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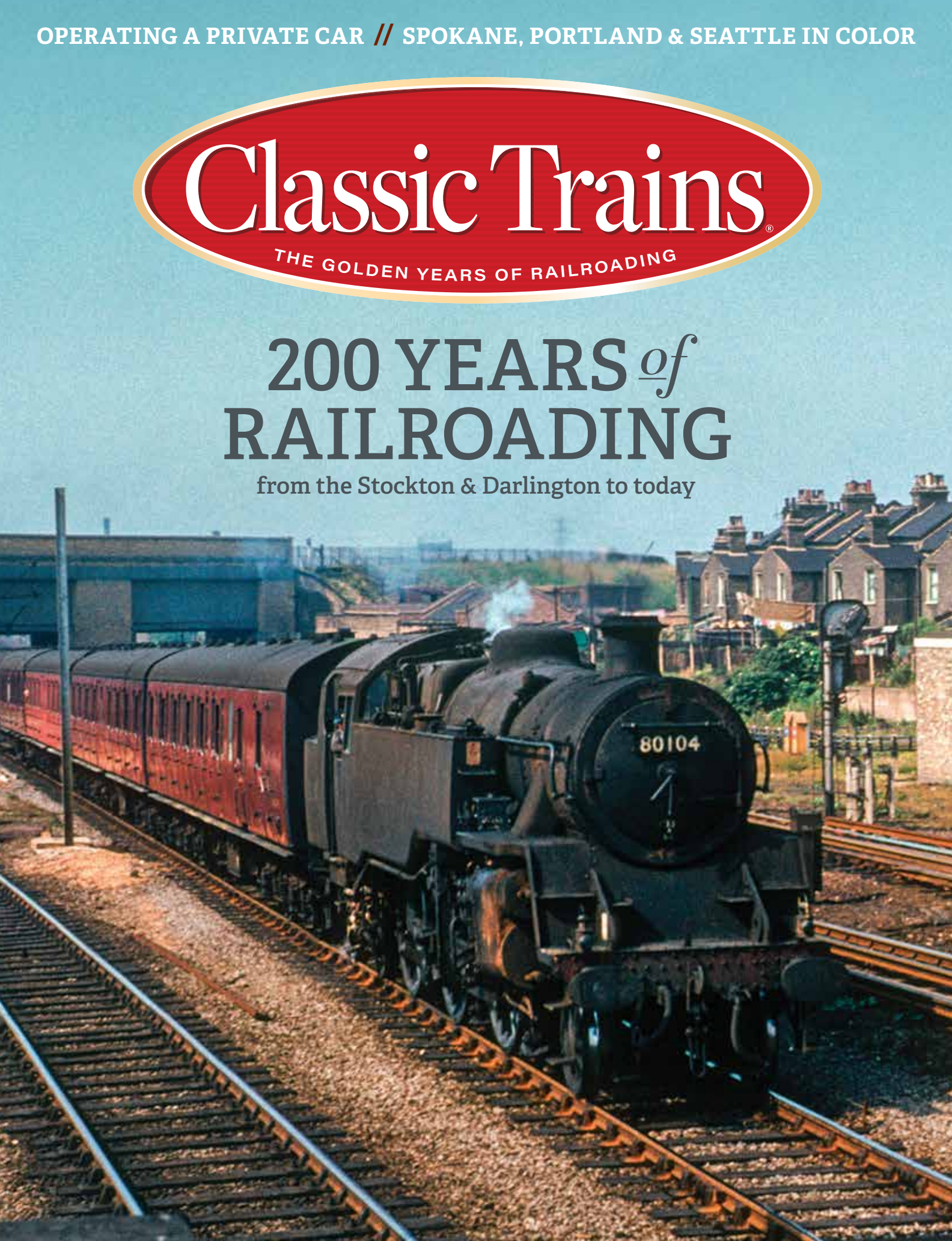

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Summer 2025 ▪ Volume 26 Number 2

This Issue

On our cover
British Railways Class 4 80104 leads a London commuter train on Aug. 17, 1960. Richard Jay Solomon

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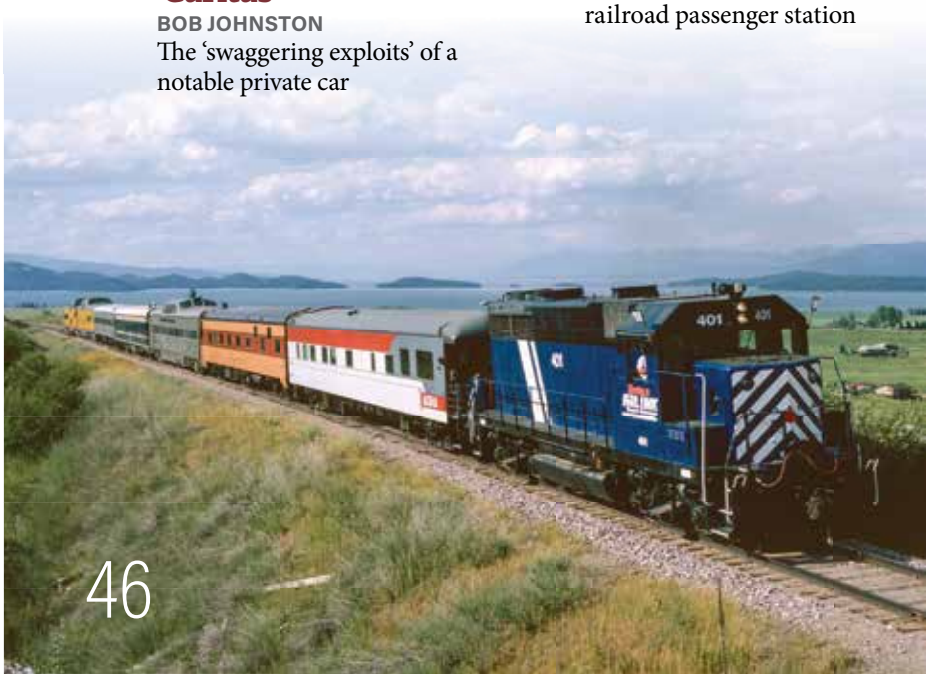

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The Cradle of Railroading

Railroads seem so permanent, like they've always been there, and in our lifetimes, that's true. But just as we can remember a world before cell phones and DVDs, there was a world before trains.

While the invention of the modern railroad is not singular, we largely have England to thank for its present form (see page 32). The earliest railroads saw horse-drawn carts setup for private industry. The Brits aided it greatly with the introduction of steam power and, eventually, the common carrier concept. Thus was molded the rail system that we "Yanks" so love today.

So take a moment to acknowledge and appreciate British railroading in all its glory. The evolutionary paths through 200 years of railroading have been wildly different in North America and Great Britain, but that is what makes railroading across The Pond so fascinating. Sure, even if you don't appreciate it, you can acknowledge the use of heavy-duty 0-8-0s on the main line, the gnarly Class 55 Deltic diesels of the 1960s, and the now iconic HST 125 passenger equipment that symbolized British rail travel for decades. Later, the ubiquitous EMD SD40-2 was re-sized for British railroads in the form of the LaGrange-built Class 59 and then refined into the widely used Class 66, a jump made possible, in part, by the involvement of Wisconsin Central and its English, Welsh & Scottish subsidiary.

Yes, it's different. That's the point. I'm proud to introduce British railroading, at least this once, to the pages of *Classic Trains*.

EDITOR

London & North Eastern 0-8-0 No. 63395 rolls through the Grosmont station on the North Yorkshire Moors Railway. Darlington North Road Works built 63395 in 1918. Brian M. Schmidt

Classic Trains
THE GOLDEN YEARS OF RAILROADING

Editor	**Brian M. Schmidt**
Assistant Design Director	**Lisa M. Schroeder**
Senior Production Editor	**Rene Schweitzer**
Editorial Assistant	**Monica Freitag**
Production Director	**Kelly Kramer Weekley**
Operations Specialist	**Melissa Valuch**
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Librarian	**Thomas E. Hoffmann**
Columnist	**Kevin P. Keefe**

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Director	**A. David Popp**
Executive Producer	**Kent Johnson**
Assistant Digital Editor	**Mitch Horner**
Staff Writer	**Lucas Iverson**

Editorial
E-mail: editor@classictrainsmag.com
18650 W. Corporate Dr., Ste. 103
Brookfield, WI 53045

Advertising Department
Martha Stanczak
E-mail: martha.stanczak@firecrown.com

Customer Service
Phone: 877-243-4904
Outside U.S. and Canada: 847-313-3921
Customer Service: ClassicTrains@0meda.com

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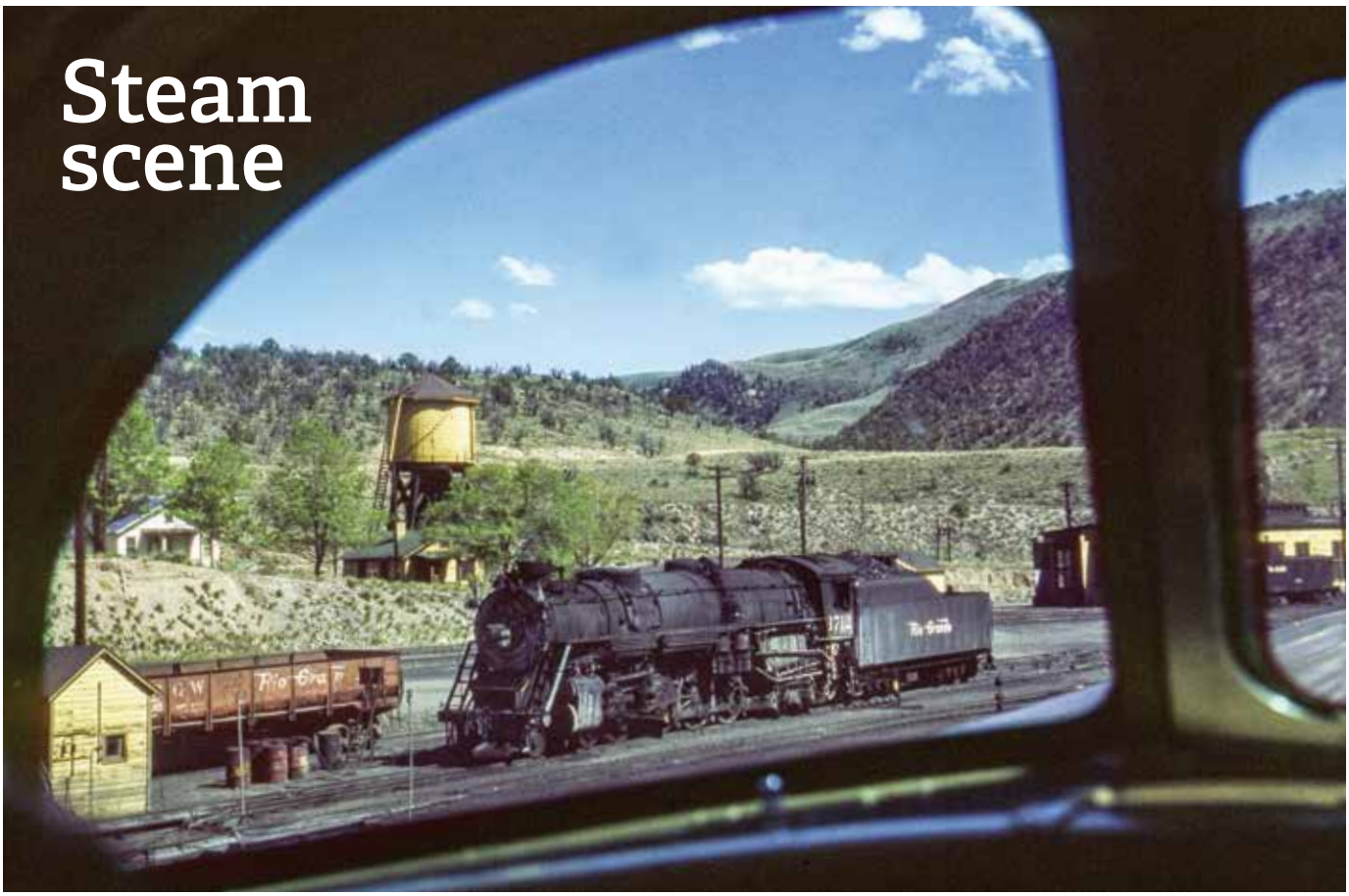
A potpourri of railroad history, then and now

HeadEnd

A Santa Fe manifest freight is west of Elizabeth, La., with caboose 999074 trailing the consist in October 1969. Steve Patterson

Steam scene



Denver & Rio Grande Western 4-8-2 No. 1712 appears in an undated photo, likely in the mid-1950s, photographed from the dome of a passing train. The scene is evocative of Rocky Mountain railroading at the time, with a drop-bottom gondola, presumably for collecting cinders, wooden water tank, and various support structures all painted in the company colors. A.C. Kalmbach

British Railways glossary

Britain and America are two countries divided by a common language — at least according to the old joke — so here's a glossary of Anglo-American railway terminology:

bogie: truck (railroad car wheelset)
carriage: passenger car
depot: yard
driver: locomotive engineer
electric train heating (ETH): head-end power
engineering: maintenance of way
engine shed: shop, roundhouse, engine-house
goods: freight
regulator: throttle
saloon: business (or luxury) car
shunter: switcher
sleeper: crosstie
timber: lumber
tonne: metric ton, equivalent to about 1.1 U.S. tons
van: boxcar
wagon: freight car
working: train
works: shop, factory

Keith Fender

Milwaukee Road's A-class: ultimate 4-4-2 Atlantic-type

Four special streamlined locomotives for the ground-breaking *Hiawatha*

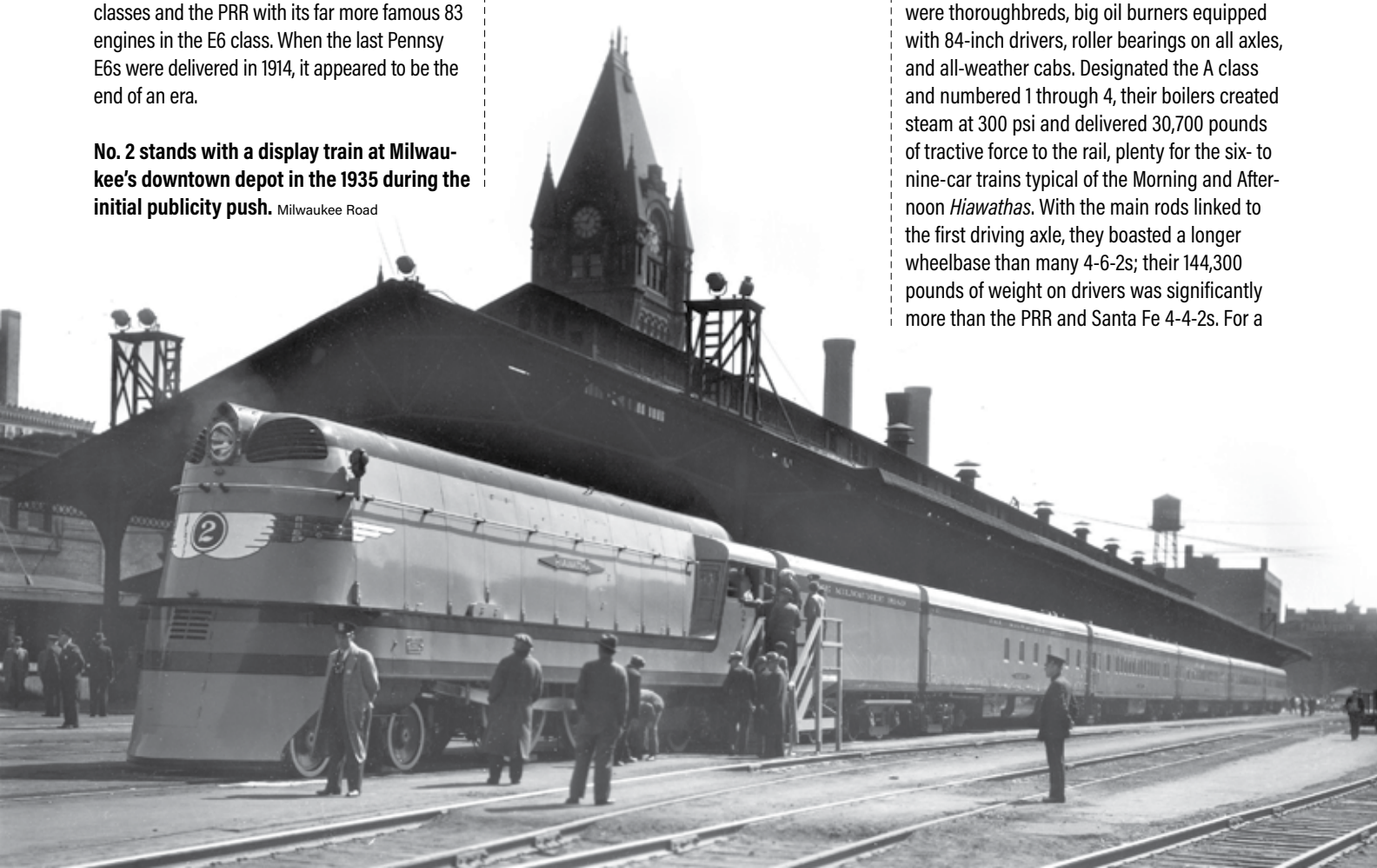
Milwaukee Road No. 1 is a streamlined A-class 4-4-2 Atlantic type, one of just four built for the railroad in 1935. Alco

By 1935, it would have been sensible to consider the 4-4-2 Atlantic-type steam locomotive all but obsolete, at least insofar as new construction was concerned. In the U.S., the design could be traced back to the 1880s, and ultimately about 1,900 of the type were built. Its heydays were the years surrounding World War I, when Santa Fe and the Pennsylvania Railroad deployed them en masse, Santa Fe with its 178 4-4-2s in various classes and the PRR with its far more famous 83 engines in the E6 class. When the last Pennsy E6s were delivered in 1914, it appeared to be the end of an era.

Fortunately for the Midwest traveling public, the Milwaukee Road wasn't listening. As the railroad worked toward the 1935 inauguration of its ground-breaking *Hiawatha* passenger trains, the railroad turned to the 4-4-2, ordering four special engines from the American Locomotive Co. Always a railroad that went its own way, the revival of the 4-4-2 Atlantic-type made sense in light of the Milwaukee Road's overriding goal: serve the hot Chicago-Twin Cities market with the fastest trains in the country and, while they were at it, beat the Chicago & North Western and the Burlington, their competitors in the corridor.

What Alco and the Milwaukee Road created were thoroughbreds, big oil burners equipped with 84-inch drivers, roller bearings on all axles, and all-weather cabs. Designated the A class and numbered 1 through 4, their boilers created steam at 300 psi and delivered 30,700 pounds of tractive force to the rail, plenty for the six- to nine-car trains typical of the Morning and Afternoon *Hiawathas*. With the main rods linked to the first driving axle, they boasted a longer wheelbase than many 4-6-2s; their 144,300 pounds of weight on drivers was significantly more than the PRR and Santa Fe 4-4-2s. For a

No. 2 stands with a display train at Milwaukee's downtown depot in the 1935 during the initial publicity push. Milwaukee Road



while, the railroad briefly called their engines the Milwaukee type, opting later for the traditional "Atlantic."

The A engines looked fast. To make the maximum impression on the public, the railroad hired famed industrial designer Otto Kuhler, who covered most of the boiler in a sleek, streamlined shroud in a dazzling combination of light gray and black, accented by orange-and-maroon striping, a paint scheme carried forward with the rest of the Hiawatha fleet. On their noses were gleaming, winged stainless-steel numberplates. Noted Milwaukee Road author Jim Scribbins described the railroad's intention this way: "The Milwaukee type ... were the first streamlined steam locomotives designed as such from origin, the first locomotives in U.S. modern times for which speed alone was the governing design factor, and the first Atlantics built since 1914."

From the moment the 4-4-2-equipped *Hiawathas* appeared officially on May 29, 1935, they were a sensation. Crowds were drawn first to the appearance of the trains, supported by massive publicity in Chicago, Milwaukee, and the Twin Cities. Soon, the traveling public was just as enthused by the trains' new 390-minute schedule, a remarkable timing for a 410-mile run. In its first years, the Hiawatha managed the 90-mile Milwaukee-Chicago portion in as little as 80 minutes. As *Trains* Editor David P. Morgan put it (referring to the New York Central's record-setting 4-4-0 999 of 1893), "For the first time in American steam railroading, 100-mile-per-hour-plus operation became routine, not a 999 feat — and remained so even long after the original six-car trains had been expanded."

Alas, the resurgence of the 4-4-2 Atlantic-type on the Milwaukee Road was relatively short-lived. First came more passenger traffic in the late 1930s as the Depression waned, followed by the advent of World War II, both bringing with them the need for heavier trains, generally beyond the capabilities of the A-class machines. In 1938, the railroad received six F-7 class 4-6-4 Hudsons from Alco, again streamlined by Kuhler. They were among the largest of the wheel arrangement ever built, boasting the same 84-inch driving wheels as the 4-4-2s and the ability to sustain 100-miles-per-hour speeds. Gradually, the Atlantics were downgraded to secondary assignments. All four were retired by 1951 and eventually scrapped. — *Kevin P. Keefe*

Geared steam locomotives

As the saying goes for these "oddball" machines: Don't judge a book by its cover

Three-truck No. 6 is the last Shay locomotive built. Western Maryland

Compared to their traditional reciprocating rod-driven counterparts, geared steam locomotives can be seen as "oddballs" to the casual eye. They certainly fit that bill with their unique styles of running gear consisting of cylinders positioned at different angles and connected to the drive shaft through a series of gears to ultimately power every wheel on the short trucks. But as the saying goes: Don't judge a book by its cover.

This strange cosmetic feature of geared locomotives made them shine mechanically when it came to working in the rugged backwoods environment of the logging industry, coal mines, and occasional short lines. It was a world where the tracks were mostly laid down both temporarily and in earnest to haul out the timber, coal, and other traffic. The high iron itself was usually multiple ribbons of steep grades, tight curves, and light track. This type of infrastructure wasn't ideal for most rod locomotives with a long wheelbase. But geared engines — small, lean, flexible, and powerful (despite their low speed) — were right at home.

These machines' genesis began in the 1870s with Ephraim Shay. A Michigan lumberman, Shay recognized that reciprocating rods and big driving wheels weren't very effective negotiating the extreme twists and turns of the light track in logging. Believing that part of the solution was to have a locomotive with power-driven trucks that would pivot like a freight car, Shay designed a prototype and later commissioned Ohio's Lima Locomotive Works to build what would become the first geared steam locomotive.

As described by future Editor Jim Wrinn in the May 1996 issue of *Trains*, the first Shay-type rolled out in 1878 as a flat car with two four-wheel trucks, an upright boiler, and two vertical cylinders. "The cylinders drove a longitudinal shaft that drove the axles through bevel gears to reduce speed and increase torque." Over time, the design was fine-tuned with the horizontal boiler iconically positioned on the left side of the frame to offset the weight of the cylinders and gearboxes on the right.

Another key player in the Shay's evolution was the Willamette Iron & Steel Works of Portland, Ore. In the early 1920s, this producer of logging equipment tapped into Lima's expiring patents and the overall concept of its general designs. The end result was a "Shay-inspired" locomotive called the Willamette that came with significant improvements, such as superheaters and steel trucks. Only 33 were built. Lima responded in 1926 with the Pacific Coast Shay, which incorporated the improvements from the Willamettes, but were standardized.

Through 1945, Lima constructed 2,770 Shay locomotives, achieving their common use and popularity based on quality and durability. But it would be remiss not to give recognition to two other builders of geared engines: Climax and Heisler.

The Climax Manufacturing Co., in Corry Pa., in 1888 took a different approach when designing its own geared locomotive. The Climax-type's boiler remained centered with two cylinders on each side. However, the cylinders themselves were mounted on an incline and connected to a traverse shaft geared to the central drive shaft for the axles to be powered. By the time manufacturing ceased in 1928, Climax had constructed 1,100 of these engines.

Roughly 30 miles to the northwest, in Erie, Pa., the Heisler Locomotive Works in 1891 decided to try its luck with geared locomotives. The appropriately named Heislers had a V-mount for the cylinders on each side of the locomotive and under the boiler. They would directly power a central drive shaft from under the frame to turn only the trucks' outer axle; side rods then connected the outer and inner wheels. Production concluded in 1941; Heisler Works only mustered roughly 600 of its namesake machines.

Of the three main types, the grand total of geared steam locomotives built in the U.S. topped out at around 4,500. Despite being a niche breed, they held on until the end of the steam era. Shay No. 1925 of North Carolina's Graham County Railroad even lasted until 1970, touted as one of the last steam locomotives to be retired from regular service.

A healthy dose of Shay, Climax, and Heislers survive today in the preservation world. For those still in operation with museums and tourist railroads, some retain their original purpose of tackling the rugged backwoods to the delight of visitors and passengers. From West Virginia's Appalachians to California's Redwood forests, they still make an impressive sight.

