Gruber was always "on top of the action, however unexpected and regardless of the hour. His pictures tell it like it was."

Although Gruber was well-versed with typical railroad photography of his day, he drew inspiration from a pair of Wisconsin newspaper photographers who inspired him to go beyond what he saw in *TRAINS*.

He worked on the publications staff at the University of Wisconsin for 35 years. In his personal time, Gruber edited the *Gazette of the Mid-Continent Railway Museum* and "Vintage Rails," published by Pentrex.

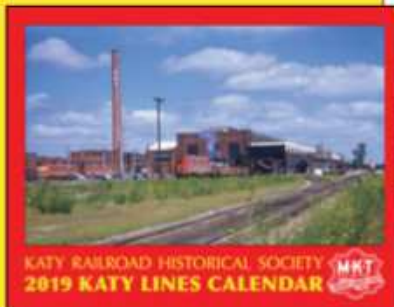
Gruber later turned his energy toward what is likely his greatest accomplishment, his 1997 founding of the Madison-based Center for Railroad Photography & Art, which is known for its archives, publications, and an annual "Conversations" symposium held at Lake Forest College near Chicago.

Gruber's founding of the center grew, in part, out of his strong sense of community.

"I had become curious about railroad photographers — who they were, their backgrounds, their ideas about photography," Gruber said. He continued to serve on the center's board the rest of his life.

Gruber authored or coauthored several railroad books. He is survived by his wife, Bonnie, two sons, and grandchildren. — Kevin P. Keefe

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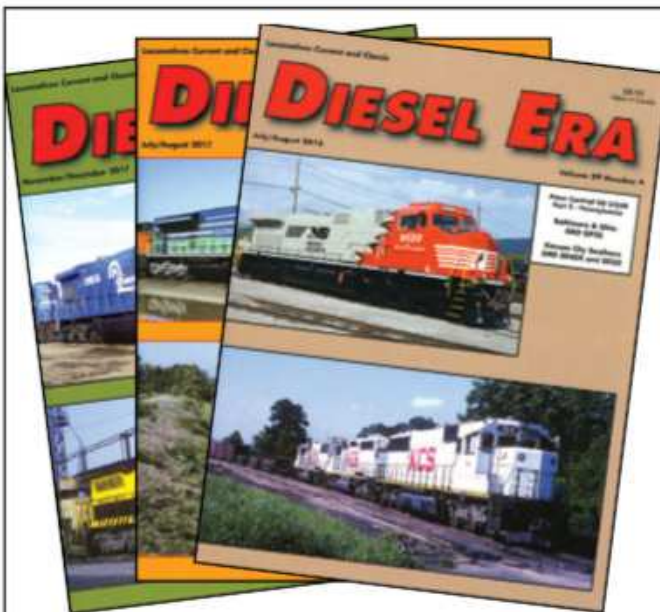


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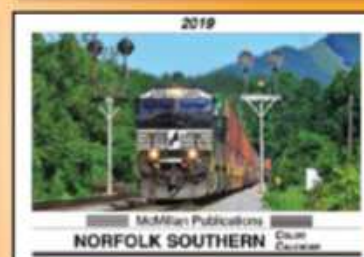
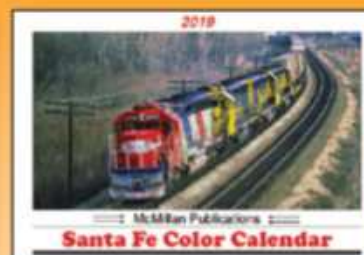
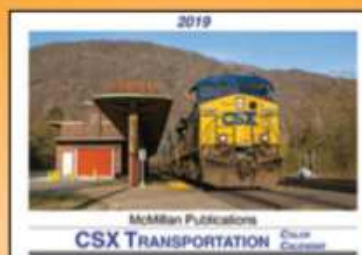
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Ma, is that a really old train?

Reflections on the relative ages of trains in our lives

In 1981, sitting in a high school math class, I mentioned to my instructor, “time and, your perception of time, are in inverse proportions to each other. The more time you experience, the faster it seems to go by.” He was stunned by my profound perception, and his reaction cemented the comment in my memory.

My youthful experiences with trains in the 1980s now seem like a long time ago. I recall enthusiastically photographing while absorbing the sounds produced by Central Vermont’s EMD GP9s and Alco RS11s as they worked trains at the yard in Palmer, Mass., and upgrade through my hometown of Monson, Mass., on their way to Connecticut.

At the time, these locomotives seemed really old to me, having been built a decade before I was born. But, they weren’t nearly as ancient as the former Pennsylvania Railroad GG1s that then still plied the Northeast Corridor both for Amtrak and in commuter service for the state of New Jersey. For me, those GG1s were about as good as it got, and they were old — with a few dating back to the 1930s. Even older were former Lackawanna electric multiple-unit cars from the late 1920s that still ran in New Jersey. There I was, a much younger me, standing under the arched trainsheds at Lackawanna’s Hoboken (N.J.) Terminal waiting to board one of these functional antiques with my father. I felt as if I’d been

transported to another era altogether. These trains looked, sounded, and smelled ancient.

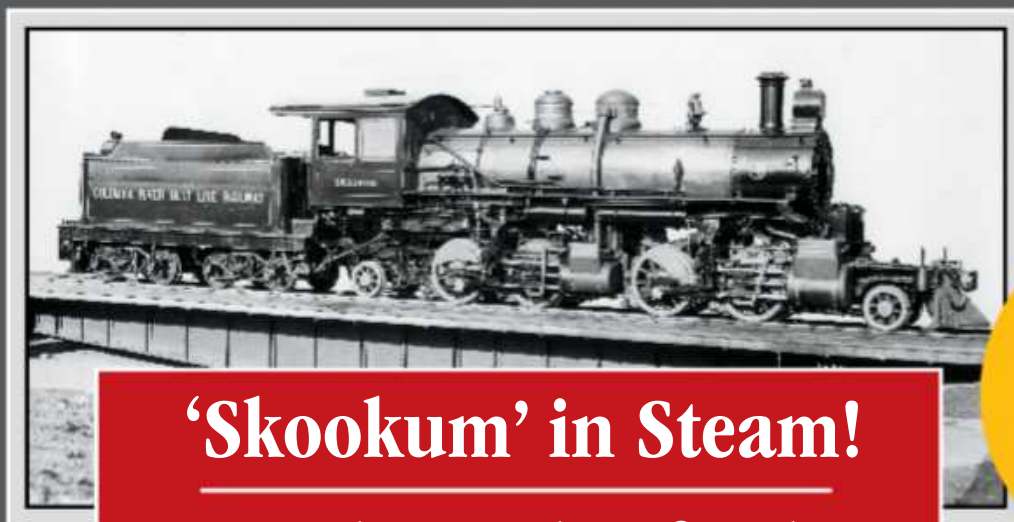
Fast-forward 35 years and we don’t have to search too far to find locomotives in daily service that match the relative ages of my ancient trains. Where in 1983, the last year for the GG1s in revenue service, those locomotives were only 40 to 45 years in service, today there are plenty examples of EMD second-generation diesel locomotives with at least that many years at work.

The EMD 645-series diesel engine entered regular production in 1965, and was soon employed as prime mover for many of the builder’s commercially successful models, including the GP40, SD40, and SD45. The Dash 2 line, introduced in 1972, resulted in a variety of significant advancements and improvements. The SD40-2 emerged as the

standard road locomotive in the 1970s and early 1980s. Yet, the oldest of these Dash 2 units have more than 46 years in service. True, many surviving 645-powered locomotives have been overhauled, rebuilt, modified, and improved, but not all have been, and any which way you look at it, these are comparatively old machines. Although scarcer, there are still plenty of EMD’s older 567-powered locomotives at work too. Last summer on Cape Cod, I listened to a former Santa Fe GP7 laboring with a

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Massachusetts Coastal trash train, and the sounds of that old EMD engine carried me back more than 30 years.

I was sorry, but not surprised, when New England-based Pan Am Railways began taking delivery of 1980s-era General Electric Dash 8 units in early 2017. These rapidly began to supplant 1960s and early 1970s-era EMDs. Yet, these GEs are hardly youngsters, and, in fact, are well worthy of photographs themselves.

Next year will mark the 50th anniversary of Alco's exit from the American market. That means the surviving Alco diesels working American short lines have at least a half-century of service. Granted, some of these have been augmented by their slightly newer Canadian cousins, but regardless, these are venerable machines.

For the serious antique locomotive enthusiast, there are a variety of locomotives more than six decades at work, including Alco's surviving 244-engine diesels, such as the once-common RS3, several of which still work revenue freight for Delaware-Lackawanna in Pennsylvania's Pocono Mountains and on New York's Battenkill Railroad. Despite their age, a few Baldwin diesel switchers survive, notably on New Jersey's SMS Rail Lines — the newest Baldwins are well past 60 years old.

In August, I was traveling in Ireland on the cross-border Belfast-Dublin Enterprise passenger train. As we approached Dublin Connolly Station I heard a young voice ask, "Ma, is that a really old train?" I looked up, expecting to see one of the Railway Preservation Society of Ireland's steam locomotives and was startled when I realized that this child was instead pointing at one of Irish Rail's 1994-1995-built Class 201 General Motors diesels. I thought, "That's not old, that's just a 201." But, then it occurred to me that that "old train" is the same age now as my Central Vermont Railway GP9s were in 1981. To the child gazing in wonder

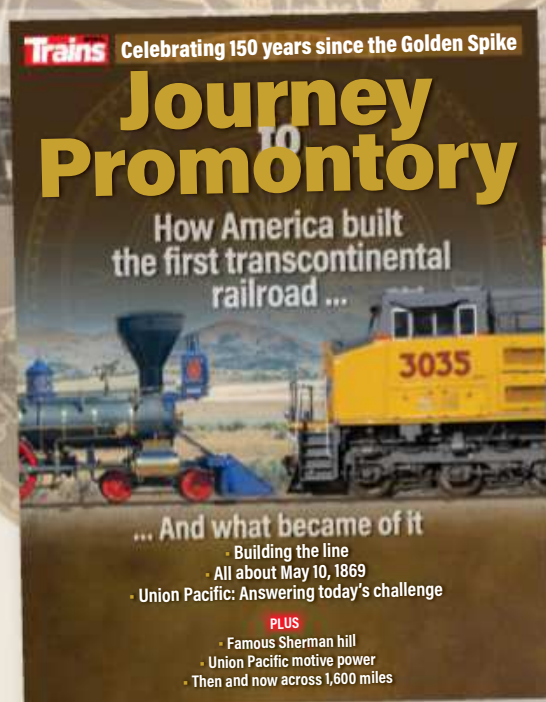


On an April 1984 morning, a pair of Central Vermont Alco RS11s arrive at Palmer, Mass., with a piggyback train from St. Albans, Vt. Such experiences now seem like a long time ago. Brian Solomon

out of the window that locomotive is really old.

We may get complacent when we see and hear the same engines year after year. But nothing lasts forever, and old engines will inevitably be replaced. What's noteworthy is not their replacement, but how long they survived in revenue service. **I**

Brian Solomon grew up in New England and divides his time between the U.S. and Ireland. His new book, "Brian Solomon's Railway Guide to Europe," is now available at www.KalmbachHobbyStore.com.



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P33413

The Big Two's outlook for 2019

Progress and GE's rebuilding thrives while new loco sales continue to be sluggish



Canadian Pacific's fleet of SD9043MACs has largely been stored, as seen here, since 2012 and has been offered for sale several times over the years. Now 30 of the 58 remaining locomotives on the roster will become SD70ACU Nos. 7000-7029. *Craig Williams*

As we turn the page on another year, the 2019 outlook for both major builders, General Electric and Caterpillar's Progress Rail, is good with a mix of new and rebuild orders to keep both companies' shops humming. It's the latter type of business that continues to escalate, with thousands of locomotive rebuild orders filling the shop floors where new orders once dominated the space.

New locomotive orders for 2018, 2019, and beyond include 50 new GE locomotives for Kansas City Southern and KCS de Mexico, along with 260 new GEs for power-short Canadian National with the first 60 coming in 2018 and the balance of the multiyear order in 2019 and beyond. Progress Rail is building 40 SD70ACe (T4C) credit units for Norfolk Southern and will build 10 SD70ACe-T4s for the company in 2019. CSX will receive 10 SD70ACe-T4s early in 2019, which will be the first new EMD power for the company in years. BNSF Railway is also scheduled to receive 10 SD70ACe-T4 P4s in mid-2019 that feature four traction motors instead of six. Progress is also wrapping up a SD70ACe-T4 order for Union Pacific, with the balance of the new-build

SD70ACe-T4s shipping from Muncie, Ind., by the end of 2018.

While the approximately 400 new units above are substantial, the rebuild market for Progress and GE numbers in the thousands across multiple railroads. This has been a growing part of Progress and GE's portfolio. While this year's new and rebuild totals aren't final, it's looking like the number of Class I rebuilds done at Progress and GE facilities may eclipse new unit orders for the first time in 2018. While GE's Erie, Pa., shop never fully relinquished its role as locomotive builder/rebuilder, its part has been drastically reduced following the opening of its Fort Worth, Texas, plant five years ago. With the uptick in rebuilding, the Fort Worth plant has almost reached its production capacity and beginning in 2019, Erie will have a more active role in rebuilding locomotives. NS is continuing its D.C. to A.C. electrical systems upgrade program for older Dash-9 locomotives with 100 more scheduled for 2019. The group will be split between NS in-house facilities and GE, with 50 assigned to Erie for rebuilding.

The largest announcement was from UP in September. The 20-unit order for

GE AC4440CWMs currently being rebuilt will now grow to 980 AC4400CW locomotives. The first group scheduled includes 195 locomotives to be rebuilt over a three-year period and will include both the AC4400CW and the AC6044CW "convertible" locomotives.

The first AC4400CWM, called C44ACM by Union Pacific, to be released from the program, UP No. 7342 is in coal service on UP, with 10 more in progress at Fort Worth and Erie.

Canadian Pacific plans to expand its fleet next year by rebuilding some of its long out-of-service SD9043MACs. CP plans to rebuild 30 initially and these will be called SD70ACUs. These will be similar to the more than 100 NS SD70ACU locomotives in service and comparable to EMD's SD70ACe mechanically. Expect the first to be delivered in early 2019.

With the cost and complexity of new locomotives coupled with the success of the rebuilding programs, new locomotive sales have taken a back seat to the rebuilding programs offered today. Time will tell when the pendulum will swing back the other way for the industry.



>> YELLOW HORSE Norfolk Southern's latest D.C.-to-A.C. conversion introduces a new model to the road: SD70ACC. Built as SD70 No. 2537 in 1994, the unit has a yellow nose as a nod to rebuilder Progress Rail's parent company, Caterpillar. NS: Casey Thomason



>> NORTHBOUND CFX SD70ACes Nos. 1001-1004 were headed for Canada in September, where they will work for Chemin De Fer Arnaud hauling minerals. Progress Rail acquired the former BHP units from the Australian mining company. Adam McHone



>> MATCHING Fs Short line Ontario Southland Railway has repainted FP9 No. 1401 to match FP9 No. 6508, which was painted a little over three years ago. The striking duo was teamed up on freight at Beachville, Ontario, on Sept. 26, 2018. Walter E. Pfefferle

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Six welded rail questions

Everything you were dying to know, but were afraid to ask

Track workers on the former Wisconsin Central install a thermite weld at Camp Lake, Wis., in the 1990s. Continuous welded rail, or welded rail, is seemingly everywhere in North America, but questions about it linger. Howard Ande

1 Why welded rail? Welded rail minimizes the number of rail joints that are a constant source of headaches and maintenance. Joint bars on jointed rail don't provide the rigid strength of unbroken rail and can sag under the weight of a passing train, battering the ends of the rail and creating rough-riding "low joints." Bolt holes are inherent weak points that can be the cause for a broken rail.

2 How long are welded rails? Rail is welded twice during its creation. When it's produced, it is typically rolled into 80-foot lengths. It's then transported to rail fabrication plants that use electric flash welding to assemble several sections of rail into a string 1,440 feet long. These are the quarter-mile-long sections taken to installation sites and laid into the track. Once installed, these strings are welded to the adjacent rails using thermite welding. The final length of the welded rail is limited only by the locations of insulated joints for signals or grade-crossing track circuits. Special joints that allow heat expansion and contraction are uncommon on North American railroads.

3 How many joints does welded rail replace? During the steam era, rails were 39 feet long to fit onto 40-foot flatcars. This means that a mile of rail had about 135 joints. Welded rails are as long as track circuit blocks for signals or grade crossings, so the number of joints varies. The welds themselves are much stronger than joints, but still weaker than uncut rails. Some rail companies build welded rail from longer sections, including the 320-foot rails of Steel Dynamics Inc., and the 480-foot rails rolled in Japan by Nippon Steel and Sumitomo Metal Corp. and shipped to the Port of Stockton, Calif., for use by Union Pacific. These reduce the number of welds in the final product.

4 How is welded rail moved and installed? Railroads transport quarter-mile strings of welded rail from fabrication plants using dedicated trains. These flatcars are often semipermanently coupled and have roller racks to allow the rail to slide back and forth as the train snakes around curves. A tie-down car in the center anchors the rails and buffer cars keep any rail that may come loose from sliding

into the locomotives. To unload welded rail, crews thread one end through guides down to the ground and use cables to anchor it to the existing rail. Then the train is pulled ahead, laying down new rails alongside the track it moves. A 2010 Union Pacific operating guide says that rail trains should use two six-axle locomotives because rail trains often move with the air brakes set to reduce slack action and improve handling. With the new rail lined up on either side of the track, other



A close-up image of a welded rail after grinding on Norfolk Southern's Pocahontas Division. Welded rails replace weaker jointed rail. Brent A. Harrison



Norfolk Southern workers begin work on a still-glowing thermite weld in Bloomington, Ill., in 2008. Welded rails can wear out, but railroads often move, or relay, older welded rail from high- to lower-traffic locations to maximize the rail's service life. Steve Smedley

crews come in to move the old rail out of the way, shift the new rail onto the ties, and put everything back together. Some rail trains return to pick up the old rail and take it away to be reused elsewhere or scrapped. The total capacity of a rail train can be up to 9 miles of rail.

5 How long does it last? Welded rail is typically installed new on high-traffic lines. As it wears down it begins to have problems requiring maintenance. These cracks and other flaws are caused by the repetitive loading and unloading of wheels rolling over the rail, and occur more frequently as the rail wears. As defects become more common, railroaders find that it is cost-effective to lay down

new rail and "cascade" the old rail to secondary lines, sidings, or yard trackage where it will wear out more slowly. Welded or jointed rail, when reused, is called relay rail.

6 What happens when there is a defect in the rail? When a track inspector or ultrasonic defect detection vehicle discovers a track defect which requires replacement of the rail, the problem section is cut out and replaced with a plug rail. The length of this plug varies, but is often between 15 and 40 feet. It can be attached using joint bars or welded back into the continuous welded rail. This is not considered relay rail, but must be tested for internal defects before installation.

>> TRAINS visits InnoTrans 2018



TRAINS attended InnoTrans, the world's largest railroad trade show, on Sept. 23 in Berlin. Among the highlights was a driverless train built by Switzerland-based Stadler for Glasgow, Scotland's subway system. It will enter service in 2019. TRAINS: Steve Sweeney



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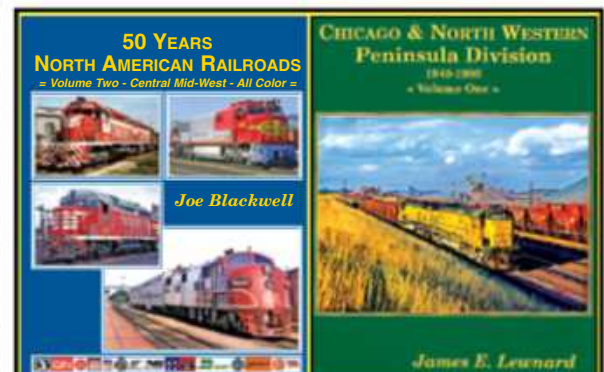
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Prior attempts to restart Los Angeles-Las Vegas passenger service included this IC3 Flexliner test at Yermo, Calif., in 1997.

Brightline bets on Vegas

Florida startup looks to bring trains back to one of the busiest travel markets

Ever since the 'Desert Wind' departed Las Vegas for Los Angeles for the last time on May 12, 1997, operators have sought to lure Southern California denizens away from their cars. That choice, between a congested Interstate 15 or the security lines and sardine can of air travel, have tarnished travel to Las Vegas for decades.

Most of the private ventures, including the Pullman Palace Car Co.; Las Vegas Railway Express Inc.'s X Train; and a series of Hyperloop-based startups gobbled investors' money but barely progressed beyond press releases. Now Fortress Investment Group, which developed real estate, commissioned new Siemens cars and locomotives, and launched frequent Brightline Miami-West Palm Beach, Fla., passenger trains, has stepped into the competition by purchasing struggling XpressWest.



DesertXpress's western terminal would be in Victorville, Calif., outside of the Los Angeles Basin, thus avoiding Cajon Pass.

