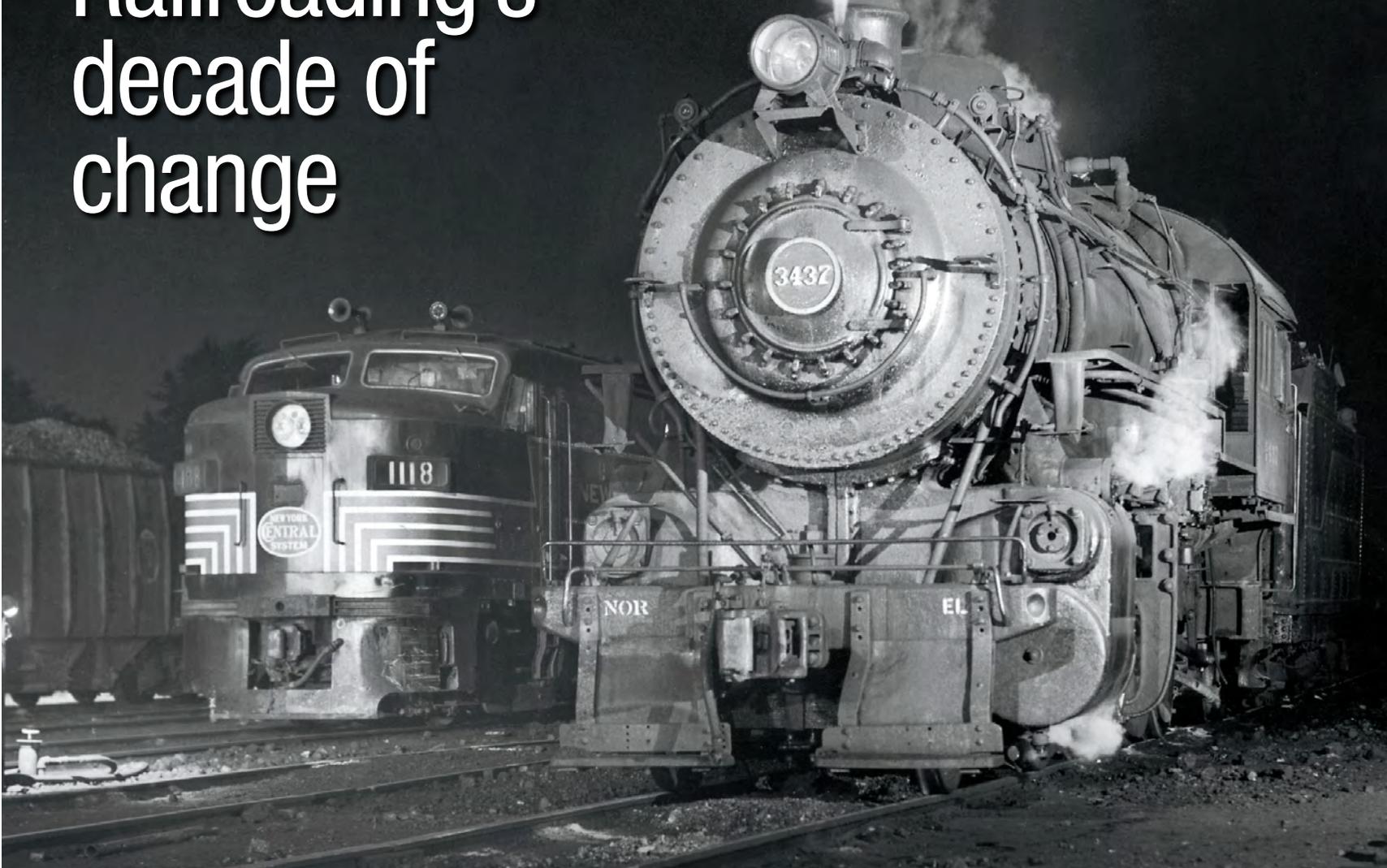


TRAINS

of the 1950s

Special 2013

Railroading's
decade of
change



Last of steam • Great streamliners • Early diesels
Piggyback pioneer • Rare color photos • AND MORE!

A dining-car crewman on the *Golden State* looks ahead during the stop at Joliet, Ill., on a fine fall day in 1951. The Chicago–Los Angeles streamliner ran on the Rock Island and Southern Pacific. Wallace W. Abbey



TRAINS *of the 1950s*

Railroading's
decade of
change

Edited by Robert S. McGonigal

Contents

6 A Time of Transition

The 1950s saw great changes on America's railroads, and retain an enduring fascination for those who love trains

BY ROBERT S. MCGONIGAL

8 All Change for the Future

For America's railroads, the Indian summer of the early 1950s gave way to a worsening winter as the decade wore on

BY H. ROGER GRANT

14 C-Line versus Big Four

When a Fairbanks-Morse "C-Line" diesel demonstrator conquered New York Central's Indiana Division

BY ROBERT ALDAG JR.

22 It Takes Money to Make Money

Between 1947 and 1951, Great Northern spent \$22 million to create a fleet of streamliners

BY WILLARD V. ANDERSON

30 Joliet Union Station

Forty miles from Chicago, trains of Santa Fe, Rock Island, and Gulf, Mobile & Ohio offer a potpourri of depot action

BY WALLACE W. ABBEY

PHOTOS BY THE AUTHOR

40 It's Dungarees for the Diesel

The diesel won the railroads with "streamlined" cab units, but the versatile "road-switcher" triumphed in the end

BY DAVID P. MORGAN



Three F units depart San Francisco for Los Angeles with the *Advance Overnight*, an important train in Southern Pacific's piggyback network, the most extensive in the land for a time, in August 1955. William Harry

On the cover: Diesel and steam coexist at Elmira, N.Y., on September 1, 1956, in the form of New York Central FA 1118 and Pennsylvania Railroad 2-8-0 3437. Jim Shaughnessy

50 **Midwestern Swing**

A Erie employee from New Jersey savors 14 colorful “foreign” railroads during a vacation in spring 1953

BY **ROBERT R. MALINOSKI**
PHOTOS BY THE AUTHOR

76 **Piggyback Champ**

Southern Pacific operates a “total transportation service” of trains, trucks, and pipelines, and leads the U.S. in “TOFC”

BY **WILLIAM D. MIDDLETON**

92 **World’s Busiest Mountain Railroad**

Inside the Pennsylvania’s 114-mile main line between Altoona, Pa., and Pittsburgh

BY **DAVID P. MORGAN**
PHOTOS, **PHILIP R. HASTINGS**

60 **Faith in Steam**

The story of Norfolk & Western Railway’s locomotives, inspired by a loyalty to coal and a family spirit among employees

BY **DAVID P. MORGAN**
PHOTOS, **W. A. AKIN JR.**

82 **Kodachrome Decade**

An all-color gallery of 1950s photos presents steam, diesel, electric, and marine views of 12 railroads from coast to coast, in 10 states and Canada

112 **How to Run Streamliners**

The 90-mph Atlantic Coast Line figures its 20-car *Champions* more than pay their way

BY **WILLIAM D. MIDDLETON**
PHOTOS BY THE AUTHOR



A time of transition

The decade of the 1950s was a time of transition for America's railroads. Steam locomotives, the industry's principal motive power for well over a century, gave way to diesel-electrics. Diesels evolved from futuristic streamliners to utilitarian blocks. The post-World War II passenger optimism that prompted many railroads to buy fleets of new streamlined trains began to dim. Motor trucks, automobiles, and airliners siphoned increasing amounts of traffic from the rails. In response, railroads tried new tools, like novel passenger-car designs and trailer-on-flatcar "piggyback" freight service.

In this publication, we examine 1950s railroading through seven articles that appeared in *TRAINS* magazine during that dynamic decade, plus two from the early years of *CLASSIC TRAINS*. The covers of the issues in which the stories were originally published appear at the beginning of each article. Although these articles have been in print before, in most cases the layouts are completely new, and many fresh photos are included. In addition, we've assembled an all-color photo gallery (page 82), and we asked historian H. Roger Grant to write an essay covering significant 1950s events and trends (page 8).

For the railroad industry, the 1950s marked the beginning of some hard times. Nevertheless, it was a decade of almost infinite variety and, as the passage of time has proved, enduring fascination for those of us who love trains.

Robert S. McGonigal

TRAINS of the 1950s

CLASSIC TRAINS SPECIAL EDITION NO. 12 • 2013

Editor	Robert S. McGonigal
Art Director	Thomas Danneman
Senior Editor	J. David Ingles
Senior Graphic Designer	Scott Krall
Graphic Designer	Drew Halverson
Editorial Assistant	Diane Laska-Swanke
Contributing Illustrator	Bill Metzger
Librarian	Thomas E. Hoffmann
Publisher	Diane M. Bacha

STEAM GLORY 3 (ISBN 978-0-89024-931-4) is published by Kalmbach Publishing Co., 21027 Crossroads Circle, P.O. Box 1612, Waukesha, WI 53187-1612.

Editorial

Phone: (262) 796-8776
E-mail: editor@classictrainsmag.com
Fax: (262) 798-6468

Display advertising sales

Phone: (888) 558-1544, ext. 625
E-mail: adsales@classictrainsmag.com
Fax: (262) 796-0126

Customer service

Phone: (800) 533-6644
Outside U.S. and Canada: (262) 796-8776, ext. 421
E-mail: customerservice@kalmbach.com
Fax: (262) 796-1615

Retail trade orders and inquiries

Phone: (800) 558-1544, press 3
Outside U.S. and Canada: (262) 796-8776, ext. 818

Visit our website

www.ClassicTrainsMag.com

Single copy prices (U.S. funds): \$12.99 in U.S.; \$13.99 in Canada and other foreign countries, payable in U.S. funds drawn on a U.S. bank. Canadian price includes GST. BN12271 3209RT Printed in the U.S.A.

©2013 Kalmbach Publishing Co. All rights reserved. Any publication, reproduction, or use without express permission in writing of any text, illustration, or photographic content in any manner is prohibited except for inclusion of brief quotations when credit is given.

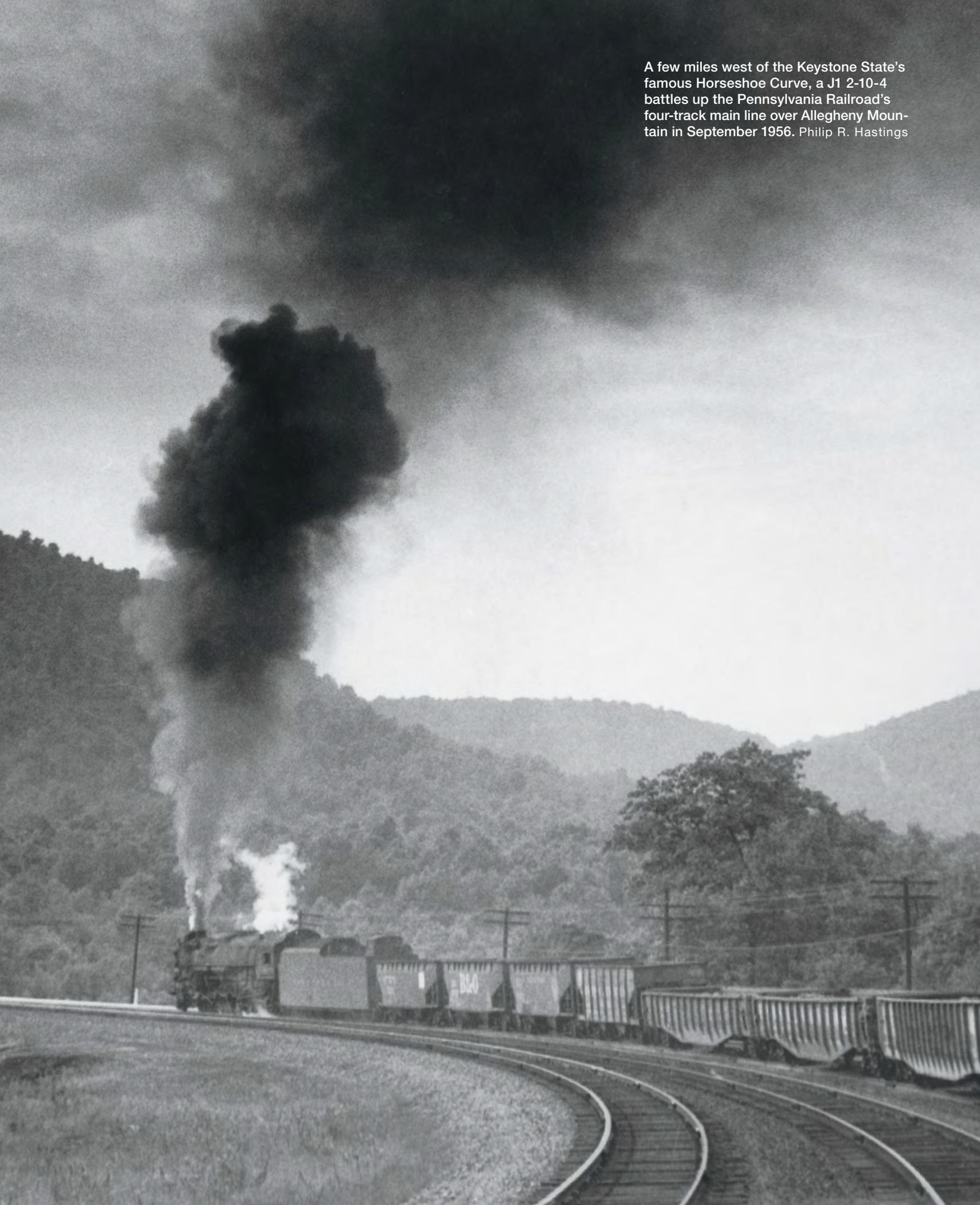
Kalmbach Publishing Co.

President	Charles R. Croft
Vice President, Editorial	Kevin P. Keefe
Vice President, Advertising	Scott Stollberg
Vice President, Marketing	Daniel R. Lance
Corporate Art Director	Maureen M. Schimmel
Managing Art Director	Michael Soliday
Corporate Circulation Director	Michael Barbee
Group Circulation Manager	Kristin Johnson
Circulation Coordinator	Carly Witkowski
Single Copy Sales Director	Jerry Burstein
Advertising Sales Manager	Mike Yuhas
Advertising Representative	Paul Steinhafel
Ad Services Representative	Christa Burbank
Production Supervisor	Helene Tsigistras
Production Coordinator	Sue Hollinger-Yustus

 **KALMBACH
PUBLISHING CO.**



A few miles west of the Keystone State's famous Horseshoe Curve, a J1 2-10-4 battles up the Pennsylvania Railroad's four-track main line over Allegheny Mountain in September 1956. Philip R. Hastings



ALL CHANGE *for the future*



For America's railroads, the Indian summer of the early 1950s gave way to a worsening winter

BY H. ROGER GRANT

During the 1950s American railroads experienced hope, turbulence, and uncertainty. This decade might be thought of as a drift from a kind of Indian summer, which lasted from the immediate post-World War II years through the Korean War, to winter-like conditions that emerged in the mid-1950s and worsened toward the end of the decade. Throughout this latter period, railroads faced a multitude of challenges. These troubling times caused Delaware, Lackawanna & Western president Perry Shoemaker to wonder: "What's going to happen to our railroads, mine and many in the East and Midwest?"

This was a worthy question. The industry faced rapidly growing modal competition, including increased automobile and truck usage that the developing Interstate Highway network accelerated, and the introduction of high-speed, long-range commercial jet aircraft. There was more. Railroads confronted antiquated labor work rules; money-losing passenger, commuter, and branchline operations; burdensome taxation; and restrictive government regulation. A nasty economic recession in 1958–59 added to these woes.

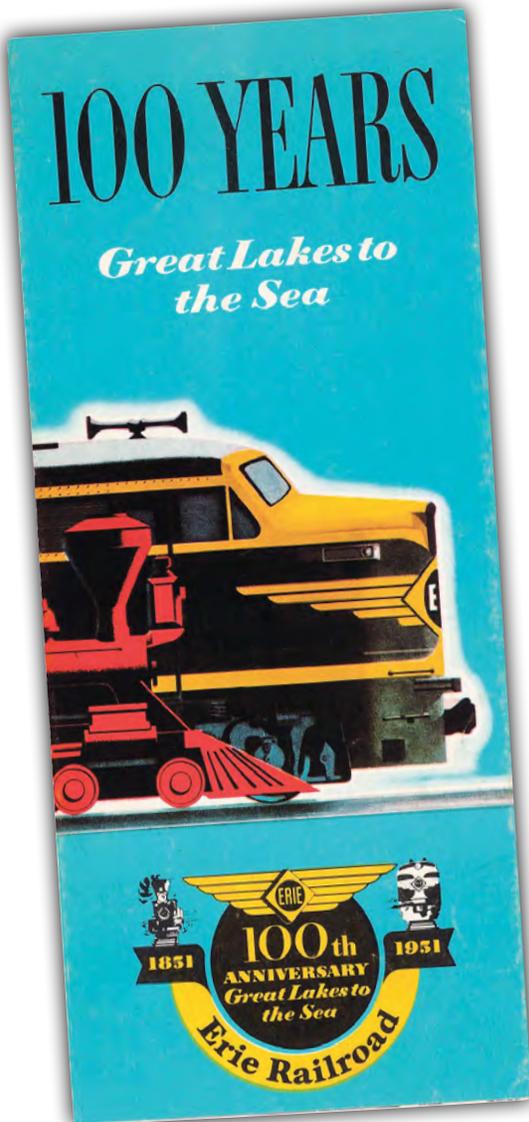
Before conditions caused railroad executives to develop acid stomachs, optimism reigned. The war years had pressed carriers to their limits but had also produced strong freight and passenger revenues. Although high usage wore out rolling stock, the diesel revolution was at hand. Since locomotive replacements were badly needed, it took little convincing for most railroads to go for diesel-electrics. Operational costs, range, and power were compelling sales points. What became the workhorse locomotives for scores of roads, large and small, first appeared in 1949 when the Electro-Motive Division of General Motors introduced its first General Purpose road-switcher—the "Geep."

The decade began with steam in retreat. In 1950, steam handled 54 percent of freight work, 36 percent of passenger, and 38 percent of switching; by 1960, steam was essentially gone. Diesels capable of replacing steam in all services were on the market by 1940, but World War II retarded dieselization. After the war the floodgates opened, and by 1950 there were six major diesel builders and a handful of Class 1's had shed steam entirely, with the rest of the industry poised to follow. This triumph of diesel-electric technology—arguably the biggest change in railroading since the air brake—resulted in a greatly altered landscape, as water tanks and all but some large (hence, expensive to raze) coaling towers came tumbling down. Steam backshops, once staffed by scores of boilermakers and other skilled workers, became diesel repair shops with fewer employees, or were closed. Total railroad employment tumbled 36 percent during the 1950s.

Changes in passenger service were similar. Riding the euphoria of increased wartime ridership, albeit largely in outmoded or worn-out equipment, many major passenger-carrying roads showed their optimism in acquiring state-of-the-art equipment in the late 1940s and early '50s. Epitomizing this commitment and confidence in the future of long-distance service was the 1949 introduction of the Visa-Dome *California Zephyr*, a joint effort of the Burlington Route; Denver & Rio Grande Western; and Western Pacific. Remarkably a contemporary CB&Q annual report: "We are confident that with the growth of our nation the railroads will enjoy a volume of traffic that will enable a continuance of good, fast, comfortable day and night service between centers of population."

The end of the 1950s was the midnight hour for the steam locomotive. At 11:10 p.m. on a November 1956 evening in Fort Erie, Ont., Canadian National 2-8-2 No. 3431 simmers behind Wabash F7 No. 1160. Jim Shaughnessy





The Erie and other railroads celebrated their centennials in the late 1940s and early '50s. But the optimism faded as the economic picture dimmed. H. Roger Grant coll.

The popularity of the “Silver Lady” and other trains sparked a renewed interest in rail travel. CB&Q did not stop with the CZ, re-equipping another flagship, the *Denver Zephyr*, in 1956, making “the Q” the last U.S. railroad to update completely a named train.

Another notable pro-passenger road was the Santa Fe, which gained acclaim for introducing an imaginative car design in 1956 when it placed new Budd Co. double-deck Hi-Level cars on its Chicago–Los Angeles *El Capitan* and Chicago–Oakland *San Francisco Chief*. The goal was to increase capacity on a train that often required expensive second and third sections to meet demand.

More than improvements in conventional passenger cars took place in the '50s—some truly novel trains also were tried. Representative of this foray were the Talgo trainsets. Although of Spanish design, American Car & Foundry did the manufacturing and marketing. The articulated, aluminum Talgo em-



The Chicago–Oakland *California Zephyr*, embodiment of the railroads’ postwar passenger optimism, climbs into the Rockies from Denver on Rio Grande rails. R. H. Kindig

ployed a tilt mechanism and had a lower center of gravity than traditional trains, allowing for higher speeds. The expectation was that the train, weighing a fraction of conventional cars of equivalent capacity, would be less costly to build and cheaper to operate and maintain. Plus, the radical styling and speed would create a progressive image and surely lure travelers away from airplanes and their automobiles. Competitors built the ultra-lightweight *Aerotrains* and *Xplorer* in 1956–57, but all these imaginative trains failed to catch on. Poor riding qualities and other shortcomings doomed them.

While hardly radical, the Rail Diesel Car (RDC) became popular in the 1950s, mainly as a cost-saving device for railroads. Budd introduced a prototype in 1949 and revved up output soon thereafter; production continued until 1962. RDCs offered passengers streamliner comfort on local, branchline, and commuter runs. These self-propelled, bi-directional, stainless-steel cars were efficient and reliable, especially on commuter assignments. Boston & Maine operated more than 100, about a quarter of the total, and eventually entrusted all its remaining Boston-based passenger service to RDCs.

Less glitzy were ongoing investments in track, signaling, and other betterments. Take continuously welded rail. A growing number of railroads began to employ this approach to track structure in the 1950s. By replacing jointed rail, companies reduced maintenance costs and equipment

wear and tear. On the operations front, the expansion of Centralized Traffic Control increased line capacity and improved safety. By 1950, about 13,000 miles of track was CTC-equipped, but during the ensuing decade, that figure more than doubled. Modern hump yards replaced old-fashioned flat-yard switching facilities, and early computers were introduced for accounting and other duties.

After the war, most railroads became active with publicity, projecting a rosy outlook for the future. In the late 1940s and early '50s many roads held celebrations, often system-wide, to commemorate centennials or other landmark events. At the time, such parties were financially feasible. The success of the Chicago Railroad Fair in 1948–49, where modern rolling stock was on display and in action, encouraged additional events. The corporate messages were direct: railroads were not becoming transportation dinosaurs and were good places for investment dollars. Moreover, good will could be created among the public and would boost employee morale.

In 1951 the Erie Railroad “went all out” to celebrate a centennial. In this case it observed the opening 100 years earlier of its “river to the lakes” initial core between Piermont and Dunkirk, N.Y. In May the company operated a two-day excursion that retraced the original celebration, replete with historic and the latest equipment, speeches, dinners, and a parade in Dunkirk that attracted nearly 20,000 onlookers. Erie also distributed an illustrated centennial booklet and commemorative pins and stickers.



Burlington introduced the bilevel “gallery” car in 1950 for its Chicago suburban service, followed in 1955 by C&NW (above, at Arlington Heights in August '61) and SP. The idea proved more durable than other '50s cost-cutting concepts like ultra-lightweights. Bob Johnston

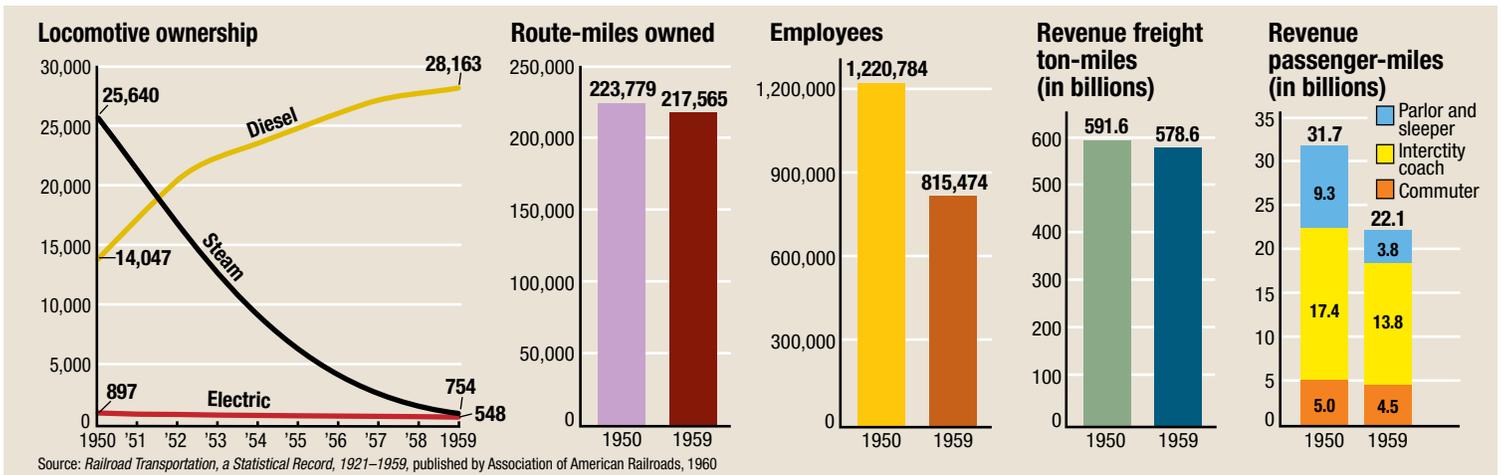
As that bright outlook began to fade not long after the Erie centennial, many roads, including the wealthiest, strove to stave off red ink. One response to rising truck competition would be trailer-on-flatcar (TOFC) or “piggyback” service. Although the Chicago Great Western and New Haven had spearheaded this novel program among steam railroads in the mid-1930s, the industry generally expressed little interest in the concept. Many decision-makers viewed TOFC as a “flash in the pan” and were reluctant to make financial commitments. Admittedly the technology had not been fully developed, and standardization was hardly universal among those roads that offered this service. There was also the question of how

profitable TOFC could become.

By the mid-'50s, resistance had crumbled. Innovators—most of all Gene Ryan, who began the Rail-Trailer Co. in 1952—responded effectively to the real or alleged shortcomings of TOFC. He and others made such improvements as placing two trailers on each lengthened flatcar and streamlining terminal operations. Within a few years, scores of railroads entered the “intermodal” business. Their participation often came through Trailer Train (later renamed TTX) Co., which recently had been set up and staffed by the Pennsylvania Railroad. In 1956 the president of the Wabash crowed to a St. Louis journalist: “This new branch of railroading since its inauguration in July of 1954 by the Wabash

has doubled and redoubled.” The “Intermodal Age” was evolving and would mature within a decade or so. It was badly needed, as the Interstate system of cross-country highways had changed the dynamics of moving freight.

The 1950s also witnessed investments in bigger and better freight equipment, and there would be a poster child for this coming revolution. As the decade ended, the 100-ton-capacity covered hopper car, the “Big John,” entered service. The determined efforts of D. W. Brosnan, the creative Southern Railway executive, made possible this productive piece of rolling stock. The Big John steadily took hold for shipments of grain and other bulk commodities, triggering the demise of the 40-foot boxcar with its capacity of 50





Although the switch from steam to diesel was the most visible change, railroads adopted new technology in many forms. Among the more forward-looking roads was New York Central, which opened this new “push-button” hump yard at Elkhart, Ind., in 1958. NYC



The principle of carrying highway vehicles on flatcars dated to the 19th century. Integrated train-truck intermodal service as we know it today sprouted in the 1920s and '30s on a few roads, and then bloomed in the '50s, when scores of railroads adopted it. C&NW

tons or less. Big John cars would go down in regulatory history when the Southern won a federal court decision that allowed it to offer lower, competitive rates that the Interstate Commerce Commission had denied.

Diesel locomotives, TOFC, and Big Johns energized the rail business, but they failed to stem some disturbing figures. What worried Wall Street analysts (and others) was that the rate of return on railroad investments sank dramatically during the decade. In 1950 the figure was an unimpressive 4.28 percent, but closed the decade worse, at 2.72 percent. Although the rate of inflation remained relatively stable through much of the '50s, the average hourly wage rate for railroad workers climbed from \$1.61 in 1950 to \$2.59 in 1959. Take what happened on the Chicago, Rock Island & Pacific: wages and benefits rose 59 percent between 1948 and 1957. This trend was made more galling owing to “featherbedding,” by such labor requirements as firemen on diesel locomotives and six-member crews, mandated by some states on intrastate freight trains.

The passenger sector was a growing albatross, as revenues were in a free fall, from \$1.25 billion in 1946 to \$813 million in 1950 and \$651 million in 1959. Deficits were mounting rapidly. While corporate mergers would dominate the railroad scene in the 1960s, the decline of passenger service did so in the '50s. By decade's end, the passenger train appeared to be mortally wounded. What took place on Louisville & Nashville was indicative of the national trend. In 1946 the road carried 7,014,547 passengers; in 1950, 2,624,955; and in 1958, 1,097,384. Patrons were abandoning their short trips and were taking longer ones less often.

The crisis in the passenger sector prompted TRAINS Editor David P. Morgan to devote the April 1959 issue to the question, “Who Shot the Passenger Train?” Morgan made it clear that “the passenger train is dying today as a business. It loses money—lots of money.” He continued, “Now, if passenger trains are in the red because they're technologically obsolete, because Americans prefer the convenience of a car or the speed of a jet, then these trains must be given a decent burial and be left to the historians.”

Still, this distinguished observer of the railroad industry did not think that the passenger car had achieved museum status, joining the canal boat and stagecoach. “But the passenger train is not dying of old age. It was shot in the back.” Morgan suggested that railroad officials, workers, regulators, and customers all were responsible. Lawmakers, too, carried blame, especially through unfair ticket and property taxes and publicly sponsored highways and airports. Although the passenger side of the ledger bled red ink badly—\$161.86 in expenses for every \$100 of gross income in 1957—all was not lost.

Morgan believed that most long-distance service could be saved by renegotiating labor contracts, upgrading equipment, and segregating freight from passenger operations. “Man has yet to invent an overland passenger mode of transport with the train’s unique combination of speed, safety, comfort, dependability, and economy.” The TRAINS piece was read, quoted, and remembered, but reforms would be modest. Not until Amtrak’s creation in 1971 would the passenger sector be dramatically altered, although not in the way Morgan envisioned.

By the end of the 1950s, positive change was in the air. Railroads became more hopeful when Washington passed the Transportation Act of 1958. For passenger operations, it became less onerous for carriers to discontinue money-losing trains. The law also made it easier for railroads to battle the regulatory maze in their pursuit of line abandonments. Although a step toward reducing archaic regulation, this legislation was hardly the railroad Magna Carta. Such a landmark measure would eventually come, but not until the Staggers Act in 1980.

Part of the emerging change involved corporate mergers. Toward the mid- to late 1950s the savings produced by the diesel revolution had mostly run their course, prompting a growing number of railroaders to see unification as their financial salvation. “Merger madness” did not burst forth until the 1960s, with the signature event coming in 1968 with formation of giant Penn Central through the wedding of New York Central, Pennsylvania, and New Haven. NYC-PRR merger discussions, though, dated from 1957, and at the time produced “a thunderclap that shook all railroading,” as one observer called it.

The modern merger movement actually began shortly before the NYC-PRR talks when the Nashville, Chattanooga & St. Louis was absorbed by its parent L&N. The expanded L&N expected to save nearly \$4 million a year through retrenchments, mostly line abandonments and elimination of duplicate personnel and support facilities. Yes, this was a company absorbing an affiliate, but in 1959 came a union of two independent, competing roads, the 611-mile Virginian and the 2,135-mile N&W. Both enjoyed good profitability, functioning like coal conveyor belts from mines to markets. But savings would come, mostly from combining managements, shops, and yards. It would not take long before other “fallen flags” joined the NC&StL and Virginian.

Another change was transpiring, and like mergers it would become more pronounced, particularly after Staggers. A new breed of creative and venture-some rail executive was emerging, similar to a few memorable leaders of the 1950s, including Brosnan, D&RGW’s Gale “Gus” Adylotte,



The wave of parallel (as opposed to end-to-end) mergers that characterized the 1960s began with the 1959 absorption of Virginian Railway by Norfolk & Western, which shut down VGN’s electrics in 1962, a year after this scene west of Roanoke, Va. John Dziobko

NYC’s Alfred Perlman, and C&NW’s lawyer-turned-railroader Ben Heineman.