To find geared steam locomotives that still operate, check out the *Great American Steam Locomotives: Logging and Geared Locomotives* DVD from *Trains*, available at shop.trains.com. — *Lucas Iverson*

No. 3 is a two-truck, 37-ton Heisler built in 1900 for West Side Flume & Lumber Co. It was converted to standard gauge in 1947. Glenn W. Beier

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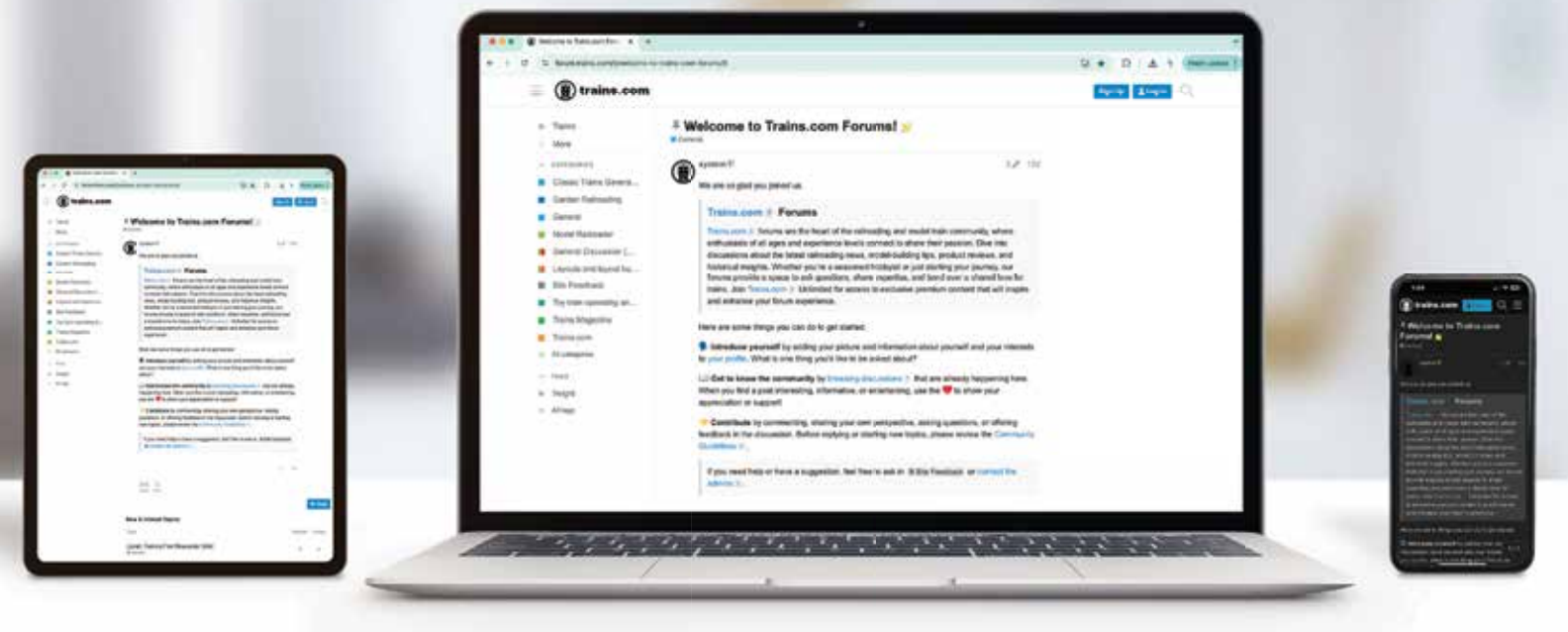

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Amtrak RS3 No. 133 handles a work train at Windsor, Conn., in March 1977. Scott A. Hartley

Amtrak RS3 diesel locomotives

An overlooked model on the Amtrak roster, the RS3 served in its second career for up to 25 years

Amtrak RS3 diesel locomotives supported operations on the Amtrak-owned Northeast Corridor between Boston and Washington, D.C. The RS3 was Alco's best-selling road switcher model with 1,265 units sold to more than 50 railroads between 1948 and 1962. Marketed as a multi-purpose unit, some roads, including but not limited to Pennsylvania, Rock Island, and Western Maryland, ordered some with steam generators for passenger service.

There were 45 RS3 units, acquired from the Penn Central roster with Amtrak's acquisition of the Northeast Corridor on April 1, 1976. They were built between 1950 and 1955 for New York Central (26 units); New York, New Haven & Hartford (8 units); and Pennsylvania Railroad (11 units), the three major components of PC.

During their tenure on Amtrak, three units were rebuilt with EMD prime movers. This occurred with Nos. 106-107 in July 1981 and No. 104 in June 1984. The latter two units were the last RS3s on the Amtrak roster, lasting until September 1995 and August 2001, respectively. (The last un-rebuilt unit, No. 127, was retired in November 1986.) The rebuilt units had modified rooflines on the long hood to accommodate the new internals; No. 104 only had a lowered nose.

Most units wore plain Penn Central black with white lettering on the cab sides for the majority of their time on the Amtrak roster. However, rebuilt units Nos. 104, 106, and 107 sported Amtrak "phase 3" paint with equal red, white, and blue stripes and black roofs and underframes.

The Amtrak RS3 diesel locomotives split their time between maintenance-of-way and terminal switching duties. Their territory stretched from Boston's South Station to Washington, D.C.; Harrisburg, Pa.; Springfield, Mass., all Amtrak-owned mainline trackage at the time. They were also called upon as rescue engines when an electric locomotive, or the larger electric supply infrastructure, would become disabled.

They would also appear as switchers at terminals off the Corridor, including Albany, N.Y., and Chicago in their original black paint. Nos. 106 and 107 survived into the 1990s as the resident switchers at the Sanford, Fla., Auto Train terminal. Surprisingly, 106 subsequently ended up working as a leased engine switching mail and express cars at Toledo, Ohio, in the late 1990s. — *Brian M. Schmidt*

EMD re-engined RS3 No. 106 is seen at Boston in July 1981. Tom Nelligan

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***City of Miami* profile**

Passenger train historian Mike Schafer shares the history and spectacle of this pioneer streamliner.

Mileposts Blog

Read commentary by our columnist Kevin P. Keefe, who reflects on the places he's been, the people he's met, and how railroading's history affects the industry today.

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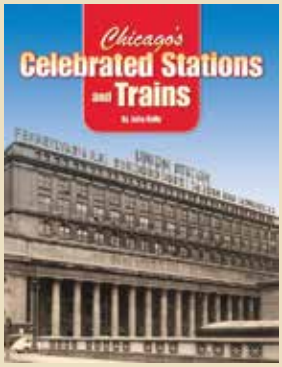
Santa Fe 'super' 4-6-4s

Look back at the pinnacle of the type on the Santa Fe, including streamlined *Blue Goose* No. 3460.

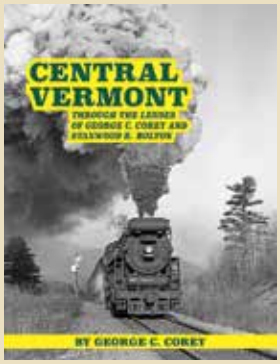
Reviews



Chicago's Celebrated Stations and Trains

By John Kelly, PB&J Books. Yellow Springs, Ohio. 108 pages. $34.95.

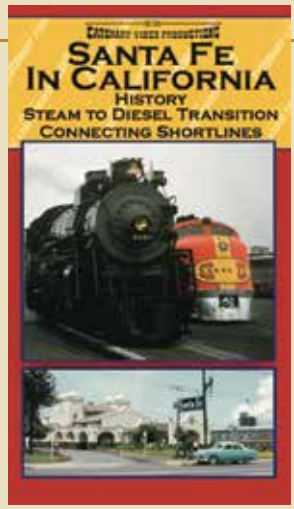
The breadth and depth of Chicago's passenger rail service is presented in this accessible softcover volume. The book is divided into seven chapters, one for each of the city's six major passenger terminals and a look at commuter and interurban services. A mix of black-and-white and color photography are supplemented with selections of period railroad advertising and timetables. Printing is exquisite throughout. This book will appeal to a broad swath of railroad enthusiasts looking for a high-level history of the material. — *Brian M. Schmidt*



Central Vermont Through the Lenses of George C. Corey and Stanwood K. Bolton

By George C. Corey. SilverLake Images. Harrison, N.Y. 112 pages. $50.

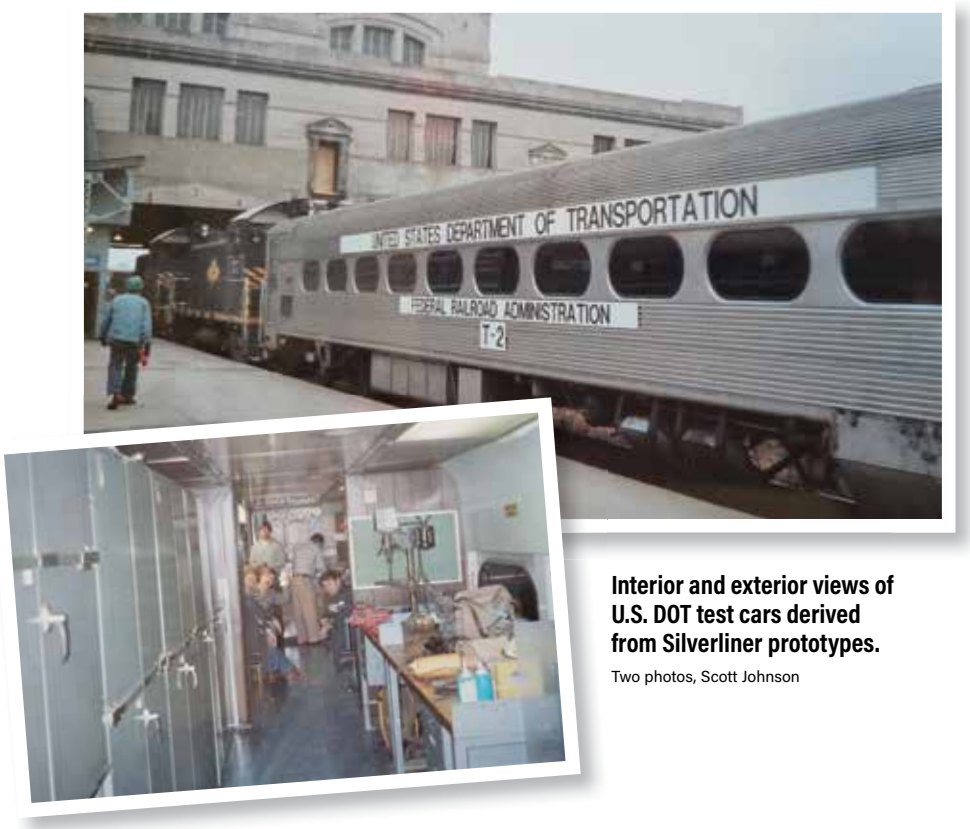
Classic Trains' readers were introduced to the fantastic photography of George C. Corey and Stanwood K. Bolton in the Winter 2021 issue. This volume expands on the legacy focusing on New England's famous link between New London, Conn., and Canada. Photos are presented in black-and-white and color and include steam and diesel subjects into the 1990s. The final chapter presents three timetable pages, 10 steam locomotive diagrams, and three diesel locomotive diagrams for the readers' handy reference. Fans of New England railroading and great photography will appreciate this work. — *B.M.S.*



Santa Fe in California

Catenary Video Productions, DVD, 60 minutes, $29.95.

Classic California rail action captured on 16mm film and presented with stereo audio. The most famous locations include Cajon Pass, Mission Tower, Redondo Junction, and Bakersfield. — *B.M.S.*



Interior and exterior views of U.S. DOT test cars derived from Silverliner prototypes.

Two photos, Scott Johnson

High-speed celebrities

Despite spending countless hours on DOT T2 and T4 on a 1984 FRA/Amtrak track geometry survey by Ensco Inc. in 1984 (see "Riding the Rails with Riley," *Trains* September 2009), I had no idea they were high-speed test celebrities.

Now I understand why their windows were different from the heritage cars that were used on the Eastern trains. I was ignorant of Philadelphia-area commuter trains, but wondered why, in doing some research for my article, I found some pictures of the cars with pantograph bases still attached. Now I know!

I didn't worry about such things at 22 years old! I was just having fun riding the head end of EMD F40PH and GE P30CH "Pooches" across the country.

Best job I ever had!

Scott Johnson, Oregon City, Ore.

Anniversary appreciation

Thank you for a wonderful silver-themed 25th anniversary issue. I especially enjoyed the look back at the Rio Grande's Silverton Branch. In my youth, the Colorado narrow gauge seemed over-emphasized by earlier generations. But, I've grown to appreciate it more over time.

Brandon Gunderson, Long Beach, Calif.

Congratulations on 25 years of *Classic Trains*! I look forward to what the magazine will cover in its next quarter century. It's hard to believe that 2026 will be the 50th anniversary of Conrail and the 55th anniversary of Amtrak. I hope that *Classic Trains* gives them the same consideration it has to their other roads.

Jerry Englewood, Cambridge, Mass

Silverliners clarifications

I have some comments and corrections to Brian Solomon's Silverliner article, specifically the U.S. Department of Transportation Test Cars with which I was involved.

The four test cars were basic Silverliners with high-speed gearing, GSI cast-steel trucks, and tread brakes. The Pennsylvania Railroad was less than confident in Budd's P3 truck at high speed and had experienced some difficulty with disc brakes and air springs. I'm a little fuzzy on this, but I believe that each of the four test cars had controls at both ends. I say this because at times the cars were operated singly when operation from both ends was necessary.

The "semi-streamlined beveled fronts" on T1 and T4 were not requested by the PRR nor were they for a "more refined look." The faring was added to reduce aerodynamic drag when the cars failed (after months of trying) to meet the specified maximum speed (155 mph) as required by the original Department of Commerce contract with Budd.

Budd had suggested the change and submitted the design as a possible step in achieving that end. With this slight reduction in resistance along with higher catenary voltage, reduced electrical load on the catenary (night running), and a slight tail wind the spec was met (156 mph) at about 2 a.m. on April 2, 1967 — the day of the establishment of the U.S. Department of Transportation which then assumed ownership of and responsibility for the cars.

Robert B. Watson

Seaboard something

Congratulations on the excellent article on the Seaboard's silver fleet! Someone did a lot of research, which I appreciated. I also appreciated the train consists for different years, and the pictures. This good work is why I have been a subscriber since your first issue!

First, your cover picture caption says it was taken in Hamlet, N.C. However, it was taken in Raleigh; Note the "GH NC" on the sign.

My second comment is that the Seaboard map on page 26 shows the Seaboard going to Naples. The SAL went to Venice from Tampa, and the Atlantic Coast Line went to Naples from Lakeland. I have ridden both lines, first to Venice behind "doodlebug" 2028 and then to Naples on the ACL.

One final comment is that the Seaboard replaced the streamlined 4-6-2 steam locomotives on the Wildwood to Tampa section of the Silver trains with unique Baldwin "babyface" passenger diesels. I have ridden behind them also.

Rodney Chabot, New Canaan, Conn.

Time adjustment

As a former railroader myself, I have always respected the contributions of Jerry Pinkepank. But, his calculations are off in "Riding the Silver Fleet, 1969-1970." He forgot to allow for the difference created by the time zones affecting run time averages.

Tony Waller, Raleigh, N.C.

I noted an error in "Riding The Silver Fleet, 1969-1970," in which he describes a trip on the Baltimore & Ohio *Capitol Limited* from Detroit to Washington, D.C. Where Jerry erred was identifying the point at which the Ambassador from Detroit was cut into the *Capitol Limited* in 1963. It was actually at Willard, Ohio, not Deshler. I took the *Capitol Limited* from Washington to Chicago in the fall of 1964 as a Slumbercoach passenger, and recall the stop at Willard in which the two trains were separated.

By the way, in 1964, the *Capitol Limited* was years beyond its all-Pullman status, carrying the cars of the one-time, all-coach *Columbian* since the mid-1950s. Also, the *Ambassador* name ultimately disappeared from the timetables.

Paul Seidenman, San Francisco, Calif.

Got a comment? Write us: Fast Mail, *Classic Trains*, 18650 W. Corporate Dr., Suite 103, Brookfield, WI 53045 or fastmail@classictrainsmag.com. Letters may be edited for length and clarity.

AFT 1 poses with the American Freedom Train at Detroit's Michigan Central Station in 1975. John F. Bjorklund, Center for Railroad Photography & Art collection

B&O Museum spotlights AFT 1

The future is bright for this former Reading Co. steam star

Has any class of homebuilt, remanufactured mainline steam locomotive ever performed as brilliantly as the Reading T-1 4-8-4? Given the long lives of four from its illustrious class of 30 engines, I'd say no.

I came to this conclusion during a recent visit to the Baltimore & Ohio Railroad Museum, which has announced that ex-Reading No. 2101, in its collection since 1980, will get a thorough cosmetic restoration. It will remain in its guise as American Freedom Train No. 1, a nod to arguably its finest hour as an operating locomotive. More on that in a moment.

The 2101, which I'll call AFT 1 from this point, is one of four surviving Reading 4-8-4s, all of them with impressive pedigrees. Saved from the scrapper in the late 1950s by an inspired Reading management, the quartet ran in various combinations on the railroad's famed Iron Horse Rambles into the early 1960s.

Happily, all four remain in good hands. The class engine, No. 2100, is undergoing a restoration to service by the American Steam Railroad Preservation Association at a roundhouse in Cleveland. That Rambles favorite, No. 2124, is preserved at the Steamtown National Historic Site in Scranton, Pa. Most spectacularly, the meticulously restored 2102 can be seen romping up and down its home rails for owner Reading & Northern.

That leaves the former 2101, a celebrity in its own right after being rescued from obscurity in 1974 and restored in a patriotic flourish to haul Ross Rowland's American Freedom Train in the eastern U.S. After the Bicentennial, the 4-8-4 reemerged as the star of the Chessie Steam Special, an exhibition and excursion train that toured most of the Chessie System in 1977 and '78, only to meet an ignominious fate in a March 1979 fire at the old Chesapeake & Ohio roundhouse in Silver Grove, Ky.

That fire apparently caused enough damage to the 4-8-4 that Chessie System offered Rowland a trade as compensation: donate the 2101 to the B&O museum and in return receive C&O 4-8-4 No. 614, then in the museum's collection. It turned out to be a great deal. Rowland and his team proceeded to restore the 614, which was built in 1948 and as such was as modern an engine as you could find.

Rowland ran it for several years on CSX and other railroads, most famously as 614T in a series of demonstration runs on West Virginia coal trains. Today it appears 614 is headed for its own revival, a story for another time.

There's nothing better than seeing an operating engine. Regardless, a little love, please, for the AFT 1. Displayed out in the elements in Baltimore for decades, it looks really rough, pockmarked with rust and decay. But in a few months that should all be a distant memory, once the intrepid B&O Museum shop crew does its thing. Stroll around the museum's finished exhibits and there is plenty of evidence of what these guys can do. I saw as much five years ago when I witnessed the team spiffing up B&O GP38-2 No. 3802, the so-called "All-American Diesel" as designated by the late *Trains* Editor J. David Ingles.

Work on the AFT 1 is set to begin in June and should be completed in time for the summer of 2026, when the museum is planning a large-scale celebration to mark both the 250th anniversary of the United States and also the 200th birthday of the B&O. This time, instead of being out in the weather, the 4-8-4 will have a home under roof in a location yet to be determined.

AFT 1 as it appears today at the B&O Museum, just outside the shop where it will receive a full cosmetic restoration. Kevin P. Keefe

Looking back, you have to be impressed with what the Reading Co. accomplished when it began building the T-1 in 1945. Badly in need of new power (the company was getting by on beefy 2-8-0s, 2-8-2s, and 2-10-2s, all dating to 1931 or earlier) but always careful with its money, the railroad decided to take a bunch of its fat I-10sa Consolidations, break down the boilers, add new courses in the middle, lengthen the fireboxes, and set all of them down on brand-new cast-steel frames. Throw in roller bearings and 70-inch disc drivers and, all of a sudden, the Reading had 30 first-class Northerns for half the price of new.

On May 13, 1978, No. 2101 pounds up Sand Patch grade at Fairhope, Pa., with the Chessie Steam Special. Michael A. Eagleson

As for their performance, I checked in with my friend Ross Rowland, who logged countless time at 2101's throttle. The unrivaled steam impresario (think High Iron Co., American Freedom Train, Chessie Steam Special, to name just a few) has the rare distinction of having been the engineer on multiple machines, ranging from Nickel Plate 2-8-4 No. 759 to Chesapeake & Ohio 614 to both Reading 2101 and 2102. Ross rates the "T-Hog" highly.

"The Reading T-1s were the hardest pullers of the lot and had the loudest exhaust as well," he told me. "We hung the absolute maximum tonnage onto 2101 when she pulled the Freedom Train and she never let us down."

Just how hard could the T-1 pull? Ross offered this anecdote about the time in May 1976 the 2101 took the AFT out of Birmingham, Ala., up to Huntsville, which involved a long 1.7% to 2.1% grade in the middle of a 110-mile trip along the former L&N.

"I had the reverse down in the corner, full throttle, full sanders, full booster, rail washers for a good hour and 15 minutes as we slugged it out at a constant 11 miles per hour. She never slipped a wheel and conquered the grade. Chessie had wanted to add diesel helpers right out of Birmingham as they were certain that the 2101 couldn't lift that 24-car train over that mountain. I had to go to CEO Hays Watkins to get permission to run without helpers.

"When we successfully reached Huntsville, AFT Trainmaster Ray Flores walked up to the head end and stood below the cab window, looked up at me, and held both thumbs up with a wide smile and shouted 'now that's one hell of a steam engine.' After that the railroad never again insisted on helpers."

The former 2101 won't repeat that feat ever again, but hold the lamentations. Next year, as a freshly restored museum exhibit, AFT 1 will re-emerge as an impressive testimonial to one of the all-time great steam shows — the American Freedom Train — as well as recall the geniuses of the Reading Co.'s mechanical department who, in the closing months of World War II, began building a fleet of unusually gutsy 4-8-4s.

The B&O Museum is seeking support in its restoration of the AFT 1. Go to www.borail.org/bo-railroad-museum-begins-restoration-of-historic-aft-no-1/

KEVIN P. KEEFE joined the Trains *staff in 1987, became editor in 1992, and retired in 2016 as Kalmbach Publishing Co.'s vice president, editorial. His blog "Mileposts" is at Trains.com.*


912
Pepsi

Rush Hour at SPUD

Just after 7:30 a.m. on a sunny Monday morning in May 1967, the east throat of St. Paul Union Depot gives every indication of a busy and important railroad terminal. This despite a rapidly shrinking passenger train network across the U.S. On the right, Great Northern's *Dakotan* is accelerating toward Minneapolis, 20 minutes away, and then Minot, N.D. SPUD's GE 44-ton switcher is sorting out storage mail cars, probably for Northern Pacific's *Mainstreeter*, due to leave for Seattle within the hour. The Milwaukee Road's Baldwin switcher is working mail cars and a New York Central Flexi-Van flat, which likely just came in from Chicago on the *Fast Mail* and *Pioneer Limited*. St. Paul was still deserving its status as one of the busiest railway mail transfer centers in the country. Mornings also remained a busy place at SPUD for passengers thanks to arriving overnight trains from Chicago, streamliners from Seattle, and Great Northern's still-intact network of regional trains. Obvious evidence of this was inside the depot coffee shop where rows of passengers lined up several deep trying to grab a quick breakfast between trains. Orchestrating all of this was the train director in the gray building on the left giving orders to switchmen seen here walking along the tracks. Turnouts in the depot area including double-slip switches were all hand-throw. But in just a few months the U.S. Post Office would quickly terminate RPO routes by the dozens and remove large volumes of mail traffic from trains. The result would be an immediate flood of passenger train discontinuances. And soon, a colorful early morning rush-hour scene like this would be a memory. — *Otto P. Dobnick*

J. David Ingles, Brian M. Schmidt collection

Built in 1897 and 65 years old at the time, 0-6-0 "Black Motor" 30346 rolls a lengthy goods train along the former London & South Western main line at West Byfleet on July 20, 1962. The venerable 0-6-0 was one of 30 in the LSWR 700 Class, all of which achieved 60 years of service. The last 17, including this one, were withdrawn by the end of the year.

Victor Hand, Center for Railroad Photography & Collection Hand-BR-XC03-55

A SYSTEM WORN OUT BY WORLD WAR II HAS SEEN RADICAL CHANGE

British railroading *after 1945*

BY KEITH FENDER

As World War II ended in 1945, Britain's railways were worn out from six years of intensive use. The war had seen millions of soldiers — many of them American GIs and Canadians — and their equipment join their British counterparts in moving military assets around the country before heading to Europe. The railway network was especially hit hard in London and several other big cities, targeted by German air and missile attacks and often repaired only if the damage prevented trains from running.

During the war, the British government had taken control of the rail system, most of which was owned by four large geographically based companies, themselves formed in 1923 by grouping together multiple smaller companies, many of them facing financial difficulties. After the war, the four private companies regained control, but only temporarily as a new government was elected in July 1945 on a platform promising public control of multiple major industries, including the railways.

However, unlike neighboring European countries such as France or the Netherlands, Britain stayed with steam. Other countries had seen so much destruction that their governments decided in the 1950s to rebuild with new, often electrified systems. In Britain, steam remained supreme into the late 1950s, only surrendering to diesels in the 1960s. Steam survived longer partly due to the plentiful availability of coal (whereas oil was imported), and also for the experience Britain had gained in the late 1930s running steam-hauled streamlined express trains at 100 mph.

THE COMING OF NATIONALIZATION

Even before World War II, Britain's private railway companies had not been very profitable as profits made in express passenger or bulk freight were offset by losses made running passenger and freight trains on lesser-used secondary lines. With wartime damage and a corresponding underinvestment in maintenance, huge capital investment was required, mostly beyond the private companies' ability to raise the necessary funds.