Once known as DesertXpress, XpressWest won the right over other applicants in 2015 from the Nevada High Speed Rail Authority to construct a dedicated route from Las Vegas to Victorville, Calif., on the northeastern edge of the Los Angeles Basin. Since then, it consummated — then rejected — a deal with Chinese investors, who would have supplied high speed rail expertise and state-of-the-art electrified trainsets over a 220-mile route mostly adjacent to I-15. The destination was chosen because building closer to Los Angeles would have incurred extraordinary costs scaling Cajon Pass.

With its acquisition, Fortress is poised to reprise its Brightline cash flow and investment formula with a 38-acre real estate purchase near the Las Vegas strip, for a station and mixed-use development, and assume operational responsibility of the project with plans to expand into the Los Angeles area, the company says.

A Brightline spokeswoman tells TRAINS that preliminary planning for expansion beyond Victorville is underway, XpressWest's engineering work is being reviewed, and the type of trainset has yet to be finalized. She says construction is expected to begin in 2019 with initial service for 2022.

Significant differences exist between what Brightline operates in Florida and what XpressWest touted. For example:

- **Speed:** Brightline says its, "convenient alternative ... will make the trip in less than 2 hours." This is consistent with the 125-mph operation it expects on the Orlando-Cocoa, Fla., sealed corridor portion of its Phase 2 Florida expansion north of West Palm Beach. But XpressWest estimated that the journey would take 80 minutes utilizing electrified trainsets capable of near 200-mph

speeds. Presumably Brightline might ask Siemens for ACS64 electric locomotives, but those aren't rated for the higher velocity.

- **Convenience:** The faster travel time between Las Vegas and the Victorville parking lot could have tipped the balance in favor of the high speed train for many visitors who would have to pass through the area anyway driving from hundreds of Southern California communities. While Brightline's 2-hour estimate could save an hour of I-15 driving on an average day and perhaps more than three times that during weekend traffic jams, patrons would need car sharing, taxis, or hotel shuttle alternatives once they arrive in Las Vegas. On the other hand, Brightline would still have the option to negotiate with BNSF Railway for access to downtown Los Angeles using its trainsets.

Though many variables remain in play, Brightline is confident in its ability to provide a level of service that will attract enough of the 50 million annual trips the company estimates travelers take between Southern California and Las Vegas, to make its latest gamble pay off.





Project director Magnus Conn checks out the train's new dining-lounge car. Inset: Artist's rendering of bedroom with double bed. Three photos, Bob Johnston; inset above, Serco

New Scotland sleepers debut

Caledonian Sleeper service from London takes on competition

Amtrak management's skittishness over replacing aging Superliner equipment seems misplaced, judging by what's happening in the United Kingdom.

Next spring, Scotland franchise operator Serco is set to replace tired 1970s-era rolling stock with 75 innovatively designed sleeping cars, coaches, and lounges on five overnight *Caledonian Sleeper* routes between London and Glasgow, Edinburgh, Inverness, Aberdeen, and Fort William. Financed with a \$100 million infusion of government capital and built in Spain by Construcciones y Auxiliar de Ferrocarriles, S.A., (parent company of the U.S. CAF affiliate struggling to finish Amtrak's 130-car Viewliner order), the new equipment replaces shopworn cars with narrow beds and no electrical outlets, Wi-Fi, showers, or private bathrooms. The upgraded amenity and hospitality target: plentiful airline flights and modern Edinburgh/Glasgow-London electric trainsets.

"In the U.K., operators are generally dumbing down; what we expect to do with this overnight train is generate a modal shift," says Serco's new trains director, Magnus Conn. "People will want to travel this way to avoid the hassle factor. You don't have to get up to make the 5:40 a.m. red-eye plane or train when you can step into our club car the night before and have a drink or some tea, or go right to bed."

Walking through the plastic-covered interiors for a sneak peek in August reveals a unique lounge car configuration, one-by-two coach seating with lockable storage overhead, and two types of sleepers: standard and accessible. The former have six two-bed bedrooms with a toilet and shower that can be paired en suite, as well as four with beds only and an end-of-car bathroom.

Each accessible sleeping car, positioned next to the diner features two bedrooms for people with disabilities, three rooms with a double bed that's larger than the lower bunk in an Amtrak Superliner, and two single rooms; all have separate toilets and showers. Though the mattresses had yet to be installed, Conn says, "They are Glencrafts, the same manufacturer the Queen uses."

He is also especially proud of kitchen upgrades. "We now have convection, steam, and holding ovens; this massively expensive coffee machine; and are finally getting toasters — toast on the train is one of our biggest requests," Conn says. "We've already won lots of culinary awards with two microwaves, so think of what we can do with fresh food prepared in a full restaurant kitchen!" Breakfast is included for sleeper passengers, while dinners and evening snacks are add-ons because trains leave late. All five sections have diners and at least one coach. (The Fort William-Edinburgh train must leave two coaches in Edinburgh, otherwise the 18-car Highlands train wouldn't fit at London Euston Station's longest platform.) Unlike other European trains, the new *Caledonian Sleeper* features running water, whose addition required ground facility modifications.

Conn admits commissioning the new cars has been arduous, "because nobody has built a sleeper train in the last 35 years, so we are trying to comply with (safety) standards that don't fit." The complex approval process delayed an anticipated launch this October until the end of May 2019, "But we started out 27 months ago designing a train with our passengers' needs in mind," Conn adds, "and now there's nothing more exciting in U.K. rail than this."

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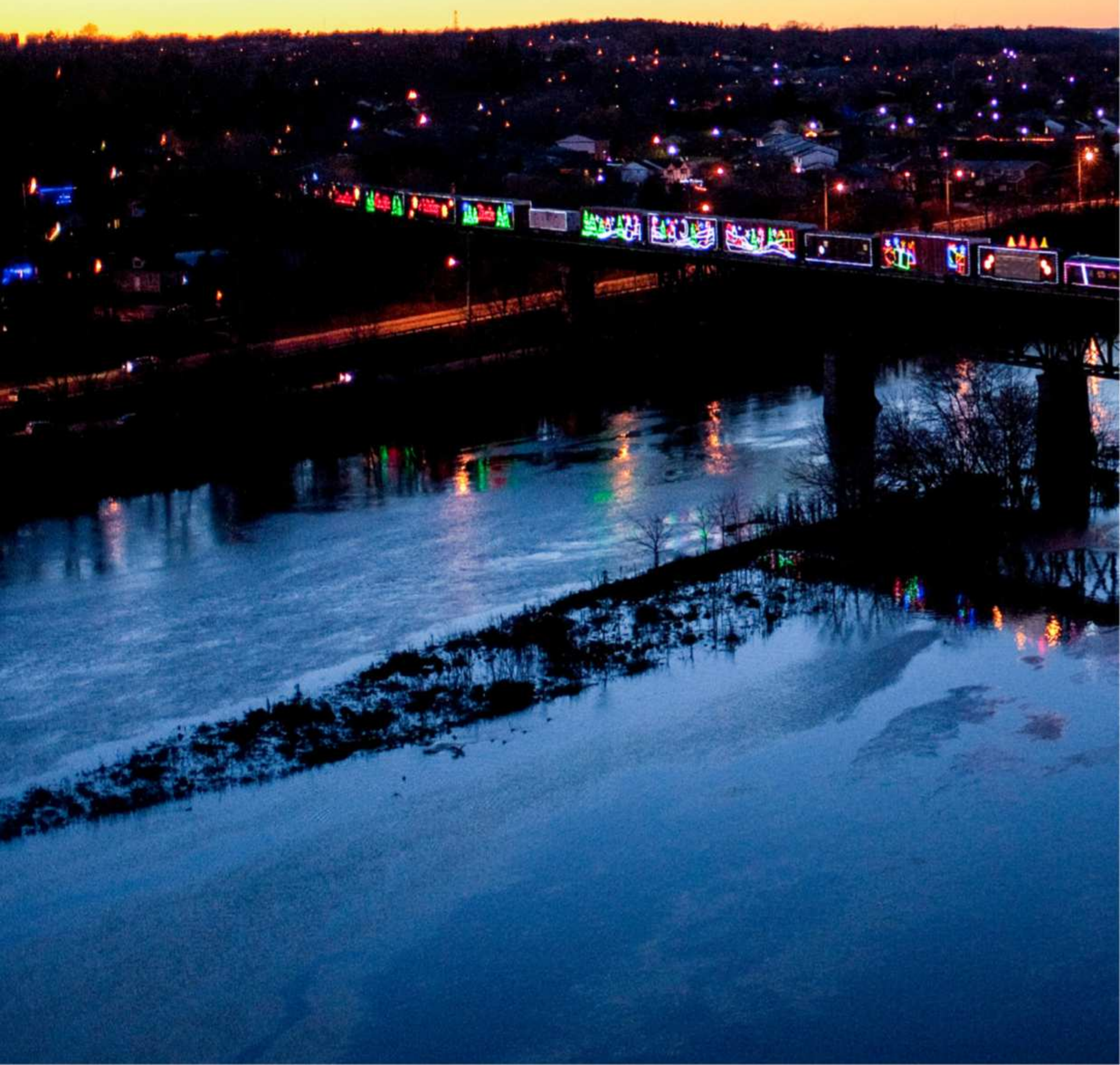
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The train that

Canadian Pacific Railway's Holiday Train celebrates 20 years

Story and photos by Greg McDonnell



gives back



Canadian Pacific
Railway's Holiday Train
crosses the Grand
River bridge in Galt,
Ontario, after making
a performance stop on
Nov. 30, 2011.



“One minute.”

“Forty seconds.”

Alan Doyle stands backstage in the closed confines of a converted boxcar as soundman Greg Myers shouts the countdown to curtain time. “This never gets old,” says the seasoned singer, songwriter, and musician, actor, and author from Petty Harbour, Newfoundland, looking on with a quiet smile as his “Beautiful Band” warms up. Kris MacFarlane brushes lightly on the drums, Cory Tetford and Shehab Illyas fine-tune their guitars, Todd Lumley dabbles on the keyboard, and Kendel Carson draws her bow gently on the violin.

“Live in the house!”

Lasers cut multicolored beams of light through the dry-ice fog that swirls about the stage. A gloved hand thrusts toward a wall-mounted switch and the stage extension, which doubles as the boxcar door, slowly lowers like a massive drawbridge. Clouds of dry ice billow out into the cold night air. The Beautiful Band erupts into a raucous instrumental intro to “Ring Christmas Bells” as the stage opens to reveal a cheering crowd more than 3,000 strong: children of all ages waving, singing, and dancing to the music. The Canadian Pacific Holiday Train has come to town. Welcome to Kamloops, British Columbia.

Bedecked with lights and decorations from the tip of the bright red nose of the GP20C-ECO locomotive on the head end to the brass railing of the Tuscan-painted heavyweight business car on the rear, CP’s Holiday Train is the consummate train around the

City lights. The Holiday Train’s illuminated decorations mix with those of evening traffic on Water Street as the train pauses for a performance at the CP station in Galt, Ontario, on Dec. 1, 2010. They’ll make three more stops before calling it a night in London.

Christmas tree — in 1:1 scale. It’s 1,035 feet of dazzling lights, a 13-car traveling minstrel show on a transcontinental whistle-stop tour. It’s musical and magical and more.

Two songs into the set, the band breaks for a few introductions. Local dignitaries welcome the crowd and the train. A CP representative presents the Kamloops Food Bank with a \$15,000 donation. A rep from BC Wildfire Service steps up with another check, and then Doyle hits the stage for the main event. By the time Doyle and the band finish the set and the stage is drawn up, the Kamloops Food Bank will have collected \$40,000 and 4,000 pounds of food donations. That perfect fusion of artistry and celebration, corporate giving-back, and community engagement is what has kept the Canadian

Pacific Holiday Train making its annual tour in support of hunger awareness and local food banks for two decades.

It all began as a one-off. A combined initiative of Canadian Pacific, its employees and unions, and a number of enlisted sponsors including Canadian Tire, The Bay/Zellers, and Consolidated Fastfrate, the first CP Holiday Train departed Montreal on Dec. 15, 1999. The train was simple but spectacular: CP SD90MAC 9114, a quartet of three-platform intermodal flats with two-dozen double-stacked containers provided by the sponsors, and heavyweight business car *Killarney*, all decked out in some 5,000 white lights.

With a wreath hung on its front handrails and a brightly colored Christmas tree atop the cab, CP 9114 led the Holiday Train on a 13-stop transconti-

Custom-designed stage car No. 42901 enables the band to begin playing within minutes of arriving at Savona, B.C.



mental tour billed by the railway as an effort to raise awareness, food, and cash to ease the plight of Canada's hungry. Special events were organized around planned stops at Smiths Falls, Toronto, and Thunder Bay, Ontario; Winnipeg and Brandon, Manitoba; Regina and Moose Jaw, Saskatchewan;

Calgary and Banff, Alberta; and Revelstoke, Kamloops, and Vancouver, B.C. An estimated 42,000 people came out to see the train and more than \$230,000 was raised for 190 food banks across the country.

"We are overwhelmed by the expression of generosity demonstrated by Canadians,"

CP communications manager Mark Seland told the Calgary Herald. "I think the Holiday Train has touched the hearts and minds of people and unified their spirits to help those less fortunate. We will be working with the Canadian Association of Food Banks and our other partners to determine if once is enough, or if the train should go on in the future."

CP's commitment to carry on was affirmative and unwavering. It was a collaborative effort with no single credit, but Vice President of Public Affairs Paul Clark championed the vision of the Holiday Train as a means to give back to the communities that CP rolls through. Nineteen years later, the Holiday Train stands as a highly anticipated annual event, a cherished Christmastime tradition, and a major contributor to food banks along CP lines in Canada and the United States. In the course of those 19 years, the train has racked up more than 73,000 miles in Canada and

66,496 in the U.S., and made more than 2,330 performance stops, not including countless impromptu performances from the rear platform of the train at crossings where crowds had gathered. More than 4.3 million pounds of food have been collected and more than \$14.5 million raised for local food banks.

There are actually two CP Holiday Trains each year, both originating from Montreal. The Canadian train follows a cross-Canada route to Port Coquitlam in suburban Vancouver, B.C. The U.S. train (added the second year) starts its journey by going south on the Delaware & Hudson. In years past, when CP operations in the Northeastern U.S. were more extensive, the train operated as far south as Scranton, Pa. In 2001, the U.S. train delivered a large Christmas tree to New York City after 9/11. These days, the train leaves Montreal and makes stops along the D&H as far south as Mechanicville, N.Y. It returns through



At Agassiz, British Columbia, 75 miles east of Vancouver, B.C., the Beautiful Band performs on Dec. 16, 2017.



Canadian Pacific business car No. 82, *Strathcona*, brings up the rear of the train at Lobo, just west of London, Ont., on Dec. 6, 2007.

Montreal and starts westward making performance stops in southern Ontario. The train crosses back into the U.S. through the Detroit River Tunnel at Windsor/Detroit and deadheads on CP trackage rights over Norfolk Southern across Michigan and Indiana to Chicago. West of Chicago, it

resumes performances in Illinois, Wisconsin, Iowa, Minnesota, and North Dakota. The U.S. train re-enters Canada at the Portal, N.D./North Portal, Sask., border crossing and continues westward making stops in southern Saskatchewan as far as Moose Jaw. On alternate years, when the Canadian train

takes the northerly route through Minnedosa, Man., Saskatoon, Sask., and Wetaskiwin, Alta., the U.S. train extends its performance schedule to include mainline stops between Regina and Calgary.

The Holiday Train is “one of the greatest things about Canadian Pacific,” says Kevin Hrysak, senior manager, Heritage Operations, and manager, media relations. Hrysak, whose responsibilities include management and operation of CP’s passenger and business car fleet, the *Royal Canadian Pacific*, and other special trains and events, heads the team that plans, organizes, and manages the Holiday Train.

Pulling everything together: two trains, 22 days, 7,600 route-miles, 160-175 scheduled performance stops; four, maybe five bands; hundreds of community organizations and food banks, devising and coordinating performance and operating schedules, and seeing it all

through is no job for the timid. “There are lots of moving parts,” Hrysak notes, and a strong, dedicated team to credit for the train’s success.

Onboard staff is drawn from CP managers, especially those who’ve worked on preparations for the program. Assignments on the Canadian and U.S. trains are broken into three or four segments, each worked by three or four managers, a chef, and a mechanical person to service and repair cars and equipment as required. Train crews generally cover the Holiday Train as part of the extra board pool. On the Calgary-Port Coquitlam leg of the 2017 Canadian train, the onboard crew includes Hrysak, Jade Wong, Steve Sugars, Brian Stevenson (mechanical), and chef Andreas Pabst. Travelling with the train in a company vehicle, Mike LoVecchio, director, government affairs, assists with everything from site manage-



Violinist Kendel Carson at Lytton, B.C., halfway between Kamloops and Port Moody, on the Canadian route of the Holiday Train.

Canadian Pacific Holiday Train routes 2017



ment to logistics and providing transportation for train crews.

Moving parts

Work on the next Holiday Train begins almost as soon as its predecessor closes out the final show in Port Coquitlam. Overall condition of the train, lighting, and equipment is assessed. There are new lighting requirements and designs are considered, musicians and bands to be selected.

Entertainment, lighting, and designs are locked up by the end of February. Meetings and correspondence with CP government affairs, on-line communities, community groups, and local and municipal governments, and food banks carry on through the spring as part of the decision-making process to determine performance stops and schedules. A draft schedule is in place by June or early July. Communities selected for performance stops are informed in late August or early September to allow municipalities and community groups to make preparations and promotions.

Musicians Tracey Brown and Randall Prescott have been part of the Holiday Train since 2001 when Tom Jackson invited them to perform on the tour. Jackson, a celebrated singer, songwriter, actor, and recipient of the Governor General's Order of Canada, toured with and produced the Holiday Train shows between 2000 and 2003. Under the auspices of their

production company Rip Roar Music, Prescott (one of Canada's most award-winning producers) and Brown (a Canadian Country Music Hall of Fame inductee) took over the producing role from Jackson in 2004 and have been doing so ever since. In cooperation with the CP team, Rip Roar lines up musicians and bands for the entire tour, and assists with sound, lighting, stage design, and other creative aspects of the program and the train itself.

In the early days, the stage cars (converted from CP newsprint cars) were little more than

a boxcar with a few lights, one microphone, and one speaker. "The sound was horrible," Prescott recalls. The cars were outfitted with sliding doors that had to be opened from the outside at each stop. Portable stairs would be set up to access the stage. Locks would freeze in cold weather and the uninsulated car would often have snowdrifts on the stage.

In their first year as producers, Prescott and Brown requested improvements to the stage car and sound system. The stage cars were rebuilt, insulated, and equipped with

radiant heaters. End doors were added to provide safe access to the stage without leaving the train. The sound system was upgraded as well. "CP is a company that cares and does something about it," Prescott says. Since then, CP has made upgrades and improvements almost every year.

Prescott and Randall are looking continually for ways to improve the equipment and the show. One of the most inventive improvements is the installation of the drawbridge doors on both sides of the stage cars. The concept — inspired in part



A view from backstage looking out on the crowd and the Cascade Mountains at Lytton, B.C., the 84th of 89 performance stops on the Canadian route in 2017.



View from the platform
of heavyweights
business car Van
Horne as the train rolls
down the Fraser River
canyon west of North
Bend, B.C.

by “The Friendly Giant,” an old CBC children’s TV show — was drawn on a restaurant paper napkin. We provide CP with ideas, Prescott says, and the railroad makes them work.

It’s been several years since Prescott and Brown played the tour, but they ride portions of the train every year. Their daughter, Kelly Prescott, has followed the family tradition and performed with the Holiday Train in 2015 and 2017, as well as CP’s Canada 150 train for the nation’s sesquicentennial in summer 2017. She’s in good company, joining Holiday Train alumni that include The Mofatts, Ennis Sisters, Wide Mouth Mason, and Willy Porter, Melanie Doane, Jim Cuddy, Colin James, The Odds, Sarah McLachlan, Sheryl Crow, Tom Cochrane, and Great Big Sea to name just a few.

Moving music

For artists, the tours on both trains are currently divided into two legs: Montreal-Calgary and Calgary-Port Coquitlam on the Canadian train; Montreal-Windsor, and from Illinois to the western terminus on the U.S. train. Touring with the Holiday Train is a different experience for artists accustomed to conventional concert tours. “It’s the best way of seeing Canada, and seeing the people of Canada,” says Doug Elliott of The Odds, a veteran of a half-dozen or more cross-country Holiday Train tours.

There can be as many as five or six shows in a day. Or just one. There’s long days, some with shows as early as 7 a.m. There’s cold weather that’s tough on instruments and vocal chords. “Your hands slowly freeze up,” says Elliott of performing when it’s 35-below. “It’s cold for us,” he notes but even colder for the audience, many of whom have been waiting for the train for a half-hour or more.

Special considerations are made in selecting musicians with the right fit for the Holiday Train and its audiences: musicians who can embrace the spirit of the train and their role as ambassadors of a special cause. And, Prescott notes, “someone

Canadian Pacific
GP20C-ECO No. 2249
leads the Canadian
Holiday Train at
Savona, B.C.



that can take living on a train for 10 days or two weeks.”