What Heineman did at the North Western was representative of this exciting leadership. His immediate predecessors were too tradition-bound to back much innovation. The veteran president, Roland “Bud” Williams, embraced a “we’ve always done it this way” attitude. A trade journalist concluded that he “epitomized a railroad that was overbuilt, old fashioned, and lethargic.” Perhaps Williams should not be too harshly criticized; after all, over-regulation fostered ossification among industry officials. Heineman was different, though. His administrative team did much, including “D-Day” on May 11, 1956, when the system was totally dieselized simply by redeploying existing motive power.

There also would be changes the public never saw, such as installation of data processing equipment and other office updates. But the public did see the closing of scores of small-town depots; elimination of scattered, inefficient shops and modernization of C&NW’s Clinton, Iowa, shop; scaling back of intercity passenger trains; and dramatic improvements to Chicago commuter service.

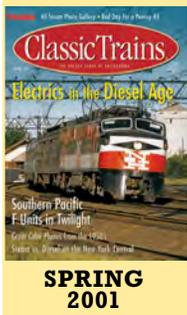
Heineman insisted on dealing head-on with the “commuter problem,” wanting to eliminate old rolling stock and outmoded ticketing and scheduling—all producing lots of red ink. During 1956–60, a fleet of air-conditioned bilevel cars on push-pull trains was introduced. C&NW was on its way to creating what one observer called “the finest

and the most modern suburban service in the world.” Jervis Langdon Jr., who in the early ’60s brought his own revolution to Baltimore & Ohio, remarked that “Mr. Heineman was the kind of railroader who’s been needed for years. Yes, he made blunders, but he brought much-needed imaginative thinking to his railroad and the industry.”

It’s unlikely any 21st century railroader would want to return to the 1950s—the environment was difficult, especially for executives, whether tradition-bound or forward-thinking. Still, it was a time of monumental change, moving from that postwar optimism characterized by diesel-electric locomotives, streamliners, and celebrations to distress and uncertainty fueled by modal competition, burdensome regulation, and archaic labor restrictions. As the decade closed, there were signs that pointed to a brighter future. These possibilities ranged from continued expansion of TOFC to the savings derived from mergers.

The 1950s remains a vivid reminder that the “good old days” were not always so. The decade encapsulates that recurring historic theme of glory to gloom to glory, or at least the start of a more glorious future. ■

H. ROGER GRANT is a professor of history at South Carolina’s Clemson University. He has written or edited 29 books, mostly about railroads, and has had five articles in CLASSIC TRAINS publications. Grant is president of the Lexington Group in Transportation History.



Big Four 4-6-2 4930, ex-Michigan Central, leads train 19 onto single track at Swanington, Ind. C-Line demonstrators 4802-4801 (right) bring the Rock Island's *Golden State* into Englewood, Ill., on April 25, 1950. NYC, W. B. Wolverton; FM, Norton D. Clark





C-LINE *versus* **BIG FOUR**

When a Fairbanks-Morse demonstrator conquered NYC's Indiana Division

BY **ROBERT ALDAG JR.**





Deep in steam's twilight on NYC, Hudson 5373 brings the *Riley* into Kankakee, Ill., on January 23, 1956. M. L. Powell, J. D. Ingles collection

New York Central's Indiana Division, or more properly that of the Cleveland, Cincinnati, Chicago & St. Louis—the Big Four—is little noted in rail literature, but it was an important route in the heyday of passenger trains. For those of us who grew up in the 1920s and '30s and called Indianapolis home (as did NYC's Big Four), the Indiana Division was the center of attention. This was especially true for the 64.4-mile stretch between the state capital and Lafayette, which is where I learned about mileposts and how to make quick conversions of seconds per mile to miles per hour on my first trips home from Purdue University for Thanksgiving and Christmas. And if Saturday morning classes didn't prevent it, a guy could go home on all stops

train No. 14, riding the rear-end vestibule to soak up the sounds and the smells of hot brakeshoes and memorize the layout of the railroad.

The *Knickerbocker* and the *Southwestern Limited* were Big Four's "name trains" on the St. Louis–New York run, but trains linking Cincinnati, Indianapolis, and Chicago were perhaps more worthy of note. They carried connecting sleeping cars for other roads' limiteds (Chesapeake & Ohio's *George Washington* and *Sportsman* to Washington, D.C., and Southern's *Royal Palm* to Florida), and they provided the fastest rail service between the Queen City and the Windy City, easily besting Pennsylvania Railroad service via Richmond, Ind.

Consider NYC train 5, the *Sycamore*. In the galaxy of stars on the vast New York

Central System, the *Sycamore* was to the Indiana Division what the *Twilight Limited* was to the Michigan Central and the *Empire State Express* was to the main line, providing the premier regional service. The *Sycamore* left Cincinnati in mid-afternoon and made the Indianapolis–Chicago leg, 193.6 miles, in 3 hours 40 minutes, including a locomotive water stop at Lafayette and an engine change to an Illinois Central 1100-series Pacific at Kankakee, Ill. (Big Four trains used IC's main line from Kankakee north into Central Station, Chicago, a route that dated from the 19th century.) This easily beat the 4-hour schedule of the Monon's competing *Hoosier*.

Departing the Queen City's beautiful Union Terminal at 3:20 p.m. Eastern time, with intermediate stops at Greensburg (wa-



Former Pittsburgh & Lake Erie K-5a Pacific 4920 is a train-length out of the Lafayette station as it rolls across the Wabash River with train 5, the *Sycamore*. Robert Aldag Jr.

ter) and Shelbyville, Ind., No. 5 arrived at Indianapolis at 4:25 Central time, an elapsed time of 2 hours 5 minutes that made for an average running speed of almost 56 mph. The train usually consisted of a combination baggage and smoker coach, three full coaches, a cafe-lounge, and a first-class parlor car, all heavyweight equipment. A diner was added at Indianapolis, making a seven-car train for the dash to Chicago.

During the early years of the streamliner era, it looked as if the Indiana Division would be frozen in time as the world passed it by. As early as 1935, New York Central began to update its passenger service, rebuilding existing commuter-train cars and two K-5b class Pacifics, 4915 and 4917, into the successful *Mercury* between Detroit and Cleveland. Then, in 1937, came the new J-3

Hudsons and, in '38, the streamlining of the New York–Chicago *20th Century Limited*. Shortly before World War II, the Central gave its order to the Budd Co. for new *Empire State Express* cars and, evidently, new cars for the *Mercury*. Obviously, NYC was on the move. Finally one day, in 1940, down at the telegraph office in Lafayette, friend Bill Wright of Portland, Maine, and I heard talk of a new train for the Indiana Division.

By spring 1941 the division had its new train, the *James Whitcomb Riley*, which made a daily round trip between Cincinnati and Chicago as trains 3 and 4. Its appearance was muddled only by the fact that the train itself, at inauguration, was simply the 1935 *Mercury* in new colors, handed down to the Big Four by the boys up north who had an all-new train for their Detroit–Cleveland run. OK, but what about speed? At first glance the *Riley*'s schedule looked faster. The overall time westbound was 25 minutes less than the *Sycamore*'s schedule, but upon close analysis, those 25 minutes came from existing events. Fifteen minutes between Cincinnati and Indianapolis were gained by eliminating the Greensburg and Shelbyville stops, 5 minutes at Indianapolis by cutting the station time from 10 minutes to 5, and 5 more by eliminating the Kankakee engine change, sending the NYC locomotive on into Chicago.

Apparently those responsible for setting up the schedule for the *Riley* knew there was no chance to cut running time, given

the limitations of the Indiana Division, which we'll soon examine.

Nevertheless, though not really a faster train than the *Sycamore*, this additional train with its new lightweight cars, luxurious interior appointments, and all-reserved seating stood as affirmation of the Central's aggressive stance on passenger business. And eastbound, it provided a new early evening departure out of Chicago that gave Monon's *Hoosier* its first real competition to Indianapolis in many years.

Nine years after the *Riley* was inaugurated, I was manager of sales engineering for diesel locomotive builder Fairbanks-Morse. By that time the *Riley* had become a deluxe consist of seven Budd-built lightweight cars, and I had a chance to take my first ride on it to Chicago after giving a talk about FM locomotives to the local diesel maintainers' club in Cincinnati. The train was well-patronized, and my reserved seat was not on the milepost side, so I had to just lean back, take in the sounds—the train was still steam-powered—and enjoy the ride, rather than time and analyze it.

However, as I noted the familiar fast running, the restricted speed zones, and the stops, it occurred to me that our new 2,400-h.p. C-Line diesel-electric locomotive ought to be demonstrated on this train. A cursory comparison of weight and power had me thinking that such a test might be successful.



Fairbanks-Morse's two-unit set of 2,400-h.p. B-A1A C-Line cabs, painted in two-tone green and numbered for their aggregate horsepower, poses at its Beloit, Wis., birthplace before hitting the demonstration trail. Fairbanks-Morse

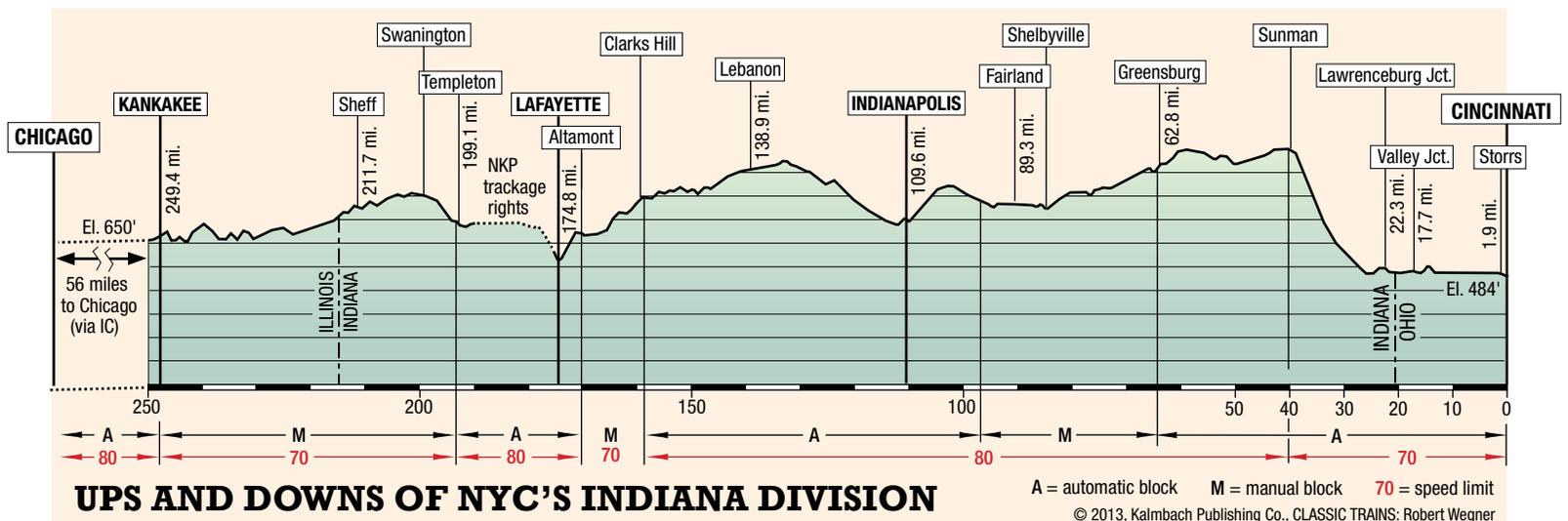
Evidently several key New York Central people agreed, including J. J. Brinkworth, Vice President Operations, West of Buffalo, for such a demonstration run was arranged. Our new two-unit, A-A (both cab units) 4,800-h.p. C-Line demonstrator was just out of our Beloit (Wis.) plant, and the Central was slated to have it for several weeks. At first it ran between Chicago and Harmon, N.Y., on various trains, then it was assigned to take NYC's *Ohio State Limited* to Cincinnati. Upon arrival, the pair was to lay over about 24 hours and be split up. One unit

would make a daytime round trip to Detroit, and the other would be dispatched on the *James Whitcomb Riley* to Chicago.

Armed with Brinkworth's signature on a permit to ride the cab, I was on the Cincinnati Union Terminal platform on the morning of July 31, 1950, looking things over, when No. 3's conductor came forward. He took one look at our C-Line unit, which even with its unusual B-A1A wheel arrangement was not as visually imposing as the J-1 class Hudson he was accustomed to, and uttered the equivalent of, "You've got to be kidding!"

No, we weren't, and we had our reputation on the line. Only the run itself would answer whether we knew what we were talking about. We weren't positive, but in looking at the numbers we'd concluded it was worth the try.

To explain the numbers, let's begin with the railroad. From the track profile [below], it's obvious that New York Central's Indiana Division was not the "Water Level Route." After the big climb out of the Ohio River valley, the line slopes gradually downgrade, as the southern two-thirds of Indiana is in



the drainage of the Wabash River. At Indianapolis is the depression of the White River valley, and at Lafayette is the pronounced dip of the Wabash itself.

Beginning just east of Lafayette, at Altamont, the Big Four ran on 23.3 miles of trackage rights on the Frankfort (Ind.)–Peoria (Ill.) line of the Nickel Plate Road (the former Lake Erie & Western) through Lafayette and on to Templeton, 18.6 miles west, before diverging onto its own double-track main line.

After clearing the Wabash valley west of Templeton, the line gently descended to the Kankakee River at Aroma Park, Ill., just east of Kankakee. The dotted straight line drawn by the NYC draftsman to represent the IC main line is almost correct, there being just a shallow divide between the Kankakee River (part of the Mississippi River drainage) and the prehistoric basin of Lake Michigan in which Chicago is situated.

The hodgepodge of signal systems—stretches of automatic block and manual block—plus the territorial speed limits of 70 or 80 mph, inform us that running here would in no way be similar to running on NYC’s main line. Add in the municipal speed limits of 20 mph through Greensburg, Shelbyville, and Lebanon; 30 on all turnouts entering and leaving double track; 15 and 20 over the terminal trackage at Indianapolis; and reduced speed from Altamont through Lafayette Junction to the depot in Lafayette, and it is apparent that power for acceleration at low speed and reduced train weight could be decisive factors in making the *Riley’s* schedule with our 2400-h.p. C-Liner.

In respect to reducing total train weight, our locomotive had an advantage. The diesel and the seven-car train weighed a total of 623 tons, whereas a Hudson with a fully loaded tender would leave Cincinnati moving a total weight of 785.5 tons.

But we knew the diesel was not as power-



During an afternoon on Illinois Central’s 75th Street suburban-train platform in Chicago, just north of Grand Crossing, in what has been deduced as the year 1947, PRR employee Gardner shot two NYC trains: first, the inbound *Mercury* off the old Michigan Central behind a 4-6-4, then (above) the outbound *James Whitcomb Riley*, highballing for Kankakee behind IC 4-8-2 2452. Two photos, Willard A. Gardner, Jack Wheelihan collection

ful as the Hudson, for at the rail, our 2,400 engine horsepower was reduced by transmission losses to a nearly constant 2,040 h.p. over the speed range 20 to 80 mph.

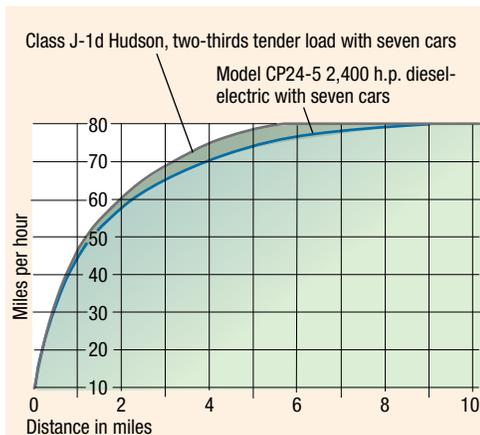
Assuming average steam-locomotive boiler and running-gear condition, calculations based on the formulas developed by authorities on steam-locomotive design show that the 4-6-4 could deliver from 2,150 h.p. at 20 mph up to 2,675 h.p. at 60 mph at the rail. Since the 4-6-4 had to move 126 percent as much weight as the diesel, it went from a disadvantage of 17 percent at 20 mph to an advantage of about 4 percent at 60 mph.

The graph at left illustrates the calculated acceleration of the two locomotives with the *Riley* on level track from 20 to 80 mph. The steam-powered train’s total time for the 9.66 miles was calculated to be 8.56 minutes. The diesel’s time for that distance was calculated to be 8.83 minutes, 16 seconds longer. That is not a big difference when laid alongside the extra standing time for the steam-pow-

ered train to take water at Lafayette.

How about on the actual railroad? Steam’s biggest advantage, surprisingly enough, was expected to come on the long ascending grade of 21 feet per mile west-bound out of Indianapolis. On this grade, the little downgrade break at Eagle Creek, near Zionsville, enabled the Hudson to use its somewhat greater power in that speed range to quickly accelerate the train to nearly 80 (something I’d observed many times when riding the *Sycamore* back to school), with the result that its performance to the crest of that long ascent beat the diesel by about 4 minutes.

On the much more severe grade out of the Ohio River valley, the higher weight of the steam train minimized the Hudson’s power advantage. On the basis of both trains making a run for the grade, we calculated that the 4-6-4 would beat the diesel by only about 0.6 minutes at the top. It looked tight, but we thought our unit could make up for that elsewhere.



HUDSON VS. C-LINE ON THE RILEY

On that morning of July 31, 1950, we left Cincinnati on time, cleared the CUT tracks at Storrs Junction, and took off for Indianapolis. The engineer made a run for the big grade, but he was down to 55 mph by the time we were into the steepest part. We crested at around 40 mph, feeling pretty good. Then my worries began. Between Sunman at the top of that hill and Shelbyville, we had three trackwork slow orders of 15 mph. At Indianapolis we were about 4 minutes late; the stop took the scheduled 5, so we left the capital late.

Two miles west of Union Station, the line intersected the Indianapolis Union's belt line at a non-interlocked crossing. The target was in our favor, requiring that we slow to 20 mph, but on this test run the engineer almost came to a full stop. Rats. Well, nothing we can do about that. We moved right along, tackling the long grade, cresting at around 68 mph, and then we picked right up to 80 approaching Lebanon.

In Lebanon, the Indiana Division crossed U.S. 52 at grade at the east corporate limit, and at the west edge of town 2 miles farther on, the Pennsylvania Railroad's Indianapolis-Logansport line crossed above it on a bridge. In between were the non-interlocked grade crossing of the little Central Indiana, virtually defunct since the Depression, the Lebanon depot, and assorted street crossings. The timetable gave us a 20-mph speed limit "for engine only" over the entire distance from Highway 52 to the Pennsy overpass.

This was a stiff time penalty that had long been finessed, evidently by tacit agreement, such that engineers on the *Sycamore*, for instance, would begin braking about a quarter mile east of 52, pulling the speed down to around 20 at the CI crossing. Then, immediately, they would open the throttle and accelerate the train, passing under the Pennsy at perhaps 35 or 40 mph. That is what I expected this day on the *Riley*. Instead, we braked to 20 and held there for our entire train to cross the CI diamond and cross some of the streets before the depot. The engineer nodded knowingly when I mentioned the steam practice to him, easing my pain a little by saying that in the case of a test run, they had to run strictly according to the rules.

The same sort of thing happened west of Lafayette between Templeton and the end of double track at Swanington. The approach signal for the Swanington interlocking was set to permanently display a yellow aspect. This means the train is to reduce speed prepared to stop at the next signal. But in almost any weather, the home signal at Swanington could be seen clearly from the approach signal. The home signal [page 14] was one of those typical NYC two-mast affairs with four upper-quadrant semaphores facing west-bound trains. When the upper right-hand blade was vertical with the green lens displayed, the train on the westward main was



cleared to enter single track, to cross the Chicago, Attica & Southern at grade, and to proceed to the next manual-block station. Seeing that from about a mile away, engineers on passenger trains had a standard practice of maintaining train speed until necessary to brake down for the 30-mph turnout. But on this demonstration run, our engineer, in strict accord with the rules, reduced to 30 for nearly a mile between the approach and home signals, costing us nearly a minute.

As we came into Kankakee, I noted with not a little dismay that we were still about 3 or 4 minutes late. The engineer smiled and said, "Don't worry about that; they don't do

much better than this anytime."

I wasn't so sure. But when we got away from Kankakee in good time and were put on the center track of IC's three-track main line where we could really stretch our legs, I was encouraged. Our unit had no trouble getting that seven-car train up to 80 and holding it there. Given the standard practice of having a little slack at the tail end of a published timetable schedule, we appeared, at least, to have made up those lost minutes, and indeed, we went in to Central Station in Chicago on time.

The best part of the whole day was the elation in Mr. Brinkworth's voice when he telephoned to congratulate us. I suspect we

The Central did buy six of FM's unusual B-A1A-trucked, 2,400-h.p. passenger cab units, the last of which—4505—rolled through Otis, Ind., on the "Lake Shore" main, bound for Chicago on April 10, 1954. Eugene Van Dusen, J. David Ingles collection



had made a point for him. Our diesel had successfully invaded one of the last bastions of steam on the New York Central. ■

ROBERT ALDAG graduated from Purdue University in 1940 and worked for the Erie and CB&Q before joining FM in 1946. He played a key role in the development of FM's Train Master road-switcher, and had risen to be manager of FM's Railroad Division when he left FM for a non-rail manufacturer in 1960. He retired in 1986. Aldag's two-part series on FM, "Against the Odds," in March and April 1987 TRAINS, won the Railway & Locomotive Historical Society's article award in 1988. Aldag died in 2000, at age 82.

POSTSCRIPT

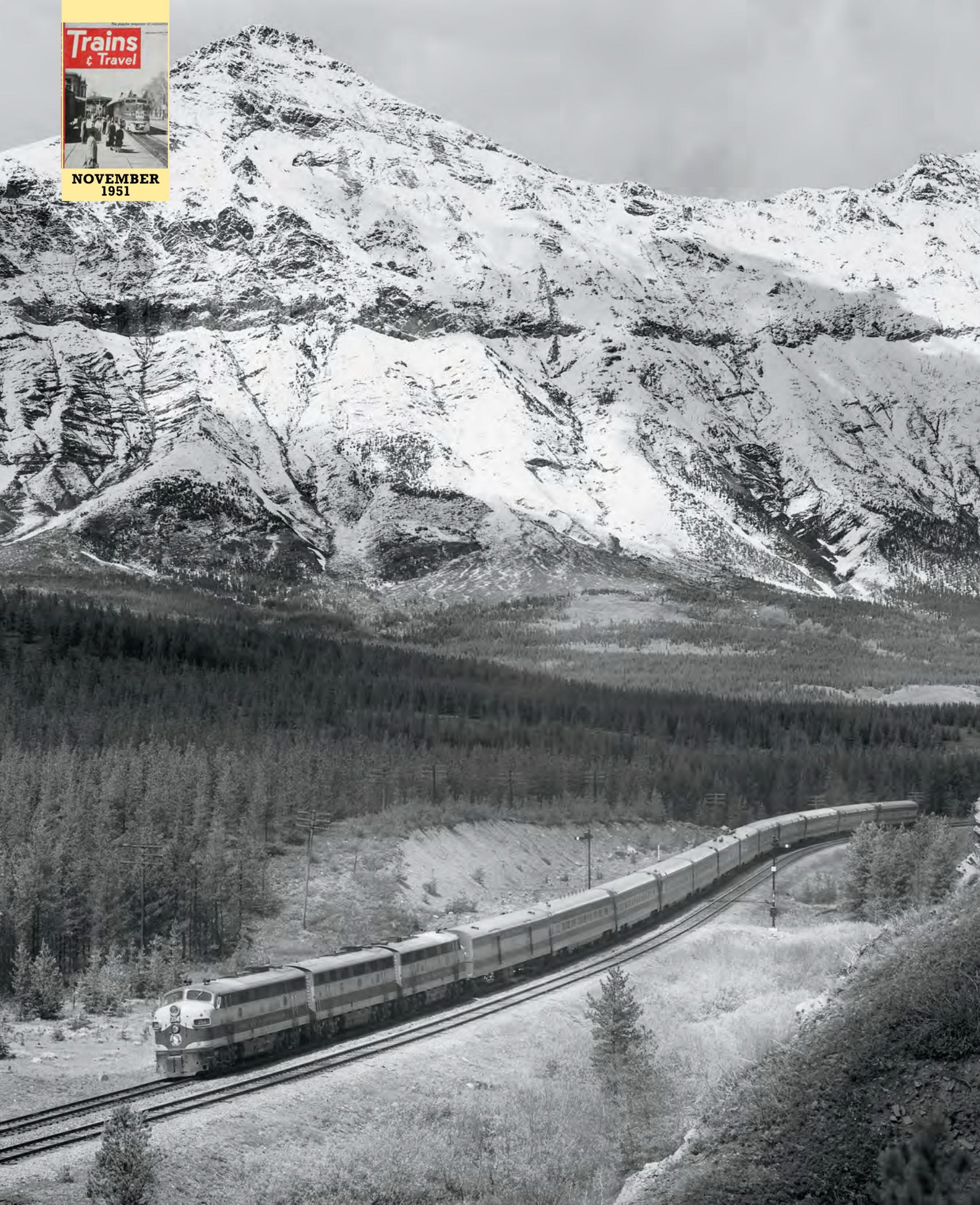
NYC steam's final stage: The west end of the Big Four, particularly the Cincinnati–Kankakee and Indianapolis–St. Louis routes, indeed was New York Central's last bastion of steam. The *James Whitcomb Riley* was regularly Hudson-powered into early 1956, and Riverside Yard in Cincinnati stayed a steam hub all that year with 0-8-0s, 2-8-2s, and 4-8-2s handling transfers and road freights. Riverside was also the site of NYC's "official" last steam run, with H-7 class 2-8-2 1977 on May 2, 1957.

Fairbanks-Morse, moreover, did sell six of its five-axle CPA-24-5 C-Line passenger units to NYC, Nos. 4500–4505, in early 1952. Along with 12 1,600 h.p. CF-16-4 freight units, they were among the last FM cabs bought by NYC. In those heady days for diesel builders, when railroads were in a hurry to replace steam, NYC sampled from all five builders. FM, though, was always a minority player. While its 49 carbody units on NYC bested Baldwin's 38, they paled against the road's 209 Alcos and 465 EMDs. To add insult to injury, NYC in 1955–56 removed the 12-cylinder in-line, opposed-piston FM engines from its 8 CPA-24-5's and replaced them with EMD 16-cylinder 567Cs at Collinwood, Ohio, shops. All NYC FM cabs had short careers, being retired by the early or mid-1960s, the 4500s in October 1966.—*J. David Ingles*

Trains
Travel



NOVEMBER
1951





It takes **MONEY** *to make* **MONEY**

Only five years ago the Great Northern had no streamliners. Today it has a fleet of them. It was a costly move, but it was worth it

BY WILLARD V. ANDERSON

Twenty-two million dollars ago, the Great Northern Railway had not a single streamlined train. It was running comfortable but outmoded standard heavyweight equipment, giving good service, doing right by its customers, and deriving about 9½ percent of its revenues from passenger traffic. That was in wartime, when tires and gasoline were rationed and when it was considered an achievement to be able to get any kind of a reservation on any kind of a train.

But that was \$22 million ago. Today the GN has a fleet of streamlined trains of which it can be proud. Every day, two streamliners leave their terminals of Chicago and Seattle and settle down to a 2,211-mile grind behind

diesel and straight-electric locomotives, which are themselves not included in the sum GN has spent to modernize its passenger services. Three times a day, a streamliner leaves Seattle bound for Vancouver, B.C., (154 miles) and another makes as many trips in the other direction. Once a day, a streamliner leaves Grand Forks, N.Dak., in the morning and makes a 320-mile run to St. Paul, Minn., then turns around to make the return trip the same afternoon. In all, GN offers 10,414 miles of streamlined passenger schedules every day.

It takes a lot of equipment to offer service like that, and that's where the \$22 million comes in. Actually, it's closer to \$22.3 million. GN began making its investment back

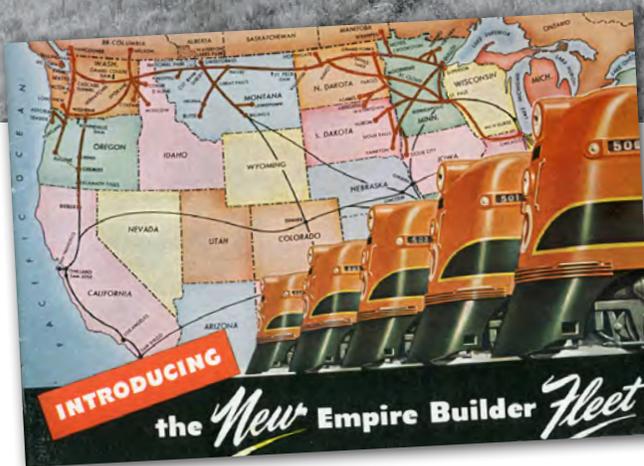
F3 A-B-A set 354, among 10 built for GN in 1947, leads the *Western Star*—whose cars are from the '47 *Empire Builder*—east through Marias Pass in the Montana Rockies. Great Northern



A map from a 1955 brochure shows GN's principal lines and connections. The Chicago-St. Paul segment was run by the Burlington Route; Spokane-Portland was SP&S. GN



The 1947 *Empire Builder*, its E7's already in their second livery, poses for a publicity photo in western Montana. In the distance, a freight waits to follow. GN



in 1947, when it streamlined the *Empire Builder* on an 80-20 basis with the Chicago, Burlington & Quincy, over whose rails the train runs between St. Paul and Chicago. (Spokane, Portland & Seattle handles GN trains between Spokane, Wash., and Portland, Ore.) GN's share of the five sets of equipment needed to streamline the schedule amounted to \$6,104,000, not counting the locomotives. This year, when the railroad

completely re-equipped the *Empire Builder*, it picked up a tab for close to \$12 million for six complete trains. Five sets are always in service; the sixth set is alternated among them as cars go to the shops for periodic service and repair.

Meantime, GN had installed the twin *Internationals* between Seattle and Vancouver at a cost of \$875,000, and had inaugurated the *Red River* between Grand Forks and St. Paul for \$438,000. At the same time the new *Empire Builder* went into service, the old *Oriental Limited* was taken off the timetables and replaced by the *Western Star*, which, in name at least, is the road's newest streamliner. Actually, it's the oldest: the original streamlined *Empire Builder* cars were assigned to it, along with \$2.9 million

worth of new equipment to provide the extra train needed to keep the *Western Star* on a daily schedule. Because the *Star* is slower than the *Builder*, there must be six trains available at all times, plus standby cars.

That all adds up to \$22,317,000 that the Great Northern has spent on streamlined passenger-train cars since 1947. That's about a tenth of GN's total railway operating revenues in 1950.

But GN thinks it has made a good investment. Although passenger revenues in 1950 were only about 5 percent of total revenues, there can be little doubt that satisfied passengers have routed freight over the Great Northern just because they were satisfied passengers. And while (as on every railroad) GN's passenger service as a whole shows a deficit, its streamliner service shows a profit.

INSIDE THE 1947 EMPIRE BUILDER/WESTERN STAR

Great Northern's public relations department issued substantial press kits to promote the road's postwar streamliners. Running to as many as 30 typewritten pages, accompanied by two dozen or more 8x10 glossies, each kit described nearly every aspect of the wonderful new trains. On these and the following pages are a sampling of Great Northern publicity photos showing the interiors of the *Empire Builder* (both versions), *Western Star*, *Red River*, and *Internationals*.



60-seat (short-haul) coach.



44-seat (long-haul) leg-rest coach.



At left, *Western Stars* meet at Whitefish Lake in Montana. In Chicago (above), an observation car from the '47 *Builder* is ready for its first run on the *Star*, on June 3, 1951. Left, GN; above, Wallace W. Abbey

The one weak sister in the streamlined fleet is the *Red River*—and even she isn't doing badly, all things considered.

The *Red River* is unique among GN streamliners in that it is a brand-new service. When it was inaugurated on June 25, 1950, it did not replace an existing non-streamlined train. The residents of Grand Forks and Fargo, N.Dak.; Fergus Falls and St. Cloud, Minn.; and other towns en route were not accustomed to getting on a train in the morning, having better than four hours in Minneapolis to attend to business or to do some shopping, and then getting on a train in the late afternoon to return to their respective homes. Before the advent of the *Red River*, they couldn't do it—they drove their automobiles or took a bus because they had to.

Now they don't have to, but many of them don't yet realize the fact. The *Red River* is depressingly empty as it leaves Grand Forks

at 7:30 in the morning. As it stops at Hillsboro, Fargo, Moorhead, Barnesville, and the other stations along the line, it fills slowly, but when it reaches Minneapolis and St. Paul there are still many empty seats. Yet the Great Northern is not discouraged with the *Red River*. The train is gradually acquiring a following, though it can never hope to be in the class of the twin *Internationals* running along the shores of Puget Sound.

For one thing, the *Red River* does not connect two populous terminals, as do the *Internationals*. Grand Forks is a small city that many people might want to leave in order to do some big-city shopping, but there are few residents of St. Paul or Minneapolis who would care to go to Grand Forks for a tour of the night spots. With the *Red River* it's strictly a one-way proposition: to the big city in the morning, home to the little city in the evening.