The "big four" rail companies were nationalized in January 1948 and formed just a part of a huge new government owned transportation organization called the British Transport Commission (BTC). It included not only railways but hundreds of organizations involved in road haulage, canals, shipping, and some bus operations. In addition, many smaller private railways were nationalized as were fleets of privately owned freight cars used by major freight customers. The takeover included multiple large locomotive and car shops owned by the big four companies plus their fleets of ferries and collections of hotels. Altogether these employed tens of thousands of people.

> BR then instituted a ban on steam operation; it didn't last very long and mainline steam charter trains remain a feature of Britain's railways to this day.

With the takeover, the new Transport Commission placed train operations under the Railway Executive, trading under the name of British Railways, a moniker used until 1965 when it was simplified to British Rail. The latter name would exist right up to privatization in the late 1990s. There had been no bipartisan consensus on the creation of this huge new transport company, and following a change of government much of road transport within the BTC was deregulated beginning in 1953. The railways, however, remained in government hands, although funds for investment continued to be insufficient, a situation that would persist throughout the life of what would become British Rail.

SOON BTC was buying more steam locomotives. In the early years these were simply additional machines of successful pre-war or wartime designs. Ultimately,

NEW STEAM LOCOMOTIVES

One of the first priorities for the new national rail organization in 1948 was the urgent need for new locomotives, as production of new steam locomotives during the war had been limited mainly to heavy freight engines, many of which were shipped overseas to support the Allied armies. Moreover, hundreds of American-built locomotives were imported into Britain in 1943-45, some of which were used there before moving to Europe to provide logistical support to U.S. forces.

The BTC took over a large motive-power fleet upon nationalization. Almost all of them were steam; apart from some small gas or diesel switchers and passenger railcars, there were only a handful of prototype road diesels or electrics. Some members of the steam locomotive fleet were more than 50 years old. Depending on where they were used, some would remain in service for another 20 years.

BR Class 4 Standard Tank 80104 leads an Eastern Region commuter train on Aug. 17, 1960. This locomotive was just six years old at the time. It was withdrawn from traffic after 10 years of service; it was utimately preserved and is owned by Southern Locomotive Ltd. Richard J. Solomon

the national rail company decided to standardize future locomotive design and from 1951 forward began production of 12 different types. The design work was led by Robert Riddles, the Railway Executive's head of mechanical and electrical engineering and formerly a senior engineer at the London Midland & Scottish Railway (LMS). The new standard engines closely resembled many of the LMS designs. The new "BR Standard" locomotives were designed to be versatile: capable of hauling both passenger and freight and with some exceptions to operate on the entire rail network.

Britain chose to build new steam locomotives at a time when North American railroads were buying hundreds of new diesels every year and as many of its European neighbors were expanding their electrified rail networks. Despite being modern when built and cheaper to buy, the BR Standard locomotives generally were more expensive to operate, thus they were destined to have short lives as the BTC moved toward diesel power.

A MODERNIZATION PLAN EMERGES

In 1955, the BTC decided to follow the global trend and replace steam with diesel. Recruiting large numbers of people willing to work in often dirty locomotive shops or on the footplate of steam locomotives was becoming more and more difficult, especially in an era of clean, modern manufacturing offering better working conditions, hours, and pay.

Having set out a logical plan to run a pilot scheme in 1955 to order and then test small batches of locomotives from a variety of builders — all of them British — the BTC quickly changed its mind and ordered large numbers of some designs before any had been tested. A key reason was the unrelenting pressure to reduce the high labor and maintenance cost of steam. Perhaps inevitably, this led to some unsuccessful designs, as well as some good ones, a few of which remain in use 70 years later in 2025.

Currency controls and tariffs led to the selection of British-only builders. The BTC was trying to assist the British locomotive industry, which in pre-war years had exported steam locomotives world-

When this picture was taken in 1965, this locomotive was already 73 years old. Carrying the name *Shanklin*, Class O2 locomotive No. 20 was seen in Newport on the Isle of Wight. Alan Sprod

wide. By buying only British-built diesels, the BTC hoped it could encourage foreign sales. This may have assisted in the 1950s as companies such as English Electric and North British sold diesels (and electrics) around the world. However, by the 1960s the international dominance of American builders Electro-Motive, Alco, and General Electric meant these export sales largely disappeared; most of the British manufacturers had left locomotive manufacturing or gone completely out of business by the 1970s.

Between 1957 and the mid-1960s, more than 3,000 new diesels were built, many at workshops owned by BR but also by private industry. The locomotives were classified into five groups based on horsepower, with Type 1 locos being up to 1,000 hp and Type 5 above 3,000 hp. Only a small number of the powerful Type 5 category were built, with the only production batch in the 1960s being the 22 famous Deltic six-axle 100-mph locos built to replace nearly three times as many steam locomotives on the East Coast Main Line from London Kings Cross to Edinburgh. One of the latter was the world steam speed record holder Mallard, which had achieved 126 mph in 1938. The Deltics were based on a privately built prototype of that name manufactured by English Electric and featured twin opposed 18-cylinder engines originally designed for fast naval attack boats. In addition to the range of Type 1-Type 5 road diesels, thousands of small 100-350-hp diesel switchers were bought in the 1950s and 60s to replace even larger numbers of small steam switchers.

Almost all the locomotives purchased

The 2,700-hp "Western" six-axle diesel-hydraulics were the last and most powerful to be built. D1046 *Western Marquis* departs Paignton in southwest England with the 2 p.m. train to London Paddington in June 1975. John Harrup, Keith Fender collection

Sparking the British preservation movement

The withdrawal of steam locomotives from Britain's railways from the late 1950s onward along with the closure of uneconomic lines led rail enthusiasts to come together to preserve historic locomotives and sections of railway on which to operate them. The first railway to be preserved in Britain — likely anywhere in the world — was the narrow-gauge (2-foot, 3-inch or 686-mm) Talyllyn Railway in Wales. Built in 1865 to transport roof slates from mines to a nearby harbor, the line became a heritage railway in 1951.

South of London the first standard-gauge heritage line to carry passengers was created on a short four-mile section of a former BR regional line from East Grinstead to Lewes. It opened in August 1960, just three years after BR had shut it. This line became a model for many more in the ensuing decades; today there are approximately 170 heritage railways of all gauges in Britain, with more than 600 miles of track. Initially, the Bluebell Railway relied on historic steam locomotives bought direct from BR by individuals or groups of enthusiasts. As other groups around the country began developing plans to preserve sections of railway, they had to find locomotives.

Several of these lines now have hundreds of working ex-BR steam locomotives, many of which survived almost by chance. One scrap dealer, Dai Woodham in Barry, near Cardiff in South Wales, saw the value of the locomotives to would-be preservationists and scrapped relatively few of the 297 he bought from BR in the 1960s; the last steam locomotives left the scrapyard decades later in 1990.

Today there are approximately 170 heritage railways of all gauges in Britain, with more than 600 miles of track.

Without the locomotives from Woodham's yard, the British rail preservation movement would have far fewer locomotives. Those preserved reflect the locomotives that Woodham bought, most of which were previously employed within a 200-mile radius of the scrapyard. As a result, some locomotives types are preserved in large numbers proportional to how many of them were built, while other important types were not preserved at all. Britain's preservation movement has found a solution to this — especially in recent decades — by building new engines to long-lost designs. Several of these locomotives that were never preserved can now be seen running, some even on the main line network. Notable among them is London & North Eastern Peppercorn-class A1 60163 *Tornado*, completed in 2008.

Unfortunately, the concept of diesel locomotive preservation had not developed until the early 1970s, so a handful of unique diesels sold to the scrapyard in Barry were cut up for scrap as relatively recently as 1980. During the 1970s, the remaining diesel-hydraulics were withdrawn as BR decided to standardize on diesel-electrics. The withdrawal of the "Warship" express passenger locomotives, which had a cult enthusiast following, led to something completely new: the preservation of diesels, the first being sold by BR in 1971. This happened less than a decade since the last BR steam locomotive was withdrawn and started a diesel preservation movement that has seen hundreds of ex BR diesels plus some electric motors preserved. — *Keith Fender*

British Railways acquired a large number of DMU trains in the late 1950s and early 1960s. This two-car set was built by Metropolitan Cammell in Birmingham and was photographed Aug. 30, 1966, at Aldeburgh in eastern England. Service here ended 12 days later. Alan Sprod

in the 1950s and '60s were diesel-electric, although the Western Region of BR had sufficient autonomy to order diesel-hydraulic locomotives using German technology; the West German railroad Deutsche Bundesbahn (DB) was buying hundreds of diesel-hydraulic units to replace steam. Between 1958 and 1964, BR took delivery of 367 diesel-hydraulic locomotives ranging from small switchers to six-axle 2,700-hp machines. By the time some of these locos were delivered, the traffic they were built to haul was disappearing fast as lines were closed and local freight traffic switched to road transport. The last diesel-hydraulic working for BR was withdrawn in 1977.

The decision to rapidly replace steam meant some of the new BR Standard steam engines had short working lives. The last steam locomotive built for BR — the last of 251 heavy freight Class 9F 2-10-0s and the 999th BR Standard loco — left the works at Swindon in March 1960 and given the name Evening Star. It would remain in service for just five years and is now part of the collection at the National Railway Museum in York.

Steam operation on BR ended on August 11, 1968, when a special train ran in the north of England from Liverpool to Carlisle worked by four different locomotives, three of which survive in preservation. BR then instituted a ban on steam operation; it didn't last long and mainline steam charter trains remain a feature of Britain's railways to this day.

NEW ROLLING STOCK

By the early 1960s, hundreds of new diesels and new DMUs were entering service every year, replacing much larger numbers of steam locomotives. The investment in new power was accompanied by orders for thousands of new passenger cars as well as self-propelled DMU cars. The passenger and freight cars were designed by BR but built by both the railway's shops and private industry. While multiple freight car designs were produced, the passenger cars had a clear family likeness and were classified as Mark 1. By the late 1960s an improved 100-mph Mark 2 design appeared, some of which were air-conditioned, and in the 1970s the new diesel-powered High Speed Trains (HST) used a Mark 3 air-conditioned 125-mph design. Also built was a Mark 3 version to be hauled by locomotives at up to 110 mph.

BR then instituted a ban on steam operation; it didn't last very long and mainline steam charter trains remain a feature of Britain's railways to this day.

The BTC also inherited a large electrified network in southern England, where the private Southern Railway had electrified suburban and regional routes into the late 1930s using a third-rail system. This was expanded with lines southeast of London in Kent added in the late 1950s. Many of the pre-World War II EMUs in use incorporated older ex-steam hauled cars and during the 1950s and '60s hundreds of new third-rail EMUs were built to replace these. Elsewhere, older trains on small sections of electrified routes that in some cases dated to 1900-1920 remained in service into the 1960s.

In 1954, a mainline electrification project on the busy freight and passenger line connecting Manchester and Sheffield in northern England opened to electric trains with pairs of new electric locomotives replacing steam on freight and seven six-axle motors working the passenger trains. This route over the Woodhead Pass in the Pennines featured steep grades and historically had required the use of Britain's most powerful steam locomotives, largely for coal trains. The projects had begun in 1936 by the

previous private London & North Eastern Railway (LNER), which had inherited some electrified lines in the North East with equipment dating back to the 1920s or earlier. Work was suspended during the war until 1950.

The route used the 1,500-volt DC electrification system, which became obsolete when Britain followed much of Europe in the 1960s in choosing higher-voltage AC systems. The Woodhead route was closed in 1980; passenger service ended on the route in 1970 and the six axle locos used for express trains were sold for further use in the Netherlands, where they remained in regular service until 1986.

Large-scale electrification using AC overhead supply was planned as early as 1955, with electrification slated for both the West Coast Main Line from London Euston to Birmingham, Manchester, and Liverpool; plus, the East Coast Main Line route from London Kings Cross to Leeds and York. The first stage of electrification included multiple commuter rail lines serving London and Glasgow. While the work to electrify London Euston to Birmingham, Manchester, and Liverpool got underway in the late 1950s and opened to electric trains in 1962-67, work on the East Coast route would wait several more decades, only being completed to York in 1989.

To haul both passenger and freight trains on the newly electrified West Coast Main Line, BR bought 200 electric locomotives of six types; all were designed for 100-mph operation. While some of the initial designs were less successful, many of the biggest batch — built as Class AL6 and later becoming Class 86 — survived into privatized operation for both passenger and freight; a small number have been sold to freight operators in Eastern Europe in both Bulgaria and Hungary, where they remain in use.

For the 1954 Manchester-Sheffield electrification, BR ordered 57 four-axle 1,300-hp electric locomotives, based on a pre-war prototype. No. 76024 leaves Wath near Sheffield with a train of steel on May 8, 1979, during the final year of operation. John Harrup, Keith Fender collection

Passenger EMUs were also built for the Manchester-Sheffield electrification. The units remained in use at the Manchester end of the otherwise closed mainline until 1984, when the line was converted to 25kV AC. One poses at Manchester Piccadilly on Dec. 3, 1983. Keith Fender

DR. BEECHING

In 1962, the BTC was abolished and replaced by the British Railways Board. Its new chairman was Dr. Richard Beeching, a prominent chemicals executive. Under him, the new board in 1963 produced a plan known as "The Reshaping of British Railways," or more commonly the Beeching Report. It included proposals to abandon approximately 7,000 miles from the 18,000-mile network as BR chased the then politically mandated target of avoiding government subsidy by 1970. Beeching calculated that one third of the network mileage accounted for around 1% of passenger and freight traffic, and that BR had built or retained a locomotive-hauled passenger car fleet three times bigger than the regular daily requirement.

Closing lines to passenger service or abandoning them altogether was not a new concept; BR had completely shut more than 300 miles and around 400 passenger and freight depots in the period 1954-1958, and this process accelerated into the early 1960s with around 2,000 route miles closed down. The introduction of new diesel multiple units to replace steam often reduced operating costs and allowed more services to be run, but in rural areas the passenger counts were insufficient to cover operating costs. Later, from 1968 onward, after the large-scale Beeching closures, which continued despite a change in government, a new British government decided to financially support money-losing regional and commuter rail service subject to user numbers meeting a cost-benefit target. This funding has remained in place with multiple changes ever since.

Beeching is remembered negatively by many in Britain for his reports recommending the abandonment of rail lines connecting towns that were left with little or no public transportation. At the same time, he pioneered the growth of intermodal freight and was focused on making what was left of BR into a viable business after it was reduced in size.

Bath Green Park station was a victim of the Beeching cuts; two lines connected Bath with nearby Bristol, and the one that was kept offered a through route to London built by the Great Western. The station closed March 1966. The 2-6-0 was photographed June 30, 1962, numbered as 42790 by BR, and was built for the London Midland & Scottish in October 1927 at Crewe. It remained in use until 1963. Alan Sprod

HIGHER SPEEDS

In 1959, BR saw the introduction of all-Pullman diesel-electric multiple-unit trains called "Blue Pullmans," painted in a brilliant blue and featuring 1,000-hp power cars at either end, plus up to eight passenger cars. These trains offered luxury service on certain express routes until all five 90-mph trains were withdrawn in 1973; all were scrapped.

In the 1960s, BR began research into newer, faster trains that later would lead to prototypes for what it called the Advanced Passenger Train, or APT, which featured gas-turbine engines and active-tilting cars. The first version introduced in 1972 in tests reached 152.3 mph.

While the APT-E had proven tilting trains could run much faster than conventional ones, the gas turbines proved not to be viable — especially after Middle Eastern tension brought the worldwide 1973 oil embargo. The French National Railways (SNCF) had similar plans for a gas-turbine version of its planned Train à Grande Vitesse (TGV) high-speed network, with a prototype debuting in 1972. But SNCF soon switched to electric power for future models. Unlike the BR APT, the electric TGV made a successful debut in 1981, operating partly on brand new high-speed tracks and quickly establishing the precedent of dedicated high-speed lines in Europe.

The most numerous electric was the BR type AL6, later the Class 86 25kV A.C. four-axle motor. One hundred were built 1965-66 for use on the West Coast Main Line and later were moved to other electrified routes. No. 86233 is at Birmingham International on April, 20, 1985. Keith Fender

For its part, BR in 1970 had begun designing two new high-speed trains: a diesel electric known simply as the High Speed Train (HST) and an all-electric tilting version of the APT. The prototype HST appeared in 1972 with two diesel-electric power cars at either end and new Mark III passenger cars. It achieved 143 mph in tests and was later used in passenger service for around 18 months in 1975-76, by which time the production 125-mph version was ready to enter service. The HSTs initially operated from London Paddington with trains to western England, allowing the replacement of

Four Intercity 125 HST trains line up at London Paddington on January 8, 1983, by which time they had replaced almost all locomotive-hauled trains on routes from Paddington to western England and Wales. John Harrup, Keith Fender collection

The electric APT train seen at Crewe is on a test run on Nov. 7, 1984. Keith Fender

The ARC locomotives, ordered in 1987, were built by EMD at London, Ontario, in 1990, entering service in the U.K. in November 1990. No. 59101 *Village of Chantry* in ARC colors poses at an open house at Exeter on May 1, 1994. John Harrup, Keith Fender collection

the last diesel-hydraulics and later batches were introduced on the east coast route to replace the Deltics. More were purchased for long-distance routes avoiding London and connecting major cities. The HST was an instant commercial success. Branded as Intercity 125 and "the journey shrinker," they quickly became a key part of BR's Intercity service.

The electric version of the APT had a less successful life. BR ordered three prototypes with two 4,000-hp power cars located in the middle of a 14-car train. The trains were designed for 150-mph operation using tilting cars on the West Coast Main Line from London to Glasgow. Delivered in 1977-'78, the trains were tested at up to 162.2 mph but suffered from multiple technical problems. In December 1981, BR decided to put them into passenger service but a mix of equipment failures and passenger reports of nausea due to the tilting led BR to take them out of service. They actually came quietly back into use in 1984 and '85, standing in for locomotive-hauled trains and running at 100 mph. They were withdrawn in 1987 and mostly scrapped, although some are preserved at the Crewe Heritage Centre rail museum. Coincidentally, tilting trains would return to the West Coast route after privatization when Virgin bought a fleet of Pendolino trains from Alstom, which had acquired the tilt technology by buying the Italian firm Fiat's rail business; Fiat had acquired the BR patents for the APT in the 1980s after the project was abandoned.

CHASING COMMERCIAL SUCCESS

In 1966, BR introduced the name "Intercity" to describe its fastest passenger trains and began to actively market them, especially for business travel. Within the next decade multiple European railway companies began using Intercity as a brand. By the 1980s it was said by some commentators that BR was probably the best railway for marketing its services compared to its European counterparts, some of which had faster or more advanced trains. BR also had some trains branded as Pullman with dedicated cars for express services with premium fares.

In the 1960s and '70s, BR focused on bulk coal trains for power generation. It was the leading category of traffic thanks to "merry-go-round" (MGR) unit-trains introduced in the 1960s, which used hopper discharge on a continuous circuit for loading and unloading. The growth of intermodal traffic — domestic and foreign

New 100-mph commuter rail EMU No. 319019 runs at Redhill, south of London, on June 13, 1989. These trains were built for a service that debuted in May 1988 when an old tunnel under central London was reopened, allowing through trains to run from cities around 50 miles both north and south of the city. This route has since been heavily rebuilt and is now one of the busiest in Britain. Keith Fender

— led BR to set up a division to run these trains. Its name, Freightliner, survives to this day in its privatized form as part of Genesse & Wyoming.

As part of efforts to reduce losses from freight traffic, BR in 1971 bought the Total Operations Processing System (TOPS) from the American company Southern Pacific. The new computer system improved the amount and reliability of information available on traffic movements and car locations. It also required every BR locomotive to be renumbered into a five-digit format, which is still in use for all mainline registered locomotives.

The late 1960s saw BR buy few new locomotives, as steam had been replaced and there were now too many diesels following the wave of Beeching-inspired line closures. The immediate lack of possible orders didn't stop British builder Brush from funding a 110-mph, 4,000-hp demonstrator locomotive named "Kestrel," which was tested on freight and passenger trains from 1968-'71. BR chose not to buy it or any more of the design, leaving the builder to sell the unit to the Soviet Union, where it was used for high-speed test trains.

Although BR bought few locomotives in its last 20 years, it did acquire 36 new Class 87 electrics for the extension of the West Coast electrification to Glasgow in 1974, 31 Class 91 units for 140-mph service for the East Coast electrification in 1991, and 50 Class 90 electrics in 1987-90 to replace older designs. In the 1970s it ordered the first 30 of what would be 135 new 3,250-hp freight locomotives designated Class 56, specifically to work MGR coal trains. The first 30 were built in Romania in 1976-'77 as British industry couldn't handle the delivery schedule. In the mid-1980s, another 50 heavy freight diesels of a new design — the 3,300-hp Class 58 — were built at BR shops. The last of these, No. 58050, is likely the last mainline diesel to be built in Britain.

The Deltic diesels all were all named either after famous racehorses or British Army regiments; in this case, No. 55006 is The Fife and Forfar Yeomanry, at Abbots Ripton with the 2:45 p.m. Kings Cross-Bradford train on June 10, 1978. John Harrup, Keith Fender collection

BUSINESS SECTORS

Beginning in 1982, BR reorganized itself to be based on five business sectors, a break from the historic geographical approach with regional managers; many of

BR introduced several designs of new DMUs branded as Sprinter. One of the first series, No. 150106, works at Crewe when new on May 26, 1986. Keith Fender

Lightweight Pacer trains were introduced in the mid-1980s for lightly used regional routes. No. 142016 poses at York with a train for Harrogate on Feb. 9, 1988. Keith Fender

the regions still shared the same boundaries as the pre-1948 "big four" companies. The move to focus on "line of business" rather than geography paid off. Soon came modernization investments in the train fleet that under the previous business model would not have been considered economic.

Large fleets of new DMU trains entered service; this included large numbers of two car Pacer trains, an attempt to put lightweight bus bodies on a simple freight-car underframe. Five initial single car prototypes known as LEV (Leyland Experimental Vehicle) were tested between 1979 and 1987 and three even visited the U.S.; one of them being scrapped there as recently as 2021. The Pacer fleets were followed after 1985 by large numbers of more conventional DMUs branded Sprinters by BR, replacing regional trains across Britain.

The move to business sectors made the railway more colorful. Until the mid-1980s, most regional and commuter trains were simply blue, actually a specific hue known as British Rail Blue; longer-distance passenger cars were blue and white. The new passenger sectors all introduced new color schemes for cars and locomotives, with Intercity choosing a multicolor cream and red striped livery, although white was later used for new electric locos. The Regional sector introduced a striped livery with various shades of blue for cars and locomotives. The most impactful was the London and South East sector, which used a red, white, and blue livery (the colors of the British flag) and literally overnight repainted the lampposts at its 930 stations bright red as part of the makeover launching the new operation as Network South East in June 1986.

The "sectorized" railway led to a dramatic improvement in financial performance as equipment was assigned to specific sectors; in the process equipment that was under used or not used at all was disposed of. The Intercity business was profitable as it consisted of the busiest long-distance routes, so it operated without any direct government operating subsidy, although the government funded major capital investment such as the electrification of the East Coast Main Line in 1984-91.

In the 1980s, governments led by Prime Minister Margaret Thatcher decided against privatizing BR but did dispose of some ancillary businesses left over from the BTC period. In 1984, BR sold off its remaining ferry business; it had already sold the hotels it owned earlier in the decade. While not in favor of privatizing BR itself, the Thatcher governments were enthusiastic to get more private sector involvement and encouraged the purchase of four EMD built JT26CW-SS Class 59 diesel locomotives by English stone quarry operator Foster Yeoman. The units began service in 1986 and shortly afterward Foster Yeoman's main competitor ARC bought four of its own. In both cases, the EMD locos replaced less powerful and less reliable BR units, although BR continued to provide engineers to drive them.

CONNECTION TO EUROPE

As an island, Britain had no direct rail links to neighboring countries, but over time a complex system of train ferries was established providing links to French and Belgian ports, enabling through freight cars and, until 1980, a daily London-Paris overnight sleeper service. Proposals for an under-the-Channel tunnel connecting England and France had surfaced several times, and in the 1970s some construction was actually started. It ended up being cancelled without much progress.

Eurostar trains at London Waterloo on April 18, 1995, six months after service began. Eurostar moved its operation from London Waterloo to London St Pancras International in 2007 when the high-speed line connecting London to the Channel Tunnel opened. Keith Fender

Working with SNCF in France, BR had not given up on the idea and in 1986 a treaty was signed by Thatcher and French President François Mitterrand allowing the construction of a double-track rail tunnel, with one important proviso: it was to be funded by the private sector, not the governments. The rail companies on both sides of the Channel were expected to be important customers for the new tunnel and they signed on to long-term contracts for both planned high speed and overnight passenger rail plus freight services. After seven years of construction and several financial crises, the tunnel opened on May 6, 1994.

Along with its partners in Europe, BR ordered new high-speed trains for London-Paris/Brussels service plus a small batch for service to British regional cities and a fleet of overnight trains branded Nightstar to work services from British cities to Paris and Frankfurt. In addition, 46 six axle electric locos, designated Class 92, were ordered to work freight and the sleeper trains and to be shared between BR and SNCF in France. High-speed Eurostar services began from London on in November 1994; the sleeper trains were never used and instead were sold to VIA Rail in Canada, having been re-branded as Renaissance cars.

> The "sectorized" railway led to a dramatic improvement in financial performance as equipment was assigned to specific sectors; in the process equipment that was under used or not used at all was disposed of.

PRIVATIZATION PLANNED

In 1992, a new government was elected with a platform that included privatizing the British rail network. Deciding how to do that and passing the necessary legislation took time. In the meantime, British bus operating company Stagecoach was quick to sense the opportunity to offer a new overnight rail service by adding coach cars (leased from BR) to the back of a London-Aberdeen overnight sleeper service. The new service began in May 1992 and was the first private scheduled passenger operation on the BR network since 1948. Alas, it ended a few months later as costs exceeded revenues.