“The thing about CP,” drummer Kris MacFarlane says, “is that the whole way, they’re constantly saying ‘what do you need? ... Tell us what we need to do to make this better.’ Shows their dedication and what they’re willing to put into it.”

“What a crazy fringe benefit to singing songs.” Alan Doyle takes in the mountain air and admires the scenery from the rear platform of business car *Van Horne*, a six-axle heavy-weight turned out of CP’s Angus shops in 1927. Wind in his hair, Doyle contemplates the hard labor and herculean effort of the workers who dug and blasted and spiked the railway through this forbidding landscape. “You can’t buy a ticket for this,” the former Great Big Sea frontman marvels.

Doyle and the Beautiful Band have been with the train since Calgary, seven days and 29 performances ago. They’ve got two more days and six more shows ahead. Renowned

for his seemingly boundless energy and spirit, Doyle takes it all in stride. The rollicking whistle-stop tour he says is “not one bit less enjoyable than I imagined.” A few miles up the track in Lytton, B.C., a crowd is gathering for the first of four Holiday Train performance stops of the day.

Young faces look on in wonder as the Holiday Train — lights twinkling, Christmas music playing from the stage car’s external speakers — glides into Lytton, a tiny village at the confluence of the Thompson and Fraser rivers. As the stage lowers, the band looks out at an enthusiastic crowd of about 200. Most of Lytton, a town of less than 250 souls has come out for the train. Doyle and the band pull all the stops and give Lytton a concert to remember.

As the train packs up and pulls out of town, it leaves more than memories behind. In many small communities the food bank would struggle to survive if not for Holiday Train contributions and the local donations

brought to the train. “It keeps us afloat,” says Yoriko Susanj, of the South Cariboo Elizabeth Fry Society in Ashcroft, B.C. In Ashcroft, it’s the celebration of a two-to-three-week fundraising campaign for the food bank. “Everyone comes out,” Susanj exclaims. In addition to the \$5,000 donation from CP, the Ashcroft food bank collected 1,250 pounds of food and \$2,203 in cash donations during the Holiday Train’s 2017 stop.

“I have to say that it truly opened my eyes to the need in

both U.S. and Canada,” Tracey Brown recalls. “You always expect hunger to be part of large urban areas but that is not the case, rural areas are affected as well. I remember an interview we did with a North Dakota food pantry volunteer who told us if not for the Holiday Train, they could simply not keep the food pantry going. The funds helped with rent and donations lasted for months.”

The Holiday Train benefits communities in measures beyond its direct contributions.



“What a crazy fringe benefit to singing songs.” Alan Doyle rides the rear platform and takes in the view from *Van Horne*.



In charge of mechanical and equipment needs, Brian Stevenson relaxes in the observation lounge of the *Van Horne*, west of Agassiz.

“Somebody pointed out that some of these small towns, for especially the younger kids, it’s likely the first concert they’ve seen,” says Kendel Carson of the Beautiful Band, lingering over lunch at the dining table in the 1916-vintage heavyweight *Killarney*. “Imagine that being your memory of the first live show, that this train rolls into town, and the car opens ... it all works so beautifully together, the lights, the music, the train.”

“To step off the train at night is breathtaking,” MacFarlane says. “The association with Christmas and trains ... I grew up with, trains were part of Christmas. There was always a little train running around the tree.”

It’s raining as the train navigates the rocky splendor of the Fraser River canyon, darting in and out of tunnels, rolling through moss-covered rock cuts, over bridges and through lush forest. Running against the current of traffic in the “directional running zone,” the Holiday Train holds to the CP side of the canyon, overtaking a westbound CN freight on the opposite bank at China Bar and meeting two eastbounds: CP coal empties and CN grain empties at Spuzzum at dusk.

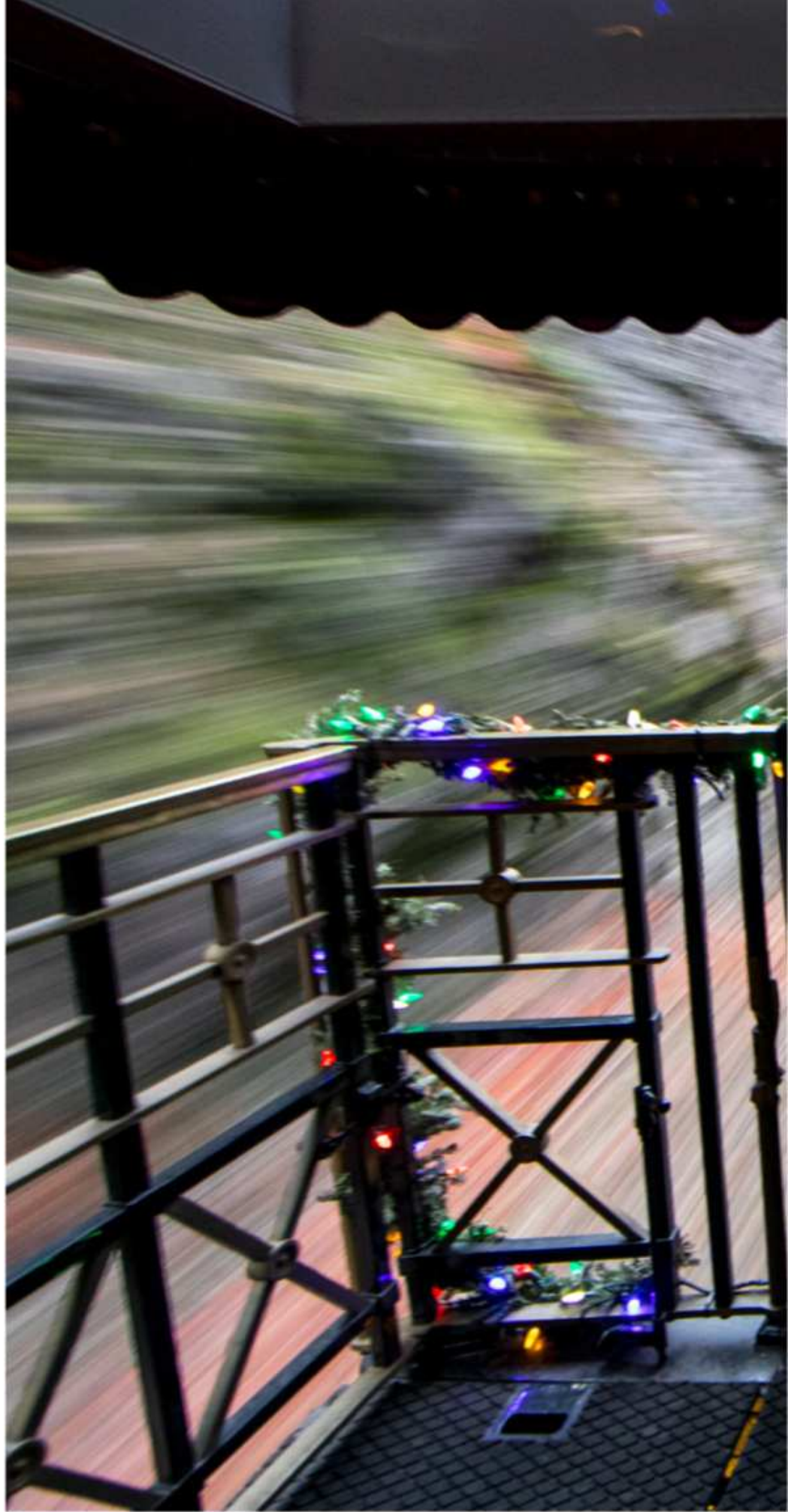
Out on the rear platform of *Van Horne* it’s a cold ride, but the scenery, the sound of heavyweights riding welded steel, and the mesmerizing view of the light-bedecked train stave off the chill. Lights dancing along tunnel walls, dazzling on rain-slicked rocks, and tracing a

brilliant signature of reds and greens, blues and yellows and whites on a spectacular landscape, the train hurries to keep appointments in Agassiz, Maple Ridge, and Pitt Meadows.

Moving equipment

Brian Stevenson settles into a leather-backed chair in the observation lounge of the *Van Horne* as the train rolls through the rainy darkness west of Agassiz. Stevenson retired in 2016 after nearly 43 years at CP and returns to work the Holiday Train each year. Passenger cars and rolling stock are second nature to Stevenson, who began his career in the car department at St. Luc Yard in suburban Montreal in 1974 and cut his teeth building cabooses at Angus shops in Montreal before being transferred to The Glen, CP’s Montreal Terminals passenger yard and shop in Westmount, Que. In 1984, he moved to engineering services and the track geometry group until becoming the mechanical officer in charge of CP’s *Royal Canadian Pacific* and business car fleet in 1999. The mechanical and equipment needs of the Holiday Train soon became part of his responsibilities.

Racing along the Cascade Sub, the train is in the home-stretch. But there’s no letting up. There’s a section of lights out on one of the cars near the head end, Stevenson notes. He’ll go up during the next performance and change out the entire section if possible. In the rain. There’s always



After 20 years, the train has helped to provide 4.3 million pounds of food and \$14.5 million for food banks, and much joy to residents along its routes. The planning and precision to keep this train moving pay off as the *Van Horne* is whisked away to the next town.

something to do, but it’s a far cry from the early days, he’s quick to add. The train and technology have evolved considerably from the days of twist-in glass light bulbs by the thousands and electrical power from borrowed generator-equipped intermodal containers, to the current configuration that includes 220-volt commercial-grade LED rope

lighting, animated displays, and a self-contained generator car that supplies power for the entire train employing a custom-designed system based on connections used by locomotive m.u. cables.

Even as he’s taking a short break, Stevenson’s mind is working, his ear tuned to the train. That subtle noise *Van Horne* makes in certain curves?



The constant-contact side bearings on one of the elderly heavyweight's trucks need a bit of grease. He'll tend to that, too.

It's almost 9 p.m. when the Holiday Train eases to a stop in Pitt Meadows for the final performance of the day. The band tunes up, dry-ice clouds fill the stage, and Greg calls out the ritual count down ... "Live in the house!" Right on cue, the draw-bridge doors lower on both sides of the stage car, which has

been carefully spotted in the middle of the Harris Road grade crossing. Oblivious to the rain, the crowd fills the street on both sides of the train. MacFarlane's drum kit has been rotated 45 degrees to accommodate the double-sided stage and the band works both sides of the car.

Standing near the vestibule of CP 102, the coach marshalled next to the stage car, Mike LoVecchio reflects on the hard work and dedication behind the

Holiday Train's remarkable success. At his back, raindrops bead on more than 8,000 small red "My dream for Canada" cards filled out and affixed to the car during 2017's cross-country Canada 150 tour. "To be the country that gives more than it takes," reads a message written by Bev Bakka and adhered to the car at Port Moody, B.C., on July 28. The Holiday Train is the manifestation of that dream.

"It's nice to be part of something that helps," says Hrysak with a sense of pride shared by

almost everyone involved with the train. The tour has two shows to go, and when the stage door closes on the final performance in Port Coquitlam in less than 24 hours, the 2017 Holiday Trains will have collected more than 300,000 pounds of food and raised \$1.5 million for food banks in communities along CP lines in Canada and the U.S.

Canadian Pacific has plenty to celebrate when the 20th anniversary Holiday Trains hit the road in November 2018. **I**

>> Check out the U.S. and Canada schedules, respectively:
www.cpr.ca/holiday-train/schedule-united-states
www.cpr.ca/holiday-train/schedule-canada





A glass half full



This image of Amtrak's Albany-bound *Empire*

Service train No. 233 headed north along the Hudson River was made from the Bear Mountain Bridge on Dec. 2, 2017. It was exactly 50 years earlier that monumental change had come to this line, New York Central's "Water Level Route," long the home of some of the nation's poshest passenger trains. Unexpectedly and with breathtaking suddenness, the *20th Century Limited* and the rest of the railroad's "Great Steel Fleet" essentially died that day, shorn of amenities and identities.

Along with its famous name, the *Century* lost its iconic sleeper-buffet-lounge-observation cars *Hickory Creek* and *Sandy Creek* Pullman-Standard built in 1948. Happily, both survive, and *Hickory Creek*, owned by the United Railroad Historical Society of New Jersey and operated by Star Trak Inc.'s Luxury Rail Vacations, sports its original livery. Here it's preceded on this memorial journey by New York Central No. 3, a business car built by Pullman in 1928 for Central director Harold S. Vanderbilt.

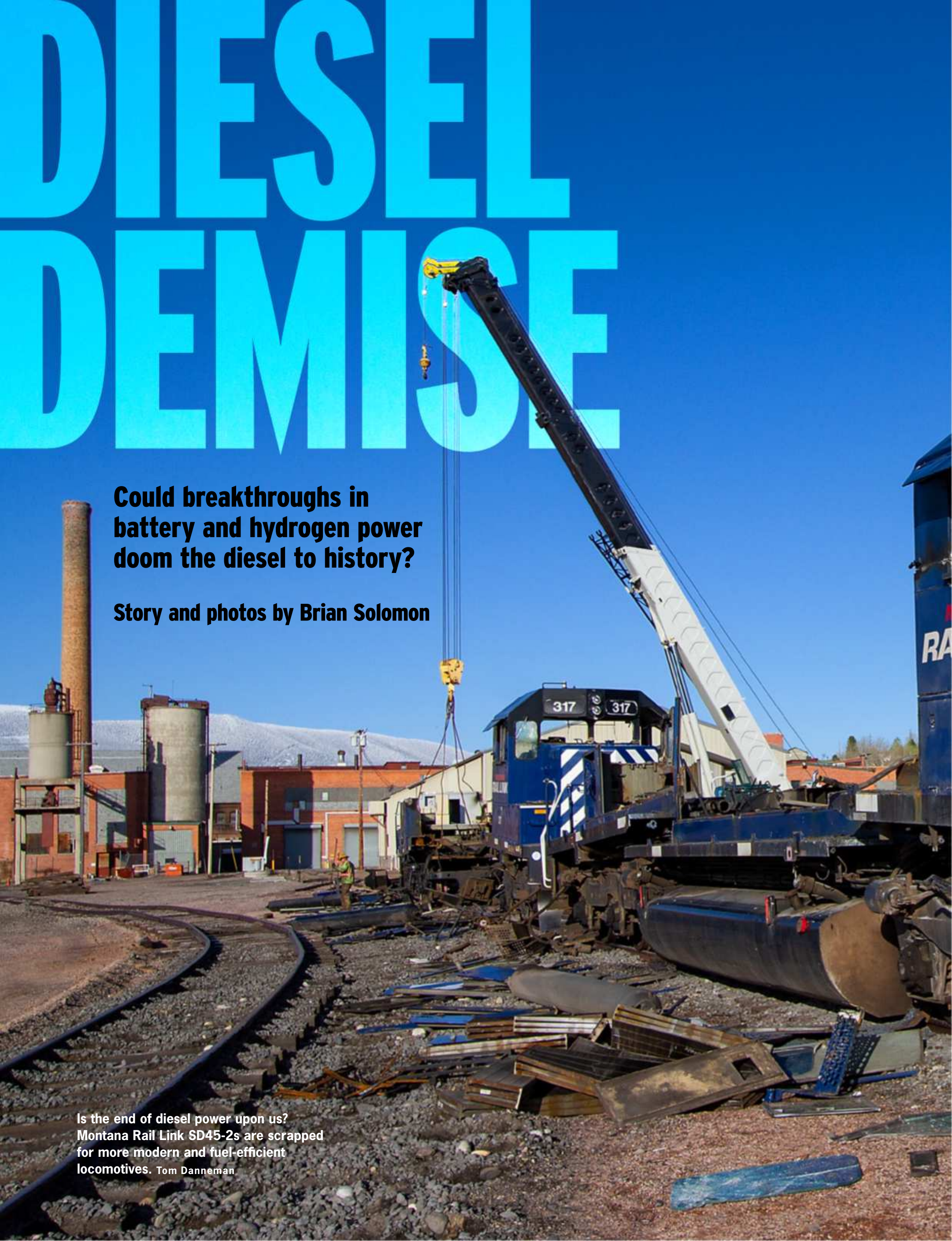
Tempting as it is to see that infamous day 50 years ago only in terms of loss, there's also this: It marked the beginning of *Empire Service*. I suspect few would have predicted in 1967, when railroad-ing was littered with the corpses of passenger trains, that the Empire State would boast the level of train service that it does today. And the Hudson Valley is as beautiful as ever, especially when seen through the tall, broad windows of *Hickory Creek*'s "Lookout Lounge." — Karl Zimmermann

DIESEL DEMISE

Could breakthroughs in battery and hydrogen power doom the diesel to history?

Story and photos by Brian Solomon

Is the end of diesel power upon us? Montana Rail Link SD45-2s are scrapped for more modern and fuel-efficient locomotives. Tom Danneman



A century ago, internal combustion technology set precedents for future development. Consider that in 1918, although the essential elements of the diesel-electric locomotive had been invented, these elements hadn't yet been successfully combined. Yet,

within 40 years, diesel-electric technology would prevail as the prime mover for American railroads.

We cannot know what the future may bring for railroads, but by studying significant breakthroughs that enabled development of the diesel-electric we may envision paths for emerging technologies and the pitfalls they must overcome to achieve success. Will these new technologies emerge as dominant forms for American railroad motive power, or are they ultimately doomed

to footnotes of transport history? What we know now is only part of the answer.

For decades, hydrogen fuel cell technologies have offered the potential for an efficient means of delivering energy. This, combined with other advances, such as lithium ion battery technology, may soon offer alternative means for powering trains. Consider that alternative power generation combined with advances such as super capacitors are being studied as means to reduce or eliminate the need to burn hydrocarbon based fuels. While these advances may offer as alternatives to diesel-electric locomotives, they will need to overcome serious hurdles before they can rival the



output, efficient operation, and cost-effective solutions now enjoyed by the diesel-electric. Also consider that since efficiency is only one measure driving design, emerging technologies may yet enjoy growing popularity despite providing more costly options.

DIESEL-ELECTRIC LEAP FORWARD

By 1918, the commercial blending of automotive and railroad technology had resulted in lightweight, single-unit gas-electric railcars powered by gasoline engines of less than 100 hp, and a handful of stand-alone, light locomotives in the 300-400-hp range had demonstrated that such locomotives were capable of moving freight on a small scale. But, period trade articles scoffed at the preposterousness of scaling-up gas-car technology to haul mainline trains: This technology wasn't yet sufficiently powerful or robust, let alone cost effective, for large-scale operation. So what changed?

Rudolf Diesel's engine, introduced in the 1890s, was the world's first successful internal-combustion, compression-ignition engine, and an extraordinarily efficient design. Diesel himself recognized the potential for railroad applications, but the engine was not successfully harnessed as a locomotive until the 1920s, first for light switchers rated at 300 hp. Several breakthroughs occurred independently, that, when combined, enabled diesel-electric locomotives to rival steam locomotive output. They also offered advantages of electrification without the high costs of installing lineside infrastructure.

The notched control system, developed between 1916 and 1919, matched engine output and electric traction characteristics in a single throttle handle. This simplified operation minimized inefficiencies, and limited equipment damage. When combined with multiple-unit technology, this made it possible to operate multiple diesel locomotives with a single throttle.

In the late 1920s and early 1930s, the U.S. Navy promoted intensive engine design research and development that pushed the boundaries of internal combustion technology for maritime uses. Metallurgical advances produced stronger alloys that enabled dramatic improvement to the power-to-weight ratio of diesel engines allowing for smaller and more powerful engines; meant initially for

A CSX freight led by a former Conrail unit makes a volcanic display cresting Washington Summit in Massachusetts. Smoke was likely the result of a fuel injection failure but exemplifies growing public concerns over diesel emissions.



The Winton 201A engine was 10 times lighter than earlier engines of the same output. Its design contributed to the development of the 567 engine in 1938.

submarines and airships, these were even better suited to the confines of a locomotive body. Advances in diesel fuel injection systems eliminated high-pressure fuel lines and external fuel delivery systems and contributed to a more elegant design offering better reliability, lower cost, and ease of maintenance. Among the products of this research was the Winton 201A advanced by General Motors for locomotive service, and by 1938 led to development of the 567 engine — the primary engine of early dieselization.

Technological advances were fine on paper, but diesel-electrics needed to demonstrate reliable, cost-effective operation before railroads would commit to them. Ultimately, the diesel's high availability, great flexibility, and low maintenance costs demonstrated that diesels could do the job more economically than steam. The transition took more than three decades before the diesel-electric completely replaced steam in North America, except in a few specialized instances where electrification



prevailed instead. By and large, the high costs of installation kept electrification beyond the reach of privately financed freight railroads, while the inflexibility of piecemeal electric operations has further discouraged railroads entertaining heavy electrified schemes.

RULES HAVE CHANGED

Historically, locomotive design was driven by railroad desires to obtain the most cost effective machine for its needs. Efficiency, reliability, and output improvement were aimed at lowering operating costs. After eight decades of continuous development by locomotive suppliers, North American freight railroads now regularly use 4,000-4,400 hp, multiple-unit diesel-electrics, which can run 1,500 miles or more between fuel stops, operate in multiple through either adjacent electrical connections or radio-controlled distributed power, and run up to 184 days between major equipment inspections, with high-availability up to 95 percent and a lifespan measured in decades.