With the *Internationals* it's different. Vancouver, the largest Canadian city on the West Coast, has things to offer the residents of Seattle. Seattle has attractions for residents of Vancouver. Traffic flows freely in both directions. Passengers come and go at intermediate stations, but on the whole it's through traffic.

Again, the *Internationals* were not required to build up a brand-new following. Through the years, the old *Morning Puget Sounder* and *Afternoon Puget Sounder* had already taken care of that. True, a third daily trip was inaugurated along with the *Internationals*, but the pattern had already been established. People were accustomed to taking the train between Vancouver and Seattle, and they appreciated the convenience of the extra schedule.

Another thing that has helped the *Internationals* is their extremely low fare—some-



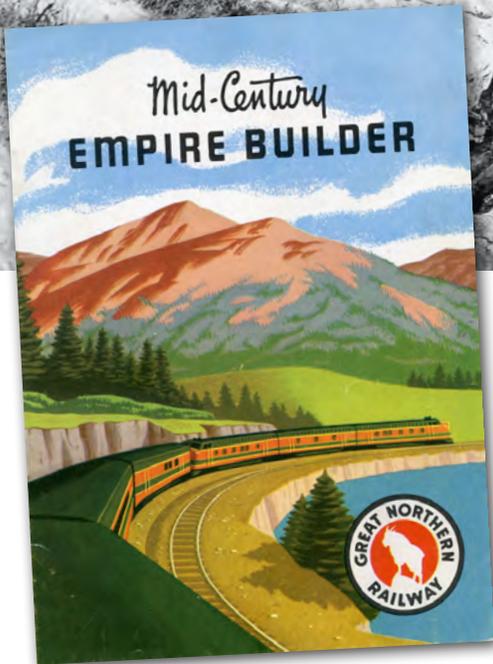
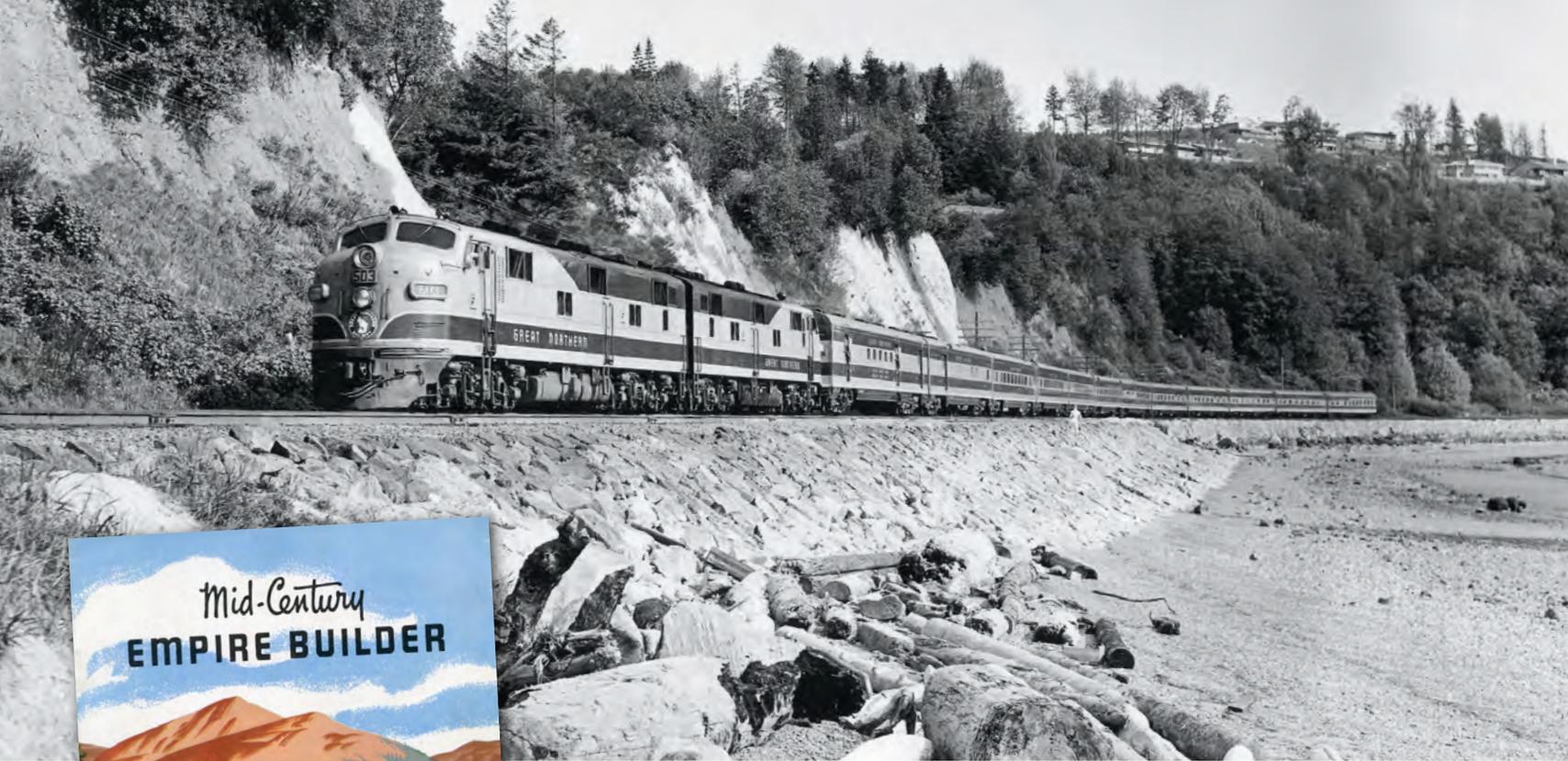
Coffee-shop/lounge car.



36-seat dining car.



Observation-lounge car.



E7's skirt Puget Sound at Richmond Beach, Wash., with the eastbound *Builder* in April 1953, two years after its re-equipping. Soon, F units will replace the E's. David W. Salter

thing the *Red River* does not enjoy. Standard fares are charged on the *Red River*, but fares were reduced 32 percent on the *International* when it was streamlined. This was done to counter the heavy competition of bus, airplane, and steamship travel in the territory.

The combination of better, more frequent

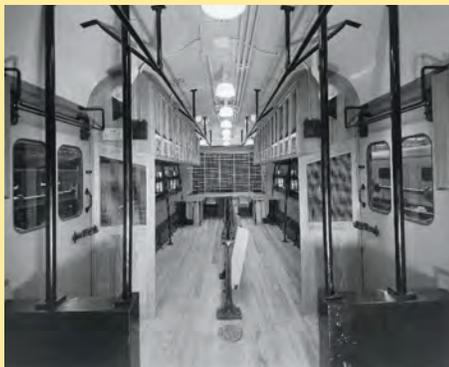
schedules, modern equipment, and lower fares has been a good producer of new business, the Great Northern is convinced, although there are so many variables that it is impossible to measure accurately the effect of any one component, or even of the total.

From the moment you set foot in a Great Northern streamliner until the moment you detrain, you travel in comfort and in style. You needn't be a first-class passenger to enjoy your ride, either; as a coach passenger you will find the same hospitality, the same comparative comfort, and the same sense of travel in the grand manner. Coach passengers can make use of the lounge section of the coffee-shop car just as the first-class passengers make use of the

observation lounge at the end of the train.

Many people ride from Chicago to Seattle, or vice versa, in the coaches. It is more comfortable, of course, to ride first class and be able to shed your clothes at night. Even here, you don't have to go whole-hog and spend all your vacation money on the train. The *Empire Builder*, for instance, features seven different sleeping accommodations, ranging from upper and lower open-section berths through duplex roomettes, roomettes, and bedrooms to compartments and drawing rooms. The *Western Star* offers uppers and lowers, duplex roomettes, double bedrooms, and a drawing room. The *Internationals* and the *Red River* do not offer sleeping accommodations because they are short-run daytime trains. Parlor cars are available for the

INSIDE THE 1951 *EMPIRE BUILDER*



Railway Post Office car.



60-seat (short-haul) coach.



44-seat (long-haul) leg-rest coach.

first-class passengers on these trains.

The *Internationals* offer a service—that is not recognized as such by most of the passengers—that is not available, and is not needed, on the other streamliners. This service comes as the *International* approaches the boundary between Canada and the United States. Immigration and Customs inspectors from both countries board the train and make their inspections en route. Yes, it's a railroad service (and one you'll find on other international railroads, too)—the railroad pays the salaries of the government men while they are aboard the train, just so the passengers will not have to stand in long lines to have their papers and luggage checked after their train arrives in one country or the other. The railroad foots the bill so it can keep its trains on schedule.

Immigration and Customs inspection aboard the *International* is a matter of routine questions and a quick glance at the contents of your luggage. It's a bit of a nuisance, but not nearly as aggravating as standing in line at Vancouver or Seattle. On the *International*, the government men come right to your seat.

Throughout the train, you'll hear conversations with a Canadian accent as well as American. And as your *International* nears White Rock, first station north of the boundary, you'll notice more people swimming in Puget Sound and picnicking on the beach than you saw south of the line. They're friendly people, too; most of them turn and wave as the train passes. (All over Canada, people seem to take more interest in trains than the average American does.)

Both of the *International* trains, as well as the *Red River*, were inaugurated in the summer of 1950 as four-car trains. Today, the *Red River's* consist remains the same, but an extra car has been added to the *Internationals*. One of these cars is the experimental pendulum tilting car the GN bought back in the late 1930s. Its split oval windows contrast sharply with the large rectangular picture windows in the rest of the train.

For a real streamlined vacation trip, ride the *Empire Builder* from Chicago to Seattle, make a one-day round trip on the *International* from Seattle to Vancouver, then take the *Western Star* back to your starting point. If you want to ride the *Red River* too, get off the *Western Star* at Grand Forks and take the smaller streamliner the next day. This will give you a view of all of GN's streamlined fleet—but it will cost you the loss of some grand scenery through the Cascades, because both the westbound *Builder* and the eastbound *Star* cross the range at night.

If you don't mind missing your ride on the *Red River* (or if you don't mind riding it in the evening, westbound, instead of in the daylight, eastbound) you can reverse the order of your trips—take the *Star* westbound and the *Builder* eastbound—and this will allow you to see the Cascades by day, as the eastbound *Empire Builder* leaves Seattle at 3 p.m. and arrives at Wenatchee, foot of the eastern slope of the Cascades, at 7:30 p.m. Or you can do as I did last July—take the non-streamlined *Cascadian* from Seattle at 8:30 in the morning, stay overnight at Spokane, and catch the eastbound *Star* there the next morning.

This latter alternative has its advantages. Pay an extra 75 cents for a seat in the *Cascadian's* "reserved seat coach" and you'll find you're riding in an old diner-observation-parlor car, with a wide window at the rear and an open platform beckoning. The *Cascadian* is a slow train, making numerous stops, but this old equipment is comfortable and the open platform is comparatively clean—a diesel road-switcher pulls the train.

From either the *Cascadian* or the eastbound *Empire Builder*, the scenery through the Cascades is marvelous, and you can see parts of GN's original line as it switchbacked its way across the summit of the range before the first Cascade Tunnel was built in 1900. Snowsheds on the line leading to this first tunnel can also be seen crumbling on a distant hillside. Today's electrified line through



Appekunny Mountain, one of the '51 *Builder's* six deep-windowed ACF obs cars, is ready to back from CB&Q's Chicago coach yard to Union Station for the "Mid-Century *Empire Builder's*" first run. Wallace W. Abbey

the Cascades makes use of the new Cascade Tunnel, 7.79 miles in length, opened to traffic in 1929.

Passengers in the observation cars of trains passing through Cascade Tunnel by day keep their eyes turned to the rear windows of the train as it plunges into the darkness of the tunnel. The entrance portal gradually becomes smaller and smaller, till it shines like a locomotive headlight coming up behind your train. It gets smaller, and somewhat dimmer, till it looks like a bare light bulb in the distance. Finally, just before your train leaves the east portal, the light from the west portal fades from view.

The Cascades, of course, are only part of the scenery on GN's transcontinental route; and both the *Empire Builder* and the *Western Star*, eastbound or westbound, traverse the famous Glacier National Park country by daylight. Many a passenger, as he has sat watching the mountains go by,



"G-bar-N Ranch" lounge car.



36-seat dining car.



Observation-lounge car.



The *Red River's* single consist ran Grand Forks–St. Paul in the morning and returned in the evening. The streamliner was a new service, not an upgrade of an existing schedule. Above, GN; right, Joe Welsh coll.



Capped by a neon tailsign like those on the long-haul *Empire Builder* and *Western Star*, the eastbound *Red River* departs Minneapolis in April 1951. Bob Borcharding

has concocted the idea of a “See America First” special that would run only in daytime, stopping overnight so its passengers wouldn’t miss a single daylight minute of scenery. The idea also struck me as the *Western Star* whisked me past some scenery that had been dark when I passed through it on the *Empire Builder*.

Through all of the scenery, though, you can’t forget that you are on a train, one of GN’s best. You find yourself walking the length of the train, watching the coach passengers with their baskets of food at lunchtime, stopping off yourself for a snack in “The Ranch” lounge car on the *Empire Builder* or in the more conventional coffee-shop car on the *Western Star*. You try lunch in the diner one day, in the coffee shop the next. You compare the drinks served in the lounge section of the coffee-shop car and find they’re on a par with those served in the observation lounge. You overhear a couple of elderly ladies remarking about the ease of

opening doors on the *Empire Builder*—they’re pneumatically operated—and you join the rest of the passengers as they stretch their legs at division points. And, after such a leg-stretcher in the hot noonday sun at Havre, Mont., you’re glad you’re crossing the plains in an air-conditioned train.

And through it all, you see signs that Great Northern’s streamlining is not confined to its passenger trains. You see track gangs laying new rail, and you see strings of gray work cars sporting a brilliant red goat herald. You make note of Tunnel 14.7 and the new line that takes your train through it, not far from Cascade Tunnel. You look at the electrification extending between Wenatchee and Skykomish, Wash., and you reflect that GN’s streamlining program actually has been going on for years—first on the right of way, more recently on its passenger trains.

You recall your first trip on the *Western Star*. It was a press trip back in 1947, and the equipment you rode then was for the “NEW

Empire Builder,” the same equipment that now forms most of the *Western Star* fleet. It looked good and rode well then, and it looks good and rides well today.

The ding-ding-DING-DING-DING—DONG—DONG—dong—dong of crossing bells barely disturbs you as you rest comfortably in your duplex roomette. Your *Western Star* has carried you safely across the Cascades, the Rockies, and the Great Plains and into St. Paul. And now you’re on the Burlington, and your mind is full of little things you’ve seen and heard on your trip. Tomorrow you’ll reach Chicago. In the meantime, better get some sleep.

As you dream, your trip returns. You remember the rosebud on your dining-car table as you had luncheon less than two weeks ago, while the *Empire Builder* was pulling out of Chicago. That rosebud gradually became a flower as the *Empire Builder* headed west. As it bloomed, your acquaintance with the Great Northern also bloomed; and as you dream on the *Western Star* you realize that that rose was emblematic not only of your trip, but also of GN’s streamlined passenger services.

The *Red River*, like its namesake, has had

INSIDE THE RED RIVER



60-seat coach (note seats’ wheat motif).



Coffee shop and dinette area in obs car.



Parlor-lounge area in observation car.

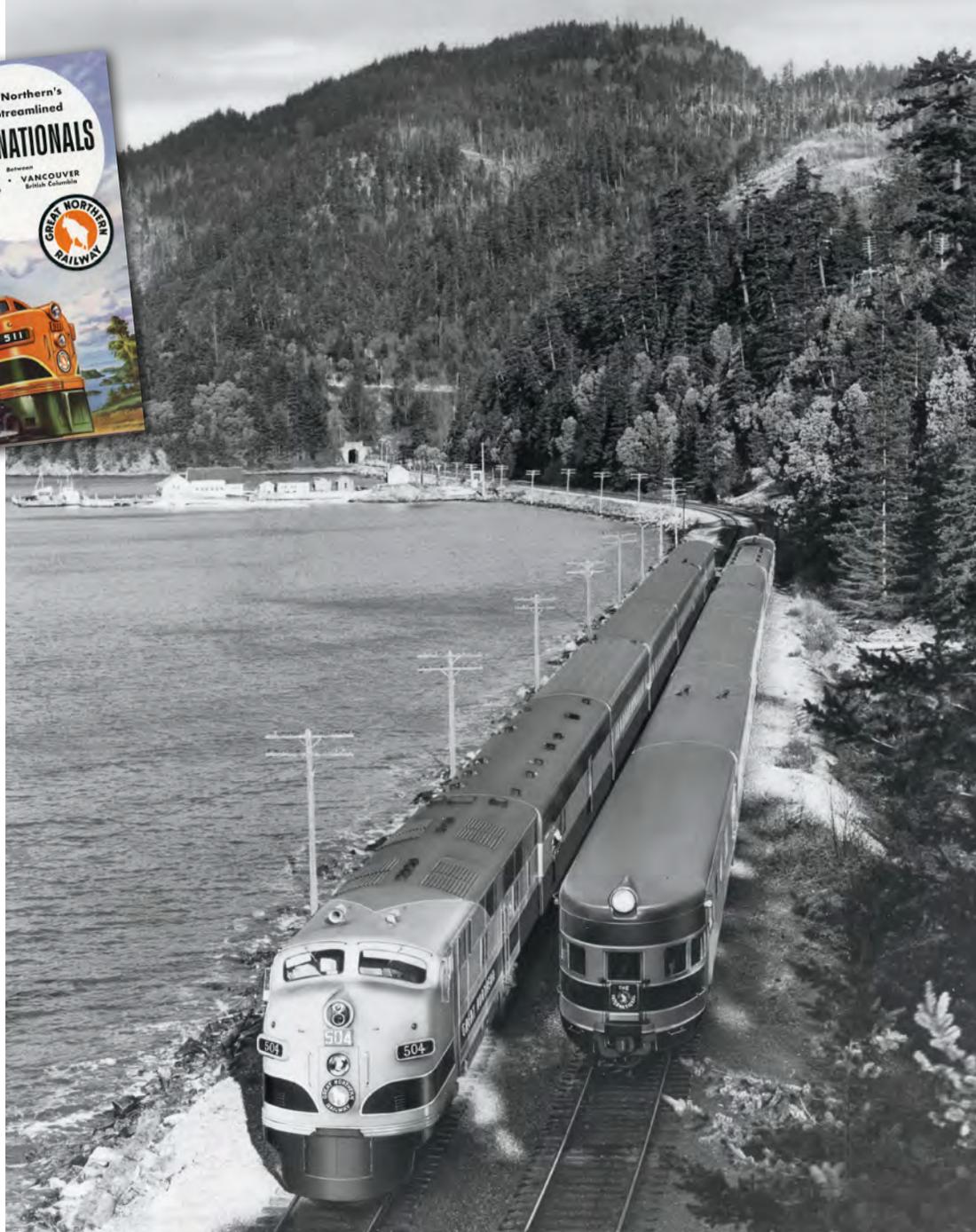
a meager beginning. At its inception, it's only a trickle. Some day, though, there'll come a flood. . . . The *Internationals*. They're nice trains. Vancouver's a nice city for Americans to visit, and Seattle's a nice place for Canadians to go—but why does the waiter in the Vancouver pub bring you two beers before you've asked for a thing? . . . \$3.34 is a bargain for 155 miles of travel (the fare between Seattle and Vancouver). . . . Ah, yes! The character on the *Empire Builder*, who brought out his own bottle as the train sped through dry Idaho, and who passed it on to you.

Changing engines at Wenatchee—diesel for electric. . . . Changing back again at Skykomish—electric for diesel. On the return trip, the other way around. . . . Wenatchee, the place where GN dining cars get the apples to make the pies they serve with Wisconsin cheese. . . . *Ding-ding-DING-DING-DING—DONG—DONG—dong—dong*. . . . Cascade Tunnel. . . . The *Western Star*. The *Empire Builder*. The *Internationals*. The *Red River*.

And so it goes. As the Burlington's stainless-steel diesels carry the *Western Star* on toward Chicago, you finally slip into a dreamless sleep.

But in the morning, as you lie debating whether to get up now or wait until the train has passed Aurora, you suddenly realize that this trip of yours has cost the Great Northern a lot of greenbacks—22.3 million of them, in fact. You stretch, and yawn, and decide you've enjoyed every one. **L**

WILLARD V. "ANDY" ANDERSON joined *Kalmbach Publishing Co.* in 1936 as a linotype operator and retired as executive editor of *MODEL RAILROADER* in 1978. Over the years he also served as editor of four other *Kalmbach* magazines, including *MODEL TRAINS*, *SHIPS AND THE SEA*, *BETTER CAMPING*, and *TRAINS*, which he headed during 1948–52. He died in 1989.



The two 5-car *International* trainsets meet along Puget Sound's Samish Bay, 84 miles north of Seattle on the line to Vancouver, B.C., in a publicity photo from the early '50s. GN

INSIDE THE *INTERNATIONALS*



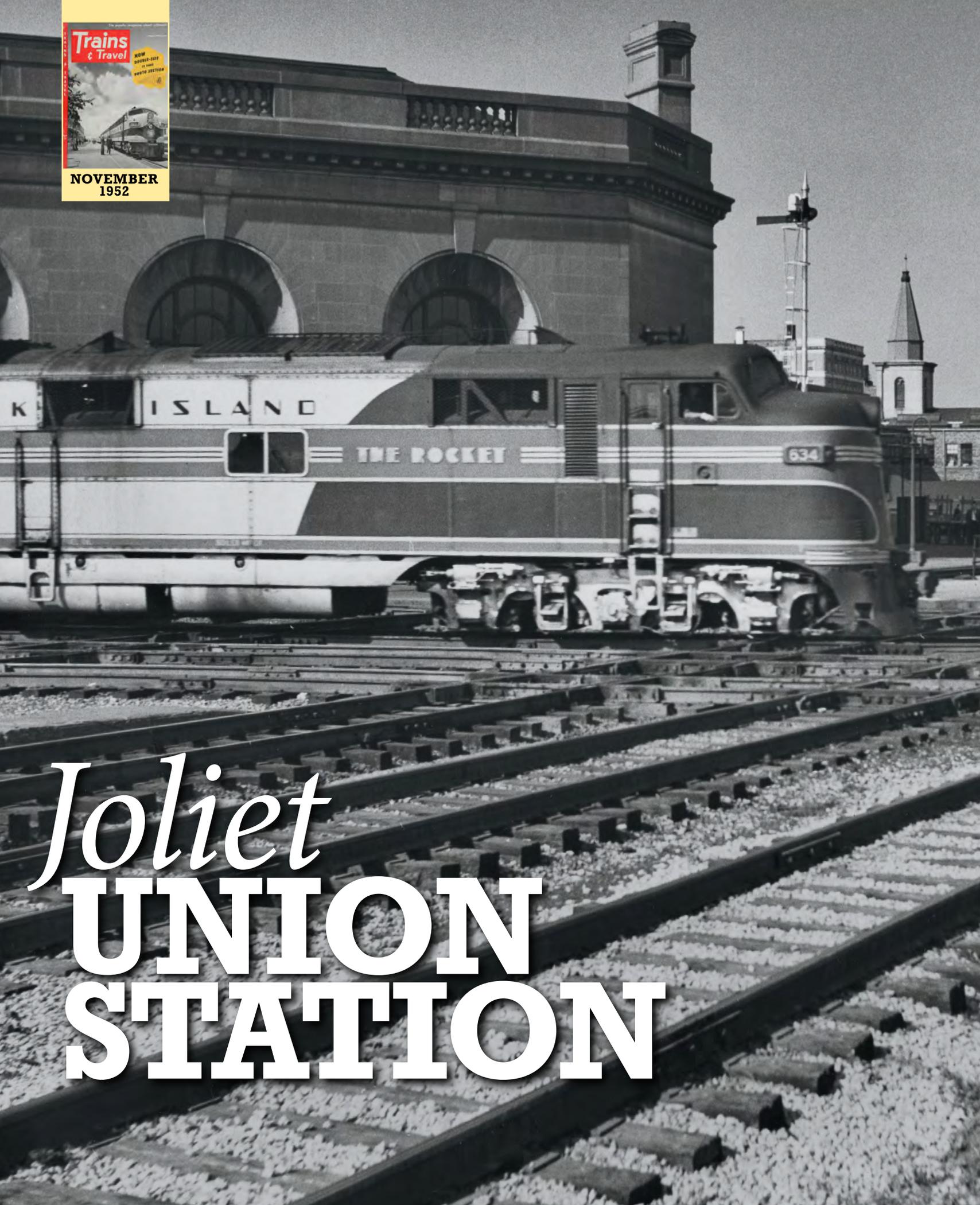
60-seat coach (note seats' tree motif).



24-seat cafe car.



Parlor-observation area.



Joliet
**UNION
STATION**



Here, where three
railroads meet outside
Chicago, is a potpourri
of typical depot action

BY **WALLACE W. ABBEY**
PHOTOS BY THE AUTHOR, FALL 1951

If you stand in the right place in the big waiting room of Union Station at Joliet, Ill., you might hear strange voices coming, for all you can tell, right out of the air. If you're buying a newspaper, you might hear conversation regarding a ticket to St. Louis. And you know the newsstand doesn't sell tickets since the big ticket counter is over on the other side of the room.

The ghost voices of the depot reside in the waiting room's parabolic construction, which makes a whispering chamber of the attractive and quietly impressive structure. The voice of the man en route to St. Louis is amplified behind the ticket office, bounced across the room to the wall behind the newsstand, and then reflected to you in front of it—an interesting and startling phenomenon.

What goes on outside is interesting, too. Joliet, population 52,460, originates a substantial amount of passenger traffic for the Santa Fe, Rock Island, and Gulf, Mobile & Ohio trains that pause at the brick platforms. Joliet is the first stop out of Chicago, 40 miles away, for most outbound trains, and is the end of Rock Island's suburban territory.

There is, of course, considerable freight movement past the depot, too, as the Rock Island and Santa Fe are heavy freight-haulers; GM&O freights are less frequent. Often, there are transfer drags on the fringes of the interlocking limits, waiting for a hole through which to duck into nearby yards of Elgin, Joliet & Eastern, Milwaukee Road, and New York Central.

Hosting scores of trains each day, Joliet is a busy place, typical of many similar stations the country over. But even with all its trains, Union Station has a few prolonged moments when there's nothing in sight and all the signals are red. These photos show you a typical small union depot—Joliet, busy and quiet.

WALLACE W. "WALLY" ABBEY, a prolific rail journalist, book author, and photographer, was born in Kansas and grew up in Evanston, Ill. He was on the TRAINS staff during 1950-54 and on Railway Age's 1956-59. In between stints in public relations for Soo Line (1959-70) and Milwaukee Road (1975-80), he was a consultant. He served Trailer Train 1980-82 and then the Transportation Test Center at Pueblo, Colo., from which he retired in '91.

Don't believe "THE ROCKET" on Rock Island E7 634. This is the late-running *Golden State* from Los Angeles, easing in to stop as Santa Fe's Second 23, the *Grand Canyon*, waits.



The fireman on FA 151 leading "Rocket Freight" No. 91 leans out as the Alco hits the GM&O diamonds. Behind sister FA 145 is 4-8-4 No. 5119. EMD re-powered RI's 8 Alco A-B-A trios with 567s in 1954-57, and they were renumbered 128-143.

The 11-car westbound *Golden State* thunders in from Chicago behind E8 643 and an E7, both in their original red, maroon, white, and silver dress. The extra-fare streamliner will go 1,108 miles to Tucumcari, N.Mex., where SP will take over.





In a view looking northwest, FP7 405, one of RI's 10, has cleared the diamonds as it backs in from the coach yard to the east to couple onto its suburban train. Alco RS3's have just supplanted some FP7's here, but RI also employs the FP's on intercity trains.

Joliet's ornate Will County courthouse dominates the background on a sunny afternoon as an eastbound freight, led by a red-and-black F-unit trio—FT A-B 99/99B plus an F2—passes the Union Station platform, on which several passengers wait.



Another afternoon photo looks northeast from the GM&O right of way as Rock Island R-67-class 4-8-4 No. 5114 steams through with an eastbound freight. RI bought 85 4-8-4s, largest fleet in the U.S. All came from Alco, in 1929 (25), 1930, (40), 1944 (10), and 1946 (10). Originally intended just for freight work, they became good dual-service machines as RI standardized them with 74-inch drivers. Some led short lives, as RI dieselized in 1953.



It's 2:20 p.m. as Santa Fe 19, the extra-fare *Chief*, pulls in behind dual-service F7's to pick up passengers destined to points in New Mexico and west. It's on the "wrong main," so riders on this platform and a baggageman are hiking over.

With the mid-train Pleasure Dome lounge car prominent, the pride of the fleet, No. 18, the *Super Chief*, glides through without stopping. Santa Fe's finest ran non-stop from Fort Madison, Iowa, to Chicago.





Here's why the *Chief* (opposite page) was running against the current of traffic: an FT-led freight on the westbound track. Out of the depot, the *Chief* has crossed over and is visible in the distance as the freight has pulled up to wait to follow him.

Clumping across the RI, returning from an errand to the south to its home yard a mile or so away, is black H12-44 No. 504, one of 65 Fairbanks-Morse goats in Santa Fe's fleet (3 each being H10-44's and H12-44TS passenger switchers).



Extra 309 West, a 110-car freight behind dual-service F7's, leaves Joliet in this view looking geographically south. This is a section of No. 59, which often runs in four or five sections daily, leaving Corwith Yard in Chicago in midday.



The timeless ritual of train-watching is evident as GM&O No. 2, the *Abraham Lincoln* from St. Louis, arrives at 1:20 p.m. When GM&O acquired the Alton Railroad in 1947, seven E7's from 1945-46 came with it, and the new owner added "The Alton Route" slogan to aid familiarity. Even in the 21st century, Joliet Union Station remains a great train-watching spot, with Amtrak and Metra passenger trains and five roads' freights.



GM&O freights, never as numerous as Santa Fe's or Rock Island's, were generally powered by F units north of St. Louis. Here, under clouds, two of the road's four F7A's approach UD Tower and the RI crossing on GM&O's southward main, bound for the old Alton shop town of Bloomington, Ill. GM&O owned 40 F3's but only 14 F7's.



Crossing the Rock Island diamonds at the depot, bound for GM&O's South Joliet yard a mile away and next to the Santa Fe main line, is Alco RS1 53, one of 10 the Alton Railroad purchased in 1945. Painted in a different style of red and maroon when built, they were never renumbered by GM&O, and some lasted until the 1972 Illinois Central Gulf merger. Alton had F3's on order in 1947, but they came lettered GM&O.



This view of the ticket office on the east end of the waiting room seems to be during a midday lull. Today most of the track-level great hall is the Grand Ballroom, available to rent for private events accommodating up to 350 guests.

A dog walks the empty Rock Island platform in late afternoon. Designed by architect Jarvis Hunt, Union Station was built in 1912. In 1978 it was listed on the National Register of Historic Places, then renovated by the city in 1989–1991.





A time exposure from the platform between the two Rock Island main tracks has the moon obscured by clouds, and of course lights lit in UD Tower, still staffed today 24/7 by Metra. A new depot is planned for the site occupied by the tower.



The bronze sign on the Rock Island side is still there today. The interior features 24-foot Palladian windows, a marble staircase, a soaring rotunda ceiling, crystal chandeliers, and outdoor balconies. Amtrak has a small ground-level office.



A GP7 moves out ahead of a set of F7's at Texas & Pacific's yard in Fort Worth.
Linn H. Westcott

It's DUNGAREES *for the* DIESEL

As a Fancy Dan, the diesel wooed and won the railroads. But they liked him a lot better since he pulled on his work clothes!

BY DAVID P. MORGAN

The bane of the mechanical department man is locomotive specialization. He hates it. It congeals his motive-power pool, keeps his shop costs high, and expands his inventory of spare parts; the front office asks questions, wants to know why he can't help cut the operating ratio. There's an answer to that one. The textbook says that the most efficient locomotive is the one tailored to its job, and the dynamometer car backs up the textbook. The mechanical department man recalls what took place when they tied a Mallet on a time freight: connections were missed, too much coal went up the stack, the wedges were knocked out of alignment, and the track was kinked. Hang a tall-driven lady of a Pacific on tonnage and the crew has to break the train and double the first hill out. Or, in a pinch, run a Mike on some secondary subdivision wayfreight and she gets her drivers on the ground when the light rail folds on a weed-buried house track.