The model chosen to privatize BR separated track and infrastructure into a company called Railtrack (sold via a public offer on the London Stock Exchange in May 1996) and multiple franchised passenger companies with contracts awarded by the government. The process of privatization was simpler for the freight companies. In 1995, Wisconsin Central Ltd. under Chairman Ed Burkhardt bought five of the six companies and rebranded them as English, Welsh & Scottish Railway (EWS). The new company bought 250 Class 66 locomotives from EMD to replace a wide variety of older BR designs. Canadian National, which bought WC in 2001, sold EWS to the German state rail company DB in 2007.

On Feb. 4, 1996, the first privately operated regular passenger train in Britain left London's Waterloo station operated by the new company South West Trains, created by the bus company Stagecoach. This was the first of what would be many new private operators as Britain launched a complex approach to privatize the railway system, creating multiple companies. Despite innovative ideas from some of the new franchise operators, many continued to rely on government subsidies just as BR had before them.

Fast forward to 2025: as Britain celebrates 200 years of railroading, most passenger trains are back in the hands of the government and plans exist to re-nationalize all those with government contracts by 2027 as those contracts expire.

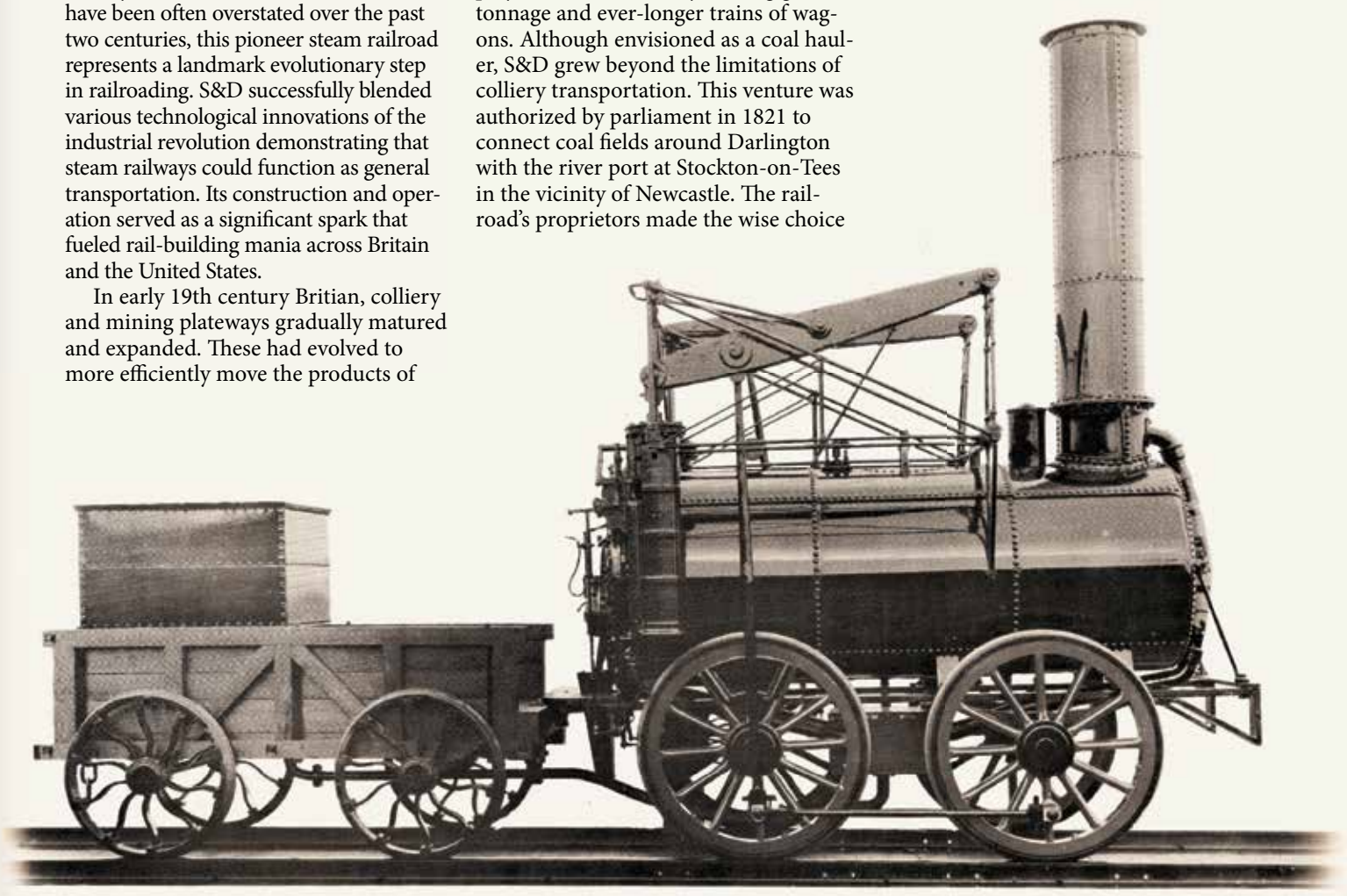
The Spark of the Stockton & Darlington

A look at the Pioneering British Steam Railroad that Inspired American Railroad Builders in the 1820s

BY BRIAN SOLOMON

This year marks the bicentennial of operations on the Stockton & Darlington Railway, an event that is being celebrated in the United Kingdom as the "dawn of the modern railway." While the details of S&D's firsts have been often overstated over the past two centuries, this pioneer steam railroad represents a landmark evolutionary step in railroading. S&D successfully blended various technological innovations of the industrial revolution demonstrating that steam railways could function as general transportation. Its construction and operation served as a significant spark that fueled rail-building mania across Britain and the United States.

In early 19th century Britian, colliery and mining plateways gradually matured and expanded. These had evolved to more efficiently move the products of mines using pack animals to haul wagons on wooden rails. Later cast iron rails were employed. Then, in the early years of the 19th century, the primitive steam locomotives were developed and employed to lower costs by hauling greater tonnage and ever-longer trains of wagons. Although envisioned as a coal hauler, S&D grew beyond the limitations of colliery transportation. This venture was authorized by parliament in 1821 to connect coal fields around Darlington with the river port at Stockton-on-Tees in the vicinity of Newcastle. The railroad's proprietors made the wise choice to employ George Stephenson as its chief engineer. Stephenson was born in the heart of Britain's industrialized north and was imbued with formative experiences with steam pumping



engines, locomotives, and railways. He convinced S&D to embrace the steam locomotive to haul a portion of its traffic, which led the railroad to lead the way as the first line to haul both freight and passengers with steam. Stephenson is credited with the design of S&D's first locomotive, today known as *Locomotion No. 1*, which was an adaption of the ponderous Killingsworth Colliery engines that Stephenson had spent years building and perfecting.

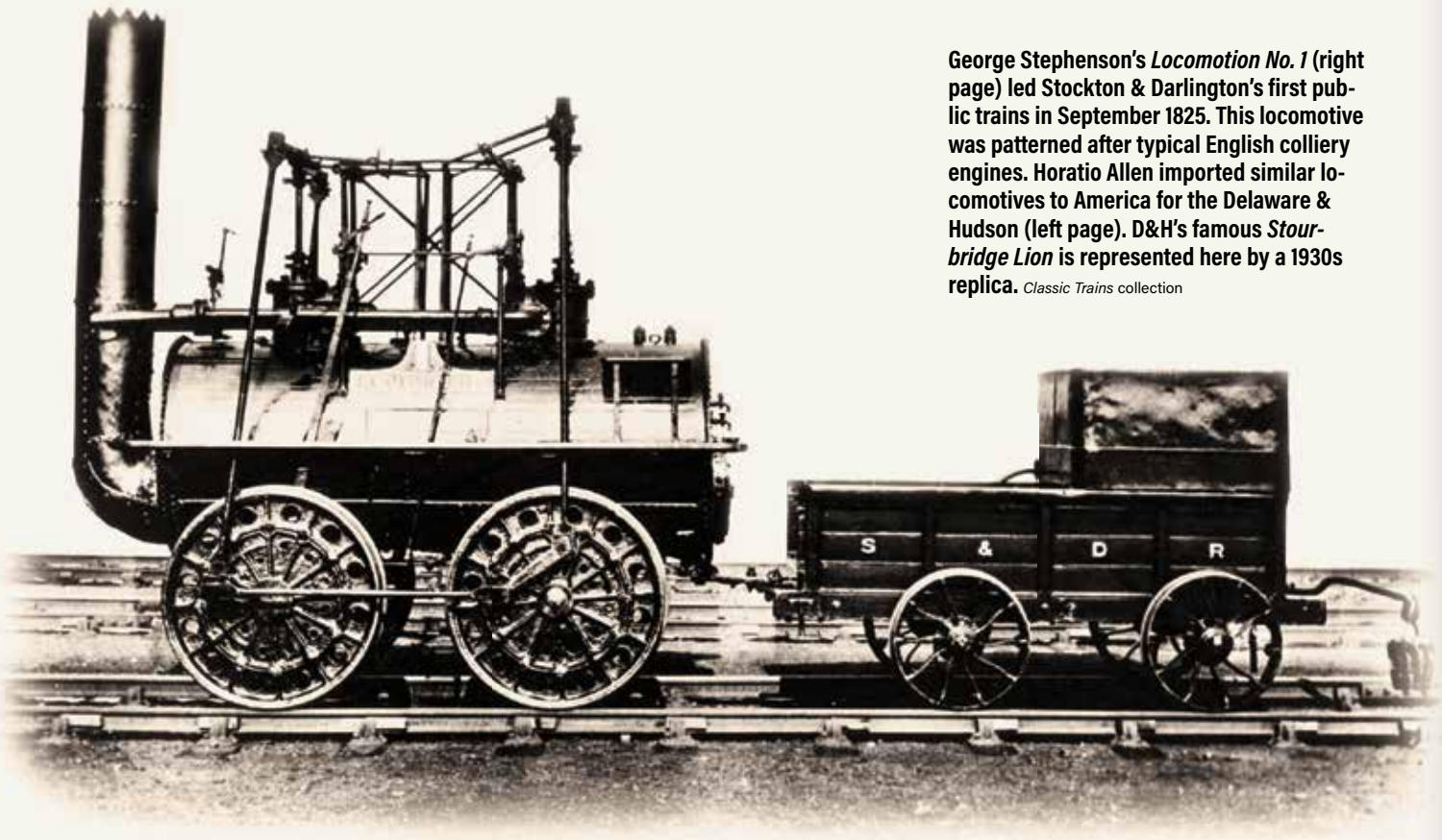
When the roughly 26-mile-long S&D opened on Sept. 27, 1825, it was a grand public spectacle that caught national and international attention. The railroad's first public excursion over the line was an event widely observed and publicized at the time. *Locomotion* hauled a long train of wagons carrying coal, merchandise, and most significant for many observers, it carried hundreds of passengers. In his book, *The Origins of Railway Enterprise —The Stockton & Darlington Railway 1821-1863*, author Maurice W. Kirby quoted this period description of opening from the Newcastle Courant, "The novelty of the scene and the fineness of the day had attracted an immense concourse of spectators."

Stephenson often involved his son Robert in his railway engineering enterprises. The two men worked collaboratively, arguing over details, to refine this new technology and improve its practicality and utility. In 1823, Robert founded the pioneer commercial locomotive manufacturing company that bore his name at Newcastle-on-Tyne.

"The novelty of the scene and the fineness of the day had attracted an immense concourse of spectators."

Less well-known, but equally important, was George Stephenson's choice of wrought iron edge rail for the S&D. This was a significant decision and a professionally difficult one for the senior Stephenson because he was invested in a commercial enterprise that produced cast iron rail. While the transition from cast iron to wrought iron rail had begun more than a decade earlier, Stephenson correctly recognized that successful commercial locomotive operation depended on using the more malleable wrought iron rails. Ultimately these were cheaper to manufacture and better suited to locomotives since wrought iron would yield under their great weight and were less prone to fracture. Also, wrought iron was easier to install in curves and could be produced at longer lengths that significantly reduced the number of joints.

In his book, *The Coming of the Railway*, author David Gwyn describes the opening of the S&D as both a public and professional awakening. S&D's success not only supplied inspiration for countless new railroad schemes while providing a proving ground for engines built by the Stephensons and Timothy Hackworth, but it also greatly enhanced the resumés of the men who engineered the line. George Stephenson went on to assume the role of chief engineer of the Liverpool & Manchester Railway, a far more intensive railroad project, inspired in part by the construction of S&D. The L&MR was a double track line fully committed to steam haulage. The S&D opened as a



George Stephenson's *Locomotion No. 1* (right page) led Stockton & Darlington's first public trains in September 1825. This locomotive was patterned after typical English colliery engines. Horatio Allen imported similar locomotives to America for the Delaware & Hudson (left page). D&H's famous *Stourbridge Lion* is represented here by a 1930s replica. *Classic Trains* collection

Stockton & Darlington circa 1830

single track line with passing sidings, and consisted of a mix of inclined planes (steeply-graded portage sections that employed stationary engines for cable haulage of wagons) and lightly-graded sections using mix of pack animal and locomotive haulage.

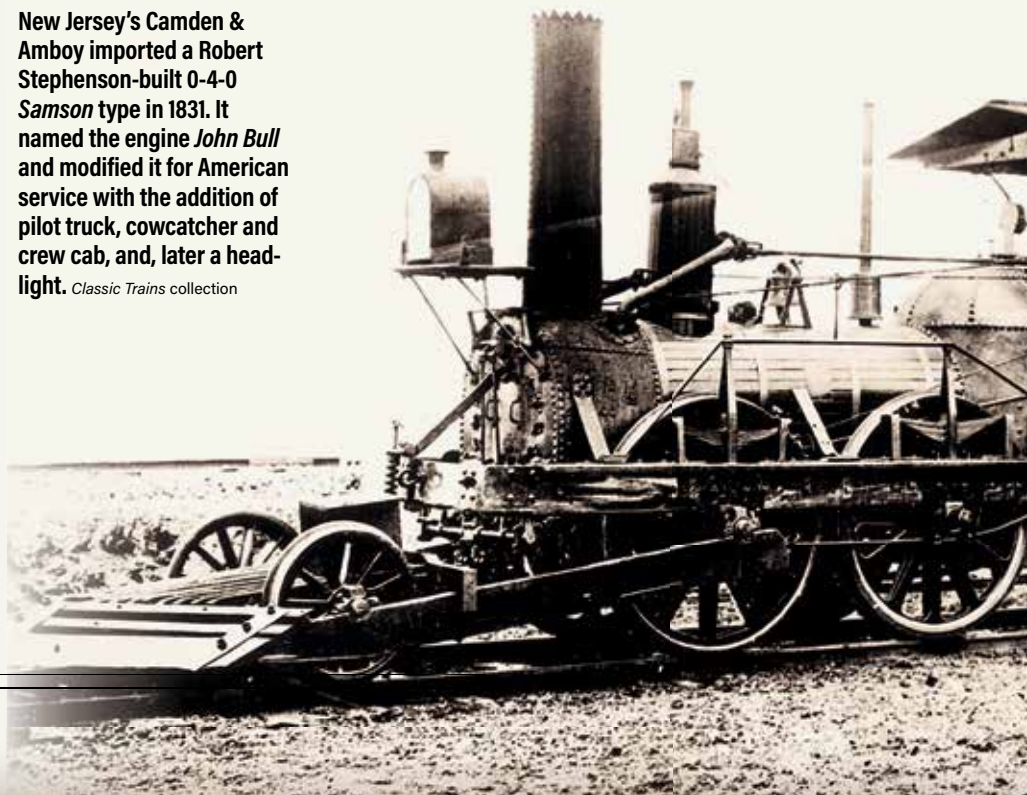
In 1829, as a prelude to commencement of operations in 1830, L&MR hosted the famed Rainhill Trials aimed at forwarding locomotive design. The winner was Robert Stephenson's *Rocket*, a machine that was the first to blend three key elements of successful steam locomotive design: a multi-tubular (fire tube) boiler, induced draft from exhaust steam, and direct linkage between pistons and drive wheels. The pattern established by *Rocket* was rapidly adopted as the new standard and it is considered the forerunner of most subsequent steam locomotive designs. The Stephensons were involved in numerous subsequent railroad projects. Today, George Stephenson is remembered in the U.K. as the "Father of the Railway." For years, his likeness appeared on the English five-pound note with his son's *Rocket* on the back.

It didn't take long for S&D's smoke to settle on the far side of the Atlantic in America, where there had already been a conceptual interest in railroads for decades. As early as 1812, Colonel John Stevens of Hoboken, N.J., had been promoting the idea of steam railroads. One of his influential pamphlets was cumbersomely titled, "Documents trending to prove the superior advantages of railways and steam carriages over canal navigation." In 1825, he built a small demonstration engine on his estate. This caught the attention of early railroad proponents, including the men behind New Jersey's Camden & Amboy — a line that was among the first to import and then adapt the British steam locomotive to American practice. Today, *John Bull* is preserved at the Smithsonian in Washington, D.C.

A bust-relief of George Stephenson is displayed at the National Railway Museum in York. He is considered the father of the railway in Great Britain. Brian Solomon

As interest in railroads gained momentum, parallel developments resulted in great interest and early progress. In the 1820s, curiosity about steam railroading in Britain encouraged a number of early American engineers to make the voyage to investigate. Among these was Horatio Allen, a young assistant engineer with the Delaware & Hudson Canal Co., who traveled to England in 1828. He was armed with the directive from its chief engineer, John B. Jervis, to acquire both locomotives and rails for D&H's short coal hauling line. Allen's enthusiasm for the study of railroads is transparent in the letters and reports he made during his visit. Upon arrival, he wrote, "I am at length in the land of railroads and in the atmosphere of coal smoke". In the book, When Railroads were New, author Charles Frederick Carter quoted Allen's description of Newcastle-on-Tyne as "the birthplace and cradle of railroads and locomotive steam engines." Allen paid a visit to the S&D, writing that this was "the first experiment to apply railroads to purposes of promiscuous traffic." He observed the railroad's locomotives hauling trains between 20 and 28 cars long moving at speeds of up to seven mph. He also visited the Killingsworth colliery line, which he noted had been in operation for more than 20 years.

D&H's railroad, like S&D, was built using a mix of lightly graded sections and short steeply graded inclined plains. It was constructed to deliver coal from



New Jersey's Camden & Amboy imported a Robert Stephenson-built 0-4-0 *Samson* type in 1831. It named the engine *John Bull* and modified it for American service with the addition of pilot truck, cowcatcher and crew cab, and, later a headlight. *Classic Trains* collection

mines in the mountains near Carbondale, Pa. to the canal head at Honesdale. Allen met with Robert Stephenson and bought one locomotive from him, while procuring three more from Foster Rastrick & Company of Stourbridge. These were typical of colliery engines common to British lines prior to development of the innovative *Rocket*. These employed a ponderous design that used vertical cylinders to transmit power to drive wheels using rocker arms. D&H's engines arrived in New York City in 1829, and were shipped to Pennsylvania. Foster Rastick's *Stourbridge Lion* has been often credited as the first commercially built full-sized locomotive trialed in the United States, and was successful operated on D&H in late 1829. Less well known was the Stephenson's engine, sometimes referred to as the *America*, which involves a legacy shrouded by time. Unfortunately, these British engines weighed nearly seven tons and were deemed too heavy for regular operation on D&H's lightly built track. Both Allen and Jervis used their experiences to pioneer steam operations on other formative American railroads.

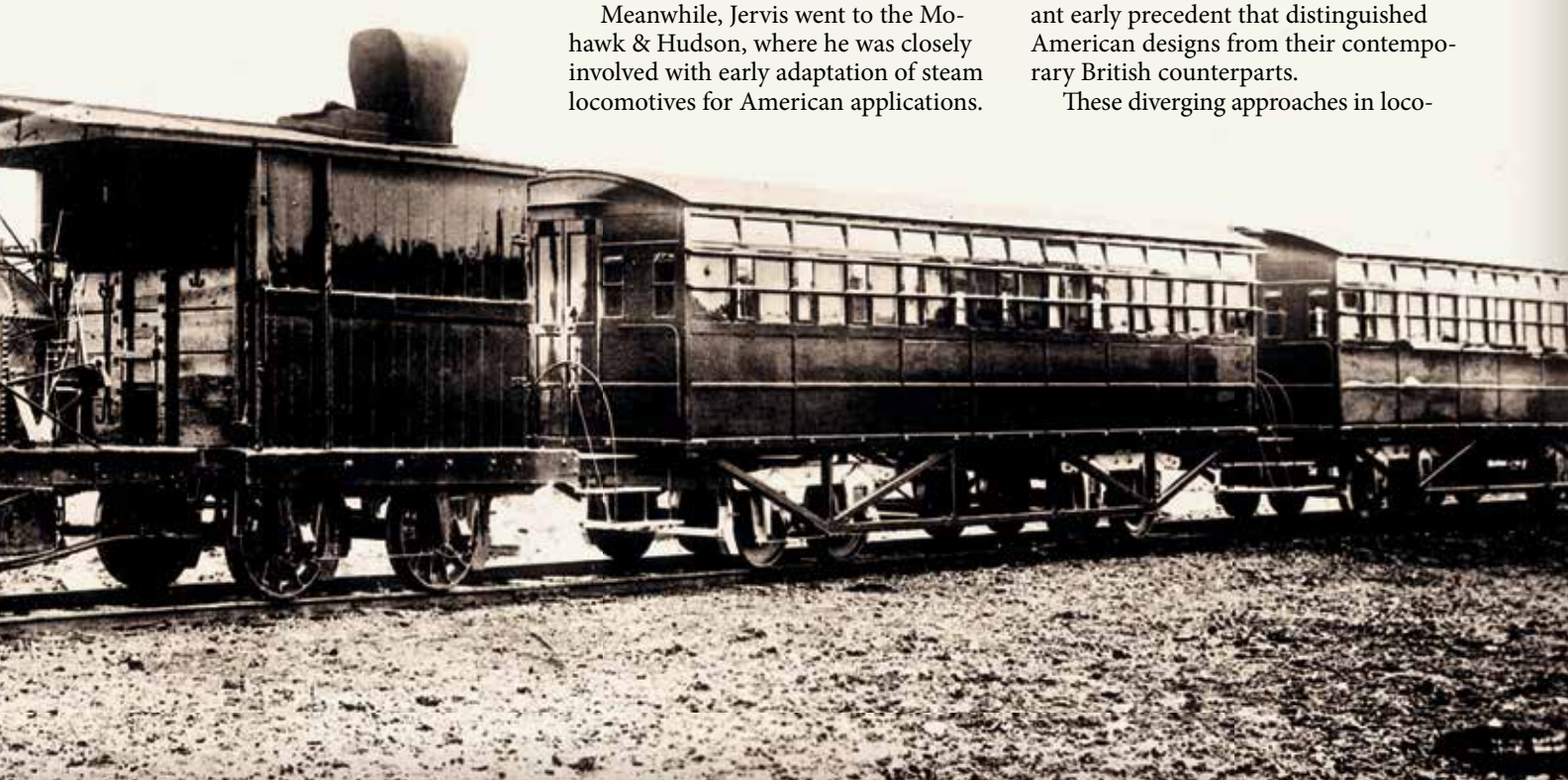
In the summer of 1829, after he returned to the U.S., Allen joined the South Carolina Railroad as its chief engineer. This pioneering line developed a simmering interest as early as 1821, but gained momentum following reports of successful steam railroads in England.

Delaware & Hudson canal boats pause at Rondout, N.Y. in the 1880s. The D&H Canal was chartered to connect the Delaware and Hudson rivers for the transport of anthracite coal. This intensive transportation system included a short railroad between the canal head at Honesdale and mines near Carbondale, Pa. *Classic Trains* collection

One of its directors, Ezra L. Miller was an ardent steam enthusiast, and in 1830 the railroad formally adopted steam power for propulsion. It ordered a single vertical boiler locomotive of Ezra's design from New York City's West Point Foundry that was named *Best Friend* and enjoyed its first public operation on Christmas Day 1830. Although the railroad suffered a serious setback when *Best Friend* was destroyed in a boiler explosion just six-months later, it persevered and continued building. By 1833 it had 136-miles of line in operation between Hamburg and Charleston, which utilized an inclined plane to reach the Savanna River.

Meanwhile, Jervis went to the Mohawk & Hudson, where he was closely involved with early adaptation of steam locomotives for American applications. Jervis's pioneer experience with imported British locomotives led him to pursue an early divergent path in locomotive design. John H. White, in his book A History of the American the American Locomotive-Its Development 1830-1880, noted that Jervis and Allen discussed "the need for light and flexible locomotives," although they pursued different approaches in locomotive design. In this regard, Jervis's most significant contribution was the design and pioneer application of the locomotive leading truck on his locomotive *Experiment* of 1832 — the first engine to feature the 4-2-0 wheel arrangement. This was precursor to the 4-4-0, and set an important early precedent that distinguished American designs from their contemporary British counterparts.

These diverging approaches in loco-



TRAVELLING ON THE MOHAWK AND HUDSON RAIL ROAD:

DEPARTURES FROM STATE-ST. ALBANY.

At 9 o'clock A. M.
At 11 " "
At 3 " P. M.
At 5 " "
At 9 " "

DEPARTURES FROM SCHENECTADY.

At 8½ o'clock P. M.
At 12 " P. M.
At 3 " "

And on the arrival of the western stages.

Fare through 50 cents.