Through the past 20 years, locomotive design has increasingly focused on refining diesel locomotive technology to meet ever-stricter environmental requirements, especially to reduce output of carbon dioxide, nitrogen oxides, and particulate matter. Today's Tier 4-compliant diesels have maintained high performance and reliability standards at the 4,400-hp threshold while meeting the latest U.S. Environmental Protection Agency-mandated requirements. Variations include locomotives fueled by a blend of diesel and liquefied natural gas

and urea injection to help control nitrogen oxides emissions.

New demands — both domestic and foreign — are pushing propulsion designs, with several jurisdictions looking to reduce or eliminate hydrocarbon emissions. In 2015, California's departments of transportation and natural resources received a mandate to pursue plans to improve the state's freight transport efficiency while exploring means to implement zero-pollution emission technologies for both highways and railroads. In 2016, the German parliament voted to ban the sale of new automobiles powered by internal combustion engines by 2030, thus setting a precedent that may eventually affect railroads as well. Germany is testing an Alstom-built, zero-emissions passenger train powered by hydrogen fuel cells, with 60 similar trains on order for service on non-electrified lines. In 2018, Britain announced its intention to ban diesel-powered trains by 2040. The government of Ontario has been exploring options to replace diesel-locomotive push-pull trains on GO Transit's Toronto commuter-rail network and is investigating electrification options, including adapting hydrogen fuel cell power. These public initiatives may spur research and development that push the boundaries of propulsion technologies and might ultimately enable them to deliver cost-effective solutions for railroads everywhere.

CALIFORNIA CONSIDERS BATTERY TENDERS

Advances with lithium-ion batteries and super capacitors developed for automotive, military, and industrial applications offer potential as railroad motive power. GE Transportation recognized this in 2007, when it debuted a diesel-battery hybrid locomotive, which represented a \$250 million investment. GE advertised this innovation locomotive as a variation of its



At Mojave, Calif., eastbound BNSF diesels pass wind turbines. California was early to harness wind power as a supplemental source of electricity.

commercially successful Evolution-series locomotive equipped with onboard storage batteries to store energy from dynamic braking enabling the locomotive to produce up to 2,000 hp for short periods on battery power. Although the locomotive did not generate sales and the project disappeared from the public eye, a March 2018 article in the Erie Times-News indicated that GE has revived hybrid diesel technology research in response to increasing interest in alternative locomotive technology.

The California Air Resources Board commissioned a report by RailTEC, the University of Illinois Urbana-Champaign Rail Transportation and Engineering Center, published in 2016, that explores main-line rail freight options for zero or near-zero emissions. This weighs the value of various conceptual technologies and highlights potential difficulties and opportunities. Of special interest are the effects of rail operations on air quality for the South Coast Air Basin — the area of greater Los Angeles famous for its smog — served by heavily traveled BNSF Railway and Union Pacific main lines to ports of Los Angeles and Long Beach. The report explores comparative advantages of regionalized locomotive fleets versus national fleets of specialized



Modern diesel designs have been driven by the need to comply with ever stricter emissions requirements. GE-built Tier 4 Evolution series, seen at Ayer, Mass., is Tier 4 compliant.

locomotives serving California lines.

The most obvious solution for South Coast Air Basin would seem to be mainline electrification. In the past 50 years, wiring schemes have been proposed and rejected several times because of high initial costs, some more than \$50 million per route-mile.

An alternative is the application of hybrid diesel-electric-battery locomotives, which the RailTEC report considered as potentially more cost effective than electrification. Lithium-ion batteries offer several potential energy/emissions benefits, which could enable diesel-electrics to capture energy from dynamic braking, storing it in onboard batteries. One California deployment option would be to adapt conventionally built Tier 4-compliant A.C.-traction road diesels and pair them with battery tenders. Locomotives could recharge high-voltage batteries outside of zero-emissions zones, and then run with stored energy in restrictive zones, with diesel engines either off or at low idle minimizing emissions. For return trips east, battery tenders could be recharged at stationary charging stations with power provided from the commercial

power grid or from purpose-built generating stations that comply with zero-emissions requirements. Towing battery tenders across the length of a transcon journey would maintain high locomotive fleet flexibility while minimizing transit delays when entering low-emissions zones by obviating engine changes.

Battery tenders are just the latest high-tech adaptation of an old concept. In "Interurbans Without Wires," author Edmund Keilty traced storage battery-powered trains dating back to the dawn of the railroad age.

Near-term challenges for locomotive manufacturers will include the need to advance or adapt high-capacity battery motive power to the point where it is capable of hauling a 7,500-10,000 ton freight at least 100 miles, while keeping battery recharging times to a minimum.

The RailTEC report presents a battery tender concept-solution capable of storing up to 6.2 megawatt-hours of electricity and

offering up to 5 MWh for traction. Technology developed to this extent could allow for four 4,400-hp locomotives and battery tender units (presumably in a configuration similar to locomotive slug set combinations) for freights through California's zero-emission zones. Charging times are estimated at 6 hours using a 100-kW charging station. Cost estimates for battery tenders are more than double the price of new Tier 4 diesels. Yet, cost is less of a concern if the mandate for low-emissions motive power is funded by public/private partnerships, similar to incentives that have encouraged railroads to adopt genset diesel switchers to lower emissions.

Successful operation of battery tender locomotives will face operations and control challenges. A 6-hour charging time will limit the availability of battery tenders and may obviate the high-availability (95 percent) advantage of modern high-horsepower diesels. To compensate, railroads will need to buy more diesels (if locomotives are semi-permanently coupled with tenders) or have an ample supply of costly battery tenders to make return trips.

Batteries need energy and energy must come from somewhere. When the batteries are strictly being charged by locomotive dynamic braking activity they offer energy savings, but if they need to be charged (in whole or in part) from the diesel prime-mover this still results in diesel-engine emissions. So while it may be possible to charge with batteries from diesels outside zero-emissions zones, unless carefully managed, it is just moving the pollution down the line and doing little in terms of reducing emissions on a national scale. Battery



charging in zero-emissions zones raises other concerns. Purpose-built changing stations drawing power from renewable or nuclear energy will result in lower emissions. Recharging from the commercial grid may simply result in burning more carbon fuel, even if a portion of the power is supplied by renewable or nuclear energy.

If the intent is to keep battery tenders in-consist for the length of a transcontinental run in order to minimize the detrimental delays and costs of an engine change, what will be the comparative costs from increased expense of the battery tenders to make round-trip transcontinental journeys? Will California provide ample economic incentives to compensate railroads for the cost differences of locomotive/battery tender operations for the total journey?

How about the big picture? Can localized demand for zero emissions using battery technology be expanded to a national scale? It should be possible to improve fuel efficiency and lower overall locomotive emissions by using battery hybrid locomotives, but how will diesel-electric/battery-electric locomotives perform if zero-emissions zones are expanded across the continent? Or is this concept best viewed as stop-gap technology to allow manufacturers and railroads to experiment with long-distance, high-output battery propulsion? Perhaps this may contribute to breakthroughs leading to substantially better technology, similar to advances achieved by diesels in the 1930s. Advanced batteries

coupled with non-carbon power generation may ultimately offer a motive-power solution without a need for conventional electrification or diesels.

ADVANCING HYDROGEN FUEL CELLS

The hydrogen fuel cell concept predates the internal combustion engine, but only in recent years have practical examples been put to work for propulsion. While hydrogen fuel cells have been demonstrated on a comparatively small scale, significant breakthroughs are necessary before the technology can be scaled up to rival internal combustion engines for North American heavy rail applications.

Emerging hydrogen fuel cell technologies have been applied to urban public transit, and several cities in Europe and Asia operate hydrogen fuel cell-powered buses and light rail. Germany has begun trials of Alstom Cordia iLint lightweight passenger trains with an aim toward expanding use of hydrogen fuel cell trains. Alstom's Cordia iLint is a hydrogen fuel cell-storage battery variation of its established Cordia Lint self-propelled diesel lightweight train, a modern-day equivalent to the gas-electric cars of a century ago. These are designed to carry up to 300 passengers and operate up to 87 mph with a range of at least 375 miles between refueling.



Public-private partnerships have provided funding for railroads to replace traditional switching locomotives with gensets to reduce emissions in populated areas.

Ontario's Regional Express Rail Program Hydrail Feasibility Study Report, prepared for parent agency Metrolinx and published in February 2018, explored the cost effectiveness of electrifying GO Transit operations using hydrogen fuel cell-powered trains as part of the province's greater alternative energy action plan. Among the conclusions of the 353-page analysis is that over a 60-year span lifetime costs of hydrogen fuel cell trains would be about equivalent to the costs of installing traditional

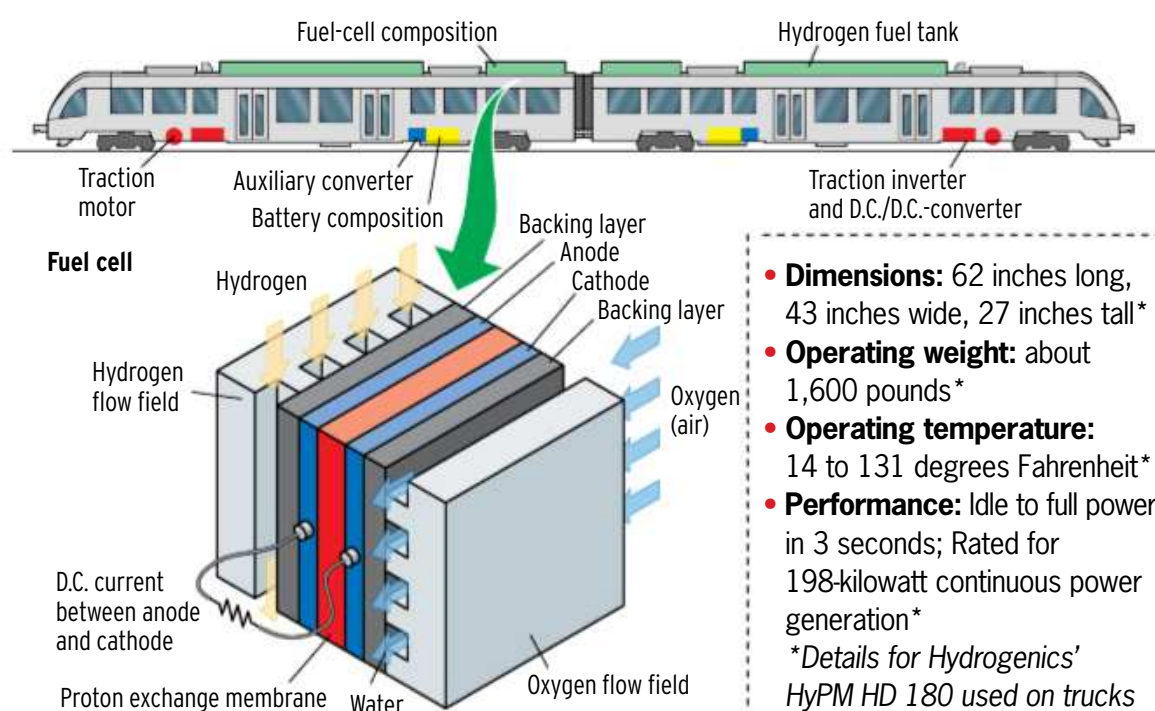
Florida East Coast has embraced units fueled by a blend of LNG and conventional diesel, shown on the GE test track, to lower emissions. Will the battery tender follow a similar pattern? Stephan M. Koenig





Alstom's Cordia iLint is a self-propelled passenger train powered by hydrogen fuel cells coupled with storage batteries in place of a conventional diesel engine. TRAINS: David Lassen

FUEL-CELL TRAIN BASICS



overhead electrification. The study suggests working with Alstom in adapting hydrogen fuel cell propulsion to a bilevel, self-propelled train design, and investigating development of fuel cell locomotives.

Among the hurdles to hydrogen fuel cell rail propulsion are establishing clean, safe hydrogen supply and storage networks, addressing public fears of highly explosive hydrogen gas, coping with inherent high cost of hydrogen fuel cells, and overcoming technological hurdles that presently limit hydrogen fuel cell application.

Hydrogen is the most common element in the universe, but owing to its highly reactive state is almost always found naturally in combination with other elements. Promoted as sustainable, emissions-free energy storage, procuring pure hydrogen for use in hydrogen fuel cells is expensive and comes with myriad supply complications. Ideally, sustainable hydrogen may be supplied through electrolytic means, using an electrolyzer to send an electrical charge

into water to separate hydrogen and oxygen, using electricity generated from non-carbon sources (hydro, solar, nuclear, etc). Here lies a challenge, since presently more than 90 percent of commercial hydrogen is extracted from hydrocarbon fuels with only an estimated 4 percent generated from non-carbon electrolysis.

Establishing safe, non-carbon producing electrolytic hydrogen supply chains will require intensive investment. In many instances, tapping the existing power grid to generate hydrogen may be viewed as counter productive since in large areas of the U.S. electric power is largely supplied from hydrocarbon based fuels. Ontario's situation is different in this regard, and the study's examination of hydrogen fuel cell trains recognizes that the province already generates 90 percent of its electricity from non-hydrocarbon sources, with nuclear and hydroelectric being the largest share, supplemented by solar and wind. (Canadian Nuclear Laboratories, which promotes

application of hydrogen and nuclear power, was among the principal organizations responsible for the study.)

Delivering small quantities of commercial hydrogen for small-scale trials does not necessarily reflect the realities of generating equivalent quantities when the model is expanded on a national scale. But consider a solution from the historic diesel example: advances in oil drilling and refining during the 1920s, combined with rapid development of new oil fields in Texas and California, led to vastly larger supply and improved fuels, aiding acceleration of the automotive industry, and lowering potential fuel costs for wide-scale diesel locomotive applications. A comparable development of a hydrogen supply chain may help increase the supply and lower the cost. Where a stand-alone railroad hydrogen fuel cell application may presently face high startup costs (owing to the present lack of an established hydrogen supply), development of wide-scale hydrogen supplies may make individual rail hydrogen fuel cell applications cheaper to implement in the long-term. Unlike oil, gas, or coal, hydrogen can be produced almost anywhere.

The high cost of hydrogen fuel cells is another limitation to wide-scale applications. Proton exchange membrane fuel cells are the type of hydrogen fuel cells most commonly applied for transportation uses. These simple designs employ platinum as a catalyst to facilitate the electro-chemical reactions, but platinum is extremely expensive and in limited supply. Research efforts focused on developing lower-cost materials that could be used in place of platinum have yet to achieve the necessary breakthroughs.

The comparatively frail nature of hydrogen fuel cell technology may complicate North American application. In the past, manufacturers aiming to succeed in supplying railroad equipment have too often underestimated the punishing effects of the harsh, North American heavy railroading environment. Successful application of lightweight equipment for highway and transit applications does not guarantee the same degree of reliability for long-term applications in the real-world railroad environment. Hydrogen fuel cells built for lightweight European-style passenger railcars, and designed for high-maintenance environments, may not fare well when adapted here. Another consideration is the necessary greater crashworthiness of North American passenger trains, which results in significantly heavier trains. One of the reasons that the types of self-propelled passenger trains common across Europe haven't been widely exploited in the U.S. is that they cannot meet present Federal Railroad Administration crashworthiness standards necessary for mainline operation.

Heavier North American train designs impose greater operating demands, straining the relatively limited energy delivered from existing hydrogen fuel cells.

Conceptually, scaling hydrogen fuel cell technology for North American heavy freight will face additional challenges. Fuel cells depend on chemical reactions to deliver energy and the rate of these reactions limit power generation. The size and weight of hydrogen fuel cells are proportionally greater than established internal combustion engines of equivalent output. The hydrogen fuel cell-size-to-power-delivery ratio may be compared to the power-to-weight ratio problem faced by early diesel engines: presently it is possible for hydrogen fuel cells to power a light passenger train and light switching locomotives, such as that briefly tested by BNSF in California during 2010, but how large would a hydrogen fuel cell/battery-powered locomotive need to be that offers equivalent output to standard 4,400-hp diesels in use today? A hydrogen fuel cell breakthrough equivalent to the diesel's metal alloys and fuel injection advances, may be necessary before a practicable hydrogen fuel cell heavy freight locomotive can be considered. Using solid oxide fuel cells in place of proton exchange membrane types may offer substantially greater output.

PUBLIC POLICY PUSHING INNOVATION

Concerns about locomotive emissions are nothing new. Among the conditions for entrants in England's famous Rainhill Trials of 1829 was that locomotives consume their own smoke. That demand exceeded

practicality and was soon forgotten. Early 20th-century smoke abatement concerns resulted in public mandates for heavy railroad electrification in Chicago, Cleveland, and New York City. Their main lines serving Manhattan were completely electrified at railroad expense. In these situations, public policy mandates encouraged technological solutions with long-term implications for emerging railroad technologies. Electric railroad innovations developed and refined for New York City have been successfully applied around the world. In contrast, despite Chicago's detailed electrification studies in 1911 and 1915, only Illinois Central made extensive investments, and then only for its suburban operations. That public mandate had few other lasting effects on smoke abatement in Chicago.

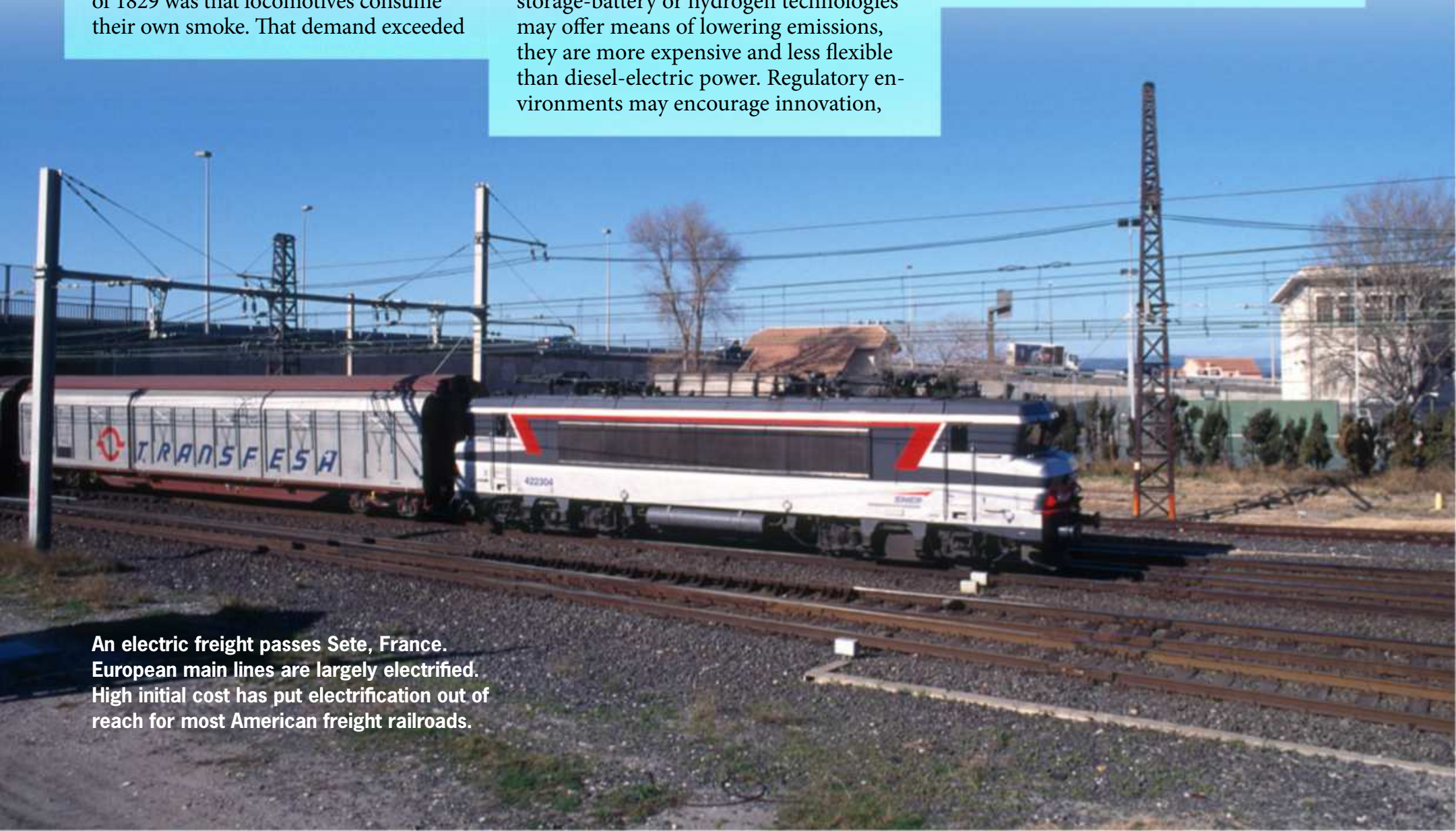
Significantly, as publicly sponsored initiatives shift from lowering harmful internal combustion engine emissions to banning them altogether, might these succeed in pushing successful development and application of non-hydrocarbon fuel technologies? The diesel-to-steam conversion was voluntarily implemented by railroads because it lowered costs, but while present storage-battery or hydrogen technologies may offer means of lowering emissions, they are more expensive and less flexible than diesel-electric power. Regulatory environments may encourage innovation,