Specialization—it was born the day railroading outgrew the 4-4-0 American type. In the old, old days a 4-4-0 handled everything beyond the yard-limit boards: varnish

or boxcars, main line or branch. Then weight and speed began to take their toll. The tropical growth of Whyte's classification system reached full flower in say, 1925; then the builders started to fight their way back to the universal engine. The 4-8-4 was the biggest gun in this fracas, and many roads—like Rio Grande, Union Pacific, and Northern Pacific—paired it with the 4-6-6-4 to create a team capable of hauling all mainline traffic. Yet in steam, simplification was a long, hard grind. As late as World War II, Boston & Maine relied on 10 different wheel arrangements. Southern needed 12, MoPac 14, Chesapeake & Ohio and Southern Pacific 17 each.

The facts of railroading and the nature of the beast simply did not mesh. At the very hour of steam's demise, its advocates were turning from their erstwhile standards to such larger or newfangled engines as 4-8-8-4s and duplex-drives. The cycle had begun all over again.

The advent of the standardized, mass-production diesel paved a way out of this dilemma. By 1941, Electro-Motive had made it feasible to protect 80 percent of a line's road and yard operations with three

basic locomotives, all available in cab and booster units for easy multiple-unit multiplication to match horsepower demands. For passenger trains there was an A1A-A1A (six axles, four powered) 2,000-h.p. E6 unit fitted with a steam generator; yard tricks were assignable to B-B (four axles, all powered) 1,000-h.p. locomotives that could be doubled up as cow-and-calf combinations; and tonnage was the talent of B-B 1,350-h.p. FT's.

Thus EMD cast the pattern for the universal locomotive without actually producing it. This much was accomplished: These pioneer locomotives sired a line of diesels that were continuously improved in performance with small sacrifice in ability to run multiple unit or in component interchangeability. While dieselization jacked up unit mileage and tonnage ratings and distance between fuel plugs, it hammered down both overhaul costs and parts inventories to all-time lows.

It was a long, long stride toward simplification. It was a polished concept, but it was not perfection. In a sense, the road diesels lacked the dual-service talents of their 4-8-4 and 4-6-6-4 predecessors. An E unit, what with its center idler axle on each truck, had too much horsepower and insufficient trac-



Introduced in April 1941, Alco's 1,000-h.p. RS1 (as it would be known) was the first road-switcher; Rock Island was the first buyer. In World War II, the military adopted a six-motor variation for overseas duty; U.S. Army 8052 is at Terhan, Iran, in 1945. Two photos, Alco



Alco built on its RS1 success with the 1,500-h.p. RS2 of 1946, then the 1,600-h.p. RS3 in '50. Sales figures reflect the rise of road-switcher popularity: 383 RS2's, 1,370 RS3's. Seaboard RS3's 1669 and 1668 work at Madison, Fla., in 1965. Harry L. Juday, J. David Ingles collection



EMD was late to the road-switcher party, but it soon swamped the other builders. Its 1,500-h.p. GP7 of 1949 sold to the tune of 2,729 units before being succeeded in 1953 by the 1,750-h.p. GP9, of which 4,257 were built. Diesels like these two Nickel Plate GP9's, handling a local freight approaching Madison, Ill., in 1958, finished off the famous NKP Berkshires. M. L. Powell, J. David Ingles collection

tive effort—speed instead of dig—for tonnage, while the F's mostly lacked steam generators. This latter failing was overcome by the F3, F7, and FP7 after the war, but except for a couple of efforts to add a steam generator and road trucks to the NW2 switcher design (the prewar NW3 and postwar NW5), there was a void in the EMD line between yard and road power.

Strangely, or perhaps logically, an old-line steam foundry first sensed dieseldom's ideal locomotive. In 1941, the new Alco-GE consortium began advertising a 1,000-h.p. "road-switcher" that, while not much more

than an elongated low-hood yard goat with an offset cab and an optional steam generator, correctly forecast the future. Here was an engine that could roll passenger or freight trains and work a terminal trick after hours. As many a railroad discovered to its regret years later, a streamlined cab unit is so much headache on any run involving pickups and setouts en route. An engineer can't reach the throttle and still get his head out of the window, and running backwards is running blind—especially with one or more boosters tied on behind. Alco-GE's unit—later tabbed the RS1—was something else again; its semi-

centered cab, low hood, and wide running boards afforded decent visibility in both directions, plus easy power and brake control, not to mention better access for maintenance.

Only a handful of roads, such as Rock Island, Susquehanna, Gulf, Mobile & Ohio, and Minneapolis & St. Louis, fully availed themselves of this Alco-GE versatility, though—probably because of its limited power and tendency to "nose" at speed. But the forerunner of the universal locomotive was off the drawing boards and, as it turned out, just in time.

Global war touched off a frantic demand

for diesel power from all over the Allied world—from India and Alaska, Iran and Russia. Military railway battalions asked for road units without the trimmings and with a difference. They asked for locomotives with light axle loadings, easy accessibility for rapid servicing, and jumper cables for multiple-unit operation—and from Alco and Baldwin that is what they got. In weeks, war-born technological advancement accomplished what would have required months, even years, under normal conditions.

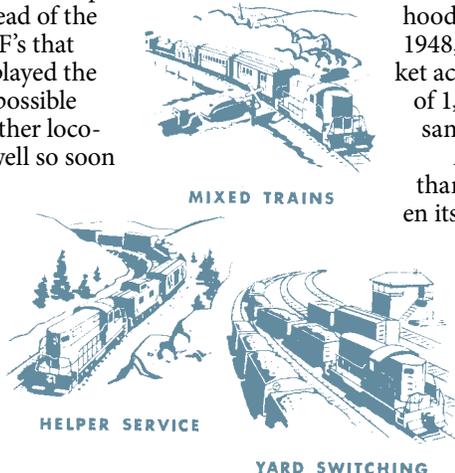
Down to the docks and onto the transports they went: hood-type units with 1,000 horsepower, six-wheel trucks, m.u. cables—the works. And overseas, drafted railroaders rejoiced in diesel power that was at one stroke powerful, versatile, accessible. Of course, they thought they were operating unique “militarized” power, custom-built for the mountains of China and Sahara sands. Actually they were riding the future all-American diesel.

After V-J Day, Alco-GE, Baldwin, and Fairbanks-Morse took the obvious final step: they slipped a hood-type jacket down over their most powerful road units—high-speed trucks, big traction motors, variable gear ratios, steam generators, and all—making the postwar road-switcher the equivalent of its streamlined sister in paper performance and, as the railroads found out, something more in practice.

Why something more? The reasons are several and potent: (1) by the very nature of its construction, a hood unit costs less to begin with; (2) this saving is compounded by a reduction in man-hours charged to servicing and overhaul—again due to hood-type design; (3) then comes the big payoff in performance: excepting passenger schedules demanding speeds above 80 mph, a road-switcher will handle virtually any job in railroading, including tandem operation with full-carbody road units.

GM’s Electro-Motive Division, the last builder to acknowledge the road-switcher, shoved it into the big time. EMD’s V-nosed, high-hooded GP7, introduced in 1949, was at first somewhat ignominiously exhibited in the same incubator with a trio of souped-up yard goats; but in sheer sales appeal, the Geep pulled ahead of the advanced model E’s and F’s that had been so proudly displayed the season before. With the possible exception of the F3, no other locomotive has ever sold so well so soon

A 1949 EMD sales booklet extolled the versatility of the GP7 in 12 small sketches, reproduced here and on the following pages.



Baldwin built its first road-switchers in 1947, eventually producing 277 B-B (four axles, all powered) versions before quitting the market in 1956. Two dual-service Pennsylvania-Reading Seashore Lines AS16’s work a freight at Glassboro, N.J., in 1955. Frank Kozempel



Virginian H16-44 No. 36 was one of 430 B-B road-switchers Fairbanks-Morse built between 1947 and its 1963 exit. C. R. Huff



Lima built diesels during 1949–51. Its only true road-switchers were 16 1,200-h.p. dual-service jobs for NYC. Lima-Hamilton

to so many. This much was a staunch testimonial to the railroads’ faith in the Geep’s maker; it also swelled enthusiasm for road-switchers bearing any builder’s data plates.

In 1952, these were the mileposts that marked the road-switcher’s big, if belated, homecoming:

In the 1,500- and 1,600-h.p. bracket, long since established as the railroads’ favorite unit size, more than two-thirds of 1952’s 1,267-unit total were hood locomotives. As late as 1948, the road-switcher market accounted for only 200 out of 1,374 units ordered in the same power bracket.

Across the U.S., more than one road had to sharpen its pencils to keep pace with hood-unit flexibility. Western Pacific, for instance, rewrote an order for 6,000-h.p. road freighters, asking instead for GP7’s;

New York Central re-examined a division dieselization for which it had budgeted 50 road and yard units and found that 38 road-switchers could do the job; and both NYC and Chicago & North Western let it be known that they would never buy another cab freight unit (other roads were practicing if not preaching this policy).

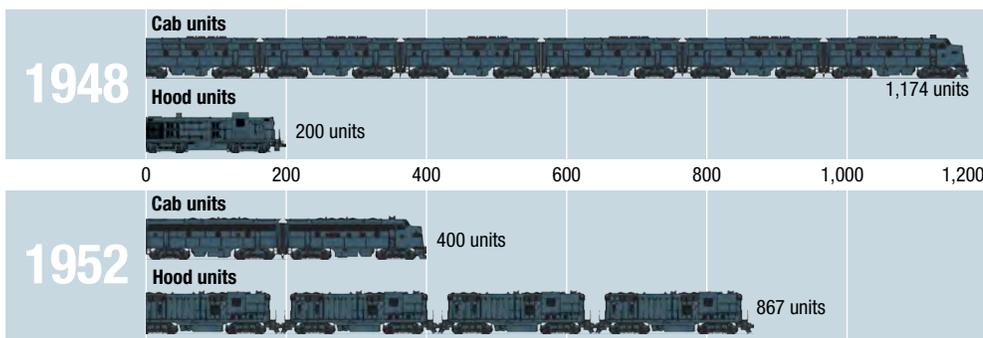
Delaware & Hudson served up the incomparable instance of road-switcher simplification. In steam D&H operated approximately 350 engines, fanned out over Americans, Ten-Wheelers, Pacifics, 4-8-4s, six- and eight-coupled switchers, Consolidations, 0-8-8-0s, and Challengers. Late last year the road was ready to dieselize with 169 Alco-GE units, all B-B’s—51 1,000-h.p. yard engines and 118 1,500- or 1,600-h.p. road-switchers.

Back in the drafting rooms at La Grange, Ill. (EMD), Schenectady, N.Y. (Alco), Beloit, Wis. (Fairbanks-Morse), and Eddystone, Pa. (Baldwin), the builders were busy keeping pace with the hood unit and with each other. Newest wrinkle was a road-switcher booster outshopped by Baldwin for the Southern



Alco's first C-C (six axles, all powered) road-switchers were the modified RS1's for the Army in 1942–45 (plus 6 for Mexico in '46). Although it built A1A-A1A (six axles, four powered) units for weight distribution beginning in 1946, Alco's first domestic C-C's came in '51. Three such 1,600-h.p. units (two RSD4's bracketing an RSD5) descend Solider Summit with a Utah Railway train in 1970. J. David Ingles

RISE OF THE ROAD-SWITCHER



CLASSIC TRAINS: Rick Johnson

Pacific to create a 4,800-h.p., three-unit (cow-calf-cow) diesel. Word leaked out of Electro-Motive that a Geep calf was in the blueprint stage (reportedly for Union Pacific); EMD's strong stride in 1952, however, was the debut of its SD7, a six-motor version of the Geep astride accessible high-speed, three-axle trucks (wheel arrangement C-C). The SD7 was also an obvious retort to a six-motor 1,600-h.p. unit brought out in 1951 by La Grange's largest rival, Alco-GE. Not that Alco-GE couldn't stand watching: it now has over 2 million road-switcher horsepower on U.S. rails and has almost doubled its hood business within the past two years.

Yet while these builders adjusted their rudders to compensate for the road-switcher

storm, Fairbanks-Morse dived overboard. Less than five years ago the blueprints were still wet for FM's Consolidation Line of cab units in three horsepower sizes. In the interim, industry awareness of hood-type units—its own included—caused FM to canvass the railroads, then present a fresh locomotive to the trade: the Train Master. FM's TM is a fat, robust, gadget-packed 2,400-h.p. six-motor unit that rolls on tri-mount trucks at speeds up to 80 mph. It is the Mr. Big of road-switchers in tractive effort, dynamic braking, and steam-generator capacity—and, FM hopes, in future diesel orders.

There is as yet no indication that the road-switcher will completely crowd the streamlined road unit out of dieseldom.

Many a big road such as Great Northern and Chesapeake & Ohio keeps right on buying stock road freighters for tonnage pools requiring 4,500- and 6,000-h.p. locomotives on a round-the-clock cycle; and even though Dwight D. Eisenhower was accelerated away from more than one whistle stop by hood units during the 1952 campaign, few carriers cared to couple one up to anything so fancy as a dome car. This much is certain, though: The railroads have elected the road-switcher their No. 1 unit as they move into the last lap of total dieselization.

Diesels—hood or otherwise—came off better in statistics than sales during 1952, mainly because Washington allocated metals for the war in Korea, and steelworkers called a midsummer strike. As of late 1952, 20,220 units were hauling 66½ percent of freight gross ton-miles, handling 78 percent of switching, and holding down 71 percent of passenger-train mileage. "One of the most remarkable facts about this record," remarked Association of American Railroads President William T. Faricy, "is that more than 97 percent of the diesel locomotives which produced this service have been bought since 1940, and more than 82 percent . . . since the end of World War II." And that, he added, was the fastest motive-power switch in the entire history of transportation.



EMD's 1952 response to Alco's RSD4 was the 1,500-h.p. SD7, followed by the 1,750-h.p. SD9 in '53. Sales totaled 188 SD7's and 471 SD9's. SP SD7 5330 is on train 151 at Santa Clara, Calif., in 1958. Jim Davis

Amen, said Charles Kerr Jr., an old-line researchist for Westinghouse Electric. Kerr cited the diesel as "just about the best available buy for the money in the heavy apparatus field. [It] consists of a prime mover, an electric generating plant, and an electric drive, and operates as a moving vehicle. Yet its price per horsepower is less than that of a central [power station]. . . . Its fuel cost to produce a horsepower-hour of useful work is equal to or less than the average price of industrial power."

Yet for the builders who produced this caliber of power, there was famine instead of feast. New orders tobogganed from 1951's 5.2 million diesel horsepower to less than 2½ million last year. Kingpin Electro-Motive upped its cut of the shrunken market from 63½ to a shade over 66½ percent and simultaneously solicited modernization trade to keep its huge plant capacity occupied. Alco-GE stayed steady with 22.8 percent of the available business; Baldwin topped from 10.1 to 5.2 percent; and Fairbanks-Morse threatened to take the No. 3 spot by jacking up its share from 3.4 to almost 4.3 percent of all U.S. common-carrier contracts.

Dieseldom's overcast horizon blew up into something more threatening than a summer shower in 1952. It wasn't just the "saturation point." An able statistician could work up reasonably correct estimates for when the roads would be fully dieselized and when existing diesels could be justifiably replaced with new models. The black



LOCAL PASSENGER



EMERGENCY SERVICE



WORK AND SUPPLY TRAINS



At 2,400 h.p., Fairbanks-Morse's six-motor H24-66 "Train Master" was by far the most potent road-switcher of its day. Production spanned 1953-57 and totaled 127 units; in all, 186 FM-design C-C road-switchers were built (plus 30 A1A-A1A's), the first in 1951. FM



The first of Baldwin's 308 C-C's (including 70 transfer units, but not 50 A1A-A1A road-switchers) was the DRS-6-6-1500 of 1948; Bessemer 403 rests in 1970. Eric Hirsimaki



Lima's only C-C's were 22 twin-engined 2,500-h.p. units for PRR; they were transfer units, not general-duty road-switchers. Fred D. Cheney Jr.; William D. Volkmer collection

cloud was the gas turbine—and nobody was in a mood to be dogmatic about it in 1952.

Union Pacific trampled upon rumors that it was fretful over turbine troubles by ordering another 15 4,500-h.p. production-model freighters before General Electric had completed delivery of the 10 contracted for in 1950. Indeed, on the 175-mile mountain run between Ogden, Utah, and Green River, Wyo., familiarity with week-in-and-week-out turbinization was breeding fresh respect for the howlers. The bigger the train and the more continuous the full-throttle demand, the better the 83½-foot cabs worked, inasmuch as at low speed and idling there is still no slaking the powerplant's insatiable thirst. In fact, *fuel* came into focus as the issue on which UP's new

pullers would either do or die. The technicians were talking of shutting down the turbines entirely on long downhill grades once they could figure out a way to make dynamic braking operative without prime-mover activation, and already they were using a small diesel-generator rig wired to two traction motors to move the locomotives around engine terminals.

There is one other out: propane. UP can buy it at \$1.20 a barrel vs. \$1.75 for the Bunker C oil now burned in the Big Blows, and is accordingly coupling one of them to a pressurized tender to burn the liquefied petroleum gas.

Elsewhere on the turbine front, Westinghouse's "Blue Goose," a 4,000-h.p. shark-nosed passenger unit, pulled Pennsy, Katy, and North Western limiteds with all the nonchalance of two-unit diesels twice its



Road freight: In 1958, Frisco GP7's 572 and 503 arrive at Lindenwood Yard west of St. Louis. The stacks on their short hoods indicate they have steam generators for passenger work. Frisco, early to dieselize, had 128 GP7's but no GP9's. R. R. Wallin; J. David Ingles collection

length. The main fault that its somewhat frustrated skeptics could locate in its innards was a limited steam-generator capacity (two 2,500-pound-per-hour units vs. four on a comparable diesel); this could hardly be considered an insurmountable ailment.

If predictions were in order, they were these: Road experience guarantees the gas-turbine acceptance by the carriers as a heavy-duty mainline locomotive because it promises fuel and maintenance savings with no reduction in tonnage or time. In particular, fuel was a factor in the turbine's favor; in February, for instance, Southern Pacific conceded that a recent boost in West Coast diesel oil prices would tack 20 percent onto its fuel bill.

The sensational if not the significant locomotive headline of 1952 was the voluntary diesel test arranged for by the 100-percent-steam Norfolk & Western; only once before had diesels rolled over N&W rails, and that was during a 1949 coal strike when its 4-8-4s were arbitrarily forced off the through Southern Railway limiteds

that N&W forwards between Lynchburg, Va., and Bristol, Tenn. Electro-Motive, fully aware of the august occasion, seized a Union Pacific 6,000-h.p. F7 set on its La Grange erection floor, gave it shakedown runs on North Western tonnage trains, then brought it home for a final loving checkup. The physical was so minute that a heater fan motor in the cab that vibrated a bit was pulled out and replaced with one that didn't.

Down in the coal country, EMD's ambassador worked alongside Roanoke-built 2-6-6-4s and 2-8-8-2s for 18 days, then vanished into an official silence that neither builder nor railroad has seen fit to break. Results, as spliced together from off-the-cuff comment, were expected. N&W was tick-

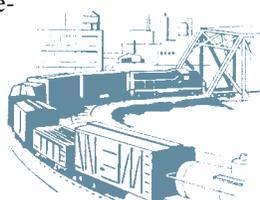
led with the way the A-B-B-A set descended grades on its dynamic brake with the air in release, and there was no denying that time was saved on time freight by skipping the water plugs between terminals. Also, the EMD hauled its maximum rated tonnage—but as to how that figure, whatever it was, compared with compound Y6b performance, nobody said.

N&W meantime got off an order to its shops for 15 more 0-8-0s (the only new steam engines contracted for last year). It saw hope in the fact that its forthcoming steam-turbine-electric burned only 60 percent as much coal in stationary tests as its existing reciprocating power, and otherwise acted as if a diesel had

never been on the property. In a post-diesel letter to a man who had praised N&W policy, Vice-President Sydney F. Small wrote, "The Norfolk & Western



SNOW REMOVAL



TRANSFER SERVICE



EXCURSION SPECIALS



Passenger service: A head-end team of two GP9's and an F7B bring the 18 cars of Soo Line's Duluth–Chicago *Laker* into Forest Park, Ill., in August 1958. George Speir



Local work: GP7 202 of ACL subsidiary Charleston & Western Carolina and a caboos sun themselves between jobs at Greenville, S.C., in 1951. Al Chione collection

Railway is *still* convinced, *based upon comparative performance*, that the 'iron horse' is pulling its share of the load—and economically." Italics our own.

An insight into another steam vs. diesel test, hushed up at the time, reached print shortly after the N&W trial. In an address to the New York Society of Security Analysts on January 23, 1953, Nickel Plate Road President Lynne L. White spoke up for steam. He prefaced his remarks with the statistics that virtually all NKP passenger service is dieselized and over 90 percent of yard engine-hours will be this year. That left only 3.6 percent of freight train-miles in diesel hands—accounted for mainly by the Indianapolis Division, now operated by 13 Geeps. White forecast certain limited freight dieselization: 8 new road-switchers will go into joint service with the Pittsburgh & West Virginia between Brewster, Ohio, and Rook (Pittsburgh), Pa.; in 1954 from 15 to 18 hood-type units will take over the 180-mile Peoria Division; and in 1955, 8 to 11 more units will probably dieselize the line between Frankfort, Ind., and Toledo, Ohio.

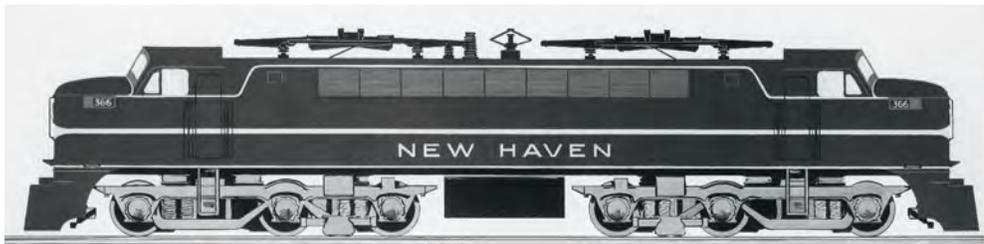
Yet all this leaves NKP's major main lines—Buffalo to Chicago and Bellevue,

Ohio, to St. Louis—minus diesels. In explanation White said, "We pride ourselves . . . on supplying 'Nickel Plate High Speed Service.' Perhaps you've seen it advertised on our cabooses. But it is more than a slogan to decorate the cabooses—it is a promise to our shippers and a challenge to our operating department. . . . We seldom fail to make our connections, and that means a number of departures from terminals; it means fast trains of moderate length instead of tonnage trains built up possibly at the price of not making the eastern and western connections. For that service . . . these engines [80 class S 2-8-4s built during 1934–49] are ideally suited.

"We are willing, if necessary, to trade a little bit of added operating expense for add-

ed long-haul revenue. . . . What does all this add up to? First, for our kind of operation—trains of moderate length operating in flat country—we don't require the great pulling power of the diesel. Second, our present steam power is relatively new, is designed for our kind of operation, and therefore there is little difference in operating costs.

"Indeed, as recently as the summer of 1948 we ran some tests of our 'S' engines against both 6,000-h.p. and 4,500-h.p. diesels and you couldn't put *this* piece of paper between the comparative costs. At today's prices, there is a slight saving in fuel costs of the diesels over the 'S' engines, but this and the somewhat lower maintenance costs are balanced by the cost of carrying the larger investment."



An early rendering suggests that the GE electrics New Haven ordered in 1952 were to wear the road's traditional dark green with gold trim. Delivery of the class EP-5's came after the proxy fight that installed Patrick McGinnis as NH's boss, and they were painted in the gaudy scheme that bore his name [see page 83]. CLASSIC TRAINS collection

Under the catenary, 1952 proved of mild interest. No news bulletin was issued from the Pennsy camp as to the comparative road performance of its General Electric single-phase A.C. and Westinghouse ignitron-rectifier two-unit experimentals, but the New Haven did come through with an order to GE for 10 all-electric passenger engines—90-mph, 4,000-h.p. rectifier units. There was even talk that NH might extend its overhead up the Shore Line and into Boston. As long as President Buck Dumaine didn't get trampled underfoot in a stockholder shuffle, there was no telling if such a rumor didn't have some substance.

On the other side of the ledger, Baltimore & Ohio dieselized its Baltimore Belt Line, thus discarding the nation's oldest (1895) mainline electrification. It was only a matter of diesel deliveries until the catenary was cut down from Cleveland Union Terminal property. After D-Day, parent New York Central plans to rewire the CUT motors and roll them east into the New York area to replace older juice power there.

Periodically someone waves the specter of depleted oil reserves before the railroads and in the same breath chants the cause of straight electrification; in 1952 it was a report by Bituminous Coal Research, an organization of electric utilities and manufacturers, coal-carrying railroads, and mines that has also picked up the tab for coal-fired gas-turbine experimentation. What gave BCR's bulletin stature was its realistic approach to two big old bugaboos: top-heavy initial cost and complex engineering. It pointed out paths around both. For instance, many mass-produced diesel locomotives could be used interchangeably in electric power, and both power supply and overhead trolley could be streamlined in design and, hence, cost. As to the where-the-money-was-coming-from angle, BCR hinted that "other than financial" interests who stood to cash in on electrification (such as steel and copper producers, utilities, locomotive builders, etc.) might assume part of the capital risk.

The report noted that from 1945 to late 1950, diesel fuel costs rose 30 percent faster than electric energy charges in a trend that, barring war, would continue for at least 20

years. BCR gave a "for instance": a 400-mile stretch of heavy-duty railroad could be dieselized today for \$110.5 million, or electrified for \$150 million—and yet the juice jacks would permit a saving over that of diesel power of 2.19 percent on gross investment.

In the "also-ran" department, 1952 was a season of continued shift from steam to diesel, of fresh experimentation, of loss and gain:

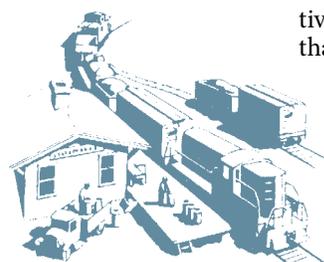
In the first 10 months of the year, more than 5,700 steam locomotives were scratched from the rosters of U.S. railroads. Since 1942 the ranks of active steam power had been driven down by diesels from 39,619 engines to 16,606. . . . New Haven and Texas & Pacific nailed their heralds to the scroll of the 100 percent dieselized; Delaware & Hudson was shooting for year-end admittance to the club; and the only power holding back both Erie and Rock Island was a pocketful of Pacifics in commutation service. Central of Georgia, Seaboard, and Southern all filed for 1953 membership. . . . Indefinite coal deliveries from its own Wyoming mines forced Union Pacific to convert a batch of 4-6-6-4s to oil fuel. The last time this happened, UP waved the big stick of dieselization; this time it said nothing on that score. . . . Overseas, British Railways had begun work on a 1,600-h.p. coal-fired mechanical-drive gas-turbine that, if successful, would burn low-grade fuel without scratching its blades with fly ash; across the Channel, French National Railways was operating a free-piston gas generator turbine of 1,000 h.p. But the concept got stuck in the U.S. The Santa Fe admitted that the gas turbine it had ordered from Baldwin way-back-when was on the rocks, and rumors



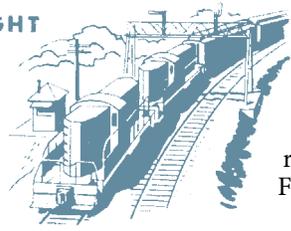
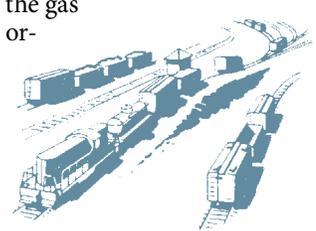
were rife that Lima's free-piston turbine for the Pennsy had also dropped anchor.

This spring, Bituminous Coal Research signed a contract with Alco to develop its coal-fired gas turbine "for commercial applications and design a chassis for locomotive use." C&O's Walter Tuohy admitted that theoretical savings are "nothing like that of diesel over steam power" but thought an anticipated boost in oil costs and a drop in coal costs would "make our locomotive extremely attractive."

And the far, far future—what of it? "Who can say that we may not yet have atomic-powered locomotives someday?" asked Association of American Railroads President Bill Faricy. "They are not yet in sight, but for four years



LOCAL FREIGHT



MULTIPLE OPERATION

HUMP SWITCHING



No. 51, the first of UP's General Electric turbine fleet, climbs east through Weber Canyon, Utah, in July 1952. Westinghouse turbine demonstrator 4000 (right, at Chicago) generated no orders. Above, I. W. King, J. P. King collection; right, Wallace W. Abbey

the Association of American Railroads has had a competent mechanical engineer duly accredited to the Atomic Energy Commission. One of his assignments is to observe, insofar as security regulations permit observation, the workings of the Commission staff to the end that whenever atomic power becomes practically usable for locomotion, the railroads will be ready to apply it." ■

DAVID P. MORGAN joined the TRAINS staff in 1948, became the magazine's editor in 1953, and retired from that position in 1987. During his 33 years at the helm, Morgan authored many hundreds of articles, from brief but evocative essays to 10,000-word studies of contemporary railroad operations to the monthly "News and Editorial Comment" section. Morgan died in 1990 at age 62.



MIDWESTERN *SWING*

A New Jersey man savored
14 “foreign” railroads during
a spring 1953 vacation

BY **ROBERT R. MALINOSKI**
PHOTOS BY THE AUTHOR



MONEE, ILL., JUNE 2, 3:45 P.M.: Illinois
Central 4-8-2 No. 2606 rolls southbound
symbol freight CN-3 through the tabletop
flat farmlands north of Monee, Ill.

After seven years of working in Erie Railroad yards in the Jersey City area, my seniority finally entitled me to a two-week vacation, so I planned a trip in late spring 1953 that would take me to Chicago and several points west. I went, by train of course, armed with my new 35mm Kodak Retina camera to shoot color slides, which were becoming the “in thing” at our local informal get-togethers. I also had another camera to shoot my traditional black-and-white negatives.

These days, people think nothing of shooting several of rolls of slides [or now, hundreds of digital images] on a one-day outing, but things were different then. When I started my trip, on May 28 aboard Erie No. 5, the *Lake Cities*, my \$25 Retina, which I received as a gift, was loaded with only my fourth roll of Kodachrome. When I returned home June 9 on Erie 8, the *Atlantic Express*, I was in the middle of my seventh roll, having shot 71 slides on the trip.

After a stopover at Jamestown, N.Y., and a side trip by bus to Westfield to shoot some New York Central and Nickel Plate action, I returned to Jamestown to board Erie No. 1, the *Erie Limited*, at 7:32 p.m. During my Westfield interlude, I saw 26 NYC trains (19

with diesels, 7 with steam) and 11 Nickel Plates (all steam except passenger train 6 behind Alco PA's 183 and 188).

I rode into Chicago and spent the first of four nights at the downtown YMCA. The next morning, May 30, I took a South Shore Line electric train out to Hammond, Ind., and made the short hike to State Line Tower hoping to get some action. This junction is where the main lines of Erie, Nickel Plate, Monon, and Chesapeake & Ohio of Indiana crossed that of Baltimore & Ohio, with secondary routes of Wabash and Indiana Harbor Belt thrown in for good measure.

The 541-mile Monon, a small Class 1 road known as “the Hoosier Line” (officially the Chicago, Indianapolis & Louisville), was almost bankrupt when John W. Barriger became its president in May 1946. He improved the tracks, bought new freight cars, and converted from steam to diesel power. He acquired 28 former U.S. Army ambulance cars, at \$16,500 each, and had them modernized, styled by Raymond Loewy. My first train at State Line was Monon 11, the *Tippecanoe* for Indianapolis, which appeared at 8:52 a.m. with 81-A, one of the road's 10 passenger F3's, and five cars.

At 9:21, Erie fast freight 74, with F3's





HAMMOND, IND., MAY 30, 12:25 P.M.: Two Wabash F7's pass State Line Tower with freight 82, bound for the "Punkin' Vine" line across northern Indiana.



HAMMOND, IND., MAY 30, 8:52 A.M.: Monon's Chicago-Indianapolis *Tippecanoe*, an F3 leading five cars, crosses the Grand Calumet River after passing State Line Tower.

802A-B-D (formerly passenger units), a short 47-car consist, and caboose C-211, started a parade of eastbound hotshots. The train would fill out at Hammond yard with mostly perishable traffic delivered by the IHB. East of Marion, Ohio, the train usually ran in two sections, NE-74 (New England) via Maybrook, N.Y., to Boston and NY-74 to northern New Jersey.

Six minutes later at 9:27, Nickel Plate Road class S-2 2-8-4 Berkshire 750 crossed the Grand Calumet River with a short train of just 16 cars, plus red caboose 1017 with its gray banner slogan "High Speed Service." Competing with the New York Central, this eastbound train had two labels, No. 46 and symbol OB-12. It would fill at Osborn in eastern Hammond with refrigerator cars to be interchanged to the Lackawanna or Lehigh Valley at Buffalo.