N. B. Baggage will be taken to and from the road at Albany by Messrs. Thorp & Sprague's wagons as heretofore at the rate of 6¼ cents for an ordinary traveling trunk, or its equivalent.

Baggage will be taken to and from the Schenectady termination free of expense.

A. WHITNEY, Supt.

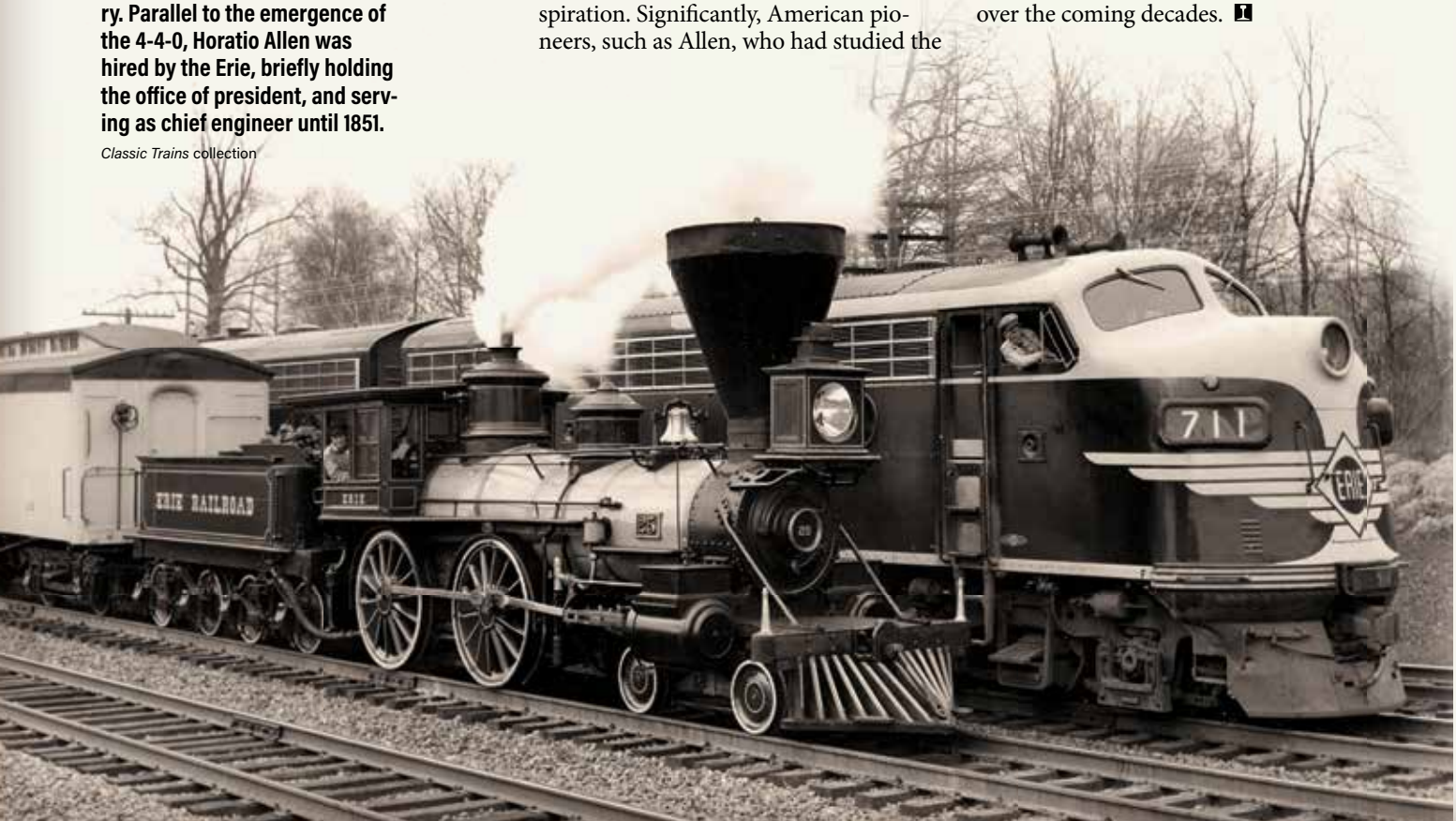
Dec. 30, 1834.

John B. Jervis left the Delaware & Hudson for the Mohawk & Hudson where he continued to improve upon imported British steam locomotives. Notably he invented the 4-2-0 wheel arrangement with his locomotive *Experiment* 1832. *Classic Trains* collection

The 4-4-0 type represented an expansion of the 4-2-0, and emerged as the dominant wheel arrangement in mid-19th century. Parallel to the emergence of the 4-4-0, Horatio Allen was hired by the Erie, briefly holding the office of president, and serving as chief engineer until 1851.
Classic Trains collection

After visiting the Stockton & Darlington, Horatio Allen assumed the role of chief engineer of the pioneering South Carolina Railroad, where he recommended adopting the steam locomotive. The railroad's *Best Friend* was built to an American design by New York's West Point Foundry. *Classic Trains* collection

motive design were a direct function of different infrastructure requirements. A simplified explanation often given to explain the divergence is that American railroads were underfunded compared with those in Britain, so as a result built tracks to lighter standards. However, the situation was more complicated than mere financial constraints. Since American railroad pioneers needed to build railroads relatively quickly across in varied and difficult terrain. They needed to adapt, which resulted in a distinct technological evolution from their British inspiration. Significantly, American pioneers, such as Allen, who had studied the S&D and other early British lines, were also among the first innovators to adapt British steam railroad for distinctly American applications. During the 1830s, many early American lines imported British engines and applied a variety of British devised railroad technologies and construction techniques. By 1840, the American locomotive industry had matured and was sufficiently established to design and supply locomotives for domestic service. During that time, the railroads evolved to fulfill the demands for general transportation and grew rapidly over the coming decades. ■



British-built locomotives in North America

The steam locomotive was an early 19th century product of the British industrial revolution. Over the last two centuries more than 100 British-built steam locomotives have been imported to North America, and today a select few have found their rightful places in museums across the continent. Camden & Amboy's *John Bull* is the oldest complete British locomotive on display in North America. Completed by Robert Stephenson in 1831 and bought by the Camden & Amboy, it is believed to be the fifth Stephenson imported to the United States. An example, of Stephenson's 0-4-0 Samson-type, ***John Bull*** was significantly modified by C&A's Isaac Dripps. Who equipped it with pilot wheels, a cow-catcher and crew cab. Today, it is displayed at the Smithsonian in Washington, D.C., while a replica is on display at the Railroad Museum of Pennsylvania in Strasburg.

This museum is also home to Philadelphia & Reading's *Rocket* of 1838, which had been displayed for many years at Philadelphia's Franklin Institute. This engine was the product of London-based Braithwaite, Milner & Co., and was one of eight similar English engines imported by P&R between 1838 and 1841. It shouldn't be confused with Robert Stephenson's original ***Rocket*** of 1829.

While that groundbreaking machine is preserved in England, there are several replicas of this engine in the United States, including one at the Chicago Museum of Science & Industry, and another at The Henry Ford in Dearborn, Mich. A replica of Delaware & Hudson's *Stourbridge Lion* of 1828 — often cited as the first commercial locomotive steamed in the United States—is displayed in Honesdale, Pa., at the Wayne County Museum. This convincing recreation was built by D&H in 1932. Another early British engine is the famed *Samson* displayed at the Nova Scotia Museum of Industry in Stellarton. Built by Timothy Hackworth at Durham, England in 1838, this was imported by the General Mining Association of Nova Scotia to haul coal from mines near Albion. Canadian Railway museum, Expo Rail in Montreal, Quebec, has an operating replica 2-2-2 type *John Molson* which is used for demonstrations and display. The original engine was built c. 1848 in Dundee, Scotland, by Kinmonds, Hutton & Steel, while a modern-day replica was built in Japan in 1970 by Kawasaki.

Expo Rail is home to two other British locomotives: the Waddon is an 0-6-0 side tank engine, built in 1875 for the London, Brighton & South Coast Railway, while *Dominion of Canada* is a streamlined Class A4 4-6-2 Pacific built by the London & North Eastern Railway at Doncaster. LNER's famed A4 Pacifics were the design of Sir Nigel Gresley and are best known for *Mallard* (displayed at the National Railway Museum in York, England) which hit 126 mph on a speed run on July 3, 1938, and holds the record as the fastest documented operation of steam in the U.K. Class A4 *Dwight D. Eisenhower* — renamed after World War II in honor of the American five-star general (and later U.S. President) — is displayed in the United States at National Railroad Museum in Green Bay, Wis.

The La Grange Railroad Museum in Kentucky, displays late-era British side tank 0-6-0T No. 7745. This former power station locomotive was imported by a tourist railroad in Michigan in the 1970s for excursion service and has resided at La Grange since 2011. — *Brian Solomon*

The Railroad Museum of Pennsylvania at Strasburg exhibits a great variety of locomotives including Philadelphia & Reading's British-built *Rocket* of 1838 (bottom), and the Pennsylvania Railroad's 20th century replica of Camden & Amboy's 1831 *John Bull* (top).

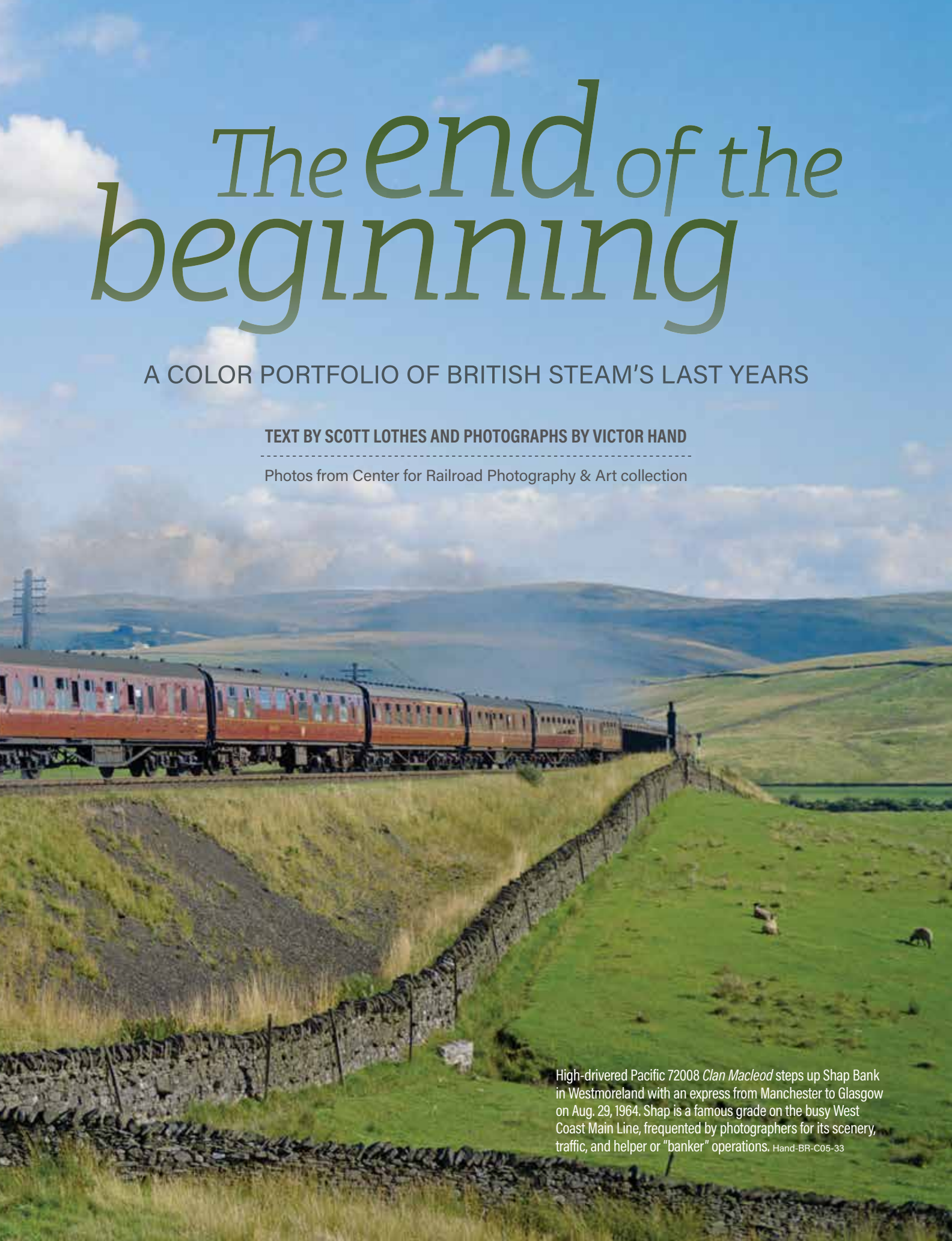
Two photos, Brian Solomon

The end of the beginning

A COLOR PORTFOLIO OF BRITISH STEAM'S LAST YEARS

TEXT BY SCOTT LOTHES AND PHOTOGRAPHS BY VICTOR HAND

Photos from Center for Railroad Photography & Art collection



High-drivered Pacific 72008 *Clan Macleod* steps up Shap Bank in Westmoreland with an express from Manchester to Glasgow on Aug. 29, 1964. Shap is a famous grade on the busy West Coast Main Line, frequented by photographers for its scenery, traffic, and helper or "banker" operations. Hand-BR-C05-33

As we look to England in 2025 while commemorating 200 years of railroading, we turned to the British holdings in our archives at the Center for Railroad Photography & Art. They are especially strong for the early 1960s thanks to Victor Hand, who covered the United Kingdom extensively from 1961 to 1964. While the majority of his photography is black-and-white, he always carried some color negative film to use when conditions seemed right. This gallery portrays some of the color of British railways just before the end of the steam era in the place where it began.

Steam locomotives had drawn Hand to railroads and photography. As a teenager, he witnessed the end of steam in the U.S. and Canada, and he knew it wouldn't last much longer in Mexico. He was pondering new hobbies when the July 1959 issue of *Trains* Magazine inspired him to look at railroads further afield. That issue included an article by editor David P. Morgan, "Speeding up to London," extolling the virtues of high-speed steam passenger railroading still abundant in England. Hand, then a student at New York University, was intrigued and began planning his first trip to the U.K. for his next winter break. American friends he invited to join him derided the British engines as "tin cans on wheels." Hand went anyway, on his own, and came away so impressed that he returned seven times over the next three years.

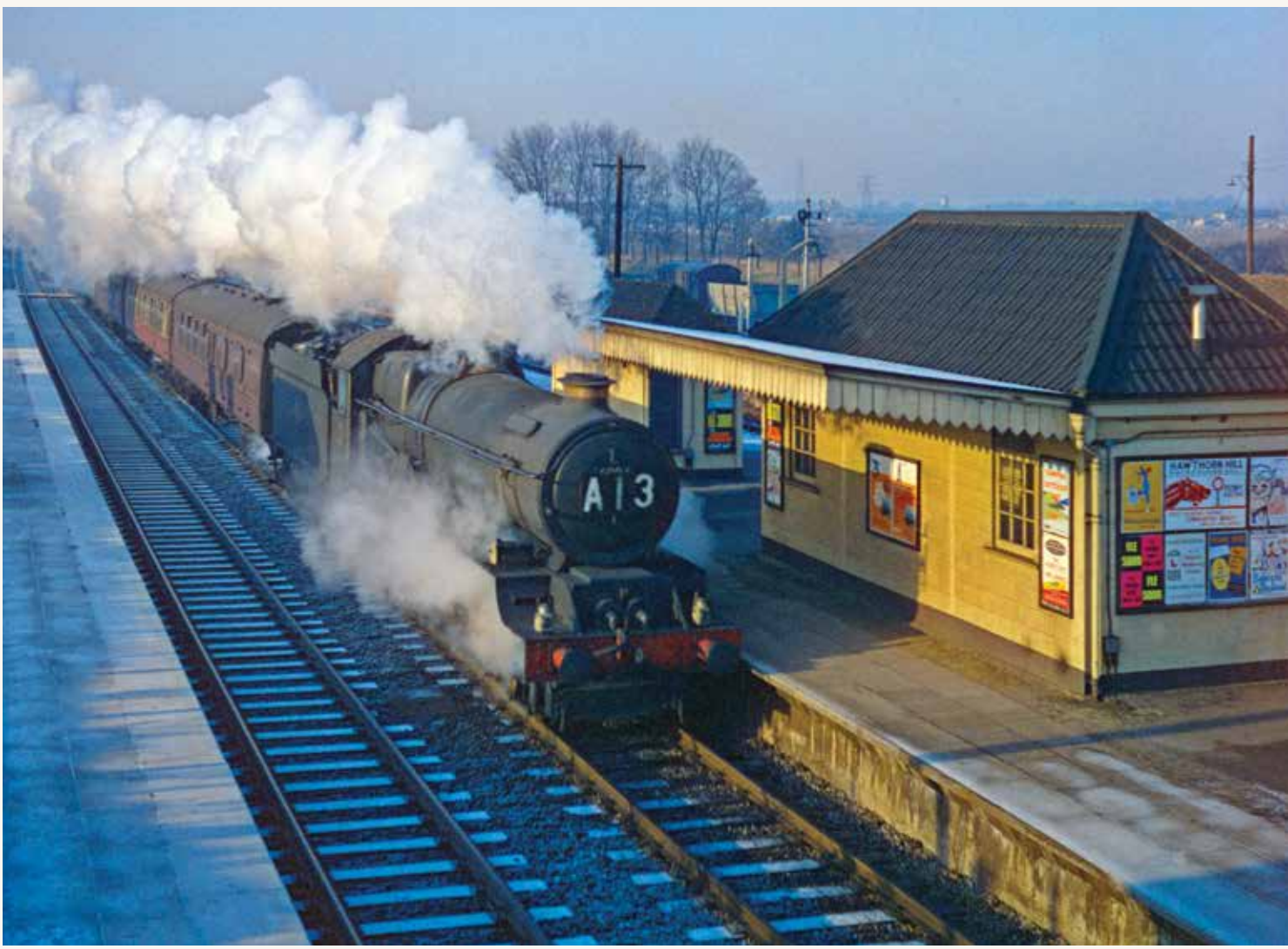
While British locomotives were smaller and not as loud as American behemoths, they ran fast and with almost dizzying frequency. Hand wrote, "The four-track main lines radiating from London and other major centers were used to the utmost by a constant parade of all kinds of trains." He learned to love many of the engines, too, calling them "surprisingly sophisticated and attractive."

Hand used medium-format twin-lens

↑ Fresh from an overhaul at Crewe Works, 46256 *Sir William A. Stanier F.R.S.* stands at Shrewsbury at dusk during a test run on June 13, 1962. The 4-6-2 was a 1947 member of the London Midland & Scottish Railway's Princess Coronation Class. Despite the extensive shop work, it ran for just two more years, the last of the "Stanier Pacifics" to be withdrawn. Hand-BR-XC03-24

↗ Two passenger trains running side-by-side at Leyland on the former London & North Western Railway main line in Lancashire underscore England's incredibly heavy rail traffic in the early 1960s. Both of the engines are London Midland & Scottish 4-6-0s. At left, 44942 hauls empty stock, while 45738, *Samson*, at right leads an express. The former was a "Black Five," a Stanier Class 5 that numbered 842 engines, while the latter belonged to the 191-member Jubilee Class. The high semaphores are repeaters of the lower blades due to visual obstructions. Hand-BR-XC03-46

→ Great Western Railway King Class 4-6-0 6004 *King George III* (which the photographer had seen on the previous day) races through Iver in Buckinghamshire on the former GWR main line with an early morning express from Swansea to London Paddington on Dec. 27, 1961. Hand-BR-XC03-09A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reflex cameras for his first U.K. trips, but he soon upgraded to a 4x5 Speed Graphic. His summer visit in 1962 convinced him that the fast British trains demanded the speed of the Graphic's 1/1000th-second focal plane shutter. The 4x5 has been his camera of choice ever since, his British experience providing a lasting influence on one of America's great railroad photographers.

While the often-dreary weather of the U.K. was well-suited to Hand's predominantly monochrome photography, his color views offer their own insights. There are nearly 200 color negatives in Hand's British files — more than he remembered taking. Color photographs of U.S. steam in the 1950s can sometimes be jarring for their dust, rust, sediment, and other grime as many engines received only minimal care as they ran out their final miles. While those tones were not absent from the British scene of the 1960s, many of the engines Hand recorded appear remarkably well-kept for being just a few years from retirement.

When that started to change, Hand set his sights elsewhere. Steam had still hauled half of all trains in the U.K. during his first visit in 1961; that number had fallen to 25% by 1964, and he could see that steam maintenance standards were falling, too. That decline would continue for four more years (regular service ended in August 1968), but having already lived through steam's demise in North America, Hand "did not wish to witness it in Britain." By then he had learned of steam strongholds in the southern hemisphere, particularly those in Australia and South Africa, and they became his focus for the next several years.

In addition to being the cradle of railways, England has produced a rich legacy of rail photography. As in the U.S., many of its biggest stars shone brightest in those final years of steam. The work presented in Colin Gifford's and others' books can stand easily alongside the best of Philip R. Hastings, Jim Shaughnessy,

← "Black Five" 4-6-0 44884 leads a goods train south through the valley of the River Clyde on the West Coast Main Line near Crawford, Scotland, on the sunny afternoon of Aug. 27, 1964. The former LMS engine was still looking sharp despite the end of steam being just four years away. The lamp positions on its pilot and smokebox indicate an "express goods" or through freight. Hand-BR-C05-29

↙ British Railways 60919, a London & North Eastern Railway Class V2 2-6-2, rests between runs at the engine shed in Perth, Scotland, on Feb. 2, 1964. LNER's 184 V2s, the only significant 2-6-2 tender engines in Great Britain, could be found in express service for both passenger and goods trains from their introduction in 1936 until the last were withdrawn in 1966. Only one survives. Hand-BR-XC03-84

↓ New Year's Day, 1962, was clear and cold in southern Scotland, where "Black Five" 4-6-0 44721 led a Stirling-Edinburgh service across the Forth Bridge. Semaphore signals still guarded the main line at Dalmeny Station, whose pedestrian overpass provided Hand with an overhead view. Both the bright weather and the locomotive were strokes of good fortune; diesel multiple unit trains were the regular equipment for this run. Hand-BR-XC03-10

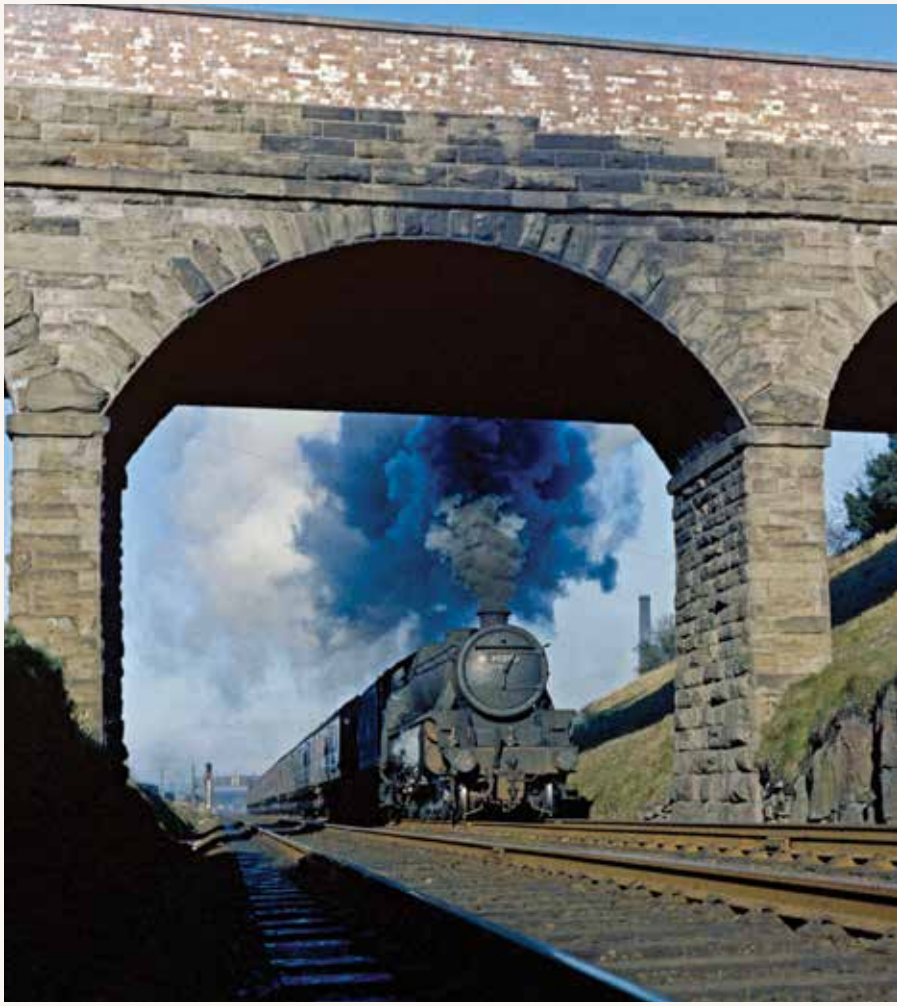
Richard Steinheimer, and that of others who portrayed American steam so effectively in its twilight. While Victor Hand was a little too young to photograph most steam in the U.S., his British photography offers a unique perspective. The loss of American steam was still fresh, the wound raw.

Hand approached the locomotives of England and Scotland with an intensity charged by having seen the steam era just end in his own country. He could not wait for ideal conditions as many local photographers could, so he made the best of whatever the weather and other circumstances presented, getting the most out of his black-and-white film on drab days or resorting to night photography. The color views presented here come from some of the only days he saw the sun during his eight trips.