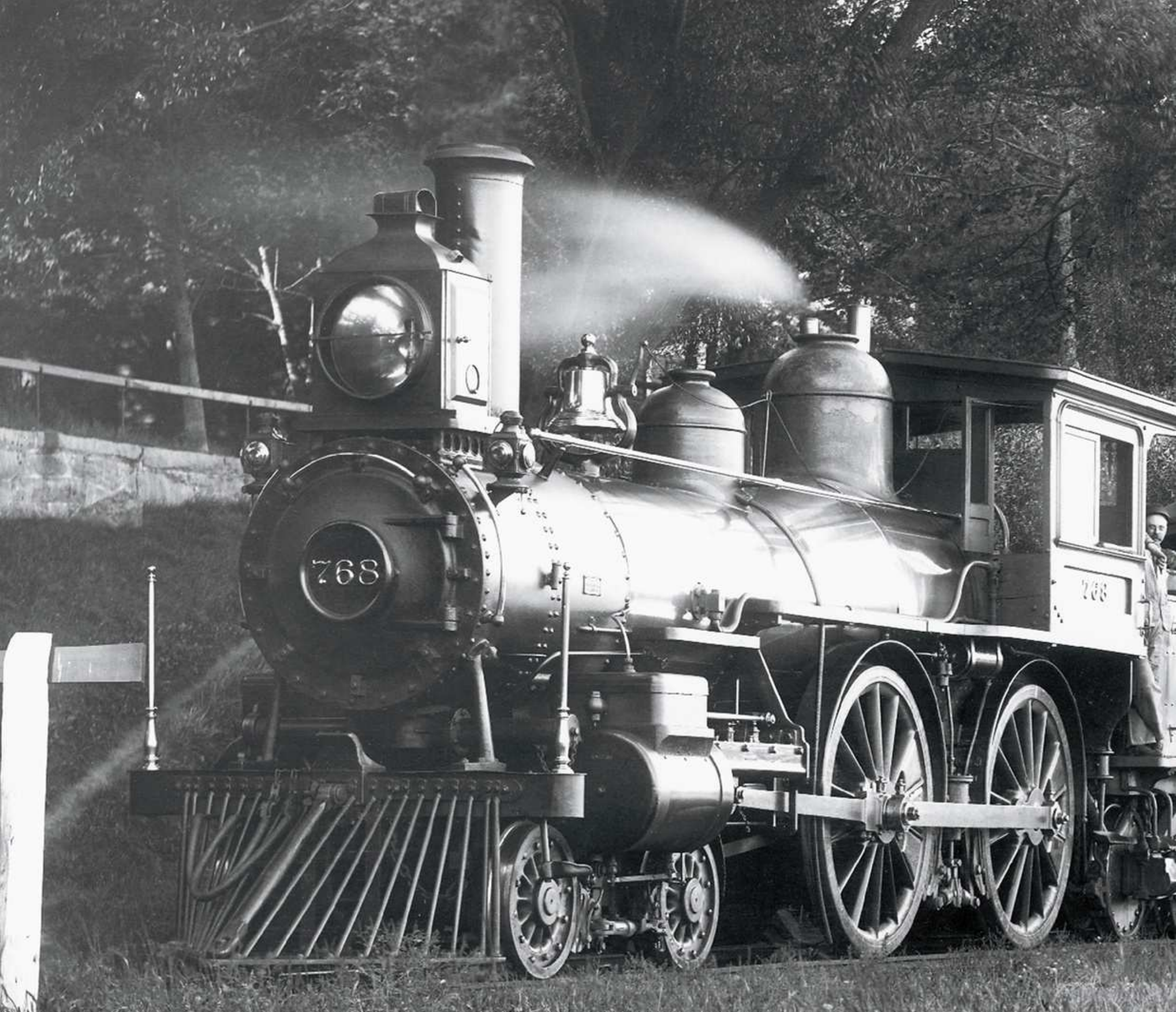
Union Pacific has assigned Tier 4 GE's to California in an effort to minimize emissions in the South Air Coast Basin, seen here in the Tehachapi Mountains.

but it is still up to scientists and engineers to devise solutions and overcome technological limitations.

Innovative solutions may ultimately devise practicable and cost-effective motive power that improves on diesel-electrics and conventional electrification. Perhaps railroads in the future will employ blends of traditional electrification with battery and hydrogen fuel cell motive power as best suits individual applications. Maybe the diesel can still be pushed to achieve near zero emissions, obviating the need for more radical solutions. **I**

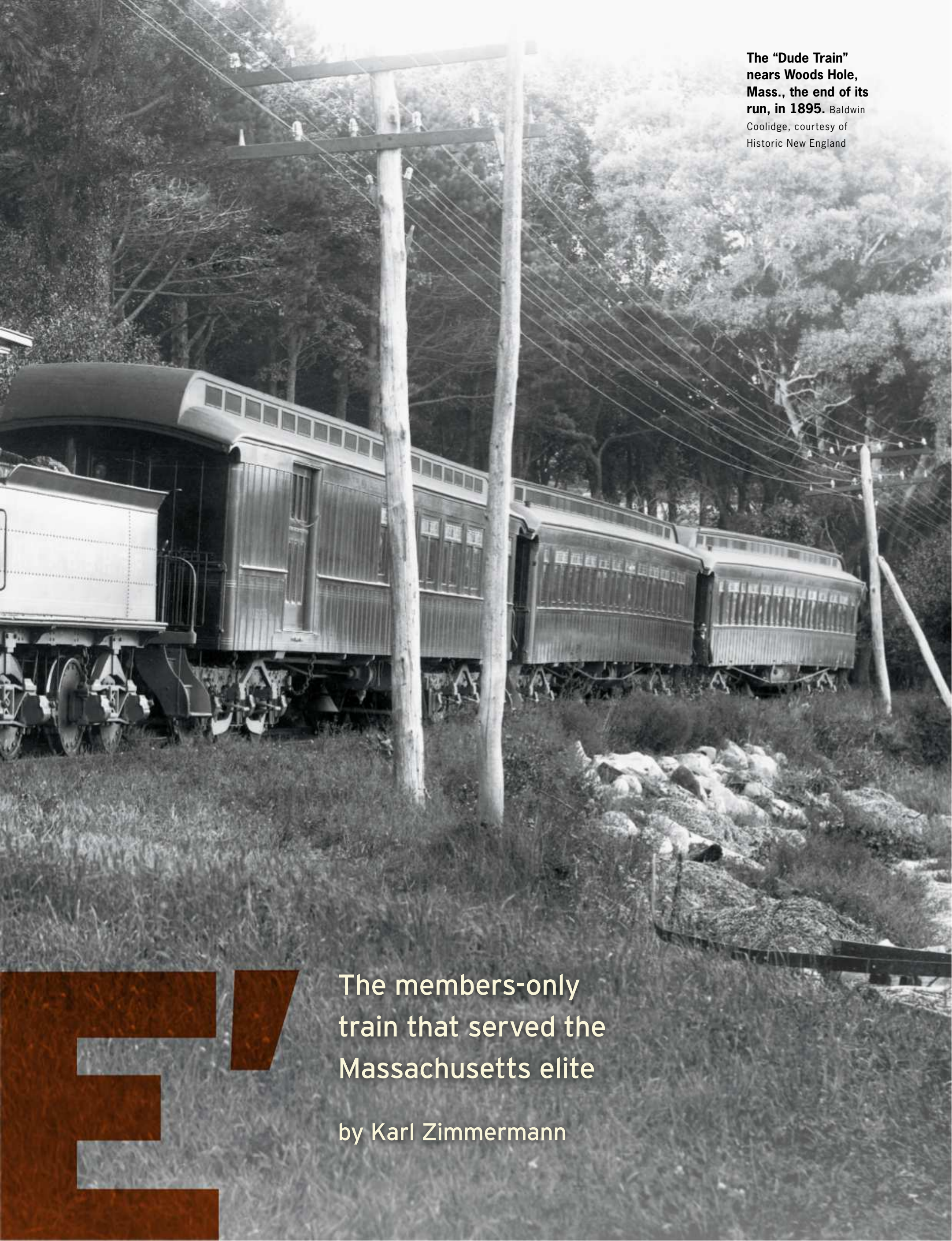


An electric freight passes Sete, France. European main lines are largely electrified. High initial cost has put electrification out of reach for most American freight railroads.



A PRIVATE

DUDD



**The “Dude Train”
nears Woods Hole,
Mass., the end of its
run, in 1895.** Baldwin
Coolidge, courtesy of
Historic New England

**The members-only
train that served the
Massachusetts elite**

by Karl Zimmermann

THE "DUDE TRAIN."

Though it's among the most memorable passenger trains to run in New England, its name never appeared in a timetable. Nor did "Flying Dude" or "Dude Flyer," other versions of the informal moniker for this unique service: a private train that for 33 summers plied Old Colony Railroad, and later the New York, New Haven & Hartford, over the 72 miles between Boston and Woods Hole, Mass.

By whatever name, this subscription train was strictly private, gained local notoriety, and is recalled even now. From 1884 to 1916, it whisked wealthy Bostonians with unprecedented speeds and luxury to summer retreats on Cape Cod, Martha's Vineyard, and Nantucket, via steamers from Woods Hole. Though private-subscription cars for wealthy commuters were rare but not unheard of, this was an entire regularly scheduled train, run seasonally.

Today a "dude" is an urbanite or suburbanite who frequents a recreational ranch "out West" or, in street slang, just a guy, often used as a term of address: "Hey, dude."

The Dude Train poses for Baldwin Coolidge along Little Harbor in Woods Hole on Sept. 23, 1896. Woods Hole Historical Museum Archives

A century and a half ago, a dude meant a dandy, a fashionable man perhaps excessively concerned with clothes and manners. This sense survives best in the expression "duded up."

"Dude Train" is thought to be a coinage of Harry Meyers, its first conductor, and he likely picked it up from the passengers. Employee timetables listed the train as "Limited Express Passenger;" public timetables never included it at all. The train's genesis came in early 1884, when a group of well-heeled and patrician Bostonians who summered in estates on Buzzards Bay and "the Islands" approached the Old Colony Railroad about operating a seasonal, private, posh, weekday train. It would allow the nabobs relatively full days in their Boston offices (certainly with plenty of time for a leisurely lunch) yet get them to their summer homes in ample time for cocktails.

This group, called the "Train Club" or sometimes just "the Club," was, over the years of the train's operation, a virtual Boston who's who. There was the banker John Parkinson; the Forbes family, who owned

No. of Trains	1884	1885	1886	1887	1888	1889
STATIONS	1884	1885	1886	1887	1888	1889
Boston	12:00	12:00	12:00	12:00	12:00	12:00
Woods Hole	1:00	1:00	1:00	1:00	1:00	1:00
Woods Hole	2:00	2:00	2:00	2:00	2:00	2:00
Woods Hole	3:00	3:00	3:00	3:00	3:00	3:00
Woods Hole	4:00	4:00	4:00	4:00	4:00	4:00
Woods Hole	5:00	5:00	5:00	5:00	5:00	5:00
Woods Hole	6:00	6:00	6:00	6:00	6:00	6:00
Woods Hole	7:00	7:00	7:00	7:00	7:00	7:00
Woods Hole	8:00	8:00	8:00	8:00	8:00	8:00
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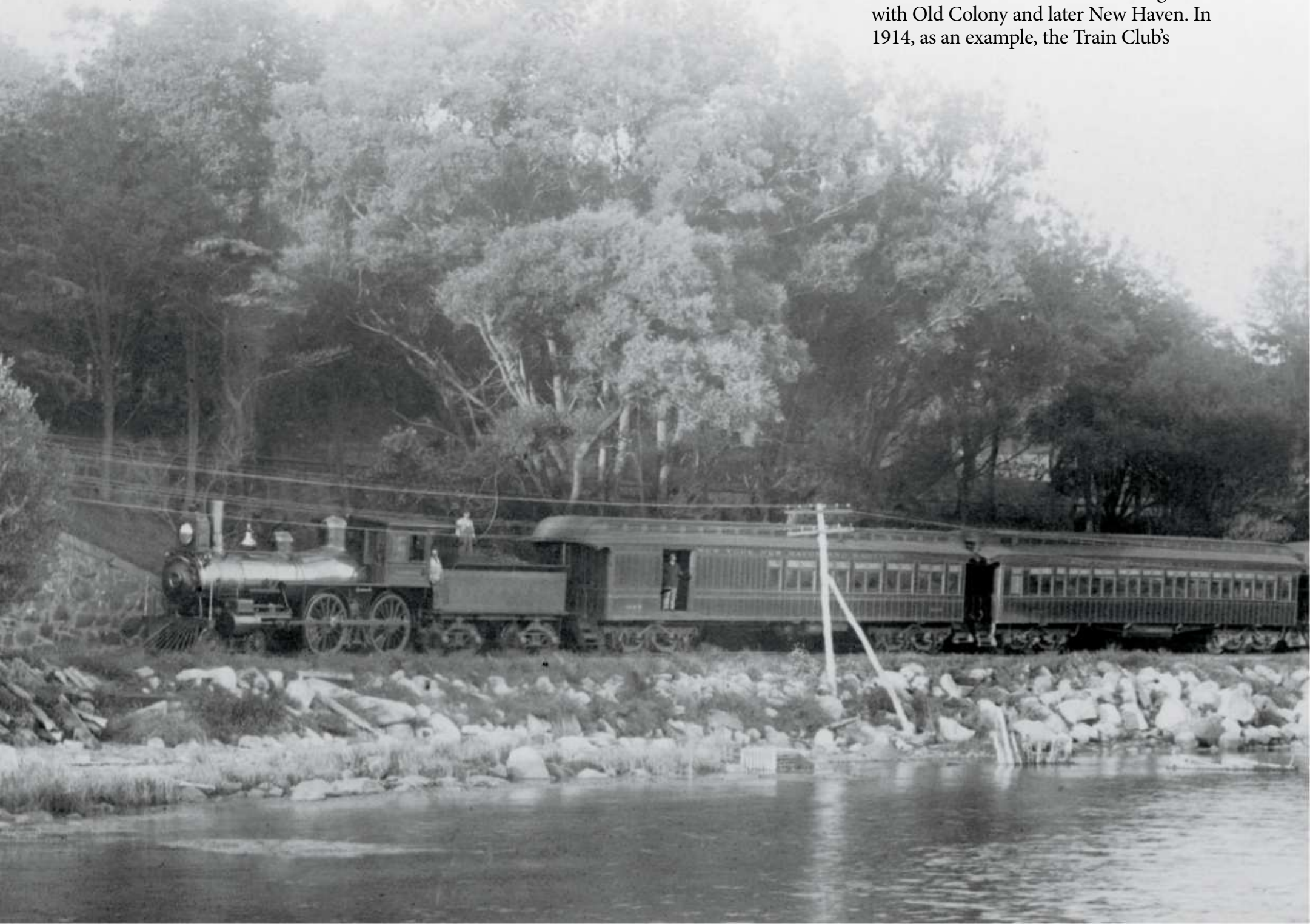
The Dude appeared in this employee timetable as "Limited Express Passenger."

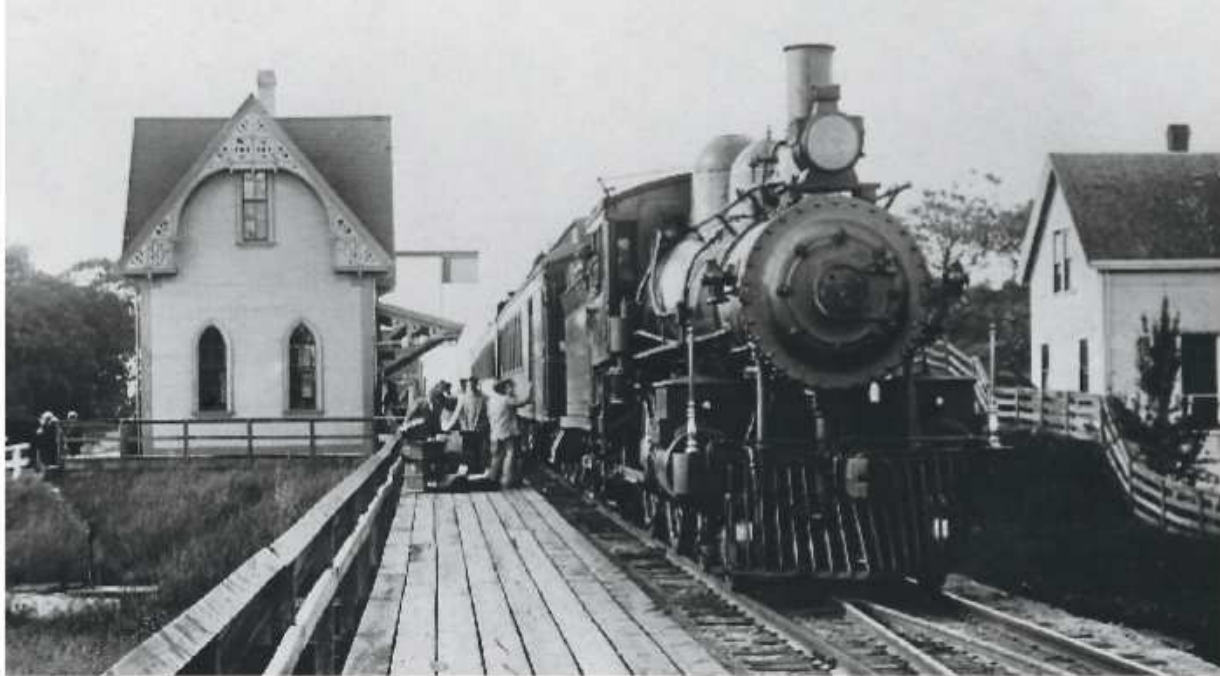
Woods Hole Historical Museum Archives

Naushon, one of a chain of islands extending southeast from Woods Hole; W.E.C. Eustis, known as the "Copper King" and owner of 300-plus-acre Scraggy Neck; Brigadier General Charles Paine, who served throughout the Civil War and was a renowned yachtsman; cousins Robert and Alfred Winsor, each of whom owned an island near Hospital Cove; and Richard Olney, President Grover Cleveland's secretary of state.

Other illustrious names included Minot, Emmons, Fay, Weld, Wilson, Ditmar, and Beebe. Years later, Lucius Beebe, a scion of that clan — prolific and pioneering railroad author of gloriously purple prose, and definitely a dandy — covered the Dude Train in "The Trains We Rode," a two-volume book he wrote with Charles Clegg in 1965-66.

A small executive committee negotiated with Old Colony and later New Haven. In 1914, as an example, the Train Club's





With the Dude Train stopped at Cataumet station, “Train Club” members and their guests unload luggage from the combine. Bourne Historical Society

arrangement with the New Haven guaranteed the railroad a minimum of \$22,185 annual income from the train for the season, which that year ran from June 5 to October 5. The railroad assessed members and their families \$100 per person (about \$2,500 in today’s currency), on top of the regular rail fare they paid each time they traveled. Guests could ride by presenting a card signed by a member, but if a conductor ascertained that the rider wasn’t actually headed for the member’s house, that “guest” might be unceremoniously put off the train. There was no extra charge for packages, suitcases, and trunks weighing 60 pounds or less. (These details survive thanks to an investigation by the public utilities commission into charges of discrimination. It concluded that “the arrangements for the summer are in conformity to law and the train will be allowed to run.”)

For these fees, club members received exclusivity, deluxe accommodations, and speed. The southbound trip from Boston was carded at 1 hour, 40 minutes to Woods Hole, the northbound 5 minutes longer, saving at least an hour compared to the regular trains. This was accomplished by running express for the roughly 50 miles between Boston and Tempest Knob and after that stopping only “on demand,” where a member or guest wished to board or disembark. On an especially straight stretch of track between Brockton and Middleborough, the Dude, behind its diminutive but high-driven locomotive, would touch 60 mph — “flying,” indeed, for that era. Average speed was 43 mph. Over the nonstop portion, the train averaged an impressive 52 mph.

On its original schedule, which changed little over the years, the Dude left Woods Hole at 7:40 a.m. and arrived Boston’s Kneeland Street Station at 9:25 a.m. (When South Station opened in 1899, it became the Dude’s terminal.) The train departed Boston at 3:10 p.m. for a 4:50 p.m. arrival at Woods Hole. In 1892, a second “Dude” was born, to serve Marion, Mattapoisett, and Fairhaven on the Fairhaven Branch, which diverged from the Woods Hole Branch at Tremont. Beginning in summer 1896, the two Dudes were consolidated, running as one train north of Tremont, then splitting into trains for Fairhaven and Woods Hole.