Robey Yard in Chicago, and Barr Yard in south suburban Riverdale, assembled Baltimore & Ohio's trains in the Chicago termi-



HAMMOND, IND., MAY 30, 10:54 A.M.: More action around State Line came in the form of three B&O Alco cab units (two FA's bracketing an FB) on eastbound freight 92.



HAMMOND, IND., MAY 30, 9:27 A.M.: Nickel Plate Berkshire 750 heads east across the Grand Calumet River with just 16 cars; it'll pick up more at Osborn in east Hammond.

nal. Eastbounds had to cross 20 railroads at grade between Brighton Park in Chicago and Hammond. At 10:54 a.m., No. 92 showed up behind an A-B-A set of Alco cab units, 815A-815X-815. The train's consist had a high-class head end of 3 livestock cars and 23 reefers, plus 53 mixed freight cars and caboose C-2077.

Wabash 82, headed for the "Punkin' Vine" line across northern Indiana, showed up at 12:25 p.m. with F7A's 1143-1143A handling 73 cars and caboose 2838. (As you can tell, I am a detailed note taker. I began recording all data for my photos on December 9, 1939.) Wabash called its important freights "Red Balls," and this one went to Buffalo the hard way, via Montpelier, Ohio; Detroit; a ferry to Windsor, Ontario, Canada; and St. Thomas. It was the last of five trains in a row I saw at State Line from different railroads.

At 1:59 p.m., a westbound Nickel Plate freight passed State Line with 31 mostly empty cars. The tender of 2-8-4 No. 762 was sweaty for just a short distance up from the bottom, evidence it was getting low on water, but it was not far from its terminus at Calumet Yard. A couple of hours later, having

walked to downtown Hammond, I went back to Chicago on Monon train 6, the *Thoroughbred* from Louisville, concluding a wonderful stay during which I saw 23 trains.

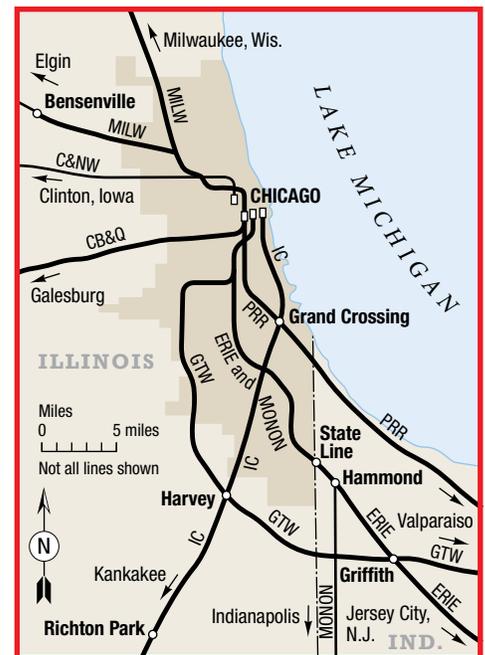
Sunday, May 31, was "Valpo day" for me. The earliest and fastest way to get to Valparaiso, Ind., by train was on Pennsylvania Railroad No. 52, the *Fort Pitt*, due out of Chicago Union Station at 8:30 a.m. While talking with the friendly engineer on the E-unit set of 5838-5796, I questioned him about the famous K4 class 4-6-2s, and he replied, "K4's always were a good engine." How about the T1's, I asked of the 4-4-4-4s. "The T's would run rings around [the K4's]. With 16 or 17 cars, they could outrun a 4,500 h.p. diesel."

My ride on 52 was fine, and we stopped at Valpo at 9:25 a.m. I took a taxi to the point west of town where the Grand Trunk Western tower controlled the "Fort Wayne Crossing" of the PRR, Nickel Plate, and GTW main lines. Eastbound hotshots on the PRR and NKP here would really run, and so

would the GTW trains, running for "Valpo hill" on the Trunk's only single-track stretch of its Chicago-Port Huron (Mich.) main line.

One of the fastest was GTW 492, which showed up at 11:31 a.m. with F3A's 9011 and 9020 and an all-loads consist of 3,350 tons: a tank car, four livestock cars, and 63 perishables, plus caboose 78903. An oddity showed up at 4:04 p.m. on GTW 495. Not only did it have the normal pair of F3's, 9009 and 9006, but tucked in behind them was a surprise, U-3-b class 4-8-4 6320 ahead of 92 cars and caboose 77903.

GTW parent Canadian National bought five streamlined 4-8-4s in 1936 from Montreal Locomotive Works, Nos. 6400-6404, and GTW itself bought six of similar design from Lima in 1938. They were the only fully streamlined engines on CN, and GTW U-4-b class 6405 would be the last such engine to run in the U.S. in regular service, in 1958. My return to Chicago was on GTW 17, the *Inter-City Limited* from Montreal and Toronto, behind that very engine, 6405. I saw 21 trains this day.



CHICAGO, JUNE 1, 10:25 A.M.: Seen from the Roosevelt Road viaduct, Soo Line 2-8-0 No. 468 pulls out of Grand Central Station with a transfer run. Directly above the engine, across the Chicago River, is the Pennsylvania's massive Polk Street freight house.

Mail trains always fascinated me. A solid mail train is rare, important, fast—and I photographed one the next morning, June 1, NYC No. 14 leaving Chicago's La Salle Street Station. One J-3 class 4-6-4 could handle this 11-car train, but on this day it had two Hudsons, J-3e 5442 and J-1 5418, probably to balance power.

Of all the railroads I saw on this trip, the major road with the fewest sightings—only two—was the Soo Line. It was a surprise when, at 10:25 a.m., I spotted from the Roosevelt Road viaduct a Soo transfer move leaving B&O's Grand Central Station, which C&O and Soo shared, with three baggage cars

behind Schenectady-built F-9 class 2-8-0 468.

New York Central on February 14, 1927, at Schenectady had accepted the first 4-6-4, christened the Hudson type, and bought three series—J-1's, J-2's, and J-3's—until it had 275. It was one of those greyhounds, J-3a 5414, I photographed from Roosevelt Road as it left Chicago with no-name train 232 to Toledo, Ohio, at 11:39 a.m. The Hudson would have an easy job taking five mail and express cars, a combine, and coach eastward on the old Lake Shore route.

Milwaukee Road inaugurated its fast, streamlined *Hiawatha* between Chicago and the Twin Cities May 29, 1935, behind stream-

lined 4-4-2s. Subsequent *Hiawathas* debuted in fall 1937, with streamlined F7 class 4-6-4s 100-105 arriving in 1938. Later on, the trains were pulled by an E6 pair and an Alco DL109 duo, then by FM Erie-built, and finally by EMD F units. On this June 1, 1953, I saw 11-car *Afternoon Hiawatha* 101 leaving Union Station at 1 p.m. for the Twin Cities behind a set of bright orange-and-maroon FP7's.

Railway Age magazine of September 9, 1944, advertised Milwaukee S3 4-8-4 No. 262 as one of a class of "locomotives that are making history." I took a suburban train out to Bensenville, Ill., where at 4 p.m., Milwaukee had several engines at the roundhouse, including S3 260, which I photographed. Who then could foresee that sister 261 would survive to see service in the 21st century?

Another Milwaukee steamer, F6 class 4-6-4 6402, had made an unusual run, a test trip on July 20, 1931, on which it ran the 85 miles from Chicago to Milwaukee in 67.3 minutes, going as fast as 103.5 mph. Suburban service is often where steam engines went as they neared retirement, and in 1953 Milwaukee assigned 4-6-2s—my favorite engine type—or 4-6-4s to these trains. It was on a seven-car commuter run, train 229, that I photographed 6402's sister 125, near the Bensenville roundhouse. The F6's had been renumbered from 6400-6421 to 125-146 in 1939.

Tuesday, June 2, was my Illinois Central day. Most railroads generally run east and west, but the IC is mostly a north-south carrier. I began my day at 7:15 a.m., when 4-8-2 No. 2438, clean as a whistle, took me out of Central Station on train 37, bound for Kankakee 75 minutes later. In reality, the train was New York Central's *Indianapolis Mail*, for NYC's Big Four utilized IC trackage rights between Kankakee



CHICAGO, JUNE 1, 11:39 A.M.: In another view from Roosevelt Road, NYC J-3a Hudson 5414 passes with a Toledo-bound local out of La Salle Street Station.

and Chicago. At Kankakee, the IC 4-8-2 would be exchanged for NYC 4-6-4 5289, and the train would assume the number 414.

En route, I noticed a good spot at Monee, Ill, and so at 9:15 a.m., I took a Greyhound bus back north to the little town—a half-hour ride for 63 cents. My all-time favorite paint scheme was IC's passenger chocolate-and-orange, and the fourth train I shot that day was the *Daylight*, which went by at 11:11 a.m., behind matching E8's 4024 and 4020. Eight of the next nine trains were steam-powered, including No. 73, also symbolized Dispatch CN-3, behind 4-8-2 2606 with 83 cars (many of them empty banana reefers) and caboose 9996, at 3:45 p.m. At 3:12 had come proof that IC also had freight diesels, as 72 (Dispatch NC-2) rolled by behind GP7's 8953 and 8954 with 69 cars and caboose 9817.

With no way to get back to Chicago from Monee by public transportation, I hitched a ride toward the city on Route 54, but I got picked up by a driver who had been imbibing liquor. His driving was erratic, so I requested to get out as soon as we came along IC's electrified suburban line, at Richton Park, and I caught an M.U. train back into the city.

Before heading west on Wednesday, June 3, I took a morning walk from the downtown "Y" to La Salle Street Station, where I photographed a former streamlined NYC Hudson, 5454, departing



CHICAGO, JUNE 2, 9:52 A.M.: Grand Trunk Western streamlined 4-8-4 No. 6410 accelerates the Chicago-Toronto *Maple Leaf* away from Dearborn Station.

at 9:32 with train 46, the *Interstate Express* for Boston. The consist was an RPO, combine, sleeper, lightweight sleeper-lounge, diner, and four coaches, three of them streamlined lightweights.

A brisk walk of 15 minutes got me to 14th Street, along the tracks leading out of Dearborn Station, just in time to photograph Grand Trunk Western 20, the *Maple Leaf*, gaining momentum behind streamlined Lima 4-8-4 6410 with a healthy 13-car consist bound for Port Huron, Mich., then through the tunnel under the St. Clair River to Sarnia, Ontario, and on to Toronto.

Next I went to Union Station to get my half-charge ticket to ride CB&Q 19, the *Colo-*

radoan, due out at 11 a.m. Our consist for the 162-mile, non-stop, 2-hour 28-minute ride to Galesburg was E7A 9930B and E5B 9911B (named *Silver Mate*) with 12 cars: 8 head-end, 2 chair, a diner-parlor; and business car *Burlington* on the rear. At Galesburg, I checked my luggage in the station and walked east to a nice spot where the Santa Fe main line goes under the Burlington's. Here, a little over an hour after I'd arrived in Galesburg, I photographed No. 11 rolling into town. This train looked like someone had shot a silver bullet out of Chicago—an all stainless-steel domeliner consist behind 9962 C-B-A, one of the three F3 A-B-A sets CB&Q bought for the *California Zephyr*. At



GALESBURG, ILL., JUNE 3, 3:43 P.M.: In one of author Malinoski's favorite photos of his trip, a four-unit set of Burlington Route FT's is in charge of 125-car symbol freight 67A at Galesburg. Malinoski was surprised by a snake in the drainage ditch at lower left.



GALESBURG, ILL., JUNE 3, 3:37 P.M.: Near the CB&Q's bridge over the Santa Fe, and six minutes before the Burlington FT's passed, an A-B-B set of Santa Fe FT's rolls 127 cars west. Santa Fe's 320 FT's constituted the first big fleet of road freight diesels.

Galesburg, the train would be split, with the first six cars making up the *Kansas City Zephyr* and the rear six cars continuing to Lincoln as the *Nebraska Zephyr*.

Both roads were dormant for a half hour, until a westbound Santa Fe freight appeared at 3:37 p.m., with No. 113, an A-B-B set of FT's, hauling 127 cars, mostly empty gons and Santa Fe boxcars, ahead of caboose 1863 (which Santa Fe, Burlington, and C&NW called waycars, an unusual word for us Easterners). The FT's were in the original scheme with the small nose emblem. Only six minutes later CB&Q freight 67A showed up, also behind FT's, a four-unit set numbered 106 A-B-C-D, which, with the yellow reefers, looked colorful against the blue sky and green ground cover. This was one of my favorite photos of the trip. The train had picked up cars at Congress Park and Eola yards, and arrived with 62 loads, 63 empties,

and 4992 tons, with waycar 13793. While setting up for the photo, I was startled by a small snake in a drainage ditch.

From Galesburg I went north on CB&Q's nameless train 47, a run from St. Louis that joined with the Chicago–Minneapolis *Black Hawk* (also train 47!) at Savanna, Ill. It was a slow ride, out of Galesburg at 6:05 p.m. via Rock Island, where we picked up a sleeper for Minneapolis, and into Clinton, Iowa, at 11:15 p.m.—5 hours and 10 minutes for only 93 miles! All hotels were booked, but I was lucky, getting the room of a couple away on their honeymoon.

Yellow was the color of the day at Clinton—Kodak film boxes, taxis, school buses, bananas, mums, lemons, Chicago & North Western diesels, Union Pacific passenger cars, and a cowardly photographer. Unknown to us all, UP was

two years away from moving its Omaha–Chicago passenger trains from the North Western to the Milwaukee Road. At 9:10 a.m., I photographed C&NW train 106, the *City of Portland*, coming by the tower guarding the Milwaukee Road crossing and heading for the Mississippi River bridge behind E7 5015A and E8 5022A.

C&NW named many of its important freights. Some of the east-west trains were the *Calumet*, *Roundup*, *Dispatch*, *Rocket*, and *Hawkeye*. At 12:19 p.m., mixed merchandiser 254, nicknamed the “Madam X,” was about to finish crossing the Mississippi into East Clinton, Ill., behind F7's 4084A-4083B-4093C with 123 loads and 17 empties totaling 8,073 tons, when I photographed it from the East Clinton interlocking tower. To climb up to the tower, I had to go down a bank from the tracks, and as I was doing so, I suddenly jumped as I saw a big snake chasing me. I looped over the highway wires and ran as fast as a cheetah for what seemed like a half mile to get way. It was the worst scare of my life, worse than any during my Army years. I went back to the tower on a different route and told the operator about it. He said it was a river snake. “Yeah,” echoed a signal maintainer, “it was a snake all right, a deadly cottonmouth.”

Some fans, including me, don't like small engines, but they do have a purpose, including going into buildings with sharp turns. Milwaukee Road class I5a 0-6-0 No. 1522, homebuilt by the railroad at Milwaukee in 1913, was a real vintage engine doing some heavy switching when I photographed her at 4:30 p.m. She was only a year away from retirement.

The next day, June 5, I headed out to see the early action in Clinton. I saw the *City of Denver*; C&NW 4-8-4 3027 coming in from the west; Milwaukee time freight 65 with EMD FT's 37 A-B-C-D; Milwaukee's Morrell meat train from Kansas City with 2-8-2 412; and a C&NW express special (was it all cherries?) behind 4-8-4 3013. At 7:22 a.m., I boarded CB&O 48 for the 4-hour return to Galesburg, arriving at 10:30, and three hours later, at 1:45 p.m., I was back aboard the *Coloradoan* again. The train had E7A's 9934A and 9924B with 14 mail and express cars, two coaches, and a parlor-diner. After the 334-mile ride to Omaha, we arrived at 8:35 p.m. It was the first time this trip that I didn't take a single photo all day.

Chicago & North Western bought nine streamlined 4-6-4s from Alco in 1938, given class E-4 and numbered 4001–4009. They were oil-burners with 84-inch drivers and 12-wheel tenders. They were large engines, restricted from running to the Twin Cities, and to me, were somewhat rare to see. But I was able to photograph one in Omaha the next morning, June 6, between Union Station and the Missouri River bridge



CLINTON, IOWA, JUNE 4, 9:10 A.M.: Union Pacific's eastbound *City of Portland* passes the tower at Clinton, Iowa, behind two Chicago & North Western E units. C&NW, Burlington, and Milwaukee Road lines crossed here. Just ahead: C&NW's Mississippi River bridge.



EAST CLINTON, ILL., JUNE 4, 12:19 P.M.: Three North Western F7's cross a side channel of the Mississippi with freight 254.



OMAHA, NEBR., JUNE 6, 10:45 A.M.: Rakish North Western streamlined 4-6-4 No. 4004, having brought the San Francisco-bound *Gold Coast* in from Chicago, backs out of Omaha Union Station for servicing across the Missouri River in Council Bluffs, Iowa.



OMAHA, JUNE 6, 10:46 A.M.: As C&NW 4004 backs toward the river bridge (just visible beyond the pole), nameless UP train 5 enters Omaha Union Station. Befitting No 5's lowly status as a mail-and-express train with a single coach, the train's three E8's are filthy.



ST. PAUL, MINN., JUNE 7, 9:40 A.M.: Three F units start Great Northern train 27, the *Fast Mail* for Seattle, out of St. Paul Union Depot.

as No. 4004 arrived with train 23, the *Gold Coast*, with an 11-car consist (all heavy-weights, with two head-end cars). Scheduled to leave Chicago at 10:30 p.m. and arrive Omaha at 9:45 a.m., it came in 40 minutes late. My train photo was severely backlit, but I got a better view of 4004 as it backed out of the depot at 10:45. It would go east on train 6 later that day.

As I said, I've always been fascinated by all-mail trains, and several came into Chicago from the east, mostly on the Pennsylvania and New York Central. Some connecting mail trains running west from Chicago included C&NW 5, CB&Q 5, Santa Fe 7, and Milwaukee 57. UP had one too, train 5, which went to Ogden, Utah. Although it was listed in the *Official Guide*, the train carried "only one coach for passengers; no diner." It got most of its cars off C&NW and CB&Q at Council Bluffs Transfer across the river in Iowa. I'd always wanted to ride such a train, so I boarded 5 at Omaha. But first, I photographed it. As C&NW 4004 backed toward the river bridge, I shot 5 arriving behind an A-B-B set of E8's with the 930 leading, displaying the train number in the number board per UP practice. The consist was 18 mail and express cars (most bound for northern California) and the promised single reclining-seat coach. The short ride to Fremont, Nebr., was fast, and I remember the flagman saying, "The engineer really has his foot on the carburetor today."

I hoped for a lot of action at Fremont, and

I got it. First, at 11:57 a.m., was the *Gold Coast* again, now UP 23, with 16 cars behind E units 987-944B-929. At 1:13 p.m. came 4-8-4 No. 813 with a 69-car westbound extra, followed at 1:37 by 4-12-2 No. 9035 on another extra west, which drifted into town with 74 cars and stopped to take water, then departed with that unique offbeat three-cylinder sound. UP had 88 of the three cylinder 4-12-2s, built by Alco during 1926-30.

Another 4-12-2, the 9087, rolled through on an extra east at 2 p.m., with 76 cars, including 24 stock cars. Forty-one minutes later came the only diesel-powered freight during my visit, with F3 1403 and F7's 1466A and 1475 on a 69-car extra west. At 3:10, 4-8-4 No. 816 rolled through on Second 5, with 28 mail cars and a rider coach. Fifteen minutes later came sister 837 on a 56-car westbound extra freight, and 10 minutes behind it was the fastest train of my visit, another extra west with 53 cars behind 4-8-4 No. 833. Almost an hour later, at 4:33, the east local arrived behind 2-8-2 No. 2486, setting out all his 52 grain cars. Finally, at 5:16, came mail train No. 6, with E units 995-925B-943B and 16 mail cars plus the rider coach. I boarded it for the return to Omaha, having seen 10 trains in 6½ hours.

My next ride was on North Western train 202, the *Nightingale*, which carried coaches, a café-lounge, and two sleepers. It left Omaha at 9:45 p.m., and arrived in St. Paul, Minn., at 8:35 a.m.,

before proceeding on over to Minneapolis. As soon as the train stopped at St. Paul Union Depot, I detrained but stayed on the ground to see as many trains as possible. My hope of photographing Great Northern 27, the *Fast Mail*, was realized when it left at 9:40 a.m. behind F7 362A and F3's 362B and 353C with seven mail cars, a coach, and eight more mail cars.

The weather was overcast and rainy, so this was my only decent photo of the day, but I saw some action, including Soo Line 4-6-2 2710; a Rock Island freight with three diesels; Northern Pacific train 1, the *Mainstreeter*, with F7's 6512 A-B-C; and nameless Burlington local 45 behind E7 9921B.

Since it was rainy, I decided to take some short rides. I went to Hastings, Minn., on Milwaukee 58 behind Fairbanks-Morse units, and saw an eastbound freight behind three-unit FM C-Line diesel 26, plus a westbound with 123 cars behind S2 4-8-4 No. 212. I rode Milwaukee 55 back through St. Paul to Minneapolis, and then took CB&Q 24, the *Afternoon Zephyr*, back to St. Paul for 27 cents! I went back to Minneapolis on GN's *Red River*, changed depots, and rode Milwaukee 56, the overnight *Fast Mail*, to Chicago.

Monday, June 8, was my last day in the Midwest. I walked from Union Station to North Western Station, where I saw 4-8-4 No. 3029. North Western's 36 H-class 4-8-4s were monsters, with only three groups heavier: Santa Fe's 2900s, Western Maryland's J-1's, and Northern Pacific's A-5's. Twenty-



CHICAGO, JUNE 8, 9:18 A.M.: Dirty C&NW 4-8-4 No. 3029 picks its way through the slip switches outside North Western Station with train 13, a Chicago–Omaha local. Many big engines like this were demoted to locals after diesels bumped them from the top runs.

four of C&NW's were rebuilt to H-1's with new engine bed castings, multiple bearing guides, lighter nickel steel driving rods, and new superheaters. The very dirty 3029 left at 9:18 a.m., with eight-car train 13, a nameless local for Omaha.

I walked over to La Salle Street Station, where I was delighted to see a solid mail train, NYC 14, leave at 10:20, with 4-6-4 No. 5416 and 12 cars including two RPO's and a combine rider car. The mail cars came from Los Angeles and Seattle as well as Chicago. I then walked to Union Station and caught a Milwaukee suburban train up to Techny, near Glenview, where at 1:23 p.m., I photographed orange-and-maroon train 101, the *Afternoon Hiawatha*, just getting into its 6-hour 4-minute journey to Minneapolis, speeding under the C&NW bridge with 14 cars behind FP7's 103C and 93A.

I rode back into the city, detraining at Western Avenue, where I shot a C&NW transfer run, with 0-6-0 No. 2624 towing UP 10&6 sleeper *Pacific Hills* and a waycar toward North Western Station. The Pullman was a transcontinental car for the West Coast, off NYC or possibly B&O. I finished my photography at 4:24 p.m. with Milwaukee F6e class 4-6-4 135 passing the A-2 Western Avenue tower with a nine-car commuter train for Bensenville and Elgin. That evening, I boarded Erie's *Atlantic Express* for the long trip home. ■

ROBERT R. MALINOSKI, after serving as a B29 radio operator in World War II, hired out with the Erie in New Jersey, kicking off a 40-year rail career. His photos were widely published in magazines and books, including two he authored for Morning Sun Books. He died in 2008 at Camp Hill, Pa.



CHICAGO, JUNE 8: North Western 2624, a USRA 0-6-0, passes Western Avenue with a UP sleeper bound for North Western Station, where it will be put in a train for the West Coast. The transcontinental Pullman had arrived in Chicago in a B&O or NYC train.



CHICAGO, JUNE 8, 4:24 P.M.: In his last photo of the trip, Malinoski caught Milwaukee Road 4-6-4 No. 135 passing Tower A-2 at Western Avenue with a suburban run to Elgin.



FAITH IN STEAM

*the story of
Norfolk & Western locomotives*





Y6 2-8-8-2 Mallet 2130, one of N&W's distinctive homegrown designs, is near Elliston, Va., 20 miles west of the road's headquarters in Roanoke.

BY **DAVID P. MORGAN**
PHOTOS BY W. A. AKIN JR.

In future tomes on U.S. railroading, historians will underline the words “diesel locomotive” and say, “Here is the tool with which the railroads averted blanket bankruptcy during the era of static rates and inflated costs after World War II.” They will tell how the reciprocating steam locomotive was unable to match its rival in terms of fuel consumption, maintenance costs, and tonnage ratings. They will explain the boon of “electrification without wires.” They will point out that often those who resisted the diesel longest, dieselized the fastest. “By 1954,” the historians will write, “diesels were handling more than 80 percent of American railroading following a rapid, quite inevitable replacement of steam locomotion.”

And then, perhaps in 5-point type in the appendix, they will have to account for Norfolk & Western. In 1953 N&W reported an operating ratio of 71.98 percent, a transportation ratio of 30.42—scholarly marks in anybody’s annual report. Moreover, N&W hit an all-time high of 71,991 gross ton-miles per freight train-hour—an index of efficiency surpassing that of any other railroad of equal or greater route mileage. All this was managed without resort to the diesel, on a mountain-climbing railroad powered exclusively by coal-burning, rod-driven steam locomotives.

Ever since the late 1940s it has been chic to remark that diesels lurk just around the curve from Roanoke. Perhaps they do. But whatever motive power N&W selects for future needs—whether it be brothers of the steam turbine-electric now under test or duplicates of the diesel demonstrator tried out in 1952 or a coal-fired gas turbine or something else altogether—the choice will nowise reflect upon the splendid locomotives that power the road today. They do for N&W what diesels have done for others, and no amount of statistical sandpapering has yet rubbed the gleam off their records.

This report seeks to explain why N&W has placed so much faith in them.

N&W'S STEAM STANDARD

it's inspired by loyalty to coal and a family spirit among employees

Norfolk & Western's continuing refusal to power itself with locomotives that do not burn coal must give pause to the most devout disciple of dieselization. If it be heresy to produce the paradox of dividends without diesels, then never before has the heretic been so unabashed about his sin.

An unholy din prevails beneath the roof of Roanoke Shops as goggled riveters bear down on the flanks of naked boilers, good blacksmiths are in demand, and nobody ever rings the stores department for a crankshaft or a timing gear. Out on the road the tides of tonnage are conveyed between Ohio and the ocean behind the double tanks of long articulateds whose Baker-timed rods regularly loosen the inertia of 14,500-ton trains. Interline streamliners give up the multiple diesels that swept them out of Memphis and Washington and are wheeled over N&W rails by great bullet-nosed engines set down on 70-inch spoked drivers. Nor is steam compromised within yard limits, for the 75 S1 0-8-0s that block cuts in Portsmouth, pull the merchandise piers at Lamberts Point, and exchange cabooses in the gritty yard at Williamson are all domes on top and Baker valve gear below.

And when eventide rolls a blanket of blackness over the railroad, the classic scenes of old are reborn—steam swirls over fat smokeboxes as the Mallets are inspected, greased, coaled, watered, and scrubbed down at Shaffers Crossing; a chunky 0-8-0 pants beneath the eaves of the Loewy-modern station in Roanoke, ready to tuck its footboards under the rear of the *Birmingham Special* to cut out the diner; and out on the line the headlights don't rotate, the whistles are blown with steam, the exhausts are magnificent instead of mundane.

Yet it all somehow seems unreal, as if the stuffed prehistoric mammals in a marbled zoo had suddenly come alive and were charging about with loud snorts and great strength as they once had thousands of years before evolution overcame them.

It's not as if Norfolk & Western had company; what was taken for granted in 1934 and commonplace in 1944 is now isolated. Not one other major railroad makes do without diesels and many are divorced from steam. The commercial steam-locomotive-building business has been defunct for years. Chesapeake & Ohio traffic under N&W's bridge at Kenova, W.Va., grows past behind diesels and the Virginian trains that parallel

N&W's across the pine-studded flats of Virginia are sometimes dispatched with diesels.

It's not as if N&W had its head in the sand; a miners' strike forced the road to borrow Southern passenger diesels in 1950 and two years later the railroad played open house to a four-unit freight demonstrator.

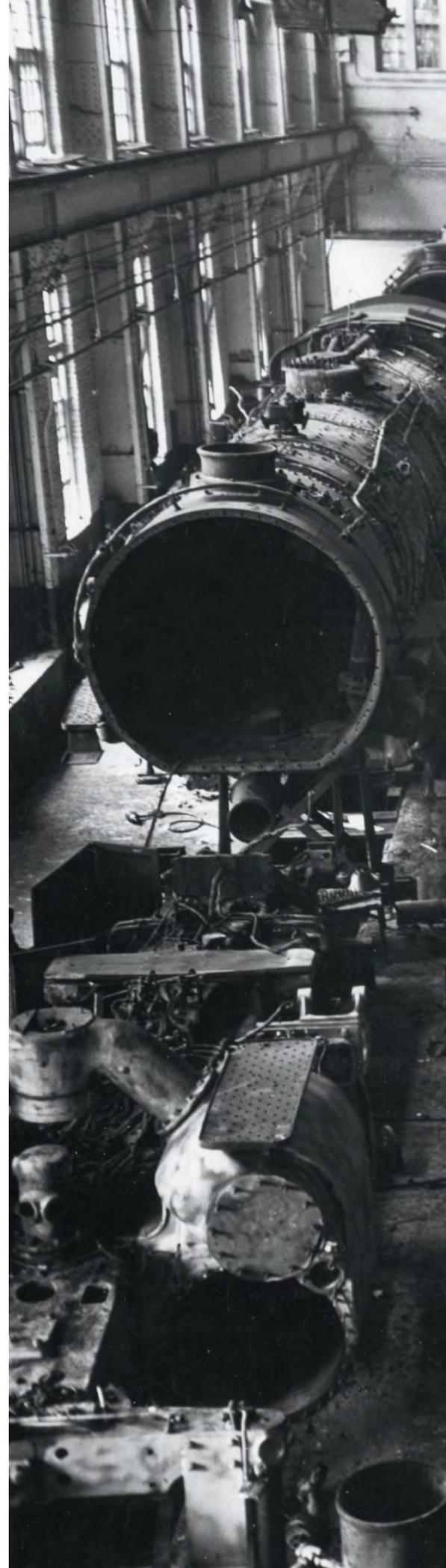
It's not even as if N&W were losing its shirt on steam; last year its treasurer disbursed \$20½ million in dividends to perpetuate an unbroken record dating back to 1901.

There is an explanation and a reasonable one, and while it has not necessarily satisfied the slide-rule fraternity who find a challenge in N&W's unorthodoxy, it has kept them up at night.

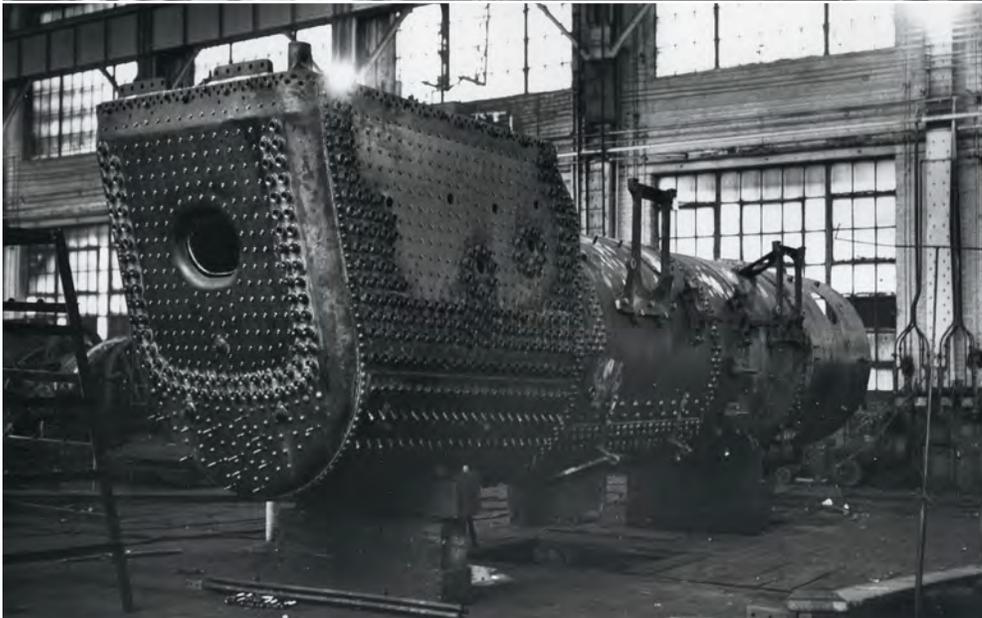
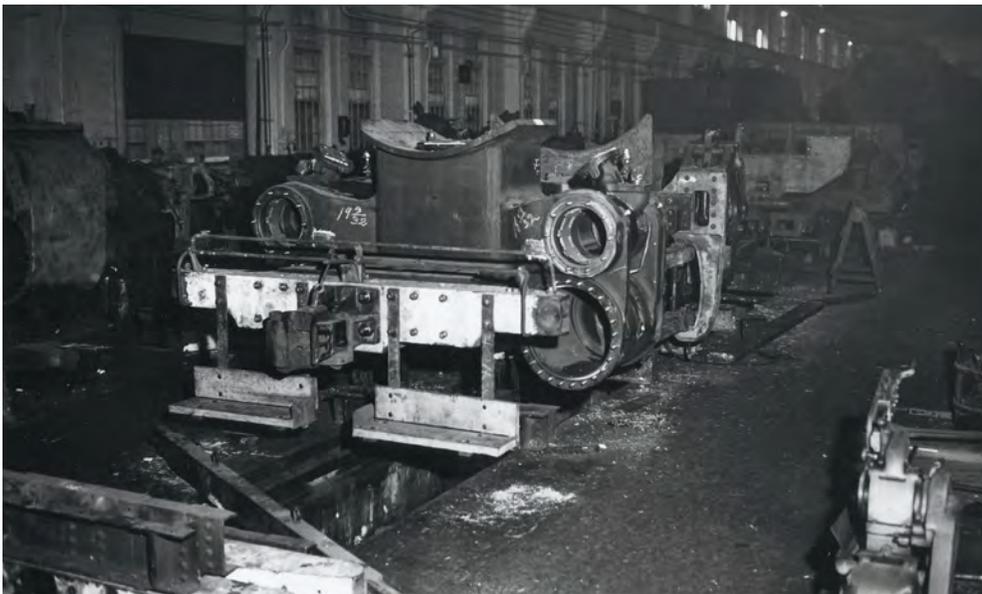
To begin with, Norfolk & Western is, above all else, a means of moving coal from mine to market. It's not a long road to begin with, but you could sell off all of its 2,135 route miles except for the trackage wound through the shadows of the Appalachians between Kenova and Bluefield, W.Va., and you'd still have a prosperous property. Here, within a distance of approximately 175 miles, are the tipples that last year loaded more than 71 percent of system tonnage and accounted for almost 59 cents out of each revenue dollar the company took in. Coal is the collateral for the miles of 130-pound-or-heavier rail, the efficiency of Centralized Traffic Control, the youth of motive power, the expansiveness of terminals, the consistency of dividends. Coal puts four-color covers on the company magazine and coal permits passengers a streamlined daylight passage between Cincinnati and Norfolk even though their fares do not cover their train's out-of-pocket costs.