While the British steam era would soon end, another era was beginning — with Hand at the forefront. For the next four decades, intrepid railroad photographers would chase the end of one steam era after another to countries all over the world. Hand's work in the U.K. marks the beginning of his globe-trotting beyond North America, and it's almost certainly the best record of British steam made by a non-British photographer. It's fitting, too, that an American embarking on a life of world travel would do so by going back to the country that engendered this one, and to the place where railroading as we know it all began.

Members of the Center for Railroad Photography & Art can see a gallery of Victor Hand's black-and-white British photography and read an interview with him by Justin Franz in the Fall 2025 issue of Railroad Heritage, the Center's journal.

CRP&A | CENTER FOR RAILROAD PHOTOGRAPHY & ART



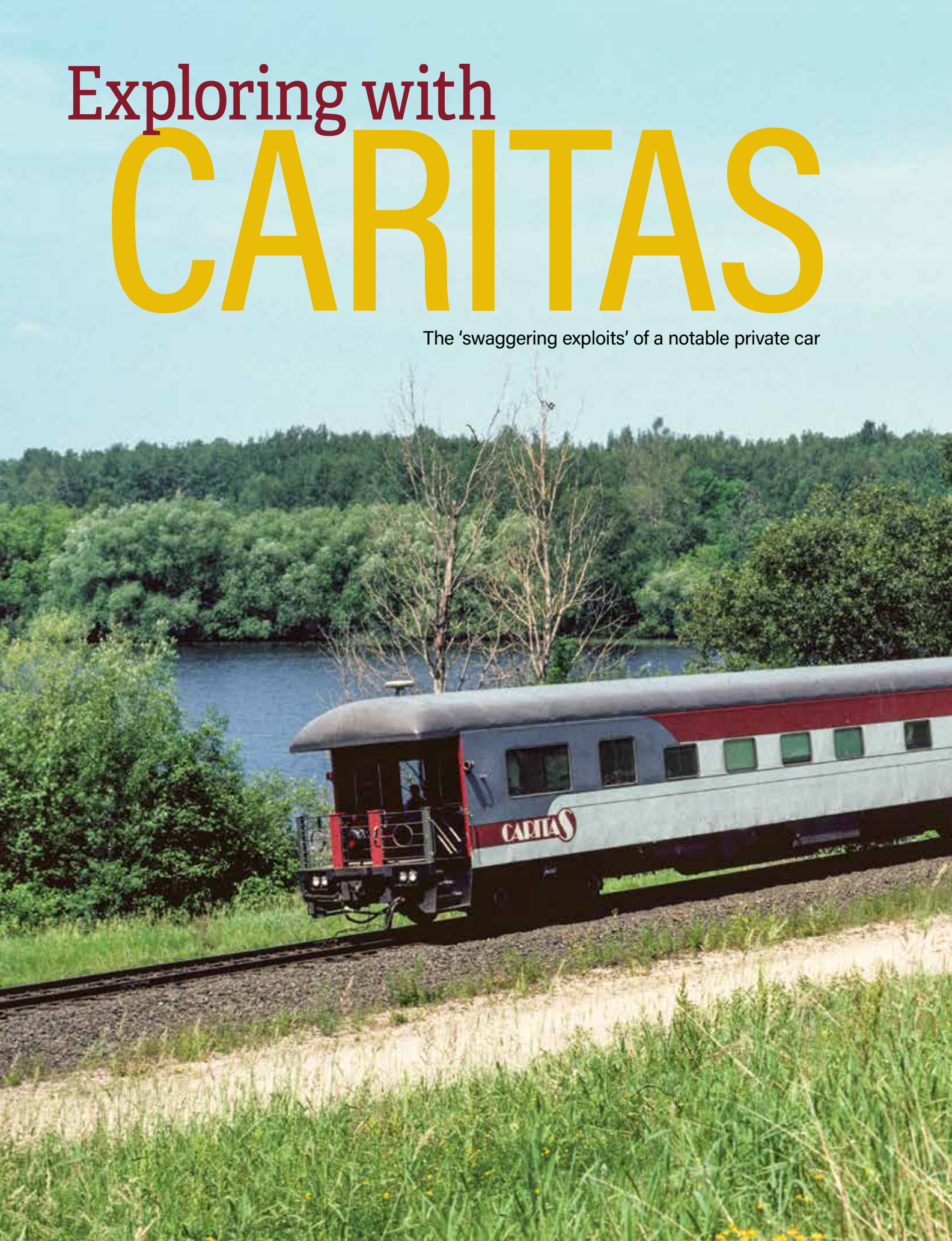
↑ London Midland & Scottish Railway "Black Five" 45235 steams north through Perth, Scotland, leading an empty passenger train under a stone viaduct road overpass on Feb. 3, 1964. Hand-BR-XC03-114

↗ Engines at Carlisle Kingmoor Shed on Jan. 26, 1964, included 72007 *Clan Mackintosh* and 44009. The former was part of the 10-member "Clan Class," otherwise known as Standard Class 6 Pacifics built for express passenger service primarily in Scotland and northwestern England at the turn of 1951-52. Hand-BR-XC03-091

→ Great Western Railway King Class 6004 *King George III* storms out of Swindon with a morning express from Carmarthen to London Paddington on December 26, 1961. GWR's Swindon Works built 31 of the big 4-6-0s between 1927 and 1936; three have been preserved. Hand-BR-XC03-03

Exploring with CARITAS

The ‘swaggering exploits’ of a notable private car



BY BOB JOHNSTON

Clark Johnson dreamed up a unique way to scratch that wanderlust itch: a custom-designed observation lounge sleeper named *Caritas*. From 1987 until 2019 on trips when he and his wife Nona Hill were manning the log, the car travelled more than 850,600 miles on North American rails between Canada's Northwest Territories and Mexico's border with Guatemala. The evidence of those journeys is contained in an 83-page document Johnson started on Nov. 17, 1984. It makes fascinating reading for anyone who lived through the era of rapidly diminishing branch lines, listing more than 1,700 operating days on many routes where tracks no longer exist.

The latest owner of *Caritas*, the nonprofit Railroading Heritage of Midwest America, recently refurbished the railcar as part of its fleet of post-World War II, lightweight passenger equipment for use on excursions and private charters. But it's the car's swaggering vagabond exploits that began in the 1980s when Johnson hosted rare mileage trips — called the Explorers expeditions — that earned the car a place in passenger rail history, a status likely never to be duplicated.

Explorers 1 special heads to Canada on freight-only Canadian National subsidiary Duluth, Winnipeg & Pacific on June 21, 1987. J. David Ingles, Brian M. Schmidt collection

"The spring tension had not been changed after taking 10,000 pounds off of the weight of the car

With Flathead Lake in the background, a Montana Rail Link locomotive leads the Explorers 3 trip over the former Northern Pacific Polson branch on June 30, 1989. The line east of Missoula, Mont., hadn't had scheduled passenger service for decades. Neil Lang

GOOD TIMING

The *Caritas* saga began in the winter of 1983. Johnson, a freelance entrepreneur trained as a physicist, had specialized in magnetics at the 3M Co. during the 1950s (remember reel-to-reel audiotape?). In 1959, he broke away to start his first enterprise, manufacturing items for model railroad layouts that included power supplies and a patented device to keep model passenger car lights uniformly illuminated, then bought a business that made throttle controls. Decades and other business ventures later, Johnson received substantial stock proceeds from another company about the time in early 1983 that Canadian National placed an ad announcing the sale of some sleeping cars VIA Rail Canada no longer wanted to lease.

"Take this one, because it just had its side sheets replaced," suggested a private car owner from Florida. He had joined Johnson as an advisor in Toronto to evaluate several 14-roomette, 4-double-bedroom lightweight sleeping cars. The fleet had been built in 1948 at Pullman Co.'s Worcester, Mass., plant for the St. Louis-San Francisco Railway's *Texas Special* (operated in conjunction with the Katy) and other Frisco passenger trains. The pair zeroed in on the *Churchill Falls*, originally christened *Pierre Laclede* by the Frisco, "because we were looking for something that could be easily rebuilt," Johnson says. "I bid $10,000 and got it. It was in such good shape that I was able to ride it on scheduled passenger trains back to Milwaukee."

Clark Johnson supervises watering of the *Caritas* as it prepares to leave St. Louis on a *Texas Eagle* detour over the former Chicago & Eastern Illinois to Chicago on Oct. 4, 2010.

Nona Hill and Clark Johnson pose with the *Caritas* in September 2022. The two met on a 1991 Wisconsin circle excursion before she began taking on High Iron logistics responsibilities. Two photos, Bob Johnston

by dropping the roomettes, so we bounced all over the place."

Recreating a business car with a brass-railed open observation platform was what he had in mind, dating from childhood memories watching Minneapolis & St. Louis trains from his bedroom window. As a teenager, Johnson's *Minneapolis Times* paper route during World War II included Minneapolis & St. Louis President Lucian C. Sprague. "On one Sunday delivery I mentioned to him that I noticed his private car on a train. 'Would you like to see it?' Sprague volunteered. So, I got hooked!" Johnson says. In 1963, he and five other owners pooled their resources to buy a heavyweight open platform observation lounge car *Twin Cities* from the Soo Line. "It was nearly road-worthy, and the Soo repainted it for us at their Shoreham shops," he remembers. The car was later sold to Pennsylvania's New Hope & Ivyland tourist line. But the seed was planted.

"By the time I got the Frisco sleeper, I knew what I wanted," Johnson remembers. He hired a Minneapolis architectural firm to do the design and had $250,000 of restoration work done at Milwaukee Railcar in 1983 and 1984. The extensive transformation included removing all the roomettes, adding a larger "master room" with its own shower, reconfiguring most windows and making them wider, establishing an open-air rear platform and adjoining solarium lounge, constructing a full kitchen, and gutting the car's steam heat and 32-volt electricals in favor of all-new HVAC and Amtrak-compatible 480-volt electrical systems with two generators. The name "Caritas" was chosen for its Greek meaning: love and charity for your fellow human beings. Johnson's son Tim designed the distinctive logo.

"Our first day out of the shop was Veterans Day, 1984," he recalls, "and the initial trip was coupled to the rear of a Soo Line freight from Milwaukee back to the Twin Cities." It didn't go well.

"The spring tension had not been changed after taking 10,000 pounds off of the weight of the car by dropping the roomettes, so we bounced all over the place," Johnson says. There were also issues with wheels, bearing boxes, and axle lengths CN had modified when they acquired it. Additional shakedown runs between the Twin Cities and the Milwaukee shop followed, as did another round-trip in early 1985 to Duluth, Minn., on Amtrak's *North Star*.

Satisfied that everything was in order for longer hauls, Johnson then formed High Iron Travel for liability purposes and began to orchestrate a series of charter and personal trips that crossed the U.S. From April 1, 1985, to Dec. 30, 1986, the *Caritas* racked up an astonishing 73,944 miles, mostly on the rear of the *California Zephyr*, *Empire Builder*, *Coast Starlight*, and *Broadway Limited*, with a smattering of Northeast Corridor journeys and trips to Michigan thrown in. Also included: a 1986 New Orleans Super Bowl visit with rowdy Chicago Bears fans, excursions to non-Amtrak destinations such as Hyannis, Mass.; New Hope, Pa.; and a special move from Bakersfield to Oakland, Calif., via Southern Pacific's freight-only route that once hosted the *San Joaquin Daylight*. There was also a hint of off-the-beaten-path adventures to come: a 2,540-mile round-trip from Seattle to Dawson Creek, B.C., over Burlington Northern, Canadian National, and BC Rail from June 26 to July 7, 1986.

RARE MILEAGE BECKONS

As it turns out, that initial Canadian foray was only an appetizer. In February 1987, Johnson took a nearly 5,000-mile spin from Denver into Mexico that involved four Amtrak and National Railways of Mexico passenger trains, Chihuahua Pacific mixed trains and special moves, as well as Santa Fe and Southern Pacific freights.

"I watched the railroad network continue to shrink and figured there had to be a way of getting (to ride) all this before it disappears," Johnson notes. Of immediate concern: a remote branch to the Pine Point lead-zinc mine on the northernmost point reached by contiguous North American rail lines was about to be abandoned.

He traveled to Edmonton, Alta., early in 1987 and spent three hours with Eric Kearney, assistant regional manager of Canadian National's Mountain Region. "Kearney spread out maps on his desk, figuring out what we could do. No problem, it was decided — we could go anywhere!" So, with cooperation from CN, Burlington Northern, and Amtrak, Johnson set his sights on Hay River, on the shores of Northwest Territories' Great Slave Lake, and the Pine Point branch as ultimate, farthest north destinations for the first "Explorers" excursion, originally labeled in the mileage log as a 17-day "Canadian Extravaganza."

Johnson contacted other owners willing to have their "private varnish" join High Iron's *Caritas*. All cars needed to be Amtrak-certified for Empire Builder trip legs from Chicago to Minneapolis and back from Seattle and have auxiliary generators for the many miles the special train was pulled by freight power. "There was a guy in Canada, Terry Ferguson, who had a heavyweight diner and business car. I leased the cars from him; Terry also had some onboard help and ran the diner," Johnson recalls. News of the trip attracted a like-minded clientele that would become known as "mileage collec-

Anatomy of Explorer I

	ORIGIN DATE (1987)	HOST ROAD	TRAIN	MILES
Chicago-Minneapolis/St. Paul	June 19	Soo	*Empire Builder*	419
Twin Cities-Superior, Wisconsin	June 20	BN	Special	158
Superior-Winnipeg, Manitoba	June 21	DW&P-CN	Special	368
Winnipeg-Edmonton, Alberta	June 22	CN	*Super Contenental*	794
Edmonton-Hines Creek, Alberta	June 23	CN	Special	376
Hines Creek-Hay River, N.W.T.	June 24	CN	Special	430
Hay River-Pine Point, N.W.T. (round-trip)	June 26	CN	Special	124
Hay River-Spirit River-McLennan, Alta.	June 27	CN	Special	479
McLennan-Edmonton-Jasper, Alta.	June 28	CN	Special	376
Jasper-Grande Prairie-Dawson Creek, B.C.	June 29	CN	Special	357
Dawson Creek-Chetwynd, B.C.	June 30	BC Rail	BC Rail freight	62
Chetwynd-Williams Lake, B.C.	July 1	BC Rail	Special	347
Williams Lake-North Vancouver, B.C.	July 2	BC Rail	Special	313
North Vancouver-Seattle, Wash.	July 3	BC Rail-CN-BN	Special	172
Seattle-Chicago	July 4	BN-Soo	*Empire Builder*	2,206
		TOTAL		**6,981**

Dinner is served aboard the *Caritas* as the car travels on former Erie Lackawanna tracks across New York State on Sept. 19, 2014, part of an AAPRCO excursion to Portland, Maine. Bob Johnston

***Caritas* is seen on the rear of an American Association of Railroad Car Owners special crossing the trestle at Kootenay Landing, B.C., on Sept. 7, 1995.** Bill Farmer, Brian M. Schmidt collection

tors," travelers who dutifully log every mile and often keep maps of their exploits. Among them was the late *Trains* Editor J. David Ingles, who would occasionally get roped into discussions with fellow passengers about whether you had to be awake for rare miles to "count."

Amtrak handled the special to Superior, Wis., where the train switched to CN's ex-Duluth, Winnipeg, & Pacific subsidiary and on to a Winnipeg rendezvous with VIA Rail Canada's *Super Continental* for the overnight trip to Edmonton, Alta.

The DW&P segment hadn't seen passenger service since the early 1960s, and VIA had recently dropped its Thunder Bay-Winnipeg Rail Diesel Car on a line that briefly ducks back into Minnesota. More challenging from a logistical standpoint was navigating former Northern Alberta Railways and Mackenzie Northern trackage north of Edmonton to Hay River, Northwest Territories. Stops for watering the cars, pumping waste, and getting fuel oil for the generators all had to be pre-arranged. "We can run a week on 400 gallons of oil, but some of the cars have 60-gallon tanks; you have to get a fuel truck to the cars," says Johnson.

Spur-of-the-moment decisions made enroute sought to squeeze every last foot of rare mileage out of Explorers' trips. "When we got to the special's designated parking place at Hay River, we discovered the northernmost end-of-track was actually almost in Great Slave Lake, probably a one-time lead to a ferry," Johnson recalls. "So, of course, we wanted to back down as far as we could. The trainmaster who was with us agreed and allowed us to do just that — almost to the water's edge! That CN trainmaster was Jim Vena, now Union Pacific's president and CEO. When I met up with Jim at a dinner in Kansas City last November, he remembered the incident."

The Explorers' special then tacked on a round-trip to the soon-to-be-abandoned branch. "We were the last passenger train to Pine Point; the mine had been shut down for a couple of weeks and everyone was bitter at the railroad because the company was going to pull up the tracks."

The special train's meanderings on that journey also included more than 100 rail miles in Alberta to Hines Creek and the line between McLennan and Spirit River; both of those segments have since

"So, of course, we wanted to back — almost to the water's edge!"

been abandoned. The area is so remote that on one 357-mile leg of the excursion from Jasper, Alberta, to Dawson Creek, B.C., there was only one intermediate outpost of any consequence, the division point of Winniandy, Alta.

Informality among host railroad operating crews on that summer's escapade was typical of early *Caritas* trips. "The train was stopped and we were having lunch at this little junction where there was a 6-mile branch line and I thought, 'we ought to try that,'" says Johnson. Though not officially planned, the conductor gave the okay to push down the branch and back.

What surprised him on that first Explorers excursion? "How tough it was to get water in some places, how long it takes to water a train of seven private cars with a garden hose, and how much liquor people drank!" Johnson notes. There were also some memorable extracurricular moments, such as when a young woman playing pool at a remote stop's tavern betting 25 cents per ball "cleaned out" all comers.

MAKING IT WORK

After word of that 1987 excursion spread, prospective passengers would send suggestions of trips they wanted Clark to do. "Some of the ideas were off the wall; I'd try to tie them together in some way that we wouldn't have to repeat the same trackage. First, I'd call the railroads; I'd never call Amtrak first in the early years until the other pieces fell into place," he remembers.

Canadian Pacific and its Soo Line U.S. subsidiary proved to be especially accommodating, in part due to company liaison Don Heron. He coordinated the necessary steps within CP such as service design, field operations, law, and other departments to set up the charter trips. Heron says, "A key to success was starting early on the planning, plus being able to count on the safety and competence of Clark Johnson, *Caritas* participants, and the American Association of Private Car Owners."

Even with all advance arrangements confirmed, there always seemed to be room for improvisation. The 1991 Soo Explorers 5 rare mileage excursion from Portal, N.D., to the Twin Cities traversed a North Dakota branch line whose last passenger service was a mixed train discontinued in the 1950s. The plan called for an overnight layover at Thief River Falls, Minn.

"Some of us looked at the schedule and it appeared we could also work in a round-trip from Thief River over the 80 miles on the route of the Soo's former *Winnipeger* to the Canadian border at Noyes, Minn.," recalls Explorer 5 passenger Reg Mitchell. "I broached the idea to our Soo Line host and he said for an extra fee we could pay to call an operating crew to go there. We raised the money from everyone onboard," Mitchell says, "So at dawn we rolled up to Noyes, then returned to Thief River Falls before resuming the planned itinerary." A postscript to that July 1991 adventure recalled by Clark Johnson: "All of the cars' air conditioning failed in 100-degree weather as we continued on down through

down as far as we could. The trainmaster who was with us agreed and allowed us to do just that

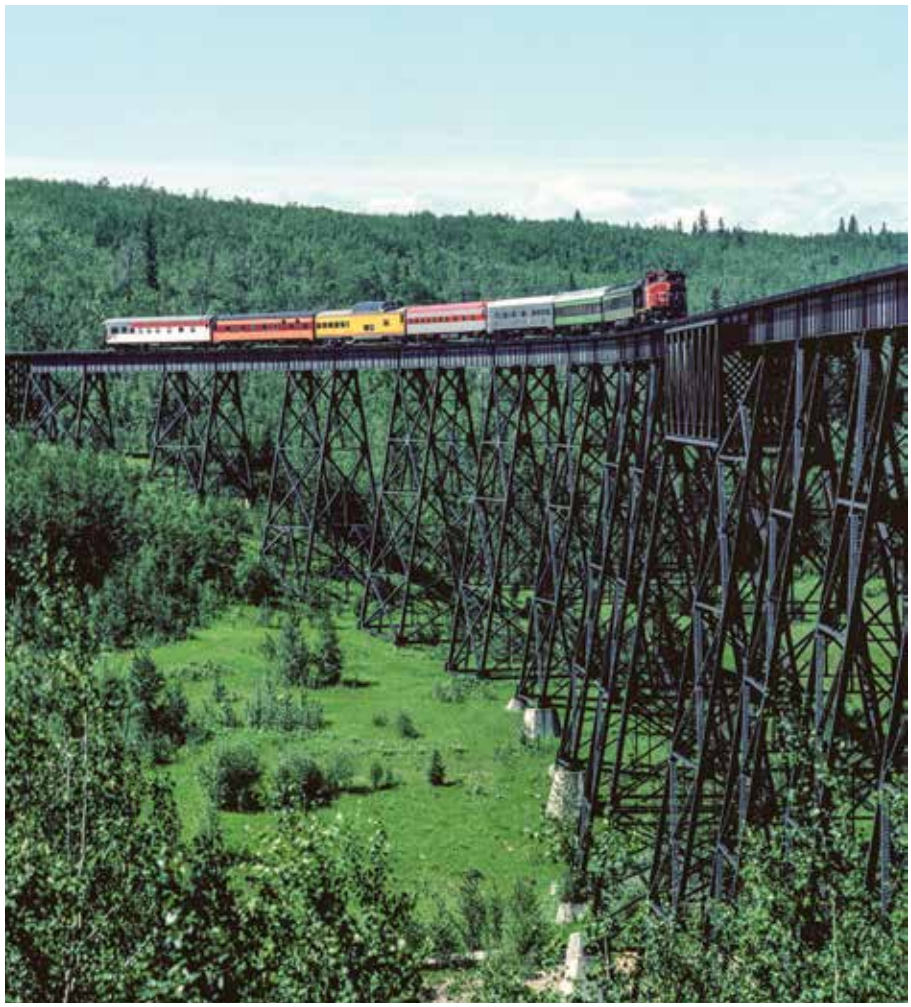
DISAPPEARING TRACKS

Caritas got to a lot of railroad lines in the nick of time

The first big KCS tour was in 1997, the eighth Explorers excursion, but there were many other noteworthy journeys both before and after that trip from Birmingham, Ala., to Kansas City over freight-only rails that included a couple of short lines. Many of the routes *Caritas* traversed are today only represented by dotted lines on maps, exactly what Clark Johnson believed would happen when he envisioned rare mileage trips. These include:

- The Duluth, South Shore & Atlantic on Michigan's Upper Peninsula. "We went across from Sault Ste. Marie, then they ripped it up."
- Canada's Northern Transcontinental (Explorers 2) "After arriving at Hearst, Ont., on the Algoma Central, we went east all the way to Quebec; many sections are now gone."
- Canadian Pacific's route through the Canadian Rockies into Trail, B.C. (Explorers 6): "On CP's Slocan Lake branch we went right down to where the dock had been abandoned. It would be the last time a train was there —except for the scrapper."
- A 4,500-mile trip in 2002 to Tillamook and Garibaldi, Ore., on Port of Tillamook Bay Railroad tracks that were later washed away in a 2007 flood. "When the window of opportunity opened for the Lewis and Clark Expedition anniversary celebration, Portland and Western (short line operator) Genesee & Wyoming was very decentralized and decisions were made locally," recalls Hill, adding, "A guy in Portland had a gondola with seats he called the 'Vistagon,' so we picked it up and everyone could sit outside with a perfect view."
- Earlier the same year, the *Caritas* rolled 5,396 miles from Minneapolis to Nova Scotia on Amtrak and VIA passenger trains operating at the time that took it to Halifax (on the *Ocean*), Gaspe, Que., (on the Chaleur) and to Sydney (on VIA's short-lived Bras d'Or). Tracks to Gaspe have been out of service since 2011 and the Cape Breton and Central Nova Scotia rails on Cape Breton are now being abandoned.
- The car visited Norfolk Southern's Saluda grade between Asheville, N.C., and Spartanburg, S.C., on special trains in 1992 and 1996. The railroad recently sold the long-dormant line to the state of North Carolina for a hiking trail.
- Caritas often wintered in a heated former Chicago & North Western roundhouse at Laona, Wis., then owned by the Nicolet, Badger & Northern short line, and made occasional excursions to Tipler, Wis. Today, Laona is isolated from the rest of the North American rail network. — *Bob Johnston*

"But we did not derail! That was the only time a passenger train ever visited the Trail smelter."



Explorer 1 excursion staged a photo runby on the 2,000-foot bridge crossing the Meikle River in northern Alberta on June 24, 1987. With *Caritas* bringing up the rear, the special was headed to Hay River on the shores of Great Slave Lake. Two photos, J. David Ingles, Brian M. Schmidt collection

Explorers 5 Soo Line special approaches Valley City, N.D., on July 1, 1991, with Burlington Northern's ex-Northern Pacific main line bridge in the distance. The excursion covered Soo and former Milwaukee Road branch lines in the North Dakota, Minnesota, and Iowa.

Iowa to Kansas City, Mo."