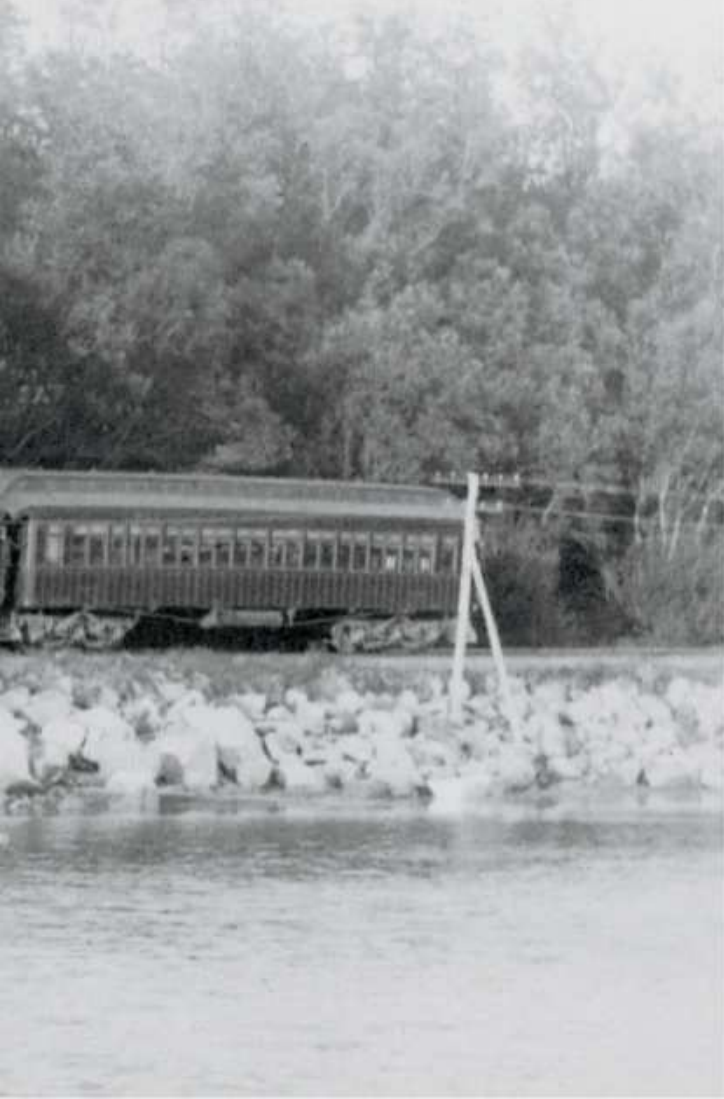
An important perk of membership was the privilege of shipping goods. Mrs. Alfred Winsor, wife of one of the island-owning cousins, reportedly sent weekly postcards to Fitch Brothers grocers in Boston, ordering all her provisions with the instruction “Send down on the Dude.” Mrs. Charles S. Hamlin, who regularly rode to and from Mattapoisett, kept a journal. “Every shop in Boston,” she recorded, “had large labels marked, usually in large red printing, ‘Dude, South Station.’”



According to the “Private Train” sign that hung in Kneeland Street Station, the Dude served Tempest Knob, Buzzards Bay, Gray Gables, Monument Beach, Cataumet, West Falmouth, and Falmouth en route to Woods Hole. Perhaps the most interesting stop was the dollhouse-like depot at Gray Gables, built for President Grover Cleveland between his two terms. Gray Gables, on Monument Neck in Bourne, was the Summer White House during his second term, from 1893 to 1897, when he used the little depot. It has been preserved at the nearby Aptucxet Trading Post Museum,



This sign from Kneeland Street Station is preserved at the Bourne Historical Society’s Gray Gables station. Karl Zimmermann



THE ROUTE TO WOODS HOLE

THE DUDE TRAIN WAS MADE POSSIBLE by the 18-mile Woods Hole Branch, completed on July 18, 1872, by the Old Colony Railroad. Operated by the New Haven from 1893, it served Woods Hole and the ferries of the New Bedford, Martha's Vineyard & Nantucket Steamboat Co. (later the New Bedford, Woods Hole, Martha's Vineyard & Nantucket Steamship Authority) until 1964, when it was abandoned beyond Falmouth. Martha's Vineyard was instrumental in the construction of the line to serve its ferries, since the branch was financed in part by bonds to which such Vineyarders as Dr. Daniel Fisher (dealer in whale and sperm oil) and Henry L. Whiting subscribed.

Then in 1874, by taking \$36,000 of its bonds, the Old Colony made possible the diminutive, 3-foot-gauge, 9-mile-long Martha's Vineyard Railroad. From 1874 to 1896, it connected the steamship wharf in Oak Bluffs (then Cottage City) with Edgartown and, for most of that time, the beach at Katama. The line's only locomotive, the 0-6-0 *Active*, was built by Porter.

Construction to Woods Hole began at Cohasset Narrows, renamed Buzzards Bay in 1879, and immediately crossed the Monument River on a 320-foot-long trestle, one of two on the branch. The river was eventually encompassed in the Cape Cod Canal, which was completed in 1916. Current operator Cape Cod Central's rails still cross the magnificent Buzzards Bay bridge, built by the U.S. Corps of Engineers with Parsons, Klapp, Brinkerhoff & Douglas as consulting engineers. An emphasis on aesthetics led to the addition of the renowned firm of McKim, Meade & White as architectural consultants. The grand bridge was seen as the western portal to the Cape Cod Canal, with the theme of lighthouses. It was the longest vertical lift bridge in the world when it opened in 1935.

When the railroad was completed to Woods Hole, land values along Buzzards Bay and on the Islands boomed, as investors had hoped. The boat that met the first train into Woods Hole was the 1855-built



Left, the New Haven's *Cape Codder* crosses the Cape Cod Canal in an undated photo. Wayne P. Ellis **Right, RDCs provided the last passenger service to Woods Hole, as shown in 1957.** R.J. Cudahy



side-wheel paddle steamer *Island Home*, namesake of the current Steamship Authority's largest vessel. Augustus Messer was the conductor on the first train to roll into Woods Hole.

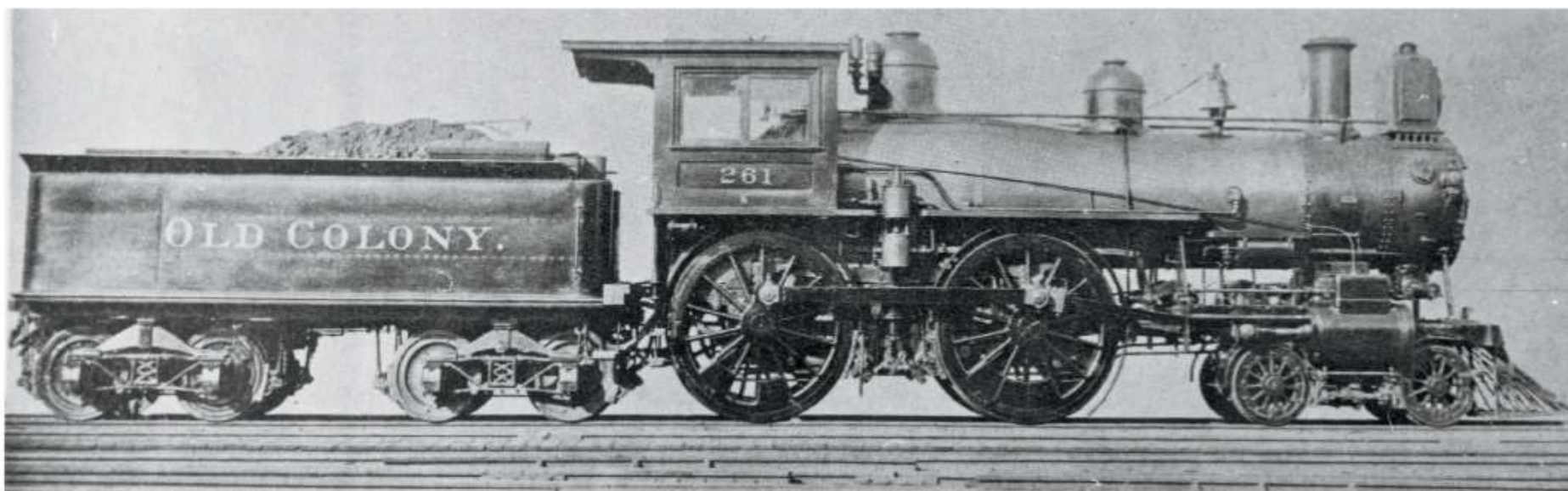
Lots of trains plied the branch other than the Dude, of course, including through trains from New York such as the *Day* and *Night Cape Codders* and *Neptune*, and multiple trains to Boston, including some expresses. As happened nationwide, however, this would diminish through the 1950s. As early as 1948 the New Haven requested permission to abandon off-season service to Woods Hole. Years of threats of total abandonment of the branch had escalated by 1959, when the Vineyard Gazette editorialized, "The importance to this island of Boston to Woods Hole and New York to Woods Hole trains in the summer season can hardly be overemphasized."

But New Haven finally had its way, and passenger service on the Woods Hole Branch ended in 1964. The rails of the 3½-mile Falmouth-Woods Hole stretch were lifted in 1969, and that right-of-way is today the Shining Sea Bikeway.

In the last years, the Woods Hole trains were self-propelled Budd Cars. These utilitarian conveyances were about as far from the Dude Train as a rider could get — but at least they were open to anyone who had the fare. — Karl Zimmermann

This March 1902 midday view of Woods Hole terminal shows few trains. The 1889 brick depot survived until passenger service ended in 1964. Baldwin Coolidge, Woods Hole Historical Museum Archives





High-driven American No. 261 was a dramatic step up from second-hand No. 100, Foxboro, which was already 14 years old when it hauled the first Dude in 1884. No. 261 survived in New Haven service until 1923. Two photos, Woods Hole Historical Museum Archives

operated by the Bourne Historical Society. The “Private Train” sign is on display there.

The train made its first run on June 23, 1884. Its original consist was a combination baggage-smoking car and two drawing-room cars, named *Naushon* (the Forbes’ island) and *Mayflower*. Additional drawing-room cars that came later were *Cottage City* (as the Martha’s Vineyard town of Oak Bluffs was then known) and *King Philip* (a curious name for a car on this run). These wooden cars were elegant: highly polished paneled interiors tricked out in brass, with plush seats. Perhaps surprisingly, the original locomotive — No. 100, *Foxboro* (locomotives were often named in that era) — was something of a veteran, having been built by the Rhode Island Locomotive Works in 1870 for the Boston, Clinton & Fitchburg. That railroad was absorbed by the Old Colony Railroad, as it was in turn by the New Haven in 1893.

No. 100 was an American, or 4-4-0, the locomotive type that dominated U.S. passenger railroading for decades and was the motive power for the Dude throughout its years of operation. No. 100 had a tall stack, oil headlight, and stubby tender, adequate to carry the coal and water needed for the Dude’s short run. Though of the same wheel arrangement, later Dude locomotives were more robust.

It’s rare that an individual would be as closely identified with a train as Conductor Augustus S. Messer was with the Dude. He was a conductor on the Woods Hole Branch for 32 years, 14 on the Dude, beginning in 1890. Messer was only the second conductor to work the train, succeeding Meyers. Messer’s first experience with trains had been the Blackwater Railroad, a miniature railway he built as a teenager along the Blackwater River, near his home in Scytheville, N.H. He went on to a railroading career in the east, west, and south that finally led him to the Old Colony.

Messer was an imposing man, with a walrus mustache and a prodigious girth

that allowed only the top brass button of his dark-blue uniform jacket to be closed. As conductor, he was in charge of the train, and he looked more than able to fill that role. Over his 14 years on the Dude, he personified the train to its regular riders, with whom he by all reports mixed comfortably in spite of their exalted and moneyed status. He even took in stride the President of the United States traveling to Gray Gables, but the Dude’s re-equipping with brand-new cars apparently was just too exciting.

In 1904, the New Haven had acquired from the Pullman Co. for the Dude five cars, three parlors and two baggage-smokers, \$77,800 worth in all. They arrived in Boston on May 11 and nine days later were spotted at a South Station platform to begin the Flying Dude’s 20th summer and



Conductor Augustus Messer may have died from the excitement when new equipment debuted.

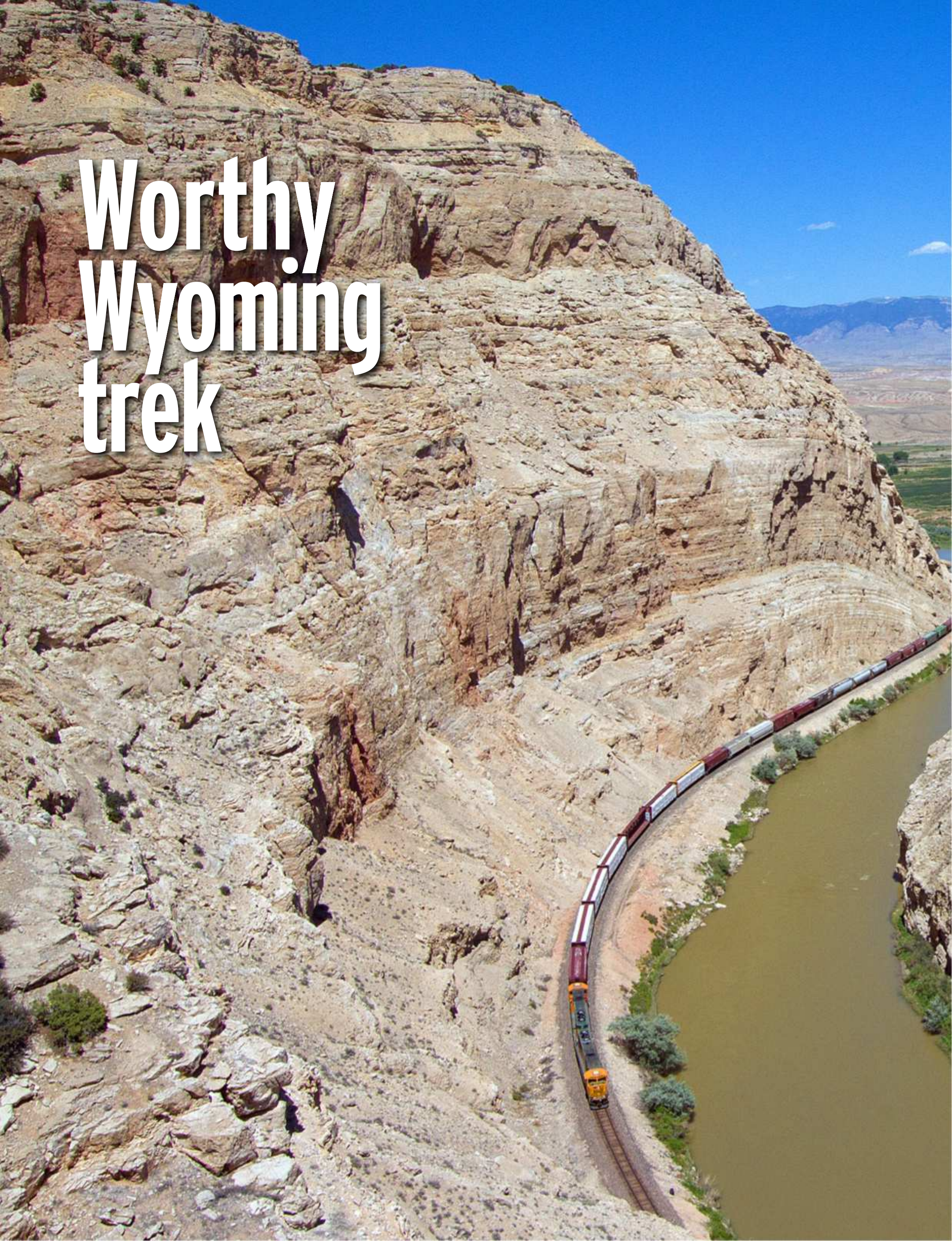
Messer’s 15th at the helm. But after that season-inaugural run to Woods Hole, Augustus Messer suffered a stroke and died. “It ranks as the finest train in New England,” the Falmouth Enterprise wrote in reporting on Messer’s death. “Its first run [of the season] was celebrated as a noteworthy event ... and it is thought that the excitement ... brought on [Conductor Messer’s] fatal illness. During the evening when he was at work on his first reports he was stricken with a slight paralytic shock, from which he never recovered.”

The Dude would roll through its final 13 seasons without its iconic impresario. It did so as a moneymaker to the end. But with United States entry into World War I imminent, and more and more travelers to the Cape and Islands driving their automobiles over roads that were improving daily, the end was clearly approaching for the Dude as it soldiered through summer 1916. That end came on Oct. 2, catching some loyal riders by surprise.

“When we left Mattapoisett the fall of 1916,” Mrs. Hamlin wrote in her journal, “we did not realize we were saying goodbye to the ‘Dude’ train. We would have wondered how we could live there without the ‘Dude’ ...” According to Elmer Landers, who knew the train firsthand, locomotive No. 1259 made the final run, with Charles Westgate at the throttle and George McComiskey firing. The consist was typical: a combine and two parlor cars.

In announcing the discontinuance, New Haven left open the door to reconsidering once the war emergency was over. Thus in early 1919, the former executive committee of the Train Club met with the railroad officials in Boston, who offered to resume operation of the subscription train, but with twice the guarantee and higher ticket prices. Previous members were canvassed but declined. The “Dude” was definitively dead. **I**

This article first appeared in a slightly different form in Martha’s Vineyard magazine.



Worthy Wyoming trek



I have a wanderlust for out-of-the-way places — places few people bother to stop at, much less spend time in. The Big Horn Basin in Wyoming is one such stop.

Most of the people who get excited about Big Horn Basin are geologists and dinosaur bone hunters. A stray railfan may wander through on their way to a busy main line somewhere else.

It's easy to understand why.

BNSF Railway's Casper Subdivision main line running through this basin is among the quietest routes in Wyoming. Union Pacific's Overland Route 200 miles to the south, sees dozens of trains daily. So does the coal train-rich joint BNSF/Union Pacific lines through the Powder River Basin 150 miles to the southeast. The Casper Sub, by contrast, hosts a few trains each day, and a handful of local freights during the week.

One-hundred-degree heat purifies Sheep Canyon's walls this early summer day on the route between Bridger Junction, Wyo., and Laurel, Mont. It's where I catch one of the few trains running. A dusty drive on a four-wheel-drive road and a sun-scorched hike puts me on the canyon's rim overlooking the track and the Bighorn River north of Greybull. The wait is long and hot and nearly shadeless. And, just then, BNSF's southbound Cowley Local sounds its horn. The local appears around the distant curve, and its pair of SD70MACs slowly pull the train through the canyon. Even though the canyon is speed-restricted, the train recedes to Greybull in no time.

Soon the train's sounds fade to nothing and it disappears — curving into the distance. The main line quiets, leaving the canyon to the meandering river, cliff swallows in their parched, rocky homes — and me. This was the last daylight train through the canyon today. Can you tell I don't mind? — *Tom Danneman*

For more about BNSF in Wyoming's Big Horn Basin, see *LOCOMOTIVE* 2018. Available now at www.KalmbachHobbyStore.com/loco18



MILEPOSTS ON THE PRAIRIE



Under BNSF, a former Minneapolis & St. Louis line survives

Story and photos by Steve Glischinski

IN 1950, FRANK P. DONOVAN JR., a *TRAINS* magazine editor in the 1940s, penned the book “Mileposts on the Prairie” that told the story of the plucky 1,600-mile Minneapolis & St. Louis Railway. Like other mid-sized Class I railroads once common in North America, M&StL was a railroad that customers (and fans) could relate to thanks to its size, personal service, and local management. The book related the highs and many lows of the “Louie,” which served the Midwest. A decade after Donovan’s book was published, the railroad was absorbed by Chicago & North Western. Most of M&StL’s routes were abandoned, but on the prairies of Minnesota one line not only survived, but also prospered. Surprisingly, it’s not a shortline spinoff, and it’s not part of C&NW successor Union Pacific. It’s a small part of the vast 32,500-mile BNSF Railway system. And it has an interesting national connection: The U.S. Supreme Court handed down a decision regarding the line.

BNSF’s 36-mile Hanley Falls Subdivision connects its namesake city with Madison, Minn., in the far western part of the state. The line enjoys service and an infrastructure that M&StL managers could only have dreamed of. It’s no longer the decrepit branch it had become during nearly 25 years of C&NW operation.

MEMORIES OF THE “LOUIE”

Based in Minneapolis, the Minneapolis & St. Louis held a special allure for fans of rags-to-riches stories. Established in 1870, it went bankrupt in 1923, and earned nicknames such as “Maimed and Still Limping” and “Midnight and Still Later.” It was threatened with liquidation and dismemberment in the 1930s. A breakup plan called for selling the portion from Norwood, Minn., to Hanley

Falls to Milwaukee Road, and from Hanley Falls to the South Dakota border to Great Northern. In the 1980s, this is exactly what happened, albeit with different railroads.