N&W men are proud of coal; they feel a sort of mother instinct toward it that regards the suggestion of oil fuel, in or out of locomotives, as abhorrent. The approach is not novel. Half a century ago the anthracite haulers never let you forget it. They designed their engines from the firebox forward to burn anthracite, tied anthracite into heralds and slogans, and in at least one instance launched a new passenger train on the merits of the smokeless anthracite burned in its locomotive. Less than a decade ago Baldwin

The erecting shop at Roanoke gives classified repairs to the articulateds it built. This building, 76½ feet wide by 598 feet long, is equipped with six overhead cranes.







The frame (top) and boiler for a new S1 0-8-0 take shape at Roanoke. The shop built the last steam locomotive for U.S. service, S1 No. 244, in December 1953. Bottom photo, N&W



and Lima were doing their twilight business in steam for roads with a sizable stake in bituminous coal. The hard coal boys quit the anthracite standard when the bottom dropped out of the market; the bituminous lines got caught in the squeeze between static rates and spiraling costs.

Norfolk & Western's coal traffic, while off (21.4 percent from 1947), is still the biggest thing on the railroad, and as yet management sees nothing in its operating reports to suggest replacement of steam power.



One of N&W's incomparable streamlined J class 4-8-4s leads the Memphis–Washington *Tennessean* east between Roanoke and Lynchburg, Va. Southern Railway diesels brought the train to Bristol, Tenn., and will take over again at Lynchburg.

Management on Norfolk & Western refers to a force of homegrown executives, for this is, in spirit and seniority, a family institution. Rare indeed is the man on the payroll who hasn't spent his entire working life with the railroad. The increasingly popular practice of raiding other roads to fill top official vacancies is foreign to N&W. For one thing, it's a road with traditions and methods that can't be absorbed on a whirlwind inspection trip

around the system; for another, the ranks are filled with "promotable" men.

Locomotives afford this home talent its fullest expression on N&W, so much so that one almost feels that the sole outside idea Roanoke borrowed was the fact that steam occupies 1,600 times the space of the water boiled to create it. The articulateds and 4-8-4s that handle the burden of the work were designed and built in Roanoke by the family;

today they are operated, maintained, and improved by the same people. To a degree uncommon in even railroading, N&W men look upon them as "our engines," a phrase they voice with the native pride of the home craftsman. If they represent the world's highest development of the reciprocating steam locomotive (as there is reason to believe), it is because of the faith N&W men have had in themselves.

N&W'S LOCOMOTIVES

dominated by a tremendous Mallet, they include a 15,000-mile-a-month 4-8-4

It is perhaps indicative that most of the steam locomotives that have lasted longest against the diesel are plain, utilitarian machines. Certainly white tires, spread eagles, whistles of devious origin, striped domes, and like ornamentation have no place on Norfolk & Western. To be sure, you may chance upon a gilded old pigmy elephant of a Twelve-Wheeler far up some backwoods branch, but the locomotives responsible for 71,991 gross ton-miles per freight train-hour in 1953 are unadorned monsters, too efficient and too occupied for the niceties that make

for legend. They survive if they stack up in statistics, and the quantitative favorite of the pack is anything but beautiful in the usual sense of the word.

She's the Y6, a muscle-mighty, squat-driven mountain of a compound 2-8-8-2 that earned her role as the workhorse of the railroad the hard way. From her bland smokebox nuzzled in the shadow of low-pressure cylinders more than a yard in diameter, her long boiler swells back to find climax in a generous firebox that straddles the last two pairs of drivers. The trailing truck looks like an after-

thought and supports a mere 28,380 pounds of her 305½-ton total engine weight. Her ancestry dates back to 1918 and the Roanoke-designed Y2 Mallet on which the United States Railroad Administration 2-8-8-2 was patterned. Between war and depression N&W kept at it, continuously squeezing more out of the basic design—refining more than enlarging—until the original Y6 was born in 1936. Today, even more so than then, she represents the peak development of compound articulated power. Roller bearings on every axle, cast steel bed frames, and mechanical lubrication keep maintenance costs down and make for a freer-running engine. The ample evaporative capacity of the big boiler feeds four cylinders capable of exerting, in the latest version, a starting tractive effort of 132,000 pounds compound, better than 170,000 pounds in simple gear.

Of all the smart engineering laced through the newest Y6, the most intriguing is what

Mallet 2129, one of N&W's 100 class Y5, Y6, Y6a, and Y6b 2-8-8-2s, each packing a staggering 170,000 pounds of tractive effort, awaits servicing at the Shaffers Crossing terminal in western Roanoke.



N&W calls “the booster.” Not an auxiliary engine at all, it’s actually a redesigned intercepting and reducing valve that permits, by the flick of a valve in the cab, simple operation (high pressure steam to all cylinders) at speeds up to 10 mph; what’s more, the new setup lets an engineer give the low-pressure cylinders a shot of high-pressure steam even while the locomotive is being worked compound.

Though a Y6 will turn up 50 mph, her true talent is tonnage at a more modest gait—say, between 20 and 33, where she will churn up 4,800 drawbar horsepower mile after mile.

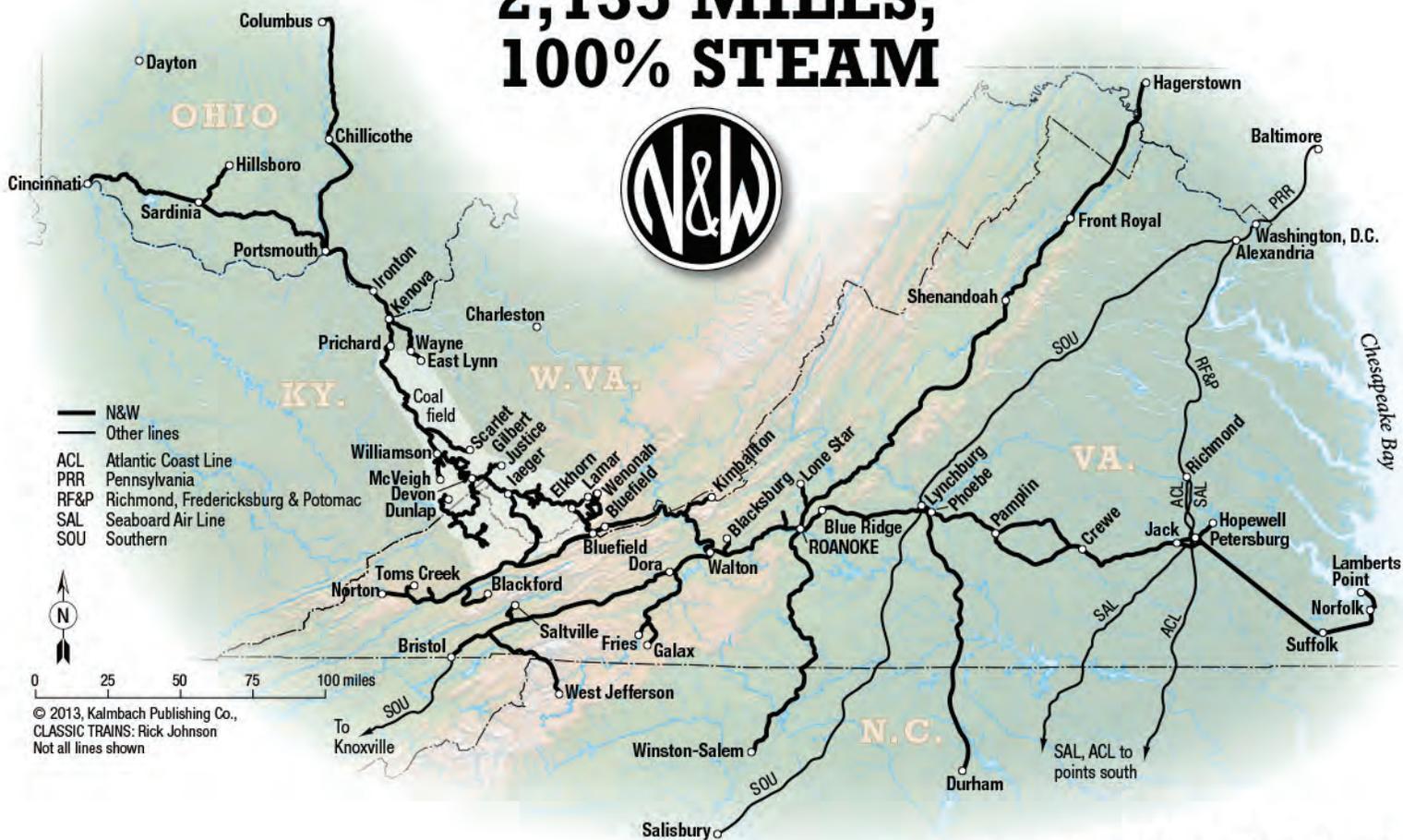
Such an engine is dear to the heart of Norfolk & Western, which is beset with considerably more grade than its Pocahontas region neighbors, C&O and Virginian. Accordingly, most are found east of Williamson, W.Va., the bulk of them based in Roanoke for easy attack on the mountains that challenge operation out of N&W’s headquarters in all directions. When not stored or under repair, a Y6 will average approximately 6,000 miles per month; some 100 strong, the class (actually subdivided as Y5, Y6, Y6a, and Y6b) handles almost half (45 percent in 1953) of the railroad’s enormous tonnage.

The spectacular member of the fleet is an articulated too—but a simple one. A glance at the lithe, high carriage of the class A 2-6-6-4 is enough to convince one that compounding would never work



N&W’s top fast-freight engines were 43 class A simple-articulated 2-6-6-4s. No. 1239, built in 1949 as part of the final A order, couples to time freight 84 at Roanoke.

2,135 MILES, 100% STEAM





Rare elsewhere, the 4-8-0 was N&W's top freight engine until 1910, when the first articulateds arrived. Out of an original fleet of 286 Twelve-Wheelers, by 1954 three dozen remained, including 1906-built 475, switching at Potts Valley Junction on the Radford Division.

here. This is horsepower, the very exemplification of what that term has come to mean for U.S. railroading since Lima stamped it on the consciousness in the 1920s. If pushed, an A will turn 14,000 gallons of water an hour into steam (assuming a sustained firing rate of seven tons per hour) and that power unleashed against six pairs of 70-inch drivers will move 15,500 tons of coal over the 112 miles from Williamson to Portsmouth in less than four hours, start to stop. Dynamometer car readings of from 5,200 to 5,400 h.p. between 35 and 40 mph are routine for the A's; one of them once hit 6,300 at 45 mph.

I shan't forget one of those "routine" A performances N&W men refer to so offhandedly. With No. 1239 on the business end of the 125 cars and 6,227 tons comprising merchandiser No. 84 from Roanoke to Crewe, we got under way 50 minutes late. Even with a Y6 shoving hard against the caboose we pounded up the tenacious 1.2 percent to Blue Ridge wide open at just 18 mph, finally 15. But from the summit east it was a different story, a sharp-exhaust story, a hill-and-dale story of charging up the inclines at 30 or better, hitting it up on the level at 50. Roaring through Evergreen at a mile a minute was a climactic cab experience. Later I wondered what dynamometer reading we would have obtained at that moment; at the time, of course, I had no intention of belaboring such an altogether righteous instant with any thought so somber as a statistic.

We went into Crewe five minutes early, having covered 122 miles non-stop in 215 minutes.

The feats of A's with passenger trains are legendary on Norfolk & Western; it is sufficient to say that they are capable of sustained

speeds in excess of 70 mph.

In both silhouette and detailed focus, there is a Spartan simplicity drawn through the design of an A as if the sheer demands of efficiency, rather than any formal intention in the minds of her creators, had automatically swept away the bulk and bulge of ungainliness and left the locomotive equivalent of Grecian architecture.

Unfortunate attempts to streamline the steam locomotive are too fresh in our minds to warrant cataloging. The J-class 4-8-4 of Norfolk & Western is weighty evidence, though, that it is indeed possible to slip a party dress over boiler and rods and emerge without serious compromise of mechanical integrity. Her bullet-nosed jacketing flows back to the cab with religious regard for the contour of the boiler; atop is a skyline casing of Southern Pacific origin. The whole effect, in jet black relieved by a broad band of Tuscan red at running-board level, is one that has weathered the years as well as Pennsy's ageless GG1 electric.

But a brute lives beneath this finery (ask the spectator who saw one of the wartime versions that were built without streamlining), an engine exerting an unmatched (among 4-8-4s) tractive effort of 80,000 pounds. In view of the J's large boiler, long stroke, and relatively small drivers, a considerable draw-bar pull at low speed might be expected. But what other locomotive with a 70-inch driving wheel has so easily been pushed past the three-figure mark on the speedometer? On test a J has hit 110 mph with a 15-car, 1,025-ton train behind her tank. It almost goes without saying that pulling a 5,000-h.p.-plus dynamometer reading out of such an engine

is old hat to N&W's test crews.

More so than any other class of power on the railroad because of her high-speed capacity, the J embodies all that N&W believes the term "modern steam locomotive" implies: large boiler; mechanical and pressure lubrication; improved counterbalancing; one-piece cast-steel bed frame; and roller bearing axles, wrist and crank pins, and valve gear. A J's mechanical lubrication system will operate 1,300 miles before replenishment; wrist and crank pins go 500 miles but can be refilled during a normal station stop.

The 4-8-4 really has more performance built into her than the short hauls of N&W will permit. The longest possible haul is the 676½-mile run between Cincinnati and Norfolk, but the schedule cycle, which must protect the brief 209-mile Monroe-Bristol route (over which interline Southern Railway trains pass), seldom allows even that luxury. As it is, the 14 engines in the fleet roll up 500 miles a day each, 15,000 a month—which is commonly regarded as good diesel passenger mileage on most roads.

There are other locomotives on N&W's roster, but the commanding position of The Big Three is well merited. Between them, the 100 modern compound 2-8-8-2s and 43 class A's handle 94 percent of gross ton-miles (in 1953) and the 14 J's account for 84 percent of passenger train-miles. On their work N&W is content to rest its case for steam.

The queens of N&W's steam stable, the 14 J class 4-8-4s were built between 1940 and 1950. At Pearisburg, Va., one of them approaches a mail crane with the Cincinnati-Norfolk *Powhatan Arrow*.



DIVISION OF P.T.
STANDARD TRACKS B.O.C.
STANDARD TRACKS B.O.C.
STANDARD TRACKS B.O.C.

N&W'S PERFORMANCE

it's sparked by new straight-line engine terminals, extra tenders, and line relocation

Engine performance is not regarded by Norfolk & Western as a static standard operating procedure. The most heartening mileage figures, maintenance costs, and dynamometer car sheets are received in motive power headquarters as statistics to top on the next go-round. This incessant dissatisfaction not only forces improvement but renders each new level systemwide and consistent.

Excellent steam locomotives, even those as good as N&W's articulateds and 4-8-4s, are not in themselves automatic insurance for peak steam output. Like the schedules of

time freights, the records of steam engines shine or shatter in direct ratio to the attention (or lack of it) they receive in terminals. On N&W, engines and terminals complement each other. A drag-weary Mallet received by Shaffers Crossing just west of Roanoke is ready for call in 1½ hours; during that time she is inspected; has her ashes dumped; is lubricated; takes on sand, water; and coal; gets a scrubdown; and is turned. Unless running repairs are required, she never sees the inside of the roundhouse.

N&W accomplishes this by high-capacity coaling towers and water pipes (on some

roads, you can eat lunch while filling a 20,000-gallon tank), by straight-line servicing to avoid switching from one track to another, by making it possible to load, say, sand and coal at one spot, and by confining lubrication to a separate structure erected for that specific purpose. One has had to stand in the rain at night, stumbling over grease guns and oil hoses, to really evaluate the worth of a dry, clean, well-arranged N&W "lubritorium." A 16-drivered articulated has her lubricators filled and joints packed in little more than the time it would take to stroll around her length.

Such servicing speed isn't confined to the shadow of headquarters; you find it in Bluefield and Williamson and Portsmouth and Winston-Salem and Petersburg—across the width and length of the railroad, the high towers and squat lube rooms bespeak performance.

Sometimes performance is poured out of a canteen—which is the word N&W men use



1:54 p.m. K2 No. 117, one of 22 old 4-8-2s given J-style streamlining in the late '40s, has just come in from Lynchburg on the *Tennessean*. First step at the Shaffers Crossing engine terminal is to dump the ashes and clean the fire.



2:11 Next, two inspectors go over the engine, looking for any trouble that might have developed on the road.



2:16 After topping off the K2's 30-ton tender with coal, a hostler hustles forward for his next duty.

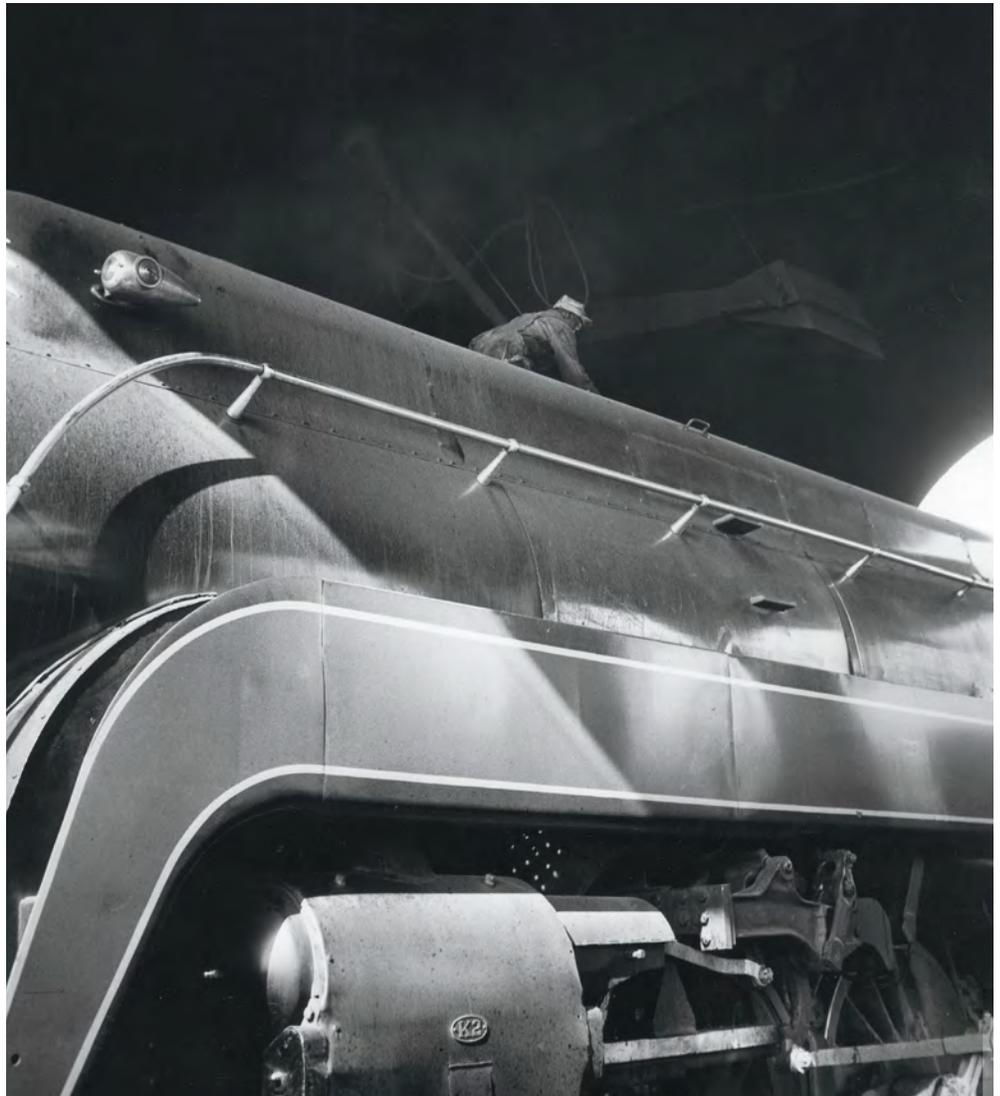
for the auxiliary water tanks recently added to the articulateds. The extra tanks carry 16,000 gallons and are rebuilt from tenders removed from older Mallets (now equipped with secondhand tenders from scrapped Atlantic Coast Line 4-8-4s and Bessemer & Lake Erie 2-10-4s).

The railroad's instinctive dislike of the status quo brought about the entire canteen proposition. Three years ago officials began speculating on whether the rated tonnage west for a class A engine of 13,000 tons over the 112 miles between Williamson and Portsmouth, Ohio (as established by dynamometer tests in 1943), could be boosted. Water was the key. The long stoker screw and 30-ton capacity tender had long since made an intermediate coal stop unnecessary. Now, if the water stop at Prichard could be bypassed, perhaps the extra drawbar pull otherwise used starting up the train from that stop could be employed to boost tonnage, maybe even speed.

Adding the canteen gave an A some 38,000 gallons to quench her thirst. Tests with a 2-6-6-4 so equipped soon proved the point. On westbound runs, where results were best because of loads instead of empties behind the engine, tonnage was boosted 1,500 tons, running time sliced 14 percent, and gross ton-miles per freight train-hour jacked up 31 percent.

Systemwide use of canteens is enabling

2:17 Sand is taken at the same spot as coal, under the big 1,200-ton coaling tower. The *Tennessean* was normally a J assignment, with K2's protecting.





By adding 16,000 gallons of water capacity, canteens like this one with class A No. 1239 boosted tonnage ratings, cut running times, and enabled the closure of water stations.

the N&W, of all roads, to remove water supply stations; 17 are out of business already and more are slated to go.

Performance and profiles are bound together like Siamese twins, and while Norfolk & Western cannot iron out its mountains, it can sometimes cut off their tops. Forty years ago Elkhorn Mountain, located smack on the main line west of Bluefield, broke the backs of the biggest Mallets in N&W's roundhouses. Its eastbound grade of 2 percent and its 13.06-degree curves choked road locomotives and pushers to a 7½-mph agony and engine crews were apt to be gassed inside the tight single-track 3,014-foot Elkhorn Tunnel. Electrification broke the blockade in 1915, but for N&W, the problem was really just postponed instead of resolved.

After the war the railroad launched a \$17



2:32 After its bath, the K2 gets a drink for its 22,000-gallon tender. The servicing shown here proceeded at its routine pace, not expedited for the observers.



2:37 Since 117 was not marked up for a specific assignment, it would not normally have been turned, but it took a spin anyway at the photographer's request.

2:23 Next for the 117 is the wash rack, where water and a cleaning solution cut through grease and dirt. (Times shown are times of job completion.)

million, five-year fight to tame Elkhorn once and for all; the big weapon was 5.28 miles of line relocation, including a 7,107-foot double-track tunnel, drilled out to the generous proportions of 32 feet in height, 31 feet in width, and fan-ventilated. The eastbound 2 percent was eased to 1.4; the westbound grade smoothed from 1.3 percent to 0.5. And the curves, the power-sponging curves—they were eased way out from 13 degrees to just 4½. As steam came back in full force (the time freights and passenger trains were never entrusted to the side-rod motors) the overhead came down—surely the first time in big-time railroading that steam, once forced to abdicate by juice, had regained the throne. Steam never had it so good.



2:50 Inside the lubritorium, lubricators are filled; rods and valve gear greased; and stoker, headlight, feedwater heater, injectors, and air pumps checked.

N&W'S TOMORROW

diesels are not a taboo topic at Roanoke but talk today centers on big Jawn Henry

Something that never happens did happen in 1952. A diesel demonstrator showed what it could do on an all-steam road and went back home without the bacon. This much is known: With the acquiescence of Norfolk & Western, a 6,000-h.p. four-unit F7 freighter fresh from Electro-Motive's La Grange plant, which had built it for Union Pacific, spent two weeks between Bluefield and Portsmouth, competing on maximum tonnage trains in favorable grade territory against class A 2-6-6-4s and in the mountains against Y6 2-8-8-2s.

Between Portsmouth and Williamson the A and the diesel handled 15,000-ton, 175-car trains, and compared favorably with each other on both fuel costs and time over the road. Climbing grades in the last notch, the F7 was able to somewhat better the tonnage of a Y6 and to get across certain helper districts with no assistance. But neither Electro-Motive nor Norfolk & Western has released an official statement on those famous two weeks. Now more than two years old, the event might as well be cited as railroading's least-reported headline.

In a sense, the ensuing silence was a victory for all concerned: a compliment to the diesel because it was so unusual that such a test failed to produce an order; and praise for N&W because the walls had not come tum-

bling down once the invader set foot inside the arsenal.

Too much stress can be placed on the test of 1952. The very most it could prove was the comparative capacity on varying gradients of a four-unit diesel and two types of articulated steam power. Jotted down in N&W's little black book are the tonnages moved, speed between terminals, fuel and water consumption, costs, and turnaround time. Obviously such a side-by-side evaluation cannot take into account the amount of physical plant that N&W has invested in steam or the long-term amortization charges (the road now has no equipment obligations outstanding) and maintenance costs a wholesale switch to diesel power would imply.

Which is not to say N&W hasn't pondered such questions. When General Superintendent of Motive Power C. E. Pond leans back in his chair and chats about steam in a soft yet precise Virginia voice, what he has to say is naturally qualified by the railroad's stake in coal and by the family pride expressed in the quality of Roanoke-built locomotives. But there is no malice expressed as the conversation inevitably touches the diesel, simply a refusal to be stampeded into a decision because it has been reached by so many others. As always, Roanoke will think out the question its own way and in its own time.

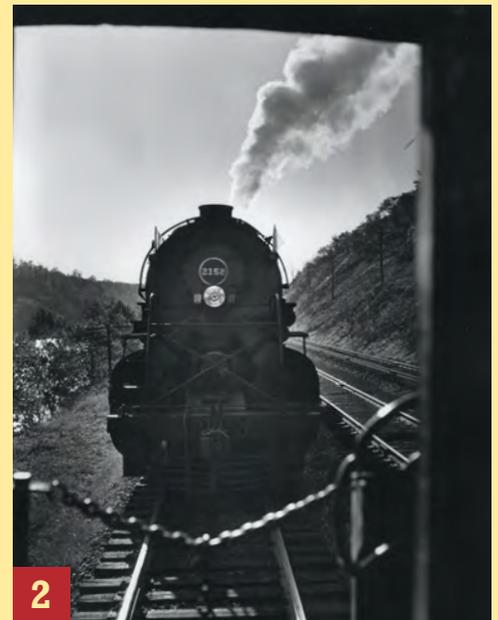
At the moment N&W is thinking most of *Jawn Henry*, an attempt to achieve a locomotive that will equal or out-pull a Y6 without consuming as much coal. *Jawn*—No. 2300 on the roster—is a 106½-foot oblong box on four six-wheel trucks with 20 tons of coal in his nose and a 600-pound-pressure Babcock & Wilcox watertube boiler under his belt. Steam at 900 degrees Fahrenheit spins a turbine to produce 4,500 shaft horsepower. This energy, translated into direct current in the generators, goes to work in 12 axle-mounted traction motors geared for a top speed of 60 mph.

Jawn is so much a brother of Chesapeake & Ohio's unfortunate trio of steam-turbine-electric passenger locomotives of 1944–47 that the quick perusal is apt to gloss over the one notable difference: Instead of a normal locomotive-type firetube boiler, N&W's experimental possesses a steam generator of far greater efficiency—a boiler heretofore employed in stationary power plants and for marine propulsion. Placing it aboard a locomotive poses two questions: (1) Will it stand up under the variable demands of railroad service (where the throttle is wide open one moment, closed the next)? (2) Will it take the shock of rail joints and curves and slack action (which no power plant or ship receives)?

Sometime in 1955 N&W should find the answers on Pond's desk together with an accurate concept of *Jawn's* day-in, day-out appetite. As of now, the railroad defines the great Baldwin-Lima-Hamilton machine as "experimental, pure and simple," and does not indulge in the sharp adjective and advance statistic that heralded other less promising turbines on rails. Rumor will out; and most to date is complimentary.

CHRISTIANBURG HILL HELPER

A series of photos taken from the caboose of time freight No. 86 illustrates the helper operation on the 7 miles of 1 percent grade that eastbound trains faced between Walton and Christianburg, Va. (1) With 86 stopped, Y6 2-8-8-2 No. 2152, which had been waiting in the center siding at Walton, backs west toward the mainline switch. (2) The Y6 eases toward 86's caboose. (3) Steam envelops the 2152 as it leans into the train, whose road engine is a class A 2-6-6-4. (4) Just past Christianburg station, with 86 still moving, the rear brakeman pulls the chain attached to the caboose's coupling pin. (5) Having been cut off on the fly, No. 2152 rolls to a stop as 86 continues to Roanoke.



Last May I rode No. 2300 from Bluefield into Roanoke in front of 10,899 tons of coal. Steering quite clear of the prediction, I can report that *Jawn* rides well, displays a phenomenal ability to make steam, and pulls the dynamometer car needles around with gusto. Once while starting (with the speedometer reading 1 mph), the gauge showed 224,000 pounds tractive effort.

By way of footnote, I might add that in the notes the test crews are keeping on *Jawn* one reads simply, "Fix the whistle." N&W spurned an air horn, settled instead for the high-pitched hoot of a Y6. But because it's blown with 600-pound-pressure steam on No. 2300 and because the whistle is mounted down inside, its tone is considered less than satisfactory.

Norfolk & Western wants to like the 2300. It burns coal. And it might be able to crack the ceiling heretofore imposed on steam power. Evidence to hand indicates that the Y6, the A, and the J pretty well represent all that can be reasonably expected of the conventional steam locomotive. Welded boilers, poppet valve gear, and the like could conceivably raise the existing standards an inch or so—but 300 pounds appears to be tops for a firetube boiler, and the reciprocating drive, however timed, cannot compete with the electric in constant torque. Maybe *Jawn* is the answer. Nothing would make Roanoke happier.

Otherwise, Norfolk & Western has one card left to play. In company with other coal haulers and several coal producers, the railway is financially interested in the developmental work now being conducted by American Locomotive Co. on a coal-fired gas



Steam-turbine-electric No. 2300 *Jawn Henry*—N&W's bid for a coal-fired future—drops down Christianburg Hill with its own doghouse-equipped water tender, an extra canteen, the road's dynamometer car, and tidewater-bound coal loads. LeRoy A. Scott

turbine. Similar experimentation is under way in Canada and Great Britain. Possibly these projects (or *Jawn*) will be ready when the hour arrives that N&W feels its reciprocating locomotives are ripe for replacement.