Another equipment escapade occurred the following year on the trip to Nelson, B.C., when Explorers 6's 85-foot passenger domes and six-wheel truck heavyweights attempted to climb a branch to an ore smelter at Trail, B.C., over track with 16-degree curvature on a 4.5% grade designed for 40-foot hopper cars. The heavyweights had to be left behind, Johnson says, "because the truck frames would strike the cars' center sills on the curves. A Canadian Pacific trainman walked along side those cars that did go, watching the wheels trying to climb out of the gauge. But we did not derail! That was the only time a passenger train ever visited the Trail smelter."

Amtrak looked to be a good partner, too, in part since management viewed special train moves at the time not only as a source of revenue growth, but also because of enthusiastic encouragement from special movements officials such as Laddie Shrbeny and Billie Ernst. Another early facilitator was Jim Larson, assistant vice president of operations planning. Larson carried the torch for many subsequent *Caritas* Explorers trips — there would eventually be 17 of them through 2016 — and special trains sponsored by AAPRCO and the Railroad Passenger Car Alliance that the car was often a part of.

Explorers trips generally travelled by day and laid over each night at a remote location, where railroad personnel were generally helpful finding mid-route suppliers. When figuring out how trains would be serviced, Johnson says an official might suggest, "'we use Charlie down the street here.'" He and Nona Hill, who first met Clark on a 1991 Wisconsin circle excursion before she began taking on High Iron logistics responsibilities, would drive the entire route.

"The only place we couldn't get water on one of the trips was Pratt, Kan., because the feed mill was on the wrong side of the tracks and there were no houses or businesses near the siding," Johnson recalls. "The design from the beginning was that we could go somewhere and park for a week, but we need water to wash the dishes."

Hill remembers there were no grocery stores in rural North Dakota on a trip to Whitetail, Mont. (population 7), the end-of-track on the Soo Line's ill-fated transcontinental venture. "We rented a van for a week to bring in supplies to our special

train. I had to drive, so I missed some of the rare mileage," she says. Another time during a stop at Albert Lea, Minn., Hill went to get ice at Walmart, but the train left without her.

Yet cooperation with railroad hosts ran hot and cold, thus determining which trips could be orchestrated at any given time. Hill says Kansas City Southern operations people would "hang up the phone" if the *Caritas* requested a special move. But after Mike Haverty took over in 1995 and met Johnson, "the railroad allowed us to do a short trip to see what kind of safety-conscious operators we were. After that, we were on our way."

MOUNTING CHALLENGES

In 2003, Iowa Pacific Holdings bought High Iron and folded the company and *Caritas* into its blanket liability policy, which helped facilitate far-flung excursions on the back of freight trains. "When we planned an Explorers trip, the railroads would want $10 million or more of liability insurance — well, that's hard to build into a trip that is already expensive," says Hill. Estimating costs became increasingly elusive, she remembers, "even if we thought we were charging enough to break even. The railroad might agree to charge $5,000 for a one-day trip, but it could cost twice that if there was a breakdown somewhere and the crew 'died.'"

The business became much more difficult with railroad management changes, when an incoming president might nix special moves that the previous CEO routinely allowed. Sometimes certain lines would require the car to be moved without passengers over a segment, necessitating a separate bus transfer.

Most impactful, beginning in 2017, was the decision by incoming Amtrak CEO Richard Anderson's regime to jack up per-mile costs owners must pay, never approve special trains operating away from regular routes, and severely limit intermediate locations where private cars can be switched. That makes what the Johnson and Hill did with *Caritas* and other car owners impossible to replicate today unless the national carrier decides to again embrace private car revenue potential.

Special excursions are still possible if relationships with railroads can be cultivated and liability insurance hurdles can be overcome.

But, looking back, Johnson concludes, "We did quite well. *Caritas* traveled an enormous number of track miles that no longer exist. On many trips, we were the last train on the line." ■

Explorers 6 with CP power crosses a bridge north of Trail, B.C., on July 4, 1992, with the full consist. Some cars had to be dropped on the steep curves and heavy grades into Trail. Neil Lang

Clark Johnson prepares to step off the *Caritas*, at Hines Creek, Alberta, on June 24, 1987, before the Explorers 1 special departs for Hay River. J. David Ingles, Brian M. Schmidt collection

Early Explorers Itineraries, 1987-1997

TRIP	YEAR	ROUTING	RAILROADS	MILES
1	1987	Chicago-Duluth-Winnipeg-Edmonton-Northwest Territories-British Columbia-Vancouver B.C.- Seattle-Chicago	Soo, BN, DW&P, CN, BC Rail	6,981
2	1988	Chicago-Sault Ste. Marie-Hearst-Senneterre-Quebec-Halifax-Montreal	Soo, Algoma Central, CN, CP	2,985
3	1989	Seattle-Spokane-Missoula-Billings-Fargo-Minneapolis-Stevens Point-Chicago	BN, Montana Rail Link, Wis. Central	3,381
4	1990	Chicago-Ashland-Marquette-Escanaba-Wells-Green Bay-Chicago	Wis. Central, Escanaba & Lake Superior	1,782
5	1991	Chicago-Mason City-Portal-Thief River Falls-Noyes-Minneapolis-Kansas City	Soo	2,735
6	1992	Minneapolis-Minot-Moose Jaw-Golden-Cranbrook-Nelson-Slocan City-Kimberly-Trail-Eastport-Spokane	Soo, CP, UP, BN	3,825
7	1993	Minneapolis-Duluth-Rice Lake-Ashland-White Pine-Rhinelander-Green Bay-Milwaukee	Wis. Central; DM&IR; Nicolet, Badger & Northern	1,966
8	1997	Birmingham-Meridian-Baton Rouge-Shreveport-Port Arthur-Pittburg, Kan.-Owasso, Okla.-Kansas City	KCS, South Kansas & Okla., Southeast Kansas	2,633

VIA Rail Canada 1954 dining car kitchen in the *Chaleur*, Dec. 21, 2009

BY JERRY A. PINKEPANK // Photos by David Morris

The Canadian Pacific in 1953 ordered 173 stainless steel cars from Budd to modernize its premier passenger services. The purchase included 18 dining cars. The Budd equipment, delivered in 1954-55, inaugurated the *Canadian* between Montreal and Vancouver via Ottawa as well as a Toronto section to/from Sudbury. Between Montreal and St. John, New Brunswick, the new cars made up the *Atlantic Limited*. Today, VIA Rail Canada's Montreal-Halifax, Nova Scotia, *Ocean* utilizes some of the same Budd sleepers and coaches. Until 2013, the *Chaleur* served the Gaspe Peninsula paired with the *Ocean*. The car in these photos is named *Empress*.

1 Window view was made from what we will call the front of the car; depicted in the floor plan drawing in the exterior wall below the word "kitchen." All descriptions that follow are author's interpretations.

2 Overhead cabinet identified by the number in both views, explaining the crosswise rectangle to the right of the word "Pantry" in the floor plan.

3 Stovetop (oven underneath)

4 Cutting board defining the work station of the first cook (VIA title chef)

5 Keep-warm hood, used by the second cook for holding plated food.

6 Sinks, many required as cooks and waiters are frequently washing hands, rinsing utensils, and the waiters need sinks for soiled dishes.

7 Clean plates, which the chef and second cook use in sequence to plate foods.

8 Range hood (both photos), which besides ventilating the stovetop provides a place to post written orders taken by the waiters, moving from chef to second cook as plating progresses.

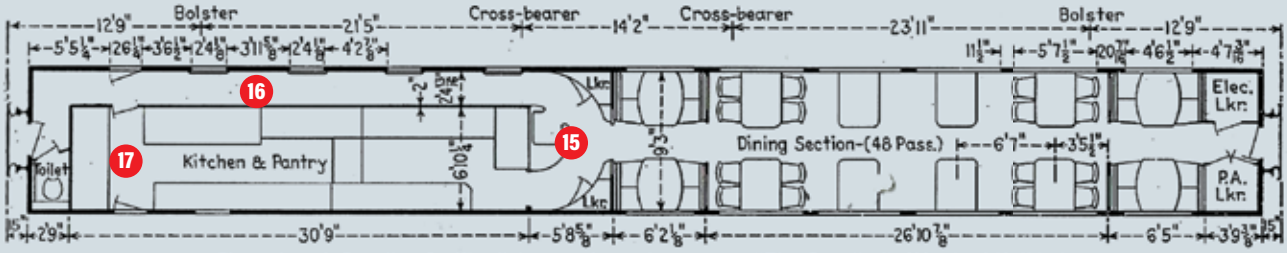
9 Waiter's work station, to finish trays including making salads and dishing soup; this area is why dining cars don't need the pass-through shelf used in restaurants.

10 Toasters

11 Coffee and tea, second cook attends to them, with help from waiters. In traditional dining car crews, there was typically a third cook in what is here the waiter's work station; they shared an area where VIA now has waiters perform.

12 Refrigerators (both photos)

13 Route used by waiters (three in a VIA crew, plus French waiter east of Moncton, N.B.)



Floor plan of Canadian Pacific dining car for assignment to "The Canadian". Weight 141,630 lb.

This Budd drawing shows the floor plan of the 18 dining cars in the 1953 CP order. The cars closely followed the layout of the dining cars in the 1948 *California Zephyr*. The *Canadian* required seven sets of equipment for the Montreal-Vancouver operation plus two more for the Toronto section, accounting for nine of the 18 dining cars. Two additional cars were required for the *Atlantic Limited*, and other dining cars from the 1953 order were used in upgrading the secondary Montreal and Toronto/Vancouver train, the *Dominion*, thus accounting for all 18 cars.

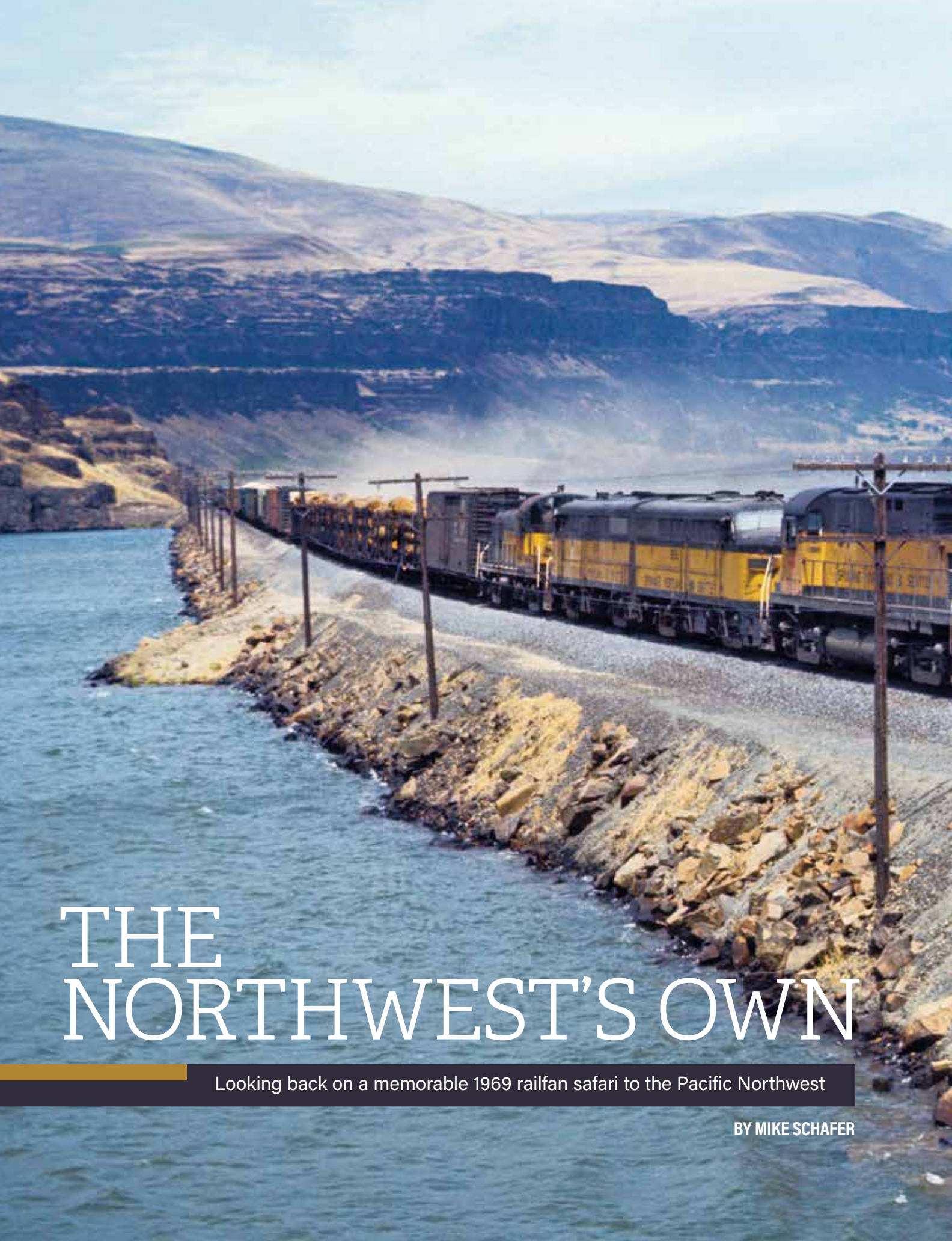
14 Dishwasher, sink at item 6, second photo has dishes stacked for next load.

15 Steward's desk. (VIA term: service coordinator). The dining car is placed in the train between the coaches and first-class cars; at this position, the service coordinator, who leads the entire dining car crew, can regulate seating of passengers, holding back coach passengers as first-class patrons are seated.

16 Aisleway from the coaches.

17 Utility doors used when stocking the car and unloading soiled linen and trash.

Note: VIA Rail Canada has an ongoing program to modernize the 1954 dining cars. The refurbishment of Empress *was completed in February 2023. The kitchen may look significantly different today. Thanks to retired VIA Chef and Service Coordinator Gordon MacDonald for reviewing this article, and identifying VIA Rail titles and duties.*



THE NORTHWEST'S OWN

Looking back on a memorable 1969 railfan safari to the Pacific Northwest

BY MIKE SCHAFER

On July 2, 1969, three railroad explorers — Jim Boyd, Richard Dean, and myself — set out from northern Illinois to the American West. Our plan was to explore Western railroading during the 100th anniversary of the May 10, 1869, driving of the Golden Spike linking the newly built Central Pacific with the Union Pacific at Promontory, Utah. It would turn out to be mission accomplished.

These Alcos are bound for glory! A pile of Alco locomotives — two Centuries, two FAs, and a lone RS3 — hammer westward along the north bank of the Columbia River on July 10, 1969, soon after departing Wishram, Wash., a division point on the SP&S.

Alco FA 865 leads a quintet of locomotives, including some Great Northern units, on an eastbound train out of Vancouver, Wash., on July 10, 1969.

At Lamont, Wash., about 45 miles west of Spokane on the eve of July 9, 1969, we chatted with the station's friendly operator to learn about operations on this busy line, which included the Portland sections of NP's *North Coast Limited* and *Mainstreeter*, and GN's *Empire Builder* and *Western Star*. The evening concluded with this westbound freight behind a pair of Centurys. Note the fireman about to snag train orders.

During our three-week extravaganza in Boyd's Volkswagen square-back, we covered the principal railroads of nearly every state in the West, including such fabled scenes as UP's Sherman Hill grade, Southern Pacific's Tehachapi Loop, and Western Pacific's Feather River Canyon. All of this impressed this rag-tag 20-year-old railfan who'd never been west of the Missouri River. Of all the railroads we saw, though, one unexpectedly caught my fancy, one of which I was only vaguely aware: Spokane, Portland & Seattle.

Controlled by the Great Northern and rival Northern Pacific, the 922-route-mile SP&S diverged traffic bound for Portland, Ore., off both the NP and GN Twin Cities (Minneapolis/St. Paul)-Seattle main lines at Spokane, Wash. This included both freight and passenger traffic.

This was an era before one could turn to a computer to learn the backgrounds of railroads like the SP&S. No, we did it the hard way: on-site exploration and photography. Our first encounter with this intriguing railroad unsurprisingly happened at Spokane. We had just rolled into town following several days of exploring Milwaukee Road's electrified lines in Montana and Idaho and — bingo! — we happened upon a freight in the charge of a set of Alco Century diesels. This was how we first learned SP&S was an Alco haven!

We more or less ignored the GN and NP from Spokane west; after all, the east end of NP and GN country at Minneapo-

Remember when proper freight trains had cabooses, making both ends of a freight train photogenic? Terrain along the Columbia River — from barren to forested — provided endless photo ops.

The SP&S was owned by the GN and NP, providing those two Minneapolis/St. Paul, Minn.–Seattle carriers with a route down to Portland, Ore. The SP&S itself had two subsidiaries: The Oregon Trunk Railway between Wishram, Wash., and Bend, Ore., and the Oregon Electric, initially an interurban.

lis/St. Paul was a mere five-hour drive from Boyd's and my homes in northern Illinois homeland — four hours if Boyd was driving! Instead, we focused on the intriguing SP&S for the next couple of days.

Early that evening, we struck westward from Spokane, winding up at the town of Maupin where the SP&S had a live operator. We learned a lot about SP&S operations from the fellow and photographed the eastbound Portland sections of the *Empire Builder* and *North Coast Limited* heading into twilight. We continued west and overnighted at Pasco, a major SP&S facility and division point.

Morning shed more light on the SP&S. Although I've long favored the Midwest's rolling farmlands and the Northeast's mountains and forests, as we resumed our trek toward Portland, I was intrigued by the semi-arid geography of "SP&S Land" along the spectacular Columbia River.

It's about 2 a.m. in the blackness of Maupin, Ore., and we have intersected with both a southbound freight behind a set of FAs and the northbound Bend-to-Wishram mixed train behind a C415 and RS3. We were able to photograph the head end of the southbound freight, above, but we chose to spend most of our time documenting the ancient steel combine on the mixed.

At one point, we happened on a most interesting SP&S location: Wishram, Wash., a major yard and division point wedged between a canyon wall and the Columbia River. It was here that SP&S's Spokane International's main line up from California joined the Spokane–Portland main line via a spectacular lift bridge over the Columbia.

Boyd was one of those friendly, enthusiastic, yet professional fellows who could enter a railroad facility and exit practically owning the joint. Such a visit with the Wishram operator netted some intriguing information about the SP&S mixed train to Bend, Ore. (Reminder to younger readers: No Google back then.)

Boyd and I were already on to an intriguing aspect of early 20th century railroading: mixed trains, a holdover from early in the century, of which vestiges still existed. In the prior year, Boyd and I had covered the Georgia Railroad's "network" of mixed trains. Trains that "mixed" freight with passenger accommodations were a dying chapter in U.S. railroading, and here in Washington and Oregon we had stumbled upon a lesser-known species. Alas, SP&S's mixed train tended to be a middle-of-the-night operation, primarily serving fishermen all up and down the line to Bend.

We put the Oregon mixed on the back burner and continued westward along the SP&S main line. At one point, I was met with a special surprise. Back in the

In 1969, mixed trains were a dying breed. The Bend-Wishram mixed did not disappoint us. In fact, we were astonished to see not only a heavyweight combine, but also loaded with passengers! Nearly all were campers and fishermen, and once they detrained, they scattered into the darkness around Maupin.

1950s, my sister Maureene and I had a favorite, rather large puzzle we would put together on the family card table. It showed a huge dam along a wide river. Fast forward to July 1969 and I'm looking at the assembled puzzle in real life: Grand Coulee Dam.

The day's trip led us to the SP&S terminal facilities — freight and passenger for SP&S, Southern Pacific, Union Pacific, GN, and NP — in Vancouver, Wash., across the Columbia River from Portland. While at Portland Union Depot, we spotted the departure of SP's Cascade, the overnight train to Oakland/San Francisco. That pointed us south toward our next destination, the Bay Area. But Boyd's mind was busy at work, and he decided we had a good opportunity to hit the northbound Oregon Trunk mixed train No. 3 at Bend, Ore., before its 7 p.m. northbound departure for Wishram if we cut east off of U.S. Route 99. It would be tight, but whoever heard of a mixed train sticking to its schedule?

The congenial Bend operator confirmed that the mixed had indeed left on time for points north. We decided to turn north and, 75 miles later, catch up with it, which we did in the depot at Maupin, Ore. In the process, we took night shots of a southbound freight behind a set of FAs, waiting to meet the mixed. The mixed rolled in behind a C415 and an RS3, spotting the combine at the depot.

The train pulled into the station, stop-

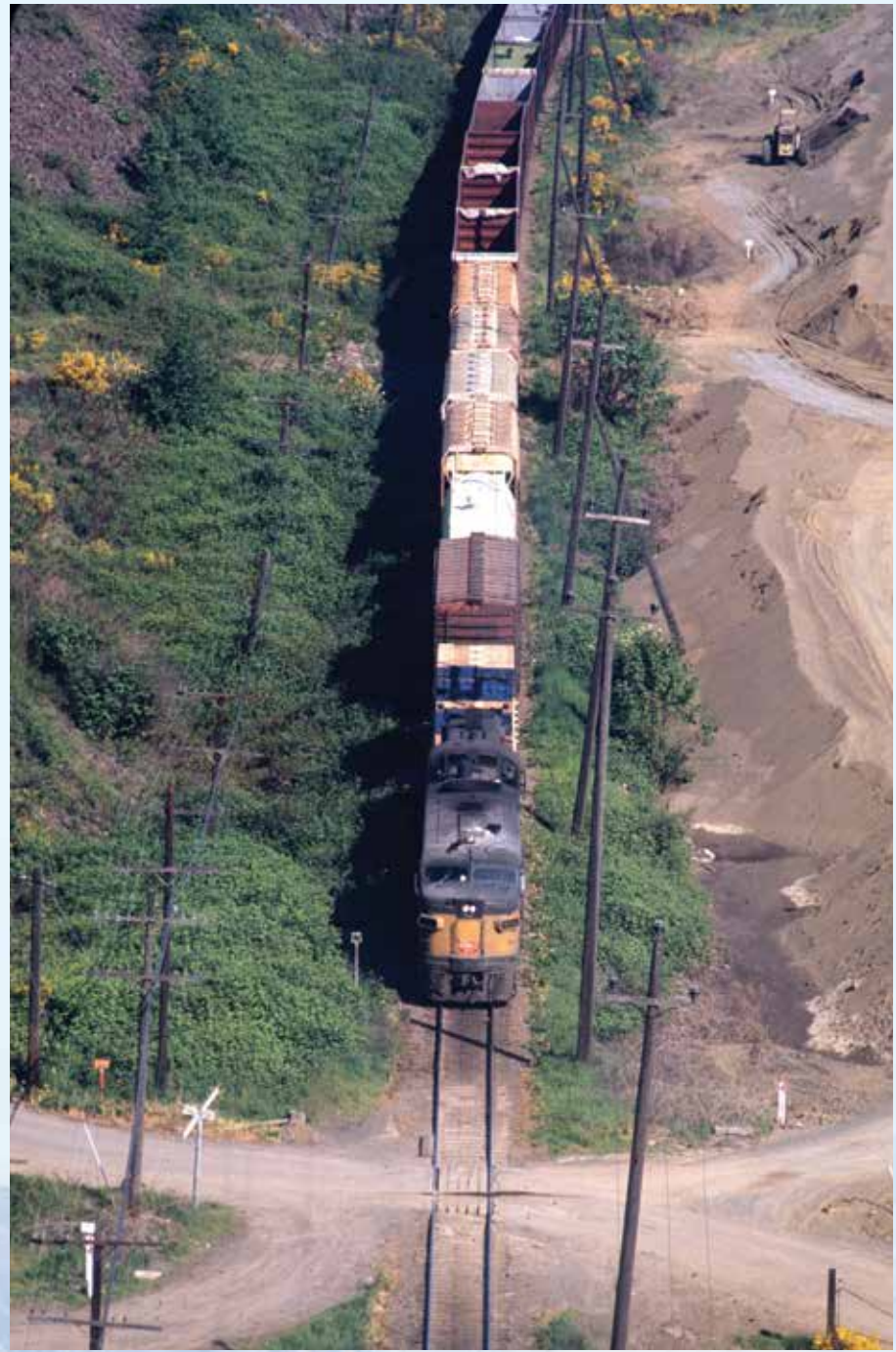
The heart of the SP&S was at Vancouver, Wash., across the Columbia River from Portland, Ore. This 1972 scene at Vancouver shows Burlington Northern C636 No. 4366 — former SP&S 340 — having been renumbered following the 1970 BN merger.

Alco's new C415 locomotives were all the rage with us diesel hounds in 1969. We caught the 101 working about Vancouver. Sadly, they were among the last as Alco would shut down that same year.

ping such that the combine at train's end was spotted at the depot. There was a sudden flurry of passengers — yes, passengers! — disembarking from the combine and scuttling off into the darkness. This was no ordinary late-surviving U.S. mixed train whereby a passenger or two (if any at all) disembarks from the train. No, this was a clambering batch of sportsman, eager to head for their chosen hideout for the next day's fishing. I have to say that Boyd, Richard, and I watched — a bit dumbfounded — at the whole scenario. We photographed the scene and then returned to our middle-of-the-night trek toward northern California.

Fast forward to 1972 when I was working as an editor in the Books Department at Kalmbach Publishing Co. in Milwaukee. My boss at the time was Harold Edmonson, who, like me, was a devoted railfan photographer — plus an Alco locomotive aficionado. By then, SP&S had become a component of the 1970 Burlington Northern merger along with the Chicago, Burlington & Quincy, Great Northern, and Northern Pacific. Things they were a-changin'.