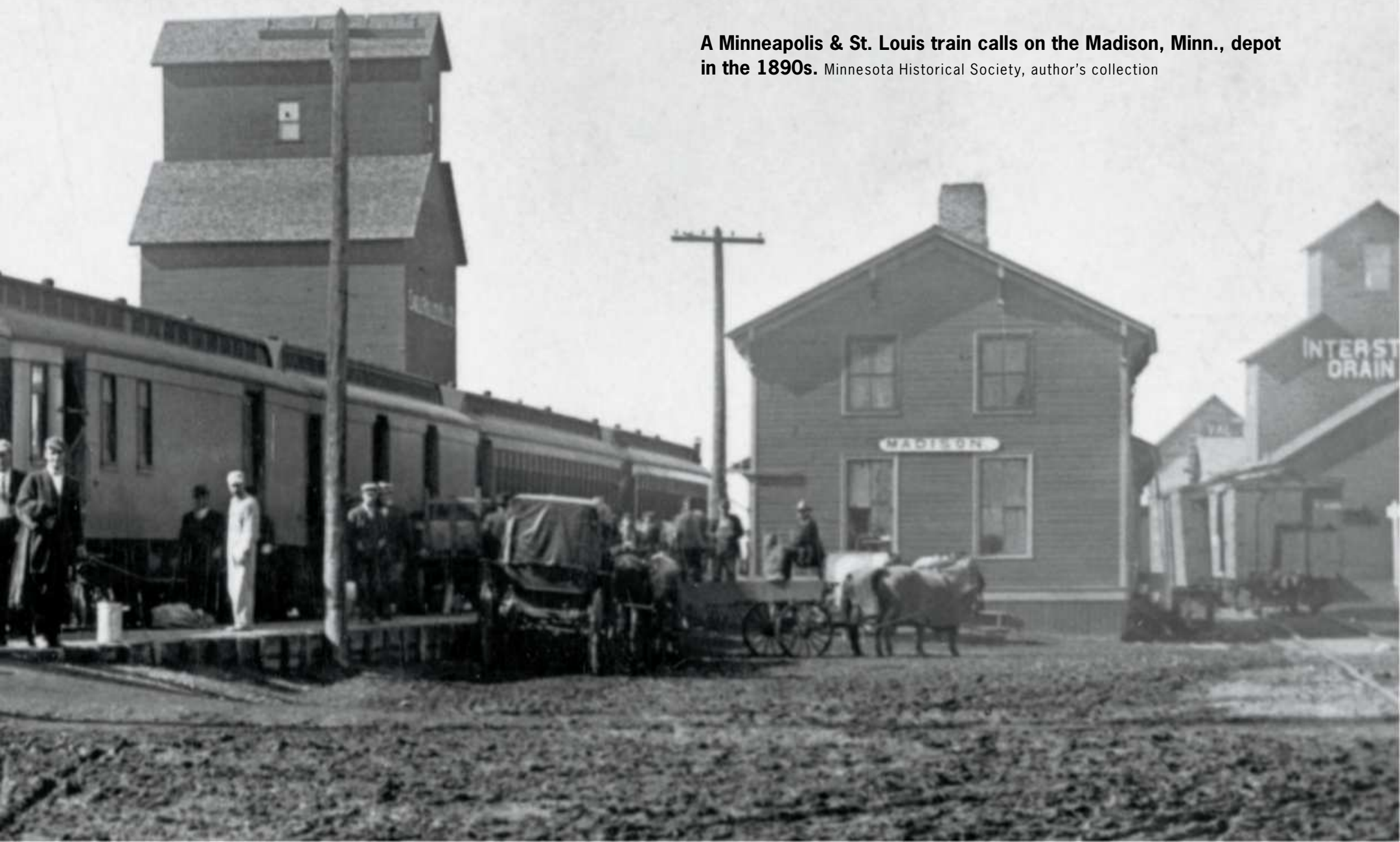
Instead of being broken up, M&StL was revived under the dynamic leadership of bankruptcy receiver Lucian C. Sprague. He took over in 1935, streamlined the company, sold some lines for scrap, and boosted its status as a bridge carrier between the Upper Midwest and the East via Peoria, Ill., with the Peoria Gateway that enabled shippers to bypass congestion in Chicago. The “Louie” emerged from 20 years of bankruptcy in 1943 with Sprague as its president. He dieselized the railroad and continued to modernize its physical plant.

Unfortunately, Sprague’s work to boost the railroad’s fortunes attracted the attention of what today would be termed corporate raiders. A group led by investor Ben Heineman ousted him in 1954. Heineman then moved on to the Chicago & North Western, and on Nov. 1, 1960, C&NW acquired M&StL.

After the purchase, most M&StL lines hung on, but eventually the majority of the Louie’s old routes were wiped from North Western’s map. Today, the longest continuous segment of former M&StL track can be found in Minnesota: 94 miles from Norwood to Hanley Falls operated by Twin Cities & Western affiliate Minnesota Prairie Line (although the track west of Morton is rarely operated), and 36 miles from Hanley Falls to Madison. The segments were once part of M&StL’s Western Division that linked Hopkins (just west of Minneapolis) and Watertown, S.D., where other lines headed west toward the Missouri River, and Aberdeen and Leola, S.D.

The Minneapolis-Watertown line was built in the 1880s when

A Minneapolis & St. Louis train calls on the Madison, Minn., depot in the 1890s. Minnesota Historical Society, author’s collection





It's June 1981 and Chicago & North Western units pass the former M&StL depot in Clarkfield, Minn., a scene soon to see change.

M&StL was under Rock Island control, part of a plan by the two roads to reach the Pacific Coast by a northern route. Despite its designs to reach the Pacific, M&StL never made it past the Missouri River, ending at tiny LeBeau, S.D., in 1907, which became a ghost town after the railroad left in 1924.

At Hanley Falls (named for M&StL official J.A. Hanley) the M&StL crossed the Great Northern's line from Willmar, Minn., to Sioux City, Iowa. In 1935, the year Sprague came to the railroad, the Minneapolis-Watertown line boasted the overnight *Dakota Limited*. If you were on the depot platform at Hanley Falls in the wee hours of June during that Great Depression year, you could watch the east-bound *Limited* stop at 1:48 a.m., and 1 hour later see the westbound *Limited* heading for Watertown at 2:58 a.m.

Overnight passenger service remained a staple of the route, and as it turned out, the Watertown line would be the last M&StL route to see passenger service. By 1960 overnight trains 13 and 14 boasted General Electric motorcars, re-engined with diesel power plants, pulling three or four trailers handling mail, express, less-than-carload traffic, and the occasional passenger. The trains met their end early on the morning of July 21, 1960, when they arrived at their terminals after making final departures the night before. Their railroad followed them into history slightly more than three months later.

SAVING A RAILROAD

In 1968, the west end of the line from Revillo, S.D., to Watertown was abandoned by C&NW, followed in 1971 by the portion from Revillo to Madison. In a familiar story, over the next several years track deteriorated and service declined. In 1983, C&NW received approval to abandon from Norwood through Hanley Falls to Madison. The line east of Hanley Falls was sold and operated by a variety of short lines until Minnesota Prairie Line, owned by Twin Cities & Western, took over in 2002.

Faced with the abandonment of their railroad, the citizens of Lac qui Parle County and shipper Dawson Mills swung into action. Minnesota statutes authorize the creation of county rail authorities to preserve and improve rail services when "determined to be essential and necessary for the public welfare," using state and federal funds. The Lac qui Parle Regional Railroad Authority was created Jan. 20, 1983, in an attempt to save the railroad. Authority board member Lyle Schutte, says another entity, Agri Rail

Corp., was formed to sell stock to fund the 10 to 15 percent local match required by the Minnesota Department of Transportation before it would loan money to rebuild the track.

The authority entered negotiations with C&NW, and purchased the line for net liquidation value. Working with the state transportation department, the rail authority used a combination of grants, loans, and bonding from the state of Minnesota to purchase the line for less than \$1 million.

Schutte says the real emphasis for saving the line came from Dawson Mills, at the time one of the only shippers remaining. Dawson Mills' Transportation Manager Keith Springer worked tirelessly to save the railroad. The plant, now part of AGP Processing, produces soybean meal, which is used as animal feed, and crude soybean oil, which is further processed and utilized in the food sector and for industrial uses. A study at the time indicated that if rail service ended, 562 jobs would be lost.



A NEW OPERATOR

With the line saved, it needed an experienced operator. Rather than a short line, the rail authority turned to Burlington Northern. BN was in expansion mode at the time in the Midwest. With the Milwaukee Road retrenching east, in 1981 BN began operating several secondary Milwaukee lines that had been purchased by the state of South Dakota. The following year, South Dakota also purchased the Milwaukee's main line from Ortonville, Minn., to Terry, Mont., and BN leased and operated it as well.

Much of Dawson Mills' traffic eventually was interchanged to BN, and since BN's ex-Great Northern Willmar, Minn., to Sioux City, Iowa, Marshall Subdivision connected at Hanley Falls, the railroad was the logical operator. Taking over the branch meant BN could remove the labor-intensive crossing diamond at Hanley Falls, using an existing wye track to connect to the Marshall Sub.

That wye had not come easily, however. In 1896, the Minnesota Railroad & Warehouse Commission ordered the installation of an interchange track in Hanley Falls between the Great Northern and Minneapolis & St. Louis. The railroads objected to the interchange and went to court. The case eventually landed at the U.S. Supreme Court, which in 1900 affirmed the state could indeed order the establishment of the "Hanley Falls Wye" for the public convenience, despite the railroads' opposition. A historic marker near the tracks in Hanley Falls commemorates the case.



Where the M&StL and C&NW once roamed, BNSF Railway units switch Dawson, Minn., on the Hanley Falls Subdivision in July 2014.

BN and the rail authority worked out a lease agreement. Shippers would pay BN to move their cars, and in turn the railroad paid a sliding-scale fee per car back to the authority. The money from the payments was used to pay off debt accrued to purchase and improve the line. An option was included that allowed BN to use the payments to count toward eventual purchase of the line.

The immediate problem faced by BN when it took over was infrastructure. The line was laid with miles of 85-pound rail that couldn't handle heavy-axle railcars up to 286,000 pounds that had become the industry standard. The authority bought C&NW's stockpiles of old 85-pound rail to keep the line in service while improvements were made. In late 1983, BN began work to upgrade the track and ran a rail detector car over the line that found hundreds of defective rails that had to be replaced. Contractor Wm. A. Smith Construction Co. set up a welded rail plant in Boyd, Minn., and in 1984-85 any rail less than 100 pounds was replaced with heavier steel. The heavier rail allowed speeds to increase to 25 mph. Approximately 23 miles of welded rail were installed after the rail authority purchased the line.

Dave Smiglewski was a section foreman for BN who was assigned to the newly acquired branch. Retired from railroading, he serves today as the mayor of Granite Falls, Minn. "In October 1983, the C&NW ran [its] last train. In many areas the track was 6-to-6½ inches out of cross-level. It was so far out of alignment it was like it was superelevated," Smiglewski recalls. "There were areas where one side had tie plates but the other side had nothing for miles. On the side with the plates, the ties were cut maybe half an inch, while the other side was cut 2½ inches, and the ties were essentially shot. The weight of the train would push the track out of alignment." Thousands of ties had to be replaced just to get the track up to 10 mph. There was virtually no ballast for drainage.

"Before this line was fixed up, there was zero grain shipped any place off this line. Not even a carload of oats," Schutte says. "There wasn't much fertilizer brought in, either, because of the weight restrictions. Basically, the only thing shipped off the line was the oil from the soybean plant."

With improved infrastructure, shippers began coming back. In 1983, there were no facilities to handle unit trains, but with better track, grain shippers in Clarkfield and Madison upgraded their facilities to handle 54-car unit trains. Today, Cargill in Madison and Prairie Grain Partners in Clarkfield use shuttle trains provided by BN successor BNSF Railway to handle grain. A shuttle is a dedicated set of covered hoppers that move as a unit train from one origin to one destination. The 110-car shuttle trains must be loaded in 24 hours. The shipper is provided with financial incentives for its commitment to shuttle service; there are also additional financial incentives for fast loading/unloading times.

To handle bigger trains, in the late 1990s, a three-quarter mile line change was made to the main line east of Clarkfield to accommodate construction of additional track for shuttle-train loading. Cargill purchased the last mile of track into Madison and constructed a mile of track alongside the former main line to facilitate loading its shuttle trains.

By the mid-1990s, the line had generated enough revenue to repay the costs of the rehabilitation and acquisition. In 1997, BNSF exercised its option to buy the branch, with the rail authority retaining ownership of certain sidings. The authority still helps pay to maintain industry tracks and hopes to attract smaller businesses to use the line. "It's a case where everybody came out ahead," Smiglewski says. Since the initial upgrade work in the 1980s, BNSF conducted major tie renewal programs in the early 2000s and during summer 2018 across the entire subdivision.

BNSF train LTW18471 provides local service on the Hanley Falls Subdivision. It departs Willmar on Mondays and Wednesdays, and then flips back to Willmar on Tuesdays and Thursdays. In addition there are shuttle trains to Clarkfield and Madison, which run as needed. Those mile-long unit trains are common on this once-remote outpost of the Minneapolis & St. Louis. It's a far cry from the days when M&StL motorcars passed the mileposts on this prairie line, but the fact the mileposts and the railroad they mark are still there at all would surely please Lucian Sprague and Frank Donovan. **I**

IN MY OWN WORDS

AGONY

on the Michigan Northern

How one cab ride was not the thrilling experience it usually is

Story and photo by Brian Buchanan



Have you ever been on a train trip that you couldn't wait to end? A cab ride on a freight, no less? And as a teenager, when such trips were unique experiences that were eagerly anticipated, enjoyed to the utmost, and lamented once they were over? Not this one.

My grandparents lived in Cadillac, Mich., and I spent several weeks each summer visiting them. A former Pennsylvania Railroad line from Grand Rapids to Mackinaw City came through town. Cadillac was roughly midway between the two, so it was a crew layover point. It had a yard and an enginehouse. When Conrail was formed in 1976 and chose to exclude the line from its system, the state of Michigan leased it from the Penn Central estate and contracted with Michigan Northern to operate it under subsidy. Operational headquarters were established in Cadillac.

The railroad eked out a marginal existence on local service until fall 1977, when it "flagged out" (declined to go along with) a nationwide rate hike. Lumber soon began flowing over the line as shippers realized a 5-percent savings over alternative routings. While not a flood of traffic by Class I standards, it soon overtaxed MN's capabilities. Additional motive power in the form of

RS2s and RS3s, three Baldwin RS12s, and the last two Baldwin Sharknoses were obtained. MN was railfan friendly, and with a signed release, anyone could get a ride.

On Sept. 6, 1978, I settled into the second of two units heading north from Cadillac to Mackinaw City to retrieve more lumber. The RS3s also had two cars in tow for Kalkaska, exhibiting the meager local traffic base that existed. It was a delightful trip up, clipping along at a 20-25 mph pace, enjoying the breeze on an unseasonably warm day. But all good things come to an end.

At Kalkaska, 38 miles north, we met a southbound coming down from Mackinaw City, which I hopped on. It had 31 loads of lumber: 22 for Conrail at Grand Rapids, seven for the Chesapeake & Ohio at Reed City, and two holders. It was powered, sort of, by three RS12s. I say sort of because only about 1½ of the engines were working. We headed for Cadillac at a walking pace. Even this strained the locomotives' capability, and every few miles we had to stop to allow the traction motors to cool off.

The trip soon became torture. It was hot. It was humid. It was boring. The train moved so slow that it generated little breeze. Bugs flew in the window, as they easily outpaced the train. During a stop at Fife Lake,

a town located on the edge of an inviting body of water, the crew went to a store to purchase themselves sustenance. They also called Cadillac from the pay phone to advise headquarters of our situation. The result was that two units were dispatched to head north and meet us.

After several more cooling off stops, we reached milepost 350, our designated point to wait for the relief power. It was like an oasis with trees, shade, and a breeze. After a bit of a wait, our rescuers arrived — an RS3 and one of the Sharks. Twelve minutes later, our menagerie of power was on its way south nonstop to Cadillac at 15 mph. Hope swelled; this agony would soon come to an end. And eventually, 5 hours and 45 minutes after leaving Kalkaska, it did. Our overall average speed from Kalkaska to Cadillac had been about 7 mph. I was never so happy to be off an engine.

BRIAN BUCHANAN is a career railroader from the Chicago area, starting in 1981. This is his eighth TRAINS byline.



The author rode this southbound Michigan Northern train led by three RS12s Nos. 215, 212, and 213. It pauses between Kalkaska, Mich., and Walton Junction, Sept. 6, 1978.

Diesel doings

From E units and Geeps to high-horsepower EMDs, efforts keep a variety of workhorses with us



Southern Railway E8 No. 6914 rests outside Tennessee Valley Railroad Museum's shop in Chattanooga, Tenn., left; right, Chesapeake & Ohio GP7 No. 5704 takes to the rails of the Lebanon Mason & Monroe Railroad near Cincinnati. Left, Mike Ray; right, David Rohdenburg

Enthusiasm for first- and second-generation diesels is apparent in multiple efforts across the continent to save, repaint, and rebuild these workhorse locomotives. In the second half of 2018 alone were two restorations, a campaign to return a preserved six-axle unit to its home territory, and a Class I railroad's donation of a landmark unit. Let's look at each development:

- Southern Railway No. 6914. This 1953 E8 has been under restoration by a dedicated team of Tennessee Valley Railroad Museum volunteers initially starting in 1993 and renewed in 2001. The rebuilt locomotive, attired in the 1970s *Southern Crescent* paint scheme, is down to the last mechanical details before it is operational and available for on-site museum runs as well as 140-mile Summerville, Ga., round trips in 2019.
- Chesapeake & Ohio No. 5704. This classic GP7 has been restored to its as-delivered blue-and-gold paint scheme on Ohio's Lebanon Mason & Monroe Railroad near Cincinnati. The locomotive was retired and sold for scrap in the mid-1980s before the Indiana & Ohio Railway bought it. The unit remained in Ohio until joining the Cincinnati Scenic Railway's roster. The locomotive was built in May 1950 for the C&O.
- Erie Lackawanna No. 3639. Ohio's Youngstown Steel Heritage Foundation is raising money to buy the rare SDP45 from the Virginia Museum of Transportation in Roanoke, Va., and return it to its native territory. It's currently painted as Conrail No. 6670. The foundation is halfway to its goal of \$20,000 with its Extra 3693 North campaign. Additional fundraising will take place in 2019 to move the locomotive to the Marter Yard Railroad Museum, operated by the Mahoning Valley Railroad

Heritage Association. After arrival at Marter Yard, the SDP45 will remain in Conrail paint for a period of time before finally being repainted as EL No. 3639. Details: www.extra3639north.org

- CSX No. 8954. CSX Transportation donated this rare SD45-2 locomotive to the Southeastern Railway Museum in Duluth, Ga. Electro-Motive Division built No. 8954 in August 1974. It was one of only 136 of the 3,600-hp SD45-2 diesel-electric locomotives that La Grange, Ill.-based EMD built between 1972 and 1974 and the last of the model developed. Seaboard Coast Line, a CSX predecessor, purchased the unit (as No. 2049) and 14 others. It later served Family Lines System and Seaboard System Railroad before the lines consolidated into

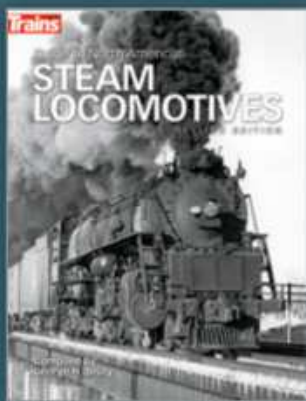
CSX in 1986. CSX kept No. 8954 in freight service until moving its maintenance-of-way service around 2005. CSX kept the unit in operation until 2011, when it was retired into training service at the company's training school at Tilford Yard in Atlanta, which CSX closed last year.

These successes issue a new challenge: The fast-changing railroad preservation scene now faces the need to save locomotives of the 1970s and 1980s in addition to those before Amtrak, Penn Central, and the Staggers Act. With a trend toward rebuilding at Class I railroads (see page 18), efforts at saving 1990s and early 2000s diesels will become a truly difficult battle. Preservationists will need to be as bold and powerful as the diesels they love so much.

>> Old F40s never die ... the latest new owner

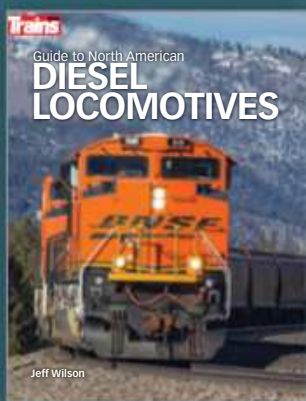


In need of power to pull its popular dinner trains, Western Maryland Scenic in Cumberland, Md., acquired this F40 from Larry's Truck Electric in Ohio. Look for it in Western Maryland Railway circus colors of red and white. If you ever imagined a traditional WM scheme on a contemporary diesel, here's your chance. WMSR: John Garner



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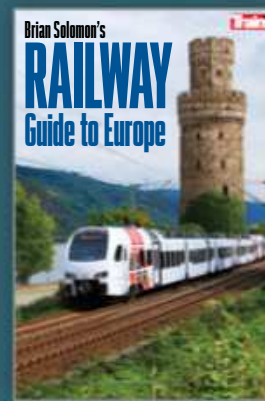
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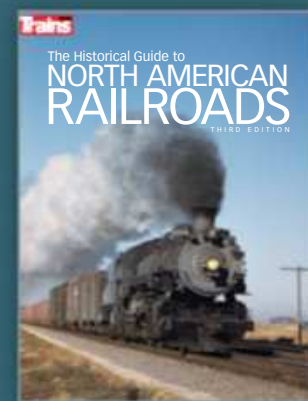
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1

Two BNSF Railway trains meet at Caliente, Calif., in the Tehachapi Mountains. The distant westbound on the upper shelf will soon pass eastbound No. 5358 once it rounds a horseshoe curve behind the photographer. Three photos, Elrond Lawrence

Elrond Lawrence's top 10 hot spots

This California native lists his favorite spots in the Golden State

As much as I love traveling across the country, my native California has always held a unique appeal. How many states offer cities, mountains, valleys, deserts, and coastlines within their borders? I've been fortunate to photograph nearly every corner of this state that spans more than 770 miles from top to bottom. This list of Golden State retreats includes places I've railfanned for a lifetime and more recent favorites that demand repeat road trips.