For now, however, steam rolls on in its old, ever-new format. Tandem rods, Baker valve gear, HT stokers, and grapevine throttles are still the byword—and there's not a man on Norfolk & Western who will not permit himself at least a trace of emotion

when a 2-6-6-4 goes charging up Blue Ridge with merchandise for Lamberts Point. C. E. Pond smiles his dry smile, puts down his pencil, and admits, "When you hear an A crack with the reverse notched up just right, why you wonder what anybody would want to dieselize for." ■

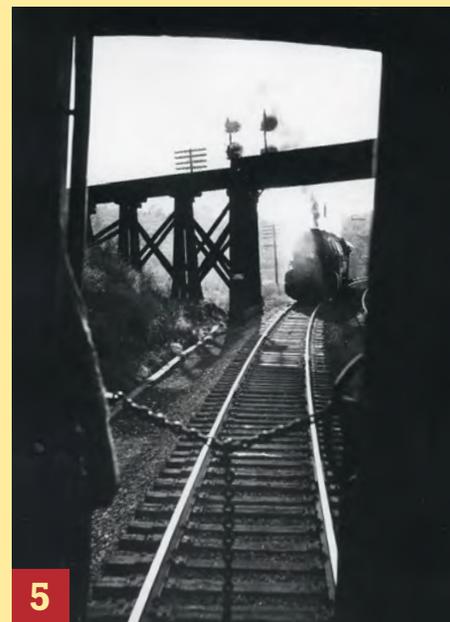
W. A. "BILL" AKIN JR., who made the photos for this story in 1953, was TRAINS' art director for 6 of his 37 years with Kalmbach.



3



4



5

PIGGYBACK



CHAMP



SP operates trains, trucks, and pipelines. The road's aim to provide a total transportation service is exemplified by its piggyback traffic—the biggest in the land

BY WILLIAM D. MIDDLETON

“Were in the transportation business, and we’re in business to make money.” Southern Pacific President Donald J. Russell was talking about SP’s new \$34 million, 800-mile Los Angeles–El Paso petroleum products pipeline when he said that recently, but he could just as well have been talking about another of SP’s new tools for freight transportation—piggyback.

Free-wheeling Southern Pacific has long considered its legitimate province to be transportation—to be accomplished by rail or by any other tool that could do the job better. In its century-long existence, the self-proclaimed “West’s Greatest Transportation System” has included such diverse properties as stagecoaches, restaurants, hotels, trolleys, buses, ferries, and steamships. Early this year, when the new pipeline went into operation, SP was first among railroads in still another field of freight transportation. President Russell puts it this way: “To us, transportation has always meant a lot more than just tracks. We take a broader view.”

In line with such thinking, SP was among the first railroads to venture into large-scale truck operation. In trucks the railroad found a transportation tool that could do many freight-hauling jobs better. As Russell recently stated it, “Trucks do a good job—they’re

An SP piggyback train of modified conventional flatcars with company trailers negotiates Cuesta Grade above San Luis Obispo, Calif., in June 1957. Robert Hale

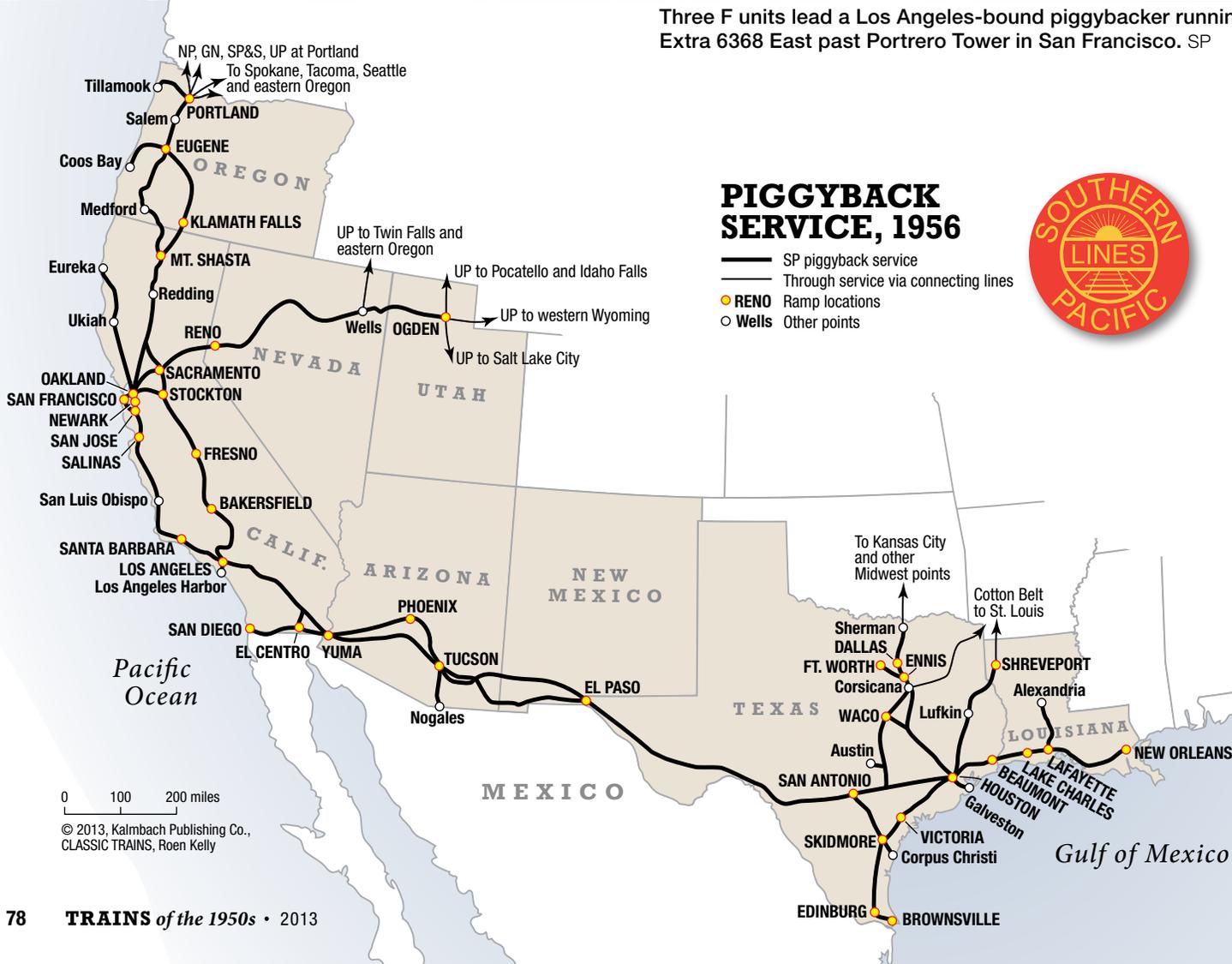


Three F units lead a Los Angeles-bound piggyback running as Extra 6368 East past Portrero Tower in San Francisco. SP

PIGGYBACK SERVICE, 1956



- SP piggyback service
- Through service via connecting lines
- RENO Ramp locations
- Wells Other points



more flexible than railroads in many cases. That's why SP got into the trucking business early, to provide better service."

SP has offered coordinated rail-truck service since 1929, and today its trucking subsidiaries, Pacific Motor Trucking Co. and (in Texas and Louisiana) Southern Pacific Transport Co., operate 22 percent more route-miles than SP does rail miles. PMT is numbered among the nation's half dozen largest highway carriers.

The wedding of the nation's second-longest railroad (12,441 route-miles, vs. Santa Fe's 13,073) with its truck subsidiaries to form one of the nation's largest piggyback operations was a natural combination.

SP got into piggyback operation in May 1953, first among western railroads. Once the potential of combined truck and rail operation had been demonstrated, the road wasted no more time. In the more than three years since the first trailer-on-flatcar hit the rails, SP has enthusiastically tied up well over \$4 million in plant and equipment for its mushrooming piggyback traffic.

By January 1, 1956, trailer-on-flatcar service covered 7,528 miles of the system, serving every major terminal from Portland to Ogden and New Orleans. By means of equipment interchange connections, SP piggyback service reached points north and east of Portland in Oregon, Washington, and Idaho over Northern Pacific, Union Pacific, Great Northern, and Spokane International; points in eastern Oregon, Idaho, Utah, and western Wyoming via connections with Union Pacific at Wells, Nev., and Ogden; and to St. Louis and points north and east of that city over the affiliated Cotton Belt and its connecting lines.

At the end of 1955, Southern Pacific was moving an average of 275 loaded trailers a day to become the piggyback champion of U.S. railroading. The road moved a total of 61,575 loaded trailers in 1955, all of them owned by its subsidiaries. Currently, piggyback traffic is nearing an average of 300 loaded trailers each day.

Unlike the major eastern piggybackers, which carry trailers for common-carrier truckers, SP carries only the trailers of its own trucking subsidiaries. It uses piggyback in two ways: to handle large-lot less-than-carload (LCL) shipments, and to move truck-load traffic on rail billing at truck-competitive rates. In both cases the results have been impressive.

Wherever it has been used, piggyback has helped lick two of the biggest problems in LCL traffic: high handling costs and expensive loss and damage. SP saves an estimated \$3 to \$4 per ton in handling charges when shipments can be handled in trailers. In common with other railroads operating piggyback services, SP has found that loss and damage of shipments have been reduced to what one



Trailers are loaded and unloaded "circus style" by means of a ramp at the end of track and retractable bridge plates between the flatcars. Once in place, the trailers are secured with cable tie-downs. Top, SP; others, Robert Hale



After 0-6-0 No. 1211 made up the train, two GP9's ease *Advance Overnight 372* out of SP's freight terminal at 4th and Berry streets in San Francisco. The piggybacker will follow the *Del Monte* down the Peninsula on the first leg of its run to L.A. William D. Middleton

road termed "spectacularly low" levels.

But by far the most significant result of SP's trailer-on-flatcar service has been the recapture of freight business from highway carriers. Of its trailer-on-flatcar traffic SP says, "Most of this is new traffic which otherwise would have moved over the highways."

The Southern Pacific formula for attracting traffic for its piggyback services is a simple one—equal or better service at truck-competitive rates. To provide equal or better door-to-door delivery time, SP boasts that most of its piggyback traffic moves at passenger-train speeds. On the road's Pacific Lines,

trailers are handled principally in fast merchandise or solid trains; on lines in Texas and Louisiana, trailers are handled on regular manifest trains. The greater dependability of rail hauling also helps SP provide "equal or better" service.

Talk of "passenger-train speeds" is not an idle boast. Along such routes as the Coast Line between Los Angeles and San Francisco, piggyback traffic is handled in *Overnight* merchandise trains and in solid piggyback *Advance Overnights*, which are highballed over the 470-mile run on schedules that are only a few minutes slower than the crack

overnight, all-Pullman *Lark*.

SP's first regular piggyback operation was inaugurated between Houston, Texas, and Lake Charles, La., on May 4, 1953, on the Texas and Louisiana lines. A week later the Pacific Lines began its first service between Los Angeles and San Francisco, one of SP's fiercest battlegrounds with the truckers.

Coast Line piggyback caught on immediately. At first the service consisted of trailers on flatcars cut into regular *Overnight* merchandise trains, but by the end of the year, traffic warranted the all-piggyback *Advance Overnight*, which runs four nights a week.

Early in 1955, SP launched another high-speed piggyback train. Named the *Pacific Coast Expediter*, it operates between Oakland and Portland on a 23-hour schedule, providing second-morning delivery at Portland and points north including Seattle and Tacoma, and third-morning delivery at Spokane when moving from the San Francisco Bay area. Third- and fourth-morning delivery, respectively, is provided for traffic from the Los Angeles basin. Southbound, trailers from Portland and the Seattle-Tacoma area, as well as Spokane, are delivered on the second- and third-mornings, respectively, in the San Francisco Bay area, with third- and fourth-morning delivery in the Los Angeles basin.

Let's take a closer look at one end of the hottest piggyback route, the Los Angeles-San Francisco Coast Line. Headquarters for the San Francisco loading operation are located at 4th and Berry streets, between freight sheds A and F, a short block away from SP's Third and Townsend passenger terminal. Despite its heavy piggyback traffic, the road thus far hasn't found it necessary to provide elaborate special facilities and equipment for loading, and the layout at Shed A is a modest one. A pair of loading ramps, with floodlights for night operation, and a phone-booth-size office for the loading foreman constitute the plant.

Running the loading operation at Shed A is Pacific Motor Trucking's loading foreman, a lanky, good-natured redhead named Charlie Myrick. Working under Myrick are loader Gill Hyder, who jockeys the loaded trailers aboard the string of flats with the aid of an oversized rear-view mirror on his tractor, and a team of men who block the trailer wheels and secure the tie-downs. The only SP employee in sight is a bill clerk.

By early afternoon on the chill, overcast Monday I spent taking in the trailer loading operation at the Shed A ramp, Myrick and his gang already had two strings of flats loaded and were well along on the third. We watched Hyder deftly back several trailers of L.A.-bound beer down the string, while Myrick fretted over a missing trailer of hot cargo from Oakland.

Every afternoon, the yard crew pulls the last string of loaded flats at 3:30 p.m. for the *Advance Overnight's* 4:01 departure. Everything loaded after that waits for the 7:35 p.m. departure of the regular *Coast Overnight*.

Myrick held off the impatient crew while he waited for the missing trailer. Then a last-minute phone call informed him that there'd be no trailer that day, and he let the switcher take the last string.

At 3:45, a pair of Geeps backed down from the Mission Bay roundhouse to lock couplers with the 20 flatcars carrying 29 silver-sided trailers and a caboose that made up that day's version of train 372, the *Advance C.M.E.* (short for *Coast Merchandise*

SP PIGGYBACK AT A GLANCE . . .



Richard Steinheimer

<p>Year service began: 1953 System piggyback mileage: 7,528 Piggyback investment: More than \$4 million Daily traffic: 275 to 300 trailers Annual traffic: 61,575 trailers in 1955</p>	<p>Piggyback flatcars in service: 313 Piggyback flatcars on order: 250 Piggyback trailers: More than 1,000 Method: Rail-owned trailers and flatcars Common-carrier piggyback: Under consideration</p>
---	--

East). It was a small piggyback train by Coast Line standards. Frequently the *Advance* runs several times this size.

A few minutes before 4 p.m., the diesels eased the *Advance Overnight* down the lead track to Portrero Tower. Precisely at 4, the Monterey-bound *Del Monte* passenger train accelerated out of Third and Townsend, and minutes later cleared Portrero Tower. Switch points moved, the block cleared, and 32 cylinders boomed as 3,500 diesel horsepower headed onto the main line with *Advance C.M.E.* and its freight that a few years before might have been occupying the outside lane on the southbound Bayshore Highway.

In terms of equipment, SP has played the piggyback game cautiously. Rolling stock thus far has been confined to standard flatcars modified for piggyback service. Modifications include tie-downs for trailers and bridge plates at each end of the cars that fold up when not in use. By late 1955, SP had a total of 313 flats assigned to piggyback service: 223 on Pacific Lines and 90 on the Texas and Louisiana lines. More than 1,000 trailers were assigned to piggyback service on the system.

By year's end SP had joined the trend to special piggyback equipment with an order for 250 specially designed 80-foot lightweight flatcars. With its own system virtually blanketed by piggyback routes, the road is currently expanding its already extensive interchange piggyback business. A tariff is now being prepared with the Frisco to cover rates on truckload shipments moving by piggyback between Kansas City, St. Louis, Oklahoma City, and Tulsa, and points in Texas and Louisiana.

Piggyback service in connection with

Cotton Belt and its connecting carriers north and east of St. Louis may soon be expanded to and from points in territory ranging from Chicago and St. Louis to the East Coast.

What about common-carrier piggyback on SP? Although it is the biggest of all piggyback carriers, the road does not haul trailers for competing truck operators on a common-carrier basis.

Such major eastern piggybackers as Pennsylvania Railroad and the New Haven have done handsomely operating their own trailer-on-flatcar services side by side with a common-carrier trailer-on-flatcar service, claiming that the services are not incompatible and both can be operated profitably.

In the past Southern Pacific has maintained that to haul the trailers of its highway competitors merely would reduce their costs of operation, placing them in a better position to compete. But more recently SP reports it hasn't closed the door on the subject. Says President Russell, "Southern Pacific has been studying this subject to explore the problems involved in handling such additional piggyback traffic, as well as the benefits which might be derived."

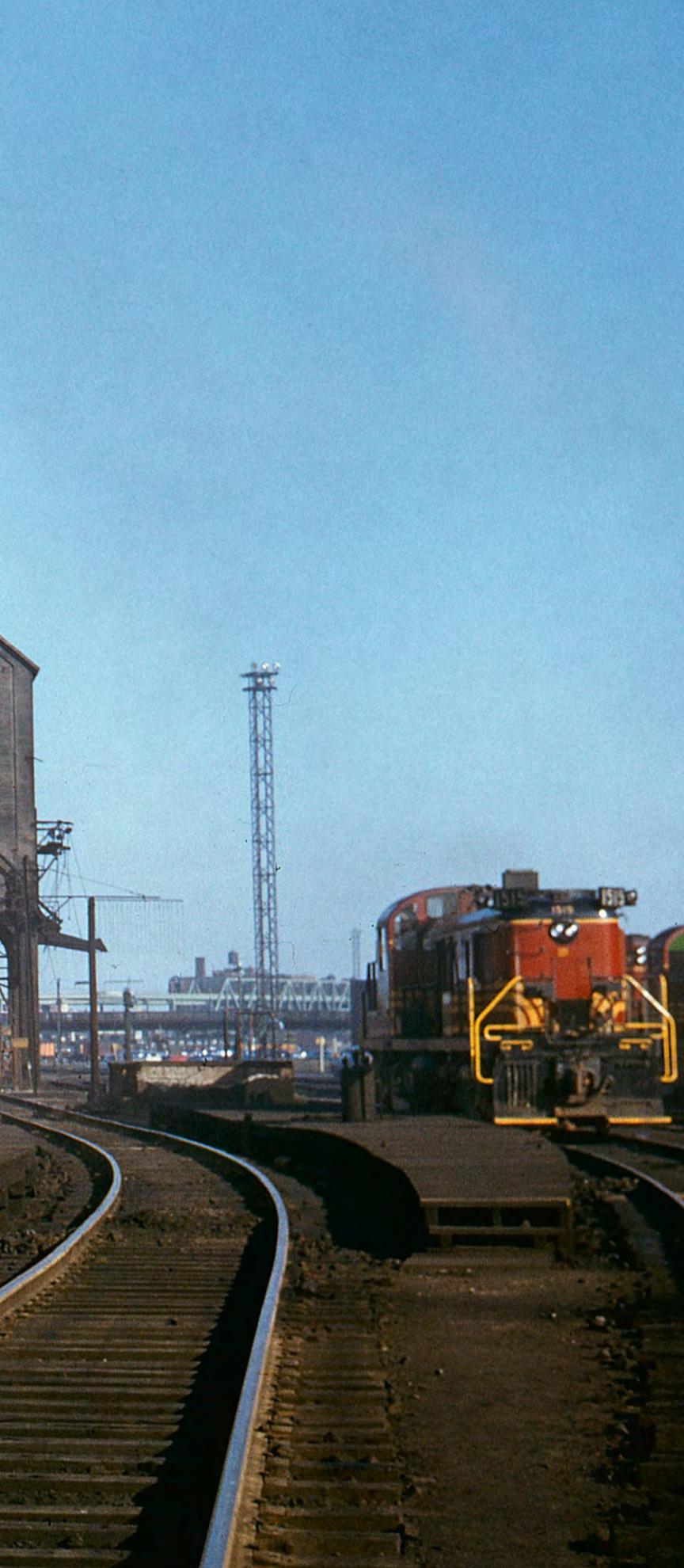
In the meantime, the "West's Greatest Transportation System" continues to expand the aggressive type of piggyback operation that has won for Southern Pacific the title of Piggyback Champion of U.S. railroading. ■

WILLIAM D. MIDDLETON had more than 80 articles and hundreds of photo credits, including 20 covers, in TRAINS magazine, beginning in the late 1940s. He wrote or cowrote 23 railroad books, many of them standards in their field. A civil engineer by profession, he served 30 years in the U.S. Navy. Middleton died in 2011.

Kodachrome **DECADE**

An all-color 1950s photo gallery





Made for Kodachrome: Eastman Kodak's three-color-process reversal film for 35mm cameras, produced 1935–2009, was *the* choice in the 1950s for color railroad photography, well exemplified by New Haven EP-5 electric 376 in the "McGinnis" livery at Noroton Heights, Conn., in 1956. Thomas J. McNamara

Minute Man maroon: Surrounded by the new wave of motive power, a Boston & Maine worker rests at Boston's Charlestown engine terminal in May 1952. E7 3818, a Budd RDC3, and Alco RS3 1515 and siblings at right can ignore the steam locomotive facilities, all but obsolete by now. B&M's "Minute Man" emblem dated from 1945. Frank and Todd Novak collection



Capital departure: On August 19, 1951, Baltimore & Ohio 2-8-0 2836 leaves Illinois' capital city of Springfield, crossing inter-urban Illinois Terminal and South Grand Avenue at Tansey substation en route to Taylorville on an old B&O Southwestern branch. H. M. Stange, Krambles-Peterson Archive

Manhattan link: As seen from a slip at Lackawanna Terminal in Hoboken, N.J., on May 1, 1958, DL&W ferry *Pocono* is about to finish another Hudson River crossing. When this service ended on November 22, 1967, by then operated by Erie Lackawanna, it was the last remaining Hudson River passenger ferry. Bob Krone



Dairyland toehold: A bit unremarked was Grand Trunk Western's ownership of a few yard tracks, and a slip for its cross-Lake Michigan carferries, in Milwaukee, Wis., where GTW's rare 1926 Brill box-cab 73 (ex-7730) was assigned. With two idler flats, 73 is loading ferry *Grand Rapids* in December 1955. An EMD unit replaced 73; GTW's ferries ran into the '70s. Russ Porter



Kodachrome
DECADE



Allegheny might: On June 6, 1956, one of Chesapeake & Ohio's 60 colossal Lima 2-6-6-6 Allegheny types is westbound at Handley, W.Va., 24 miles east of Charleston (adjacent to Montgomery). The train, framed by a signal gantry still in primer, is a mixed freight, not one of the coal trains more commonly found on this line along the Kanawha River. R. R. Malinoski, Novak coll.





Four-coupled speedster: Canadian Pacific F1a 4-4-4 No. 2929, last of 20 late-1930s Jubilee types from Canadian Locomotive Co., sits with a short train at Montreal West station May 11, 1957, as 4-6-2 No. 2472, last of CP's 173 G3-class Pacifics, arrives on the next track. Bob Krone





A run for the hill: At Bayview Junction, Ont., trackmen watch Canadian National 4-8-4 6234 pass with Toronto–Windsor train 83 on August 29, 1958. The Northern has just backed its train from Hamilton to the junction and is gathering speed for the climb up the Niagara Escarpment. Locomotives like this ran on CN and subsidiary GTW all the way into 1960. Art Weber

Lima's finest: Fast-freight hauler Nickel Plate Road (note the red "Swift" reefers) and "Super Power" 2-8-4s were synonymous. No. 769, last of 30 Lima S-2's built in 1944, swings away from PRR's Sandusky line leaving Bellevue, Ohio, for Chicago in 1956. NKP mainline steam quit in 1958. Neil Huff, Frank and Todd Novak collection



Light work for a 4-8-4: Twenty miles out of Kansas City on its 187-mile trek to Salina, Kans., on the old Kansas Pacific, Union Pacific 800, a 1937 Alco and first of its 45 4-8-4s, has a roll on train 39, the *Kansan*, west of Bonner Springs on August 8, 1955. Frank and Todd Novak collection



Mill town terminal: Northern Pacific L-9 class 0-6-0s 1082 and 1126 pause between work at Aberdeen, Wash., on a rare sunny day in 1954. Logs, lumber, sawmills, and shake mills dominate the economy here and in nearby Hoquiam, keeping several switch jobs busy. S-4 class 4-6-0s also toiled here. Tom Miller, Stephen Thompson collection



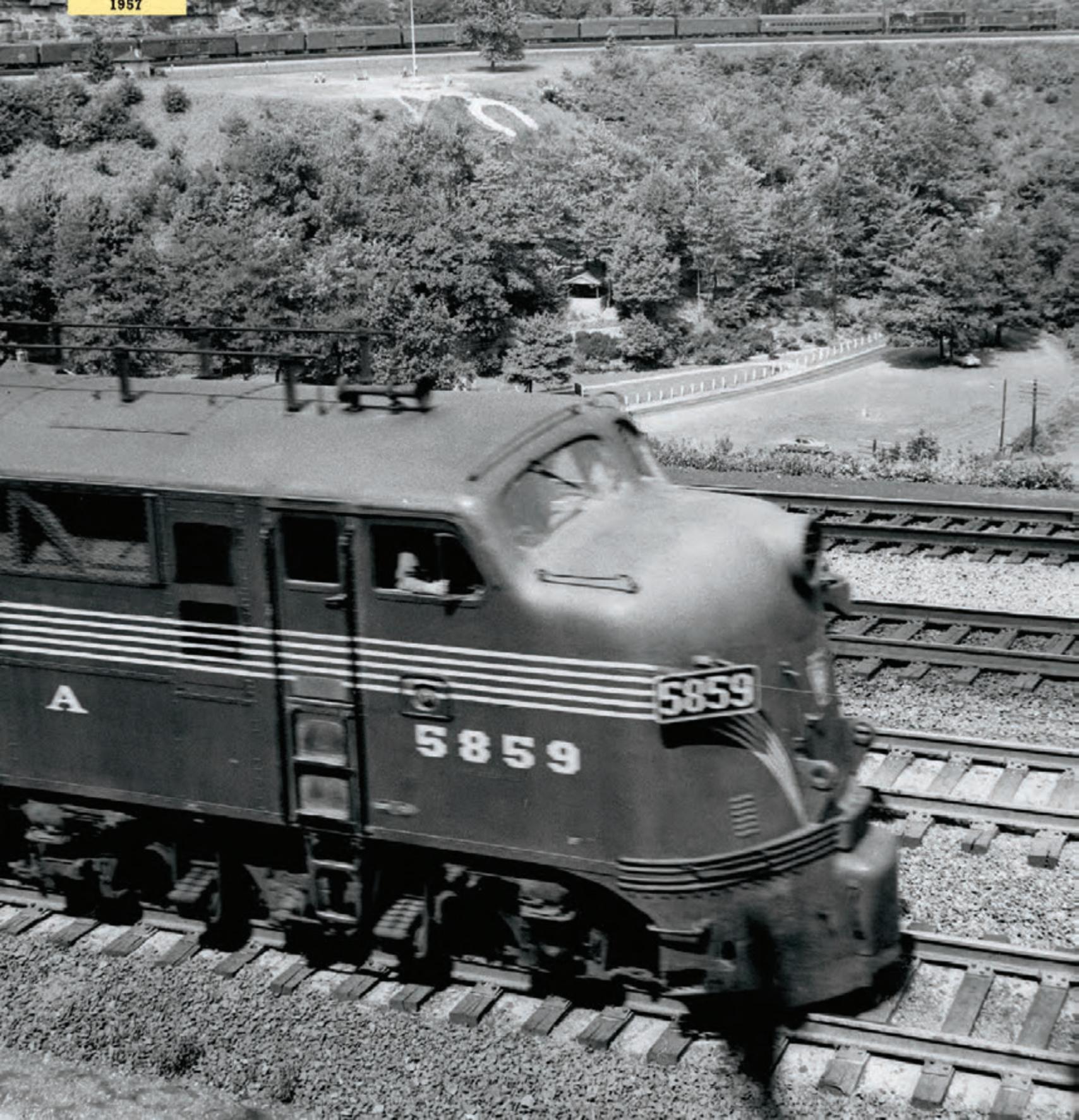
Favorites face to face: Two of Santa Fe's 44 Alco PA passenger units (including 16 B's) meet in La Junta, Colo., on August 8, 1954. Four of the classics survive, after a second career on Delaware & Hudson: two in Mexico and one each in Oregon and a museum in Frisco, Texas. Al Chione coll.

Trains
MOUNTAIN RAILROADING

16 pages of
MOUNTAIN
RAILROADING

Photo
Story
Show

**APRIL
1957**

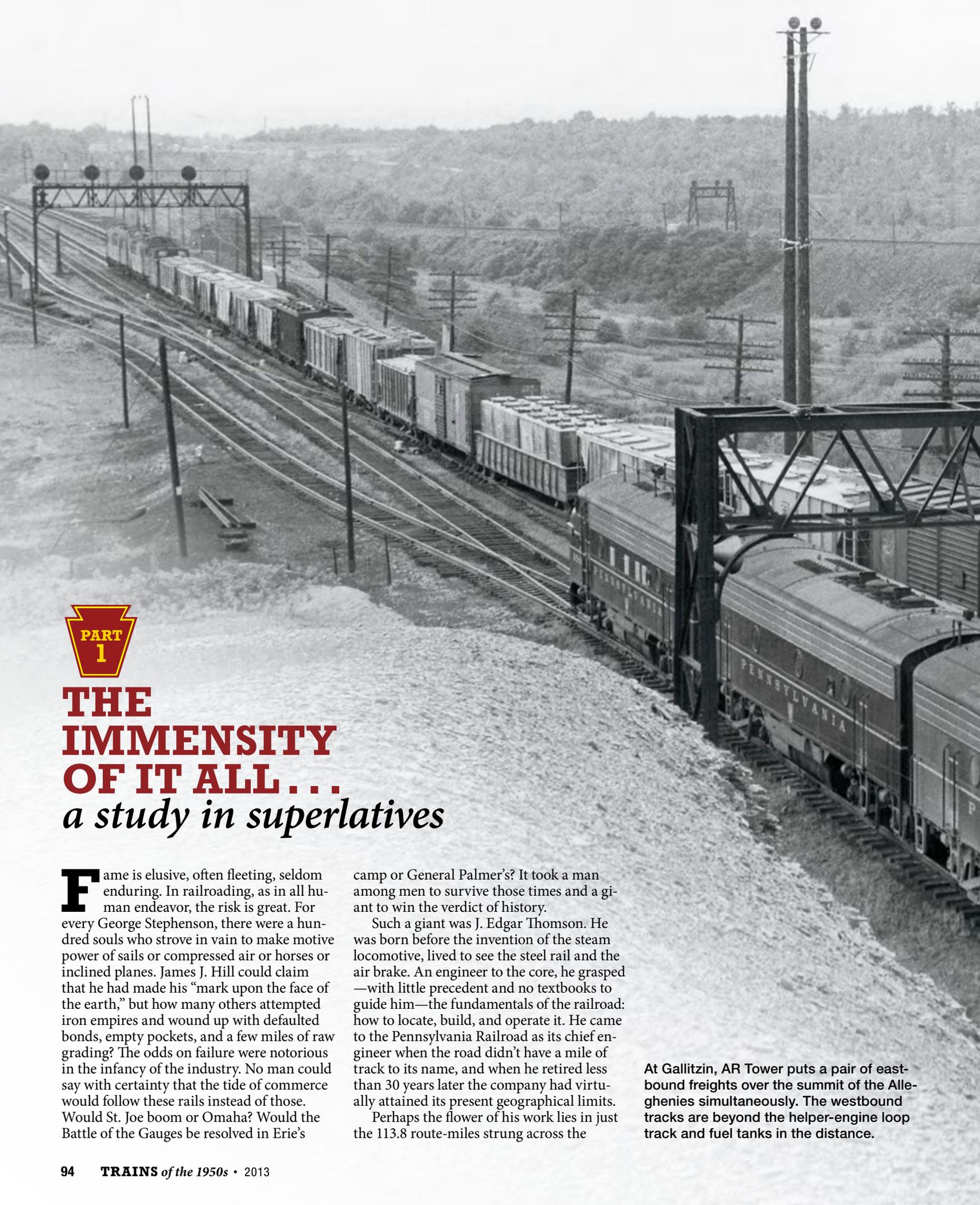


WORLD'S *busiest* MOUNTAIN RAILROAD

BY DAVID P. MORGAN

PHOTOS BY PHILIP R. HASTINGS, SEPTEMBER 1956

Railroad traffic seldom warrants more than a single track, particularly in this day of longer, fewer trains wrought by dieselization. Four-track mains are scarce: a few miles out of Chicago, a dwindling score on New York Central, the great arteries feeding into Manhattan. As scarce, say, as mountain railroading is common. . . . And yet here, high on the slope of the Allegheny Mountains and laid on the consequential grade of 1.85 percent, there runs a railroad with tracks numbered 1, 2, 3, and 4. Not spurs or sidings or passing tracks but 100 percent high iron—busy track, seldom quiet, never asleep. Track gripping uncountable flanges, holding up vast tonnages. . . . Look now—here comes another, westbound mail and express, 22 cars long, two road units on the point, a pair of Geeps behind the rider coach. Watch the red cars roll, canting to Horseshoe Curve, 7,000 horsepower lifting them up more than 90 feet to the mile on the world's busiest mountain railroad. Sight of sights, sound of sounds!