At this point in the circle of life of American locomotives, the new BN had decided to eliminate aging Alco motive power. Alco — once a king of railroad motive power, steam or diesel — had dwindled into being a "has been." As a result, Alco diesels were on the butcher's block. Harold and I decided it was time

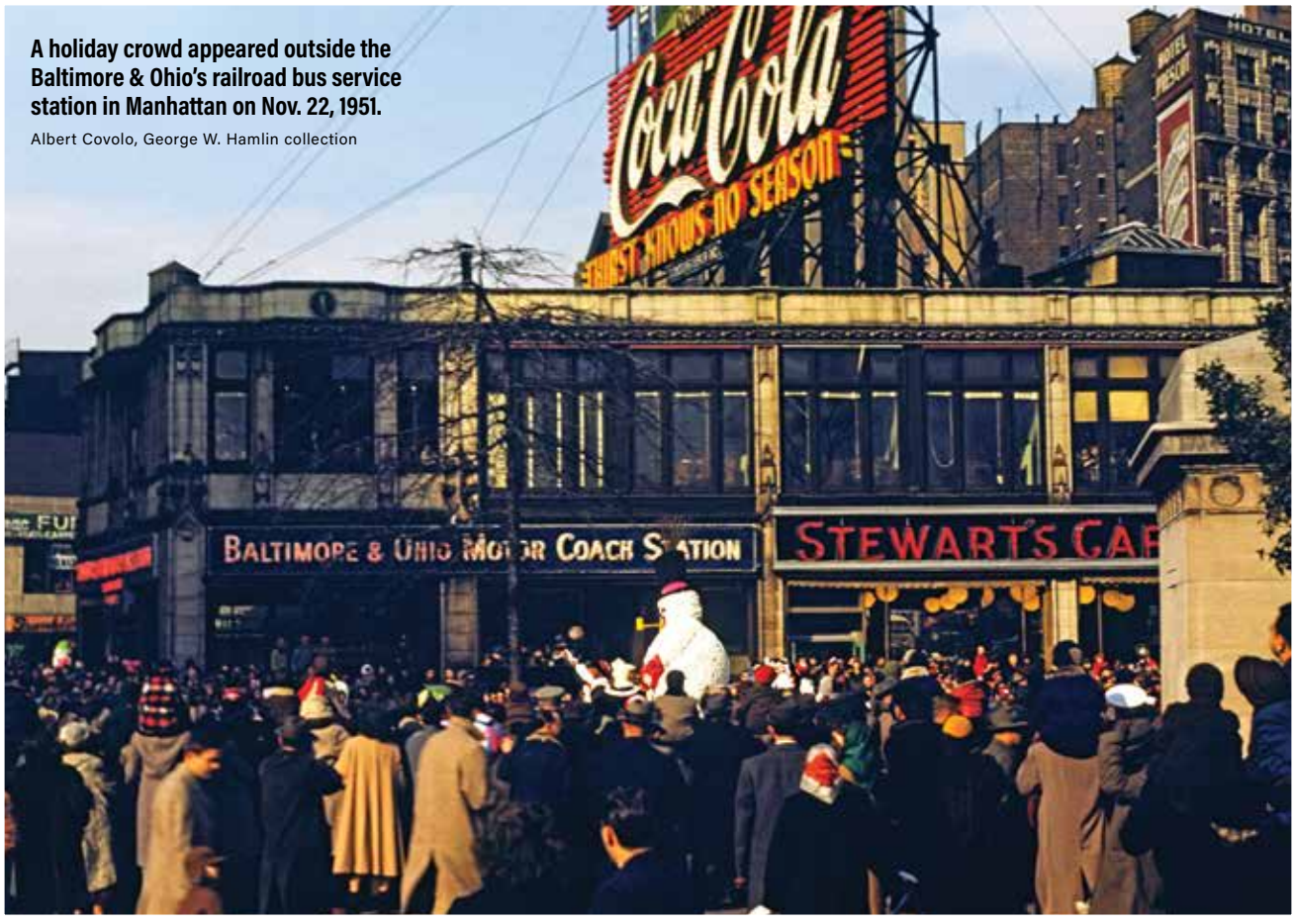


Friend and also my boss at Kalmbach Publishing Co., Harold Edmonson and I made a trip to the Pacific Northwest in 1972 to record the impending retirement of BN's ex-SP&S first-generation Alcos. For a less-common angle of an Alco FA and a road-switcher, we photographed this eastbound freight coming down the Astoria, Ore., branch from the St. Johns Bridge in northwest Portland.

to make a trip to SP&S country to document the carrier's final months of Alco operation. So, in 1972 I decided to endure an upper respiratory ailment and head off with Harold from Milwaukee to Portland on Amtrak train 9, the *North Coast Hiawatha*. This was one of those quests I just couldn't pass up, regardless of my being the sickest I had ever been since second grade.

Harold had done his homework. When we reached Portland, we were met by a couple of BN employees who had been assigned to our project: photographing the sunset days of SP&S Alcos. Boy, you wouldn't see that happening today! After dinner and drinks with the SP&S/BN reps, we began our foray to document SP&S's dying Alco action, with much success. The BN fellows even set it up so that Alcos were almost always at our behest. To top it off, we were provided with dispatcher phone numbers to pinpoint train call times as well as locations of trains already on the move.

The trip paid off, and we had gratifying results, some of which you see here. It was a different world back then. ■



A holiday crowd appeared outside the Baltimore & Ohio's railroad bus service station in Manhattan on Nov. 22, 1951.
Albert Covolo, George W. Hamlin collection

Railroad bus service to New York City

There are no tracks at this railroad passenger station

There are standard-gauge tracks close by, but they can't be seen here, since they're underground in this neighborhood. We're at Columbus Circle in New York's borough of Manhattan, on Thanksgiving Day in 1951, Nov. 22. How can that be deduced? Well, that's the famous Macy's parade that's passing down the street, complete with a snowman on a float that can be seen over the crowd of people in the foreground. This would have been even more definitive had it shown the cartoon character "Mighty Mouse," since it was making its first appearance at the holiday event in 1951.

Beyond is a building identified as the "Baltimore & Ohio Motor Coach Station," which might arouse your curiosity. The B&O had service between New York and Washington, D.C., at this time, but utilized the rails of the Reading Co. and the Central Railroad of New Jersey to reach the Hudson River; its own trackage didn't go further north than Philadelphia in the northeast. However, while this reached the Hudson at the CNJ's riverfront station in Jersey City, a separate conveyance in the form of a ferry was required to get to and from Manhattan.

The "Best and Only's" competitor, the Pennsylvania Railroad, solved the river-crossing problem via the construction of Penn Station, which required tunnels to enable Pennsy (and Long Island Rail Road) to cross under both the Hudson and East Rivers, the west and east boundaries of Manhattan, respectively.

During World War I, when the country's railroads were under government control, the B&O was given the right to serve Penn Station, but this had ended by 1926, pushing the Baltimore-headquartered carrier back across the river to New Jersey. To ameliorate what it perceived as a competitive disadvantage, the B&O looked to a competitive mode, motor vehicles, so that, as indicated in the April 25, 1954, B&O System timetable:

"Passengers using the Baltimore & Ohio route may also use (without extra charge) B&O motor coach service between trainside at Jersey City and any of 15 motor coach stations and stops in New York and Brooklyn."

According to Herb Harwood Jr., noted rail photographer and author, as well as a retired railroad executive, the railroad owned the buses used in this service, and they were painted and marked for the B&O. Over the years between 1926 and

Information about New York bus services from B&O April 27, 1952 timetable (left) and Erie April 25, 1954 timetable (right). George W. Hamlin collection

when all B&O passenger service was discontinued north of Baltimore, there were three kinds of buses utilized: front-engine Yellow intercity coaches, followed by air-conditioned custom-built streamlined bodies from the White Motor Co., and later, standard/stock Whites.

As we can see in the Thanksgiving photograph, unlike most other railroad bus service operated to feed a rail terminal, the origin/terminal points on the multiple routes served (five, as of April 1954) could properly be called "stations," and at least some, including the one opposite Grand Central Terminal on 42nd Street had a ticket counter staffed by B&O employees. The intermediate stops on the bus routes were typically hotels, or in one case, a prominent department store, Wanamakers.

At Jersey City, the buses pulled right up to the departing B&O train they were scheduled to serve and then were turned for their next outbound trip with detraining passengers via a small turntable. Crossing the Hudson was accomplished by the bus using the CNJ's lower Manhattan ferry service, which accommodated cars, trucks and buses as well as passengers.

Interestingly, those that read the "Explanation of Reference Marks and Notes for Tables 10 to 12" on page 12 of the April 25, 1954, B&O system timetable would learn that not only the company buses, but private automobiles could drive to trainside at the CNJ's Jersey City terminal, "on payment of ferry charges," and provided a telephone number to call to set this up.

A convenience provided in both directions to rail passengers was the ability to have their hand baggage transferred directly to the motor coach service, or, on outbound trips, to tender these items at the boarding station, where they were transported directly to the seat or space occupied by the passenger on the train.

As late as 1952, the stations in Manhattan and Brooklyn offered checked baggage service: "Trunks and other large pieces of baggage may be checked from any B&O motor coach station to destination." However, by the 1954 timetable this had been changed to "Trunks, theatrical scenery and similar unwieldy pieces cannot be checked from motor coach stations and stops. However, these items may be checked to or from Liberty Street Ferry Station or Jersey City Terminal."

The B&O was not alone in having a bus feeder service between a waterside New Jersey rail terminal and Manhattan in the 20th century. The Erie provided this for its long-haul passengers to get to Rockefeller Center in midtown, with several intermediate stops. Unlike the B&O,

Two chrome-emblemed B&O buses exit CNJ Ferry Elizabeth at Liberty Street terminal in Manhattan in August 1953. Wallace W. Abbey

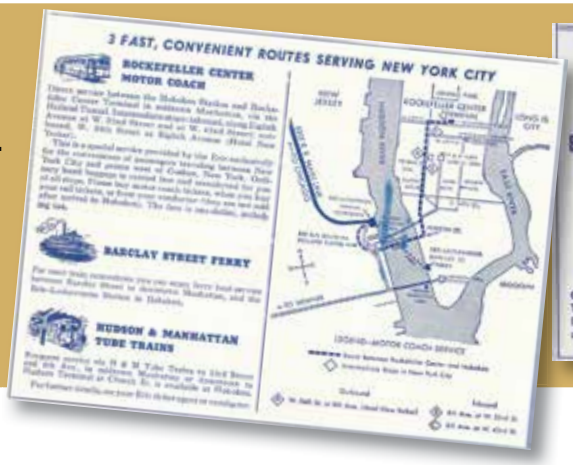
which included the motor coach service in the rail fare, the Erie charged a modest fee for theirs, and apparently passengers needed to handle their own baggage between the train and bus.

This service persisted following the Erie's move to the Delaware, Lackawanna & Western's Hoboken terminal, and for that matter, following the Erie Lackawanna merger in 1960. The Hoboken facility also had ferry service across the Hudson to downtown Manhattan, as well as access to the Hudson & Manhattan Tube Trains.

Alas, by the end of April 1958, neither checked or hand luggage, nor passengers, were being handled by the motor coach service, since the B&O opted to end its passenger service east of Baltimore and thus its railroad bus service to Manhattan.

Finally, a note about those underground standard gauge tracks in the vicinity of the Columbus Circle motor coach station. They belonged to the New York City subway system and provided a major connecting point between what were the "Independent" division, and the "IRT" (Interborough Rapid Transit). The former includes the A, B, C and D lines today; the latter, the 1 and 2 lines.

Map of the Erie's New York City service from the Jan. 10, 1960 timetable, and discontinuance notice from the B&O's April 27, 1958 timetable. George W. Hamlin collection



Livernois Yard near Detroit was a bustling place in the 1960s as a brakeman passes hand signals from a boxcar rooftop.

Hand signals on the NYC

Looking back at bygone operating practices

By Chris Burger // photos by the author

When this photo was taken in January 1964 at the Livernois Avenue Yard in Detroit, I was a New York Central transportation department management trainee. The official title was freight transportation inspector trainee. I had entered the training program right after graduation from college in June 1963 and my first assignment was in the mechanical car reporting department. The Central, under president Alfred E. Perlman, was a railroad industry leader in computer applications and the department was charged with developing and implementing its application to car movement tracking and reporting, previously a cumbersome, error prone, labor and paper intensive process.

I was assigned to travel with one of the instructors, Mike Albano, a former Selkirk yard clerk whose job was to get things off the ground locally. We encountered much confusion, problems, concern and outright opposition, which was understandable due to the possible job eliminations. Mike was a good teacher, who, having been "one of us," established quick respect and rapport with the yard and agency folks. It was all new to me as none of my summer jobs on the railroad had involved freight car movement reporting, but I think we both learned almost as much from the questions and feedback as did the folks we were to instruct. The process itself benefitted too as problems were identified and solved. I learned a lot about change and how to implement it as well.

One day I decided to ride with one of the Livernois Avenue Yard crews that I had come to know. We had two EMD Geeps and I settled down in the second unit's fireman's seat. At the time the NYC ran most of its Geeps long end forward.

Two Alco locomotives at Selkirk Yard in New York in the mid-1960s. Note radio logo at right.

The Baltimore & Ohio's *Cincinnatian* passes NYC's YD Tower at River Rouge, Mich., in 1964.

We made a few yard moves before departing with a transfer run to the Central's River Rouge Yard. I didn't usually have my camera with me at times like that but for some reason I did then and made this photo (previous page) as we shoved a cut of cars to a coupling on one of the yard tracks with our brakeman up high to relay signals.

Talk about change! Think of all that's represented in the photo: the coal tower; the Alco FB, EMD Geep, and EMD F unit diesels that rendered it obsolete; wood and steel cabooses; roof walks on boxcars, 40- and 50-foot boxcars; hand signals; and even the folks in the yardmaster's tower who would be involved in or affected by the mechanical car reporting processes.

All make for an interesting photo, but I think what really makes it here is the brakeman and his hand signals. Before radios, and especially easily portable radios came into use, as was the case in 1964, communication between and among train and engine crews was via hand signals like this. When radios were introduced there was widespread opposition, once again because the hand writing was on the wall as to its job security impact. The engine radios were fixed and secured but I remember crews refusing to accept them, turning the volume down – or off and other mischief. When the portables came along it wasn't unusual to have them damaged and in some cases reported "lost" after being tossed overboard. In fact, I remember a photograph showing such an event as the train involved was on a bridge over a river in western Massachusetts.

At Columbus I learned that, Book of Rules notwithstanding; there was a difference between "Eastern" and "Western" hand and lantern signals.

Managers were not issued radios back then and I remember several years later when I was a trainmaster at Englewood in Chicago, making a caboose check and finding a portable caboose pack radio there. These were lunchbox-sized and heavy with a telephone type receiver in a cradle on top; not real user friendly, at least compared with the later handheld types. Nevertheless, it was an opportunity I couldn't pass up to become "radio equipped" myself.

As with many changes, initial objections and problems were overcome and it wasn't long before crews objected to going out without a radio. It was hard to keep track of them and some weren't cared for until most railroads took the path of least resistance and assigned them, at first to certain trains and later to individual conductors and brakemen. Managers finally got them too and I remember being pleasantly surprised when I moved from the New York Central where I still needed my bootleg radio to the Chicago & North Western where I was assigned two: a portable and a car radio.

Getting back to hand signals, there were the ones you saw in the Book of Rules such as go ahead, back up, stop, apply and release brakes, Hot box, sticking brakes and others. Some not in the rules but still well-known such as going to beans, tying up, trainmaster in the weeds, and more. A bunch of others were specific to a given yard or location each of which had tracks that were numbered or had names, some dating back to antiquity. The signs for numbers were pretty much standard but those for tracks like the dump, the Jolly, the team or house, RIP, and industry tracks weren't and usually had a hand sign that a conductor or foreman used to tell his crew where they or the next car were going. It was fun to watch an experienced yard crew batting a cut of cars out with not a word spoken using hand signals.

When my Army active duty was completed, I returned to the training program. At first I was assigned to the director of terminals' office where I got involved in the design of the new Selkirk Yard as well as a study of a merger of New England railroads. In May 1965 a group of us trainees were sent to locations in Ohio to work as firemen and brakemen. In my case this was Columbus as a fireman on the line between there and Toledo. The railroads were trying to get the state's full crew law repealed and were ultimately successful but not in time for the seasonal increase of coal traffic to Lake Erie. Sending trainees to fill the va-

cancies solved the manpower problem and provided unique training opportunities, especially for those with no prior railroad experience.

At Columbus I learned that, Book of Rules notwithstanding, there was a difference between "Eastern" and "Western" hand signals. Eastern as in what I had previously learned and Western as what was used in Columbus. I was assigned to the road extra board but occasionally would be called for a yard assignment when that extra board was exhausted. There were two yards at West Columbus, one with a lead where the switch stands were located and signals given on the engineer's side, the other with them on the fireman's side. I learned my lesson the first night on a yard job when, after switching for a while on the engineer's side we took some cars to the other side where it became my job to take signals and relay them to the engineer. After a couple of moves during which the engineer looked at me like "are you sure" but took my signal, the conductor's lantern swung a big washout, and he came running up to the engine. He was mad as could be and wanting to know why the hell I couldn't read his signals. Nobody had told me about the western signals which unlike the "go ahead" and "back up" as in the rules and what I was used to were based upon the desired movement toward or away from the signal giver. The "come to me" sign looked like "back up" to me, especially at night and therein laid the confusion. After a brief "orientation" the rest of the night went smoothly although I felt lucky we hadn't done any damage. Lesson learned, and I enjoyed my occasional yard assignments, especially as they came with hefty penalty pay for being called off my regular assignment.

Change in an industry as mature and with as much tradition as railroading can be difficult, especially when jobs disappear with it. We are far from the only ones to experience it, but I think that through all the merging, consolidating, downsizing, automating, computerizing and other changes, notwithstanding all the goofs and glitches, railroads, railroaders and their labor organizations have worked their way through it all as well as or better than most.

Variety, Charm and Steam: Locomotives on the Move

Three great British heritage railroads south of London you can visit!

BY BRIAN SOLOMON // PHOTOS BY THE AUTHOR

What makes a great heritage railway? For many visitors important considerations include the overall charm and atmosphere, well-maintained vintage rolling stock, classic architecture, accessibility through multiple stations or points to visit, and affordability. For the heritage railway connoisseur, attention to detail and the ability to enjoy an authentic experience are very desirable. British heritage lines offer beautifully restored facilities complete with gardens, hanging plants, period signs and advertising, where railroad staff assume traditional roles, dress in authentic period uniforms and are well versed in traditional railroad culture. Operational details, including a variety of active steam locomotives, period passenger cars, plus fully functional classic signaling with manned signal towers add to the atmosphere and appearance of traditional railroading. The vintage signals not only convey a sense of authenticity, but facilitates safe operation in accordance with the historic rules governing railroads and the movement of trains.

Great Britain is famous for its wonderful array of heritage railroads which have benefited from a sense of nostalgia to preserve national history and recreate past-experiences using period technology. It's all made possible by a large population accustomed to riding trains and willing to regularly patronize heritage lines. Many of these lines came about as an unintended consequence of the draconian scaling back of the national railroad network during in the 1960s and early 1970s, a move that coincided with the rapid demise of steam. These changes generated a ground-swell of nostalgia for classic railroad travel, especially on rural branches. Widespread rail closures made numerous lines available for development as tourist railroads at the same time lots of older equipment became available for preservation. Although the creation each of these railways was often logistically complicated and expensive, preservation efforts have been aided over the years by ample funds supplied from private donors, national heritage grants, as well as robust ticket sales and other revenue sources.

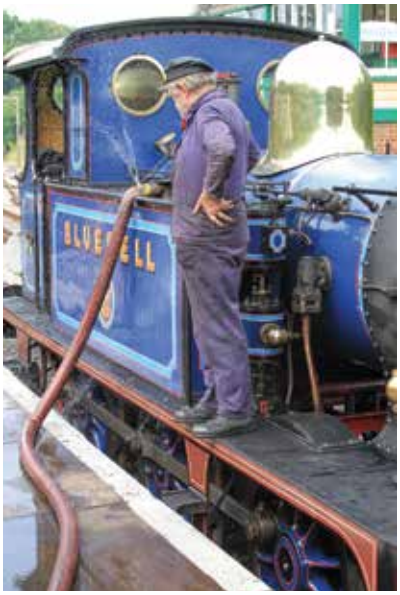
Steam and semaphores at Bluebell's Horsted-Keynes station. Southern Railway 1636 is a U-class 2-6-0 built in 1931 and dressed in the classic Southern livery.

Some heritage lines benefit from cross-platform connections (or adjacent stations) with Britain's regularly scheduled Network Rail passenger system. This enables visitors to take a scheduled service train to experience a heritage railroad, which not only offers a convenient means of travel but also provides a comparison between today's sleek modern trains and the well-preserved antiques operated by heritage lines. Visitors to London, may consider easy day-trips to no less than three different rail-connect preserved lines near the periphery of the old Southern Region network.

BLUEBELL RAILWAY

Perhaps best known of three is the Bluebell Railway — Britain's pioneer standard-gauge preserved railroad. This may be reached directly via the 55-minute third-rail electric Southern service from Victoria Station to East Grinstead. Trains run weekdays every half hour. A variety of connections from other London stations can be made to the East Grinstead service at East Croydon and Clapham Junction — the busiest station in Britain.

Bluebell commenced public steam excursions in 1960 on a scenic portion of what had been the London, Brighton & South Coast Railway. The grouping of 1923 melded LB&SCR into the Southern Railway. Following nationalization in 1948, the route was operated as part of British Railway's Southern Region. Significantly, Bluebell's operation predated cuts inspired by Dr. Beeching's infamous



Bluebell Railway's flagship locomotive, class P 0-6-0T 323 named *Bluebell* takes water at Kingscote Station.

reports of the 1960s that precipitated the scaling back of the British network. Today, the line recreates the experience once offered by its historical antecedents.

For decades, Bluebell was physically isolated, but in 2013 it re-established a rail-connection with Network Rail at East Grinstead, which facilitates its convenient connection for passengers, while enabling all-rail transfers of equipment. Today, Bluebell offers excursions throughout the year on its 11-mile line through the rolling Sussex countryside. Highlights include a quaint rural station at Kingscote, the 2,193 feet long West Hoathly tunnel, and a large center-island station at Horsted Keynes — famously featured in films and the television program *Downton Abbey*. Visitors will enjoy the station at Sheffield Park at the south end of line, which is the location of the line's engine sheds, a museum, and the Bessemer Arms pub. Sheffield Park's signal box (tower) is located on the platform adjacent to the station building. Here you may observe the signalmen lining switches and clearing signals, which is integral to the railroad's operations.

Go to www.bluebell-railway.com.

WATERCRESS LINE

Southwest of London, Mid-Hants Railway, marketed as the Watercress Line, runs south from its Network Rail connection at Alton (direct

suburban trains from London Waterloo operate hourly Monday-Saturday and take about 1 hour and 20 minutes. Sunday trains are less frequent and require a change). This charming line has preserved the essence of mid-twentieth century British railroad travel. Although the line is largely tangent, it runs adjacent to the South Downs National Park covering a distance of about 10 miles. This features a pronounced climb to the rural station at Medstead and Four Marks, which had the distinction of the highest station on Britain's 20th century Southern Railway. Shops are located at Ropley.

Go to watercressline.co.uk.

SPA VALLEY

Shorter and less well known, but no less charming, the Spa Valley Railway is a British classic that runs between its cross platform connection with Network Rail at Eridge via Groombridge to Tunbridge Wells West, the location of the railroad's shops. Visitors can tour the shops to see equipment under repair. Tunbridge Wells West is only a short walk from the historic spa town, famous for its quaint architecture and shopping. An alternative to walking is taking a city bus that stops at the supermarket near the station. There are a couple of rail options to reach the Spa Valley. Uckfield Line trains operated by the Southern Railway LTD franchise run directly from London Bridge Station via East Croydon to Eridge. The trip is just under an hour and offered hourly, Monday-Saturday. Alternatively, there are frequent through trains from London Charing Cross to Network Rail's Tunbridge Wells station on the opposite side of the town from Spa Valley's Tunbridge Wells West station. It's about a 15-20 minute walk or a short taxi ride to the railway from there.

British Railways standard type 2-6-0 78019 approaches Groombridge on the Spa Valley Railway with The Surrey Wanderer Railtour excursion heading toward Tunbridge Wells West.

Groombridge is a quaint station and a good place to explore nearby hiking trails on foot. The signaling enthusiast will enjoy the token exchange performed at this station. This recreates a once common activity on single-track lines, where the signalman hands the token (which authorizes track occupancy) to a member of the locomotive crew of the on the fly. This is similar to traditional American practice of handing up paper train orders on the fly.

Go to spavalleyrailway.co.uk

Spa Valley crews perform a classic token exchange on the fly at Groombridge. Engine crew passes the token from the previous section to the signalman while snatching one for the next section.

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www.historicrailpark.com **270-745-7317**

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www.facebook.com/theoldhotelothello **509-488-5936**

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www.nationalrrmuseum.org **920-437-7623**

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Boys' first fixation

What boy could not count trains among his first loves? Girls, too, for that matter. Every little kid is enamored by trains, even today. It's a rite of passage, that, sadly, too many seem to outgrow. Here we see some boys, standing on rocks to see over the wall, watching the famous 4-6-2 No. 4472 *Flying Scotsman* near Kings Cross, London, in 1968. The train was running to Edinburgh to celebrate the 40th anniversary of the first non-stop London-Edinburgh run. Of particular note, the train known as the *Flying Scotsman*, shown at left behind a distinctive Class 55 Deltic diesel, is overtaking the steam locomotive of the same name. This photo first ran in *Trains*' Magazine in September 1968, sadly sized at just one-sixth page. We are glad to rectify that oversight here.

Photo: Ian Krause

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