1 CALIENTE The Tehachapi Mountains offer one of the greatest railroad shows on Earth, but my favorite haunt in this iconic range is

the tiny outpost of Caliente, nestled in the hills and surrounded by what's best described as a life-size model railroad. Photo angles are limitless and both telephoto and wide lenses feast on BNSF Railway and Union Pacific trains that wind through an S-curve to the west and wrap around the town via an ascending horseshoe curve.

2 CAJON PASS This gateway to LA may be a cliché, but there's a reason it's always fun: up to 80 trains a day, ideal weather, and great photos from Blue Cut and Sullivan's Curve to the railfan shrine at Hill 582. My current haven is Silverwood, where BNSF's three mains converge just west of Summit in a setting that recalls the original Summit of Santa Fe fame. Spend a late summer afternoon here and the mystique and drama of big-time railroading come to thundering life.

3 FULLERTON Few Southern California stations remain where a fan can relax and let trains come to them. The former Santa Fe passenger depot along BNSF's Southern Transcon is a marvelous scene for constant freight traffic, Amtrak, and Metrolink commuter trains. Bonus: When you're hungry, walk down to The Old Spaghetti Factory restaurant in the ex-Union Pacific depot.

4 DONNER PASS Growing up in Southern California, I was a latecomer to this historic crossing of the Sierras made famous by Southern Pacific and photographers

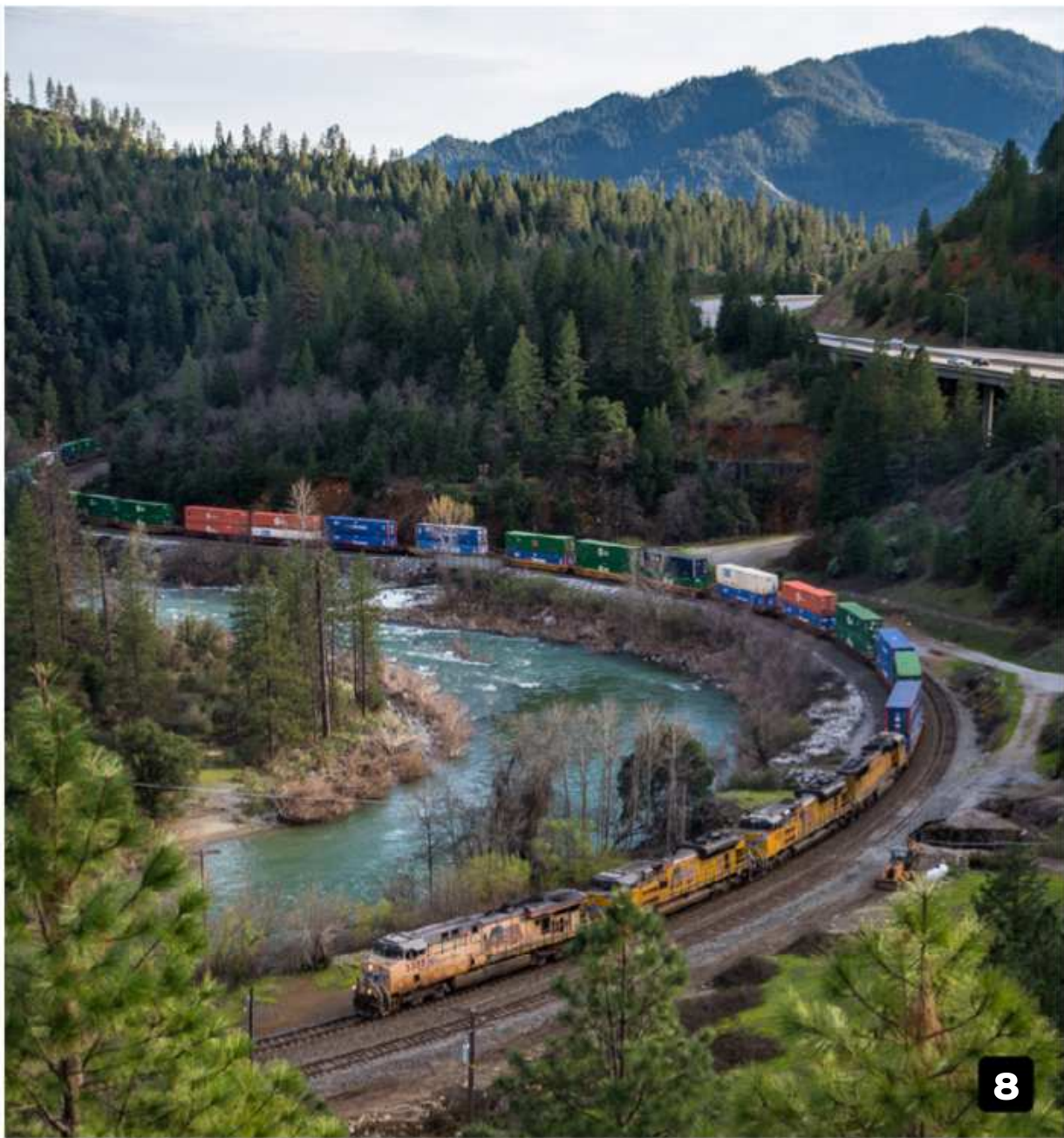


5 Outbound Metrolink train No. 708 follows the Los Angeles River in July 2018, seen from the Fourth Street bridge.

Steinheimer and Dorn. Donner lives up to the hype on every visit, and it's a majestic setting for a steady parade of Union Pacific (and BNSF) freights and Amtrak's *California Zephyr*. Auburn, Soda Springs, Norden, Yuba Pass, and the Truckee River Canyon are highlights.

5 LOS ANGELES RIVER Amtrak, Metrolink, Union Pacific, and light rail trains follow the concrete riverbed in downtown LA with a dizzying volume of traffic and historic bridges to view the action. Each bridge boasts a unique identity and view of LA's diverse culture. Favorites include First Street, Seventh Street, North Broadway (the original U.S. Route 66), and the late, great Sixth Street Bridge of movie fame; while





Union Pacific No. 5335 winds northbound along the Sacramento River at Lamoine, Calif., in March 2017, not far from a crew change in Dunsmuir.

the latter was demolished in 2017, a modern replacement is underway.

6 SAN TIMOTEO CANYON Typically overlooked in favor of Cajon Pass or Tehachapi Loop, this segment of the former SP “Sunset Route” lies in the hills between Union Pacific’s West Colton classification yard and the low desert cities of Beaumont and Banning. San Timoteo Canyon Road follows this route with plenty of scenic curves, although development is creeping in from both sides. For now it’s the last place in California to witness mainline railroading through citrus groves.

7 NEEDLES SUBDIVISION Ever since childhood when my dad took us on road trips to Barstow, BNSF’s steel racetrack in the Mojave Desert has been a constant source of mystique and inspiration. Fleets of BNSF trains roll through a desolate and panoramic terrain marked by faded towns and Route 66 landmarks. Ludlow, Amboy, Siberia, and Ash Hill are must-see photo stops; restored Santa Fe Harvey Houses can be found in Barstow and Needles. Picture Lawrence of Arabia, but with trains.

8 DUNSMUIR Nestled in the Shasta Cascade area of Northern California,

Dunsmuir is a historic railroad town filled with SP equipment, signals, and murals — even an active turntable by the Amtrak station where trains change crews. South of Dunsmuir you can follow trains through picturesque forests along the Sacramento River to Shasta Lake; driving north, Mount Shasta provides a spectacular backdrop.

9 THE CENTRAL COAST LINE Quality over quantity is a big understatement for the former SP Coast Line between Gilroy and San Luis Obispo. Daily *Coast Starlights* are the only scheduled through trains, although low-priority freights make appearances plus an assortment of locals. The real appeal of this line is its beauty and old-school California character.

10 GLENDORA Hot in historic appeal, this 9-mile rail segment in the San Gabriel Valley was once the Santa Fe Pasadena Subdivision, sold to Metrolink in 1994 — and nothing has changed in 24 years except the trains. Five days a week, BNSF GP60Ms and “yellow-bonnet” GP60s lead a local past code lines, working searchlight signals, and a glorious cantilever signal in downtown Glendora. Next year, it’s going to be transformed to accommodate Metro’s light rail Gold Line, so add this time capsule to your endangered species list.

Your ticket to ride!



Seasonal lights and sounds beam from CP’s Holiday Train boxcar bandstand. Ben Lake

The festive lights of Canadian Pacific’s Holiday Train have certainly dazzled those drawn to trackside whistle-stops across the U.S. and Canada. But as Greg McDonnell’s feature story (see page 24) illuminated, shining a light on the needs of local food banks is the mission that has sustained this special train for 20 years. Tallying more than 4 million pounds of food collected, this community service has become a beacon for those in need.

In a free episode of **Drew’s Trackside Adventures**, you can view the fun both trackside and on board the U.S. train, as it visited Milwaukee. Through MRVP exclusive footage, you’ll see the train’s decorative lights



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and hear songs of the season emanating from the boxcar bandstand. Climb aboard one of the heavyweight coaches, and you’ll also enjoy quick chats with Canadian Pacific spokesman Andy Cummings and musician Willy Porter. You won’t want to miss their insights or any of the action along the rails. Subscribe to MRVideoPlus.com today! — *Kent Johnson*

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Drew Halverson,
Drew’s Trackside Adventures

Q I have seen headlights on locomotives on the front of the nose and up above the windshield by the numberboards. The location of the headlights seems to vary by model. What is the reason for this? — *Garrison Counts, Colorado Springs, Colo.*



Norfolk Southern ES44AC No. 8119 illustrates a high headlight placement between the numberboards.

A There is no real standard on headlight placement across the industry. Oftentimes the location is simply the standard location the locomotive builder uses, which has varied over the years, or by a specific location requested by the railroad. Headlight placement can be determined by visibility of the railroad's locomotive engineers in inclement weather, crew safety (so they don't bump into a hot headlight lamp while using the front walkway), or ease of replacement by maintenance personnel.

At times a railroad will change its headlight placement location, causing a fleet-wide conversion to the new location to be implemented. For example, Santa Fe began relocating its headlights to the nose of locomotives in the late 1980s. This practice carried through the BNSF Railway merger in 1995 when former Burlington Northern locomotives also began receiving low headlights during shop visits. Today, there is still a mixture of high and low headlight locomotives on BNSF's roster. — *Chris Guss*

>> This Month:

- Headlight placement
- Ditch light rules
- Cleaning freight cars
- Finding trains

Q Your February 2018 issue highlighted Clinchfield No. 800 and other cab units. I thought ditch lights have been mandatory for years, but 800 and others have none. Are renovations of historic units exempted? — *Al Trojanowicz, Middle Village, N.Y.*

A You are correct, ditch lights in the U.S. have been required for more than two decades and was implemented on Dec. 31, 1997. They are only required to be used on equipment that operates over public grade crossings at speeds greater than 20 mph. Federal regulations require, among other things, a certain minimum spacing between the ditch lights relative to their position from the headlights on a locomotive, as well as a minimum height above the rail. The rules also have a section that allows a locomotive to be exempt if it was built prior to Dec. 31, 1948, and is not used in regular commuter or intercity passenger service.

Clinchfield No. 800 was built right at the cutoff of this rule in December 1948 and therefore does not require ditch lights. Certain operators prefer to install removable ditch lights on classic locomotives built after 1948, which allows them to retain the locomotives as-built appearance for photos and other events while still complying with the rule when necessary. — *Chris Guss*

Q If there was a shortage of empty wheat cars, could empties of another commodity such as corn or rice be used? Would these cars be cleaned before being spotted? — *Mark C. Keever, Phoenix, Ariz.*



Covered hoppers can handle many commodities in their 50-year service life. Consignees are responsible for cleaning cars when empty. TRAINS: Brian Schmidt

A In short, yes. As long as a car is suitable for the load it can haul any commodity. Freight commodities range widely in weight, which is why sand often goes in short two-bay covered hoppers and wheat



Preserved Great Northern SD45 No. 400 at Palmers, Minn., does not have permanent ditch lights installed, but instead gets temporary ones added as needed. Two photos, Chris Guss



A CSX freight streaks by the station at Sidney, Ohio, a local train-watching spot. The green signal indicates that another train is en route. TRAINS: Brian Schmidt

travels in larger three-bay cars. Even with agricultural commodities, weights can vary, for example, between corn, which is heavier, and wheat, which is lighter for a given volume.

Regarding cleaning, it is always the consignee or recipient's responsibility to clean a car before releasing it back to the railroad. However, remember that specialized cars such as covered hoppers and tank cars are leased to the shippers themselves, so the rotation of such cars among multiple commodity groups is not frequent. — *Brian Schmidt*

Q Where might I be able to find information such as train numbers and schedules for the trains that pass through my hometown so I can be more involved with train-watching? — *Jason Crossman, Johnson City, N.Y.*

A Few freight trains are scheduled in the traditional sense, and railroads do not share those schedules with the public. As always, the best way to find a train is to be trackside. However, railfans have a trick to finding trains in short order.

First, buy and learn how to use a radio scanner. Safe and efficient railroad operations depend on radio communications.

Crew members use radios to talk to each other while switching; radio enables dispatchers and train crews to stay in constant contact; "talking" trackside train defect detectors report their findings. Thus, one can listen in on railroad radio talk and get information on train locations and operations. One note of caution: Some states prohibit mobile use of radio scanners.

Another option is to check trackside signals on lines so equipped. A green or yellow signal will often indicate the approach of a train. TRAINS' has published several articles on trackside signals through the years.

Finally, network with your fellow railfan. There are undoubtedly people in your area already with a grasp of regular options. Learn from them, and, in time, share again what you've learned.

One option for further information is our 2018 HOT SPOTS special issue. It has information on decoding train symbols from the seven Class I railroads, how to read trackside signals, and guides to dozens of places you can visit in the U.S. and Canada. Order at www.KalmbachHobbyStore.com. — *Brian Schmidt*

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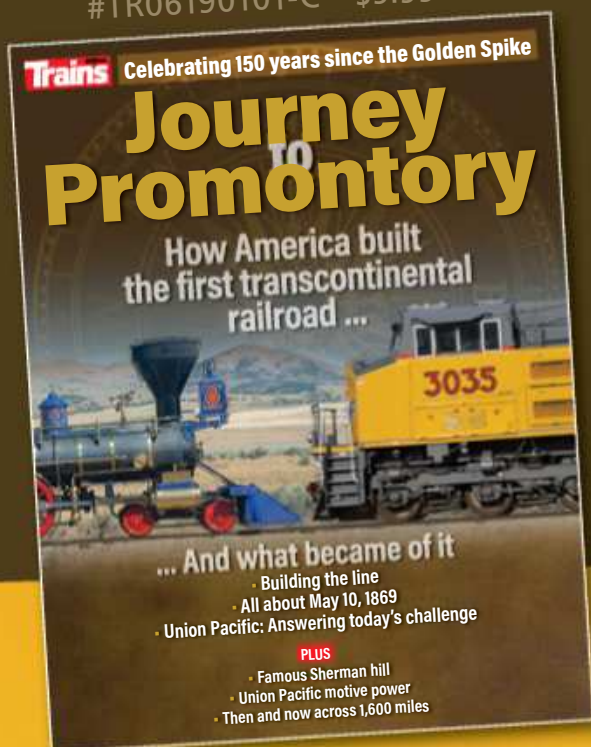
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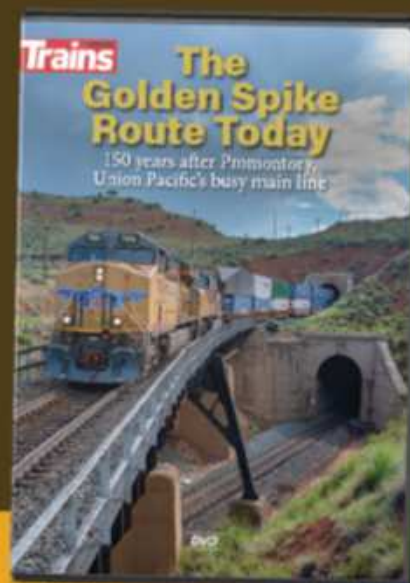
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The Advertiser Index is provided as a service to TRAINS magazine readers. The magazine is not responsible for omissions or for typographical errors in names or page numbers.

BoilerSaver	21
Calendars.....	10
Cummins, Inc.	76
Electric Railroaders' Association	8
Four Ways West.....	21
Greg Scholl Video Productions	21
Katy Railroad Historical Society	15
Kohlhaas Corporation	13
Lineside Video	19
McMillian Publications	15
Monte Vista Publishing	8
Morning Sun Books, Inc.	23
New York Air Brake.....	2-3
Norfolk Southern	9
NY Central System Historical Society	13
Progressive Rail.....	11
Railcom.....	23
railroadbooks.biz	13
Railroading Flashcards	59
Ron's Books	19
Skookum In Steam.....	16
Switzerland 2019 Tour	65
Trains Books	59
Trains magazine	65
Trains Special Issue	17
Transcontinental Anniversary Items	64
Turboliner Memories	13
Union Pacific Historical Society	8
Whitewater Valley Railroad	23
Withers Publishing Co.	15

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CLOSING DATES: Jan. 2019 issue closes Oct. 24, Feb. closes Nov. 19, Mar. closes Dec. 19, Apr. closes Jan. 23, May closes Feb. 20, June closes Mar. 27, July closes Apr. 24, Aug. closes May 21, Sept. closes June 25, Oct. closes July 24, Nov. closes Aug. 20, Dec. closes Sept. 25.

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COLLECTIBLES

B&O, SOUTHERN, N&W HO BRASS: Also, complete set of Trains magazines from 1941, and MR from 1934. SASE for 3 page list. Gary Tuttle, PO Box 11, Clinton, NC 28329-0011.

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RAIL SHOWS AND EVENTS

DECEMBER 8, 2018: 64th Buckeye Model Trains & Railroad Artifacts Show. Ohio Expo Center (Lausche Bldg), 717 E. 17th Ave., Columbus, Ohio. 9:00am-4:00pm. Early admission available Friday PM (7th). Over 300 tables of model trains and railroad artifacts for sale. Miller, 3106 N. Rohester St., Arlington, VA 22213. 703-536-2954, Email: rrshows@aol.com or www.gserr.com.

DECEMBER 15-16, 2018: 20th Tampa Model Train Show & Sale. Florida State Fairgrounds. (Special Events Center), Tampa, Florida. Saturday 9:00am-5:00pm, Sunday 10:00am-4:00pm. Over 300 tables, thousands of railroad items for sale. Early admission available Friday P.M. (December 14th). Parking fee. LSSAE: Miller, 3106 N. Rochester St., Arlington, VA 22213. 703-536-2954, Email: rrshows@aol.com or www.gserr.com.

JANUARY 26, 2019: The 28th Annual Great Tri-State Rail Sale. La Crosse Center, 2nd & Pearl Streets, La Crosse, WI. 9:00am-3:00pm. \$5.00, under 12 free. Model, Toy & Antique Trains & Memorabilia, Sale & Swap Meet. 608-781-9383.

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Gallery

Round 'em up!

We're at Burns, Colo., in the northwest quadrant of the Centennial State in summer 1958 as cattle are loaded onto stock cars for forwarding by the Rio Grande to market. Note the F units and wood stock cars that speak of an earlier day and age in railroading and ranching.

— Photos by Harold Leinbach





A colorful ride

Canadian National train L506 rolls eastbound on Canadian Pacific's Withrow Subdivision. The location is White Bear Lake, Minn. The date: Jan. 23, 2010. — *Photo by Steve Glischinski*







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The bitter end

Dec. 3, 1978, was a sad day for privately operated passenger trains. On that day 40 years ago, Southern Railway's beloved flagship passenger train, the *Southern Crescent*, northbound train No. 2, derailed at Shipman, Va., near Lynchburg, with fatalities. The train was days away from being transferred to Amtrak.
— Photos by Rick Johnson





Snow and lights

The glow of lights on a Christmas tree are not dimmed by snow on Pennsylvania's Strasburg Rail Road. Mogul No. 89 couples to a caboose with a holiday wreath on the back door before another festival holiday trip. — *Photo by Samantha Kuczynski*

Frozen in time

The thermometer rests at or below zero on this New Year's Eve in 2017 as Strasburg 2-10-0 No. 90 lets off steam before the final trips of the year. — *Photo by Johnathan Riley*



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Sunbathing

The first of three eastbound Union Pacific manifests tied down on Main 1 between Cheyenne and Borie, Wyo., patiently waits to head east toward North Platte, Neb., on Nov. 28, 2015. Fog just west of Cheyenne has produced and enhanced a gorgeous sunset. — *Photo by John Crisanti*