**PART
1**

THE IMMENSITY OF IT ALL...

a study in superlatives

Fame is elusive, often fleeting, seldom enduring. In railroading, as in all human endeavor, the risk is great. For every George Stephenson, there were a hundred souls who strove in vain to make motive power of sails or compressed air or horses or inclined planes. James J. Hill could claim that he had made his “mark upon the face of the earth,” but how many others attempted iron empires and wound up with defaulted bonds, empty pockets, and a few miles of raw grading? The odds on failure were notorious in the infancy of the industry. No man could say with certainty that the tide of commerce would follow these rails instead of those. Would St. Joe boom or Omaha? Would the Battle of the Gauges be resolved in Erie’s

camp or General Palmer’s? It took a man among men to survive those times and a giant to win the verdict of history.

Such a giant was J. Edgar Thomson. He was born before the invention of the steam locomotive, lived to see the steel rail and the air brake. An engineer to the core, he grasped—with little precedent and no textbooks to guide him—the fundamentals of the railroad: how to locate, build, and operate it. He came to the Pennsylvania Railroad as its chief engineer when the road didn’t have a mile of track to its name, and when he retired less than 30 years later the company had virtually attained its present geographical limits.

Perhaps the flower of his work lies in just the 113.8 route-miles strung across the

At Gallitzin, AR Tower puts a pair of east-bound freights over the summit of the Alleghenies simultaneously. The westbound tracks are beyond the helper-engine loop track and fuel tanks in the distance.



AR

PENNSYLVANIA

9545

PENNSYLVANIA
12162

PENNSYLVANIA
477507



At Pittsburgh, an SW1 switches cars on the “Panhandle” side of the station as passenger trains pass on the “Fort Wayne” bridge over the Allegheny River in the distance.

mountains and the ridges between Altoona and Pittsburgh. Here is J. Edgar Thomson at his best, and the present tense is justified; the line up and over the Alleghenies, across the ridges of Westmoreland County, and down to the Allegheny River is where he surveyed it and spiked it down. He came striding up the Juniata River Valley from Harrisburg, examined and discarded the plans of his predecessors, then proceeded to isolate the problem like any good strategist.

Ahead lay the green, forested, brooding slope of the Alleghenies, rising up, up, up to almost 2,200 feet. Begin the ascent soon, said one Pennsy surveyor, and hold the grade to 45 feet per mile; begin it as far east as Lewistown, cling to the walls of the river valley by

tunnels and embankment, ease the railroad over the top. This man is too engrossed with his arbitrary gradient to see the countryside, returned Chief Engineer Thomson. The solution is obvious: Follow the Juniata up to Altoona, laying the track inexpensively on an easy grade; next, attack the mountain face-to-face within the shortest possible distance from east slope to west.

And attack he did. The tracks (Thomson either laid or forecast multiple track) climbed out of Altoona and up the valley of Burgoon Run at 92.4 feet per mile, came to the baffling wall of Kittanning Point, heeled to the

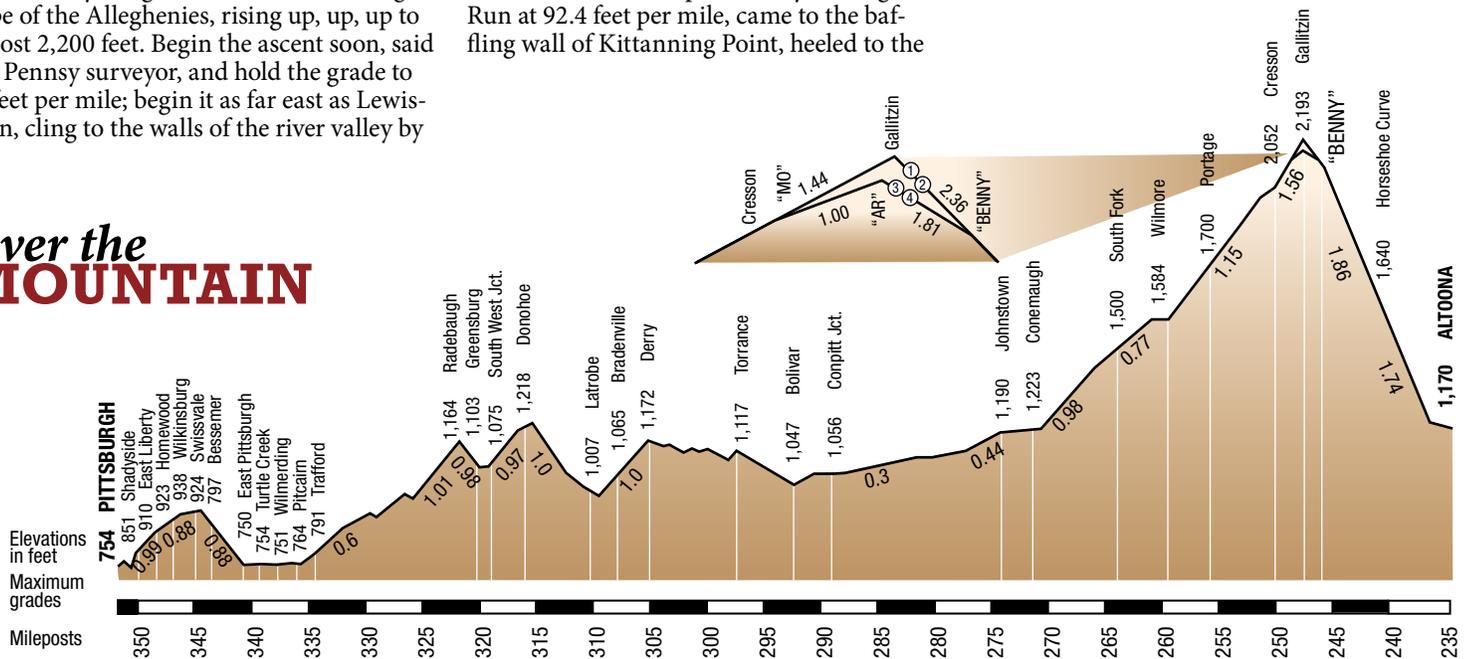
180-degree curve now famed as Horseshoe and doubled back on the opposite side of Burgoon, then moved over to a shelf high above Sugar Run—climbing all the while to 1,700, 1,800, 1,900, up, up to almost 2,200 feet and through tunnels at Sugar Run Gap. From the summit west it was simply a matter of finding and following the Conemaugh River to Torrance, then striking across the hills to Pittsburgh.

Thompson built well. Bear in mind that high-density multiple track is a rarity in America, and this is the only instance in which four-tracks-wide railroading tackles a mountain worth the name.

These 113.8 miles between Altoona and Pittsburgh, plus their supplementary and parallel mains, constitute the backbone, the core, the guts of the biggest railroad (in virtually everything but route mileage) in the Western Hemisphere. Oh, yes—the brains of PRR are in Philadelphia, and there is immense passenger volume and water frontage and industrial output along the Atlantic; the legs and arms, too, reach out for Chicago, St. Louis, Cleveland, Buffalo. But the heart, the trunk—they are between the mountains and Pittsburgh: the steelmaking, the coal, the foundries—and the bridge to move the commerce from East to West and vice versa.

In the organization chart of Pennsy, all this is part of the 2,000-mile Pittsburgh Region, which produces 17,000 carloads and 300 trains a day, 26 percent of the system total. The tonnage moving in the Altoona-Pittsburgh zone alone is something like 2,100 loads west and 2,500 east each 24 hours . . . plus empties . . . plus 40 through passenger trains . . . plus commuters out of Pittsburgh. This is a railroad within a railroad. Just the region—with only the route mileage of little

Over the MOUNTAIN



© 2013, Kalmbach Publishing Co., CLASSIC TRAINS, Bill Metzger

Denver & Rio Grande Western—employs two men 8 hours a day just to make changes in the operating timetable, which itself runs to 300 pages and is three-fourths of an inch thick; and another man works exclusively on routes for extra high, wide, and heavy loads.

Big, huge, enormous—use any adjective you like, these 113.8 miles from mountain to river define and justify it. Begin the examination at the Allegheny River and confine it first to the 15 miles or so (minor relocations make the mileposts inaccurate here and there) east to the humps and smoke of Pitcairn Yard. Through here the old Pittsburgh Division (now the Main Line of the region of the same name) is essentially an industrial belt with an icing of passenger trains. The goal post, you might say, is a 12-story office building with a depot on the ground floor; this is Pennsylvania Station, completed in 1901 and now in the throes of a \$27 million overhaul. Upstairs is the region's HQ; below, the passenger trains roll in across the rivers (over the Allegheny from Chicago, the Monongahela from St. Louis) and under glass-topped shelters. These are mostly through trains, using the Main Line as a bridge between East and West. In addition, 19 commuter trains take Pittsburghers as far east as Derry in a service that uses up a lot of terminal and track and is, as you might expect, far from profitable.

Now the fun begins as the multiple track climbs from river level up to 938 feet at Wilkesburg and descends to its old elevation of about 745 feet at Turtle Creek. East Liberty, Swissvale, Bessemer, East Pittsburgh—the names are enough to recall what Frank Spearman wrote in 1904: "Pennsylvania trains are made up under the smoke of its rolling mills and converters, and Pennsylvania shifting engines ceaselessly patrol its industrial camps. . . . Pittsburgh[h] is a Pennsylvania [Railroad] fortress." U.S. Steel, Westinghouse Air Brake, Wierton Steel, Westinghouse Electric—the names, the buildings, the smokestacks are left behind by the Tuscan-red trains, but the shifters stay to spot empties and remove loads, to work the interchanges with Union and B&O and Bessemer, to get 200 cars a day from one steel plant, to bring in 250 cars of ore a day to another. For each car of finished steel there must be five cars of ore and scrap and coal and limestone.

Pitcairn Yard: a roundhouse, two humps, receiving, classification, departure yards—reservoir and warehouse for the industrial district just traversed and entry to the Columbus–Indianapolis–St. Louis line known, after a long-since absorbed predecessor, as the Panhandle. Pitcairn is where the tonnage to and from St. Louis and the Southwest feeds in after bypassing Pittsburgh proper on the south bank of the Monongahela River.

At Pitcairn, the Main Line becomes a full-fledged, road-haul, freight-and-passenger



GP9's on westbound piggyback train TT1 pass J1 2-10-4 No. 6166, which has stopped on the main line near Johnstown to take water from an overhead spout.

proposition, and the eastbound grade gradually stiffens until a stretch of 1.01 percent is climaxed at ridge-top by the 850-foot Radebaugh Tunnel. If a train is heavy enough, it'll get helpers out of Pitcairn. Typical tonnage runs between 5,000 and 5,400 tons, less for a hotshot TrucTrain, up to 6,400 or more for a mineral run of coal or ore. No small trick, either, handling throttle on a J1 2-10-4 helper; after Radebaugh the four tracks dip in and out of both Greensburg and Latrobe, both towns in the vale of 1-percent grades, coming or going. From the last summit at Derry, the Main Line eases down into the Conemaugh River Valley and, at Conpitt Junction, joins forces with the low-grade freight line from Pittsburgh. This route—the old Conemaugh Division—takes the long way around, but by holding to the Conemaugh and Allegheny rivers encounters nothing worse than a 0.3-percent gradient. As a result, the tide of tonnage swallowed up and spewed out by

Conway Yard—Pennsy's brand-new double-humped, 9,000-cars-per-day-capacity, \$34 million push-button yard to the west of Pittsburgh—rides the rivers to Conpitt Junction.

At Conpitt Junction this relief line becomes tracks 5 and 6, called the Sang Hollow Extension, and remains on the north bank of the Conemaugh until Johnstown. There, at the site of the famous flood of 1889, the lines merge, and at nearby Conemaugh Yard, mountain railroading begins in earnest.

From Conemaugh to Altoona—call it 36 miles—is what Pennsy men call "The Mountain." They don't particularly boast of the fact; they don't underplay it. To them the mountain, the Allegheny, is just there, a 2,200-foot obstacle over which the trains must be pulled and pushed. The ruling grade is 1.25 percent up the west slope, 1.85 percent down the other side. By the standards of a Rio Grande or a Santa Fe, the grade and overall distance are minor.



Author David P. Morgan (foreground) interviews Pittsburgh Region Superintendent W. G. Dorwart (right) and Road Foreman of Engines F. E. Hostetler in Dorwart's office above PRR's Pittsburgh station, whose trainsheds and tracks are visible out the window.

No, the grade, by itself, is not the challenge. It is the combination of grade and traffic. A train moving 30 mph gobbles up twice as much track space as one hitting 60, and it becomes a choice between adding helper locomotives or reducing tonnage. On a western road, 10 or so freights a day plus a couple of streamliners can be comfortably accommodated on single track in the mountains, if suitably spaced and aided by Centralized Traffic Control.

But Pennsy must lift trains on almost streetcar headway to Gallitzin. On the west slope, the helpers are added on the "pit tracks" (so named because in steam days the road engines paused over water-filled troughs to clean their fires) at Compitt Junction and shove tonnage from there to the summit; on the east slope, helpers assist all trains except for a few passenger schedules from Altoona to the top. Thus, in addition to the revenue traffic, helpers returning light to home base

must be squeezed into the pattern.

Busy? Consult the density chart on pages 104–105. Here, at one moment, in a distance of 53.4 miles, are 21 train movements—or a train for every 2.5 route-miles. Look again: between Compitt Junction and Altoona there are 8 diesel helper locomotives, 50 road units, 4 J1 2-10-4s, 95 passenger-train cars, 1,116 freight-train cars, and a gross freight tonnage of 68,315 tons. This is high-density traffic and mountain railroading, and it's like nothing else in the U.S. or in the world.

To do this remarkable job, and to do it with dispatch and efficiency, Pennsylvania people rely first upon the heritage of reticent, sideburned, farsighted old J. Edgar Thomson, next upon the fundamentals of good operation, finally upon every last gadget or gimmick that technology can afford. To move 40 passenger trains a day plus 44 symbol freights plus a varying number of extras, work trains, helpers running light, and so

forth, the railroad is four tracks wide, and the rail is 140 pounds to the yard, anchored in deep rock ballast. Position-light signals, capable of an extraordinary number of indications, protect and move the trains, and there are inductive-communication train-phone and cab signals and rock slide fences to anticipate the emergency.

The power Pennsy hurls at the mountain is without a peer in railroading: A new 2,400-h.p. six-motor Alco hood unit helper canting to Horseshoe with three Electro-Motive E7's and the *Spirit of St. Louis* behind, battering Kittanning Point with the decibels tossed out the stacks by 52 cylinders. . . . Some 5,500 tons of Venezuelan ore off the piers of Philadelphia—amazing tonnage for just 55 cars—coming up 1.85 percent, 6,000 horsepower worth of EMD on the point and 5,000 more of Baldwin behind the cabin car. . . . Old and new Fairbanks-Morse units, a million-miler F3 here and a factory-fresh GP9 there, all sizes and styles of units, some laboring up and idling back over just a dozen miles or so of helper district and others making it from Harrisburg clear to Chicago with little more than a few inspections by lantern light and a drink of steam-generator water in between. . . . And occasionally a gallant J1, fighting up westbound to the mouth of the 3,605-foot Allegheny Tunnel and then easing off to a trifle less than 15 mph—because that's the speed at which the fans blow the smoke out the other end of the bore.

No, it's not just the grade (though there's an occasional scar on the mountainside to recall the way nature struck back at those who took her elevations for granted). It's the traffic—enough of it to employ 1,799 engineers and firemen on the trains rolling between Altoona and Pittsburgh, to keep four dispatchers plus a Chief DS on duty at any one time as well as a roster of 89 operators and levermen, plus an extra board of 20 more.

So what does it require to operate the Main Line, aside from the obvious—the physical plant, the men, the survey of J. Edgar Thomson? Well, supervision, for one thing. Layer upon layer of it. Not top-heavy, red-tapish, one-way bureaucracy, but an alert, seasoned liaison between top management—in this case, the Pittsburgh Region manager—and the crews in cabs and cabooses. Superintendents and assistant supers, freight and passenger trainmasters, road foremen, track supervisors, master mechanics, titles and authority, subtitles and delegated authority. Men parcel out the power, establish maximum speed limits (70 for passenger trains, except for *Aerotrain*, which is allowed 85), circulate the maxims of modern railroading (example: "Drop the term 'dead freight'. There isn't any. Coal and ore are 'live'.") If a small railroad has to pinch the pennies, then it is doubly important that a big carrier do the same, because an error in operating strat-

egy is multiplied by that many more trains.

Supervision flows out of Pittsburgh in many men. A road foreman of engines, for instance, asking what's been done about a leaking tank car of diesel fuel he spotted at Gallitzin; asking why No. 11's helper went through to Pittsburgh instead of cutting off at the summit ("You'll short your helper pool tonight. Eleven didn't need him—he'll have to deadhead back."); asking why a freight diesel rolling downgrade has the sanders on. Explaining, too . . . explaining how to fix a dynamic brake malfunction; how to ease a steam engine ahead after drifting through Allegheny Tunnel so that no drawbars are snapped; how to stretch the power so steam engines aren't unnecessarily fired up when diesels could do the job.

Supervision also means finding out what's new, not just on Pennsy but anywhere—finding, checking, installing the new tool or technique that can help move the traffic faster, safer, or at less cost. Pressure-maintaining brake valves, for example. Time was, and not too long ago, when freight trains coming down into Altoona descended in a fog of blue brakeshoe smoke. Not infrequently shoe metal got so hot that it built up on wheel treads; in 1954 Altoona shopped more than 1,000 cars at a cost of over \$100,000 for that cause alone. Automatic air brakes (as opposed to the straight-air system of streetcars, for instance) operate on the principle of keeping the brakes pumped off—which is why a train goes into emergency if couplers part. As his train starts down, an engineer makes a "reduction" of, say, 15 pounds; that is, he reduces brake pipe pressure by that poundage below the pressure in the reservoirs on the cars. Then he puts his brake valve in "lap" position, permitting no new air to enter the brake pipe, holding the shoes against wheel treads at a steady resistance. So far, so good—in theory. But in a mile or so of train there is unavoidable leakage of air through angle cocks, hose couplings, etc., which means brake pressure is noticeably higher at the front of the train than toward the rear.

What happens? The engineer "cycles" his brakes, *i.e.*, recharges his brake pipe pressure to keep the brakes on the head end from sticking or even stopping his train altogether. And to hold the speed in check during this cycling (as many as 25 to 50 applications and releases in the 11.1 miles between Gallitzin and Altoona) hand-operated retainers are set up on the rear cars that prevent any reduction in brake cylinder pressure. All of which means a stop at the summit to set up retainers (and pick up an extra brakeman if the train is long enough), half a hundred turns on the brake valve, worn brakeshoes, maybe a wheel with "built-up" treads, or a stalled train, and always plenty of acrid blue smoke.

But not now, not in 1957. Pennsy heard of Westinghouse experiments on Rio Grande with a newfangled pressure-maintaining



GM's Aerotrain, running as New York–Pittsburgh No. 17, approaches the Gallitzin tunnels at SF interlocking, remotely controlled by AR Tower. At left the eastbound tracks pass through New Portage Tunnel and over the line from Duncansville via Muleshoe Curve.

valve. This ingenious gadget all but thinks. Say the train comes over the summit with 85 pounds pressure, a reduction of 15 pounds is made, and the valve "lapped" at that amount. Now, once brake pipe pressure descends to 70 pounds, the new valve feeds enough new air back to hold it at that point—and it does so automatically. Each car becomes a holding car; retainers are superfluous. The diesel's dynamic brake irons out whatever peaks and valleys are left, operating as an "equalizing force." You use it on tangent, ease it off when curves build up a resistance of their own.

"Best thing that's happened to engineers since women," declares a veteran road foreman of this pressure-maintaining valve that permits a train to roll from summit to Altoona on a single brake application—no retainers, no stop, no stalling, no blue smoke, and no shoe metal on treads. Pennsy didn't develop pressure-maintaining valves because Westinghouse naturally wanted an outdoor

lab with longer, heavier grades. But that's not the point. The point is that Pennsy examined it with an open mind, liked it, and slapped it on 301 diesel cab units just-like-that (the largest such installation by any road). And it expects to save \$437,000 a year on the Pittsburgh Region alone.

So one of these nights, if you find yourself in a roomette on the westbound *Broadway*, prop the pillows up as No. 29 ascends the east slope, as the signal bridges walk past like seven-league shadows, as the headlight of the helper stabs rock walls, as sleepers and diner and lounges ride along at a steady 30 mph. Watch now! Here is Horseshoe, J. Edgar Thomson's own, as grand in 1957 as in 1854. Quite a contrast between the carpeted, civilized quiet of the Pullman and the brute, untamed face of nature sliding past in the darkness, succumbing to inexorable horsepower.

Now, pull the shade down, the covers up. And relax . . . you're in good hands.



ENGINEER'S EYE VIEW . . .

riding the head end of No. 32



A clear signal over track 2 beckons the *St. Louisan* near Radebaugh. On track 1, a J1 pushes on an eastbound freight, while a set of Sharknose helpers approaches on 3.

Trains are all things to all people. Pennsylvania Railroad No. 32, the *St. Louisan*, is variously a night and a day of clickety-clack between the Mississippi and the Hudson to a business executive who hates flying; so many uppers, lowers, roomettes, double bedrooms, drawing rooms, and reclining seats to the passenger department; just another movement to be lined up for and OS'd to countless operators.

To an Altoona engine crew, No. 32 is the other side of an every-other-day turn that involves coming over to Pittsburgh on No. 41, the *Cincinnati Limited*; laying over about five hours; then going home on 32. The crew is standing on the platform of track 15 when, a few minutes off the timetard, the long limited eases in and the power is uncoupled to permit a restless yard unit to cut off a brace of head-end mail cars.

For a big train—16 cars of it—a big engine: three E7's, PRR class EP20 (Electro-Motive, passenger, 2,000 h.p.), coupled A-B-A fashion. And ahead: 113.8 miles of twisting, turning, climbing—yet generally fast—multiple track. While a man climbs up on the nose of the E7 to hose off the windshield and a brake test proceeds, the engineer calculates the odds: one of the units' six V-12 diesels is down, account a water seal leaking in one cylinder—which reduces horsepower from 6,000 to 5,000; and when the highball comes it's 7:23 a.m., 8 minutes late. Not bad, though he won't complain if the sun breaks through a moist mist lying heavy over Pittsburgh. Let's roll . . .

The throttle is latched back, the cab vibrates as the diesels lean into the generators, and No. 32 is off on the authority of dwarf signals cleared by the adjacent 367-lever Pitt Tower interlocking plant. The E7's pick their way through intricate terminal trackage at 15 mph, cab signals flick on as the first signal mast passes, then the 28th Street engine terminal and coach yards fall behind.

The grade stiffens to almost 1 percent and the speedometer needle tries for the 50 mark that is permitted on track 1 except for curves. In the distance a dot becomes a train, a commuter run from Derry with a road-switcher that spent the night on a mine run.

7:37 a.m., and the engineer lifts his train-phone off the hook and calls CM Tower at Homewood for a routine acknowledgment that the inductive communication equipment is in order. Over the hump, now, and three units and 16 cars are flowing through 50-mph curves, whipping by the Swissvale plant of Union Switch & Signal, on past the stacks and buildings of U.S. Steel's Edgar Thomson Works, racing under signal bridges that beckon No. 32 on with a vertical column of three lights. "Clear!" . . . "Clear!" Observed and acknowledged.

Tower R, Braddock. The *St. Louisan* leans into a curve away from the Monongahela valley—under a bridge supporting a snorting six-motor Baldwin of the Union Railroad,



At Works Tower in Altoona, a fresh crew gets ready to take Chicago-bound piggybacker TT1 west. Unseen, car inspectors check for loose tie-down bracing on the trailers.



Having been routed over the Conemaugh Line west of Conpitt Junction, "TrucTrain" TT1 curves off the Allegheny River bridge west of Kiskiminetas ("Kiski") Junction.

over Turtle Creek, and under the expansive, graceful concrete arches of the George Westinghouse Memorial Bridge. No. 32 crosses to track 3 in anticipation of the approaching entanglements of smoky, busy Pitcairn Yard. Trains, trains, trains—32 is meeting 'em, overtaking 'em as the sun breaks through the morning haze: the *Pennsylvania Limited* with 17 cars, three units . . . a coal train east out of Pitcairn behind four Fairbanks-Morse C-Liners . . . then two trains approaching side by side—18 cars of the *Fast Mail* and a J1 bringing in tonnage.

Back on track 2 and climbing up to Radebaugh as fast as traction motors can turn—up 0.6, 0.8, then a mean stretch of 1.01 percent. No. 32 overtakes a pair of freights, both standing on track 1 and waiting until the passenger train clears so they can use its line

through Radebaugh Tunnel, which is only double-tracked (one track for westbound passenger, the other for all trains east; a shorter bore to the north accommodates westbound freights). Two freights with power to burn, enough to meet 1.01 percent on its own terms. . . . Three F7's pulling and a Geep pushing on one, three Baldwin Sharknoses pulling and a 2-10-4 pushing on the other.

The smears of soot clinging to the horseshoe-shaped interior of Radebaugh Tunnel tell of years gone by when steam ruled the old Pittsburgh Division. Altoona built the power then—hundreds upon hundreds of high-headlighted, Belpaire-boilered engines, all of them classified by letters and numbers indelibly stamped upon this generation's mind: K4,



Road Foreman F. E. Hostetler looks out from E7 5855 as the *St. Louisan* descends the grade east of Gallitzin. Soon No. 32 will be at the signal bridge visible above his hat brim.

T1, M1, H10, L1, J1, G5, B6, I1. What was it like? Well, No. 32, with from 1,200 to 1,300 tons at the drawbar, would have headed east behind a pair of Pacifics. Upgrade it would have been war all the way, which is why trackpans were spotted on the downgrade, sometimes even on a curve—anywhere a tandem of K4's had a chance to hit the speed—45 or 50 mph—that made water-scooping possible.

Steam . . . why, it could be hell. The wind used to dive down into those beautiful big welded tanks of the duplex-drive T1's and swirl coal dust over the crew until they looked more like miners than miners do. And from an operating standpoint, steam multiplied the number of trains: a 4,500-h.p. EMD will lug 2,700 tons unassisted up the east slope from Altoona to Gallitzin, for example, while a J1 is rated at just 1,600 tons. Or take Conemaugh. The helper pool there numbered 48 engines in steam whereas 5

diesels handle the round-the-clock job today.

And yet . . . steam is remembered, not always with stain. The sight of a J1 revives the subject in the cab and the fireman opines, "I'd just as soon have a good K4 any day to one of these things," and the engineer laughs. What's he thinking—of the bouncing grease and grime of a Pacific, or of a morning like this on 32, with the stack talking up, 80-inch drivers eating up the miles, the zest of coordination of throttle and cutoff?

Brake air whistles into the cab as No. 32 reluctantly pauses at Greensburg at 8:04. Three, maybe four seconds pass, then the air communication whistle blows twice, and the *St. Louisan* is off again. "Clear!" . . . "Clear!" The tireless diesels lean into the 0.97 percent up to Donohoe, race down the 1 percent through Latrobe, then up another grade to Derry. Westbound trains thunder past incessantly. In the space of 20

minutes or so four freights are counted, a matter of 20 railroaders, 9 diesels units, a 2-10-4, 4 cabooses, maybe 300 freight cars—rolling up the gross ton-miles per freight-train hour for next year's annual report, placing entries on the dispatchers' sheets on the 10th floor of Pennsylvania Station, Pittsburgh.

At Torraine the unseen eye of technology looks unswervingly at the equipment of No. 32 and reports "all is well." The evidence is a signal bridge with a capital "E" light hung on it. If the detectors on the track feel any dragging equipment—say, a dragging brake beam or a steam-line coupling down—the "E" illuminates and Rule 4076-A takes effect: ". . . The train crew must examine the entire train and advise the operator when this is done before proceeding."

The Packsaddle, an enormous notch in the Pennsylvania terrain where the Conemaugh River knifes through Chestnut Ridge, obliges No. 32 to reduce speed to 45 as it sweeps around Goat's Point Curve. The old Conemaugh Division swings in at Compitt Junction, loses its separate identity, and becomes, even though on the north or opposite bank of the river, tracks 5 and 6—both ordinarily for westbound freight—of the Main Line. Tracks 1, 2, and 3 proceed along the south bank, or original alignment, and 4 is abolished until Johnstown, where both routes merge for their formal, four-tracks-wide attack upon the mountain. The trainphone crackles now, and at Compitt Junction the cause is seen through the windshield: a brakeman holding a lighted fusee and riding a tank car with a hotbox into a siding. An eastbound freight got a hot one and arrangements were made over the phone to stop and set it out.

Trainphone, rock-slide detectors, dragging equipment detectors, towers, position-light signals, cab signals, speed-control devices on the engine—layer upon layer of technology spliced together by rules and tightened up by supervision. On the Main Line no train is alone. The crew merely operates it; literally hundreds of others inspect and advance and caution it. The emergency is anticipated. Safety is not happenstance but a calculated condition. It surrounds No. 32, in minds and in machines.

Seventy miles per hour along the Conemaugh River as No. 32 races gradually up from 1,050 feet to 1,100 feet to 1,200 feet above sea level. The windshield wipers lazily swat at a sprinkle of rain, the cab signals stay cheerfully vertical, the diesels drone on without a murmur of complaint. The remains of old coke ovens and strip mines scar the green, rising countryside. Then down to 35 mph for a couple of tight curves and, at 8:53, Johnstown. Famed for the flood of 1889, the city is now the hub of a Bethlehem Steel plant that quite literally lines the banks of the Conemaugh River for 12 straight miles, a curve of mills and converters and smelters, with the yellow-and-chocolate yard diesels of little

TOWER AT THE TOP

From a darkened roomette, AR Tower is just a glimpse of second-story light. To the men who staff such plants, it's a hot job. To the railroad, it's the interlocker that controls all signals and switches within 3 very strategic miles of main line. Located at Gallitzin, apex of the Alleghenies, AR's domain covers the three summit tunnels, the loops on which the helpers turn, and the junction on which trains enter and leave the New Portage Branch, an alternate, freight-only line up the east slope via Muleshoe Curve. It's a big plant with 60 levers (30 for signals, 30 for switches), an operator, and a leverman. Twenty-four hours a day, of course, for AR never closes.

When the trains are rolling, when the passenger fleet is streaming over the summit on second trick, the two-man team works at a steady, unexcited pace that conceals the work and its significance. For every train, approximately 12 levers on the panel must be moved to clear it and its helper. The speed recorder must be checked on every eastbound train against the unlikely circumstance that it's exceeding 30 mph downgrade; perhaps the tunnel fans must be switched on if a westbound drag gets down on its knees inside one of the tunnels. And the trains must be OS'd (entered on trainsheet) to the dispatcher and to the nearest tower on either side with train number or symbol, engine number, time, and track occupied. Not one by one, either, but in batches; AR is too busy for anything else.

Once when an accident tied up one of the two eastbound mains and the operator was moving the wrecker in and sweating through the traffic on single track, he took the line phone off the hook to fend off time-wasting conversation. Finally, after much effort, a Pittsburgh trainmaster got through and asked why in blazes AR didn't answer its call. "Look," said the seasoned op, "either I can sit on this phone and tell every Tom, Dick, and Harry on the railroad what got on the ground, when the wrecker showed up, and how long it'll take to clear No. 1 track—or I can move trains. Take your choice." The answer was prompt. "Take the phone off the hook."

That night AR put through 40 eastbound trains on the one track that was open, plus all the westbound traffic, plus moves required by the wrecker crew. In one 8-hour trick, too.



Hot job: The third-trick operator at AR Tower is seldom idle.

Conemaugh & Black Lick darting in and out of the buildings like so many fireflies on a summer's evening.

Conemaugh slides past with its pit tracks and its standing freights taking on helpers; then No. 32 is face to face with elevation. Sixteen Tuscan-red cars obediently following the EMD's around continual S curves . . . multiple track parting at 9:10 to permit the small station of South Fork, elevation almost 1,500 feet . . . trains passing; work extras, light helpers, ore, and a trio of Geeps on westbound TrucTrain TT1 . . . through cuts with slide-detector fences outside Portage, then Portage itself at 9:17 a.m. and 1662.8 feet elevation and 1.15 percent grade.

Cresson, at 9:27, stirs memories of the old, old days. The town still has a yard that, from nearby branches, funnels low-volatile bituminous coal onto the main, but the tonnage isn't what it once was. Time was, a road foreman recalls, when he was 70th man on the extra board, yet went out daily. That was in 1912, when little R and H6 class Consolidations did the work, when coal was the division's staff of life (Pittsburgh Region still originates two-thirds of the system's coal—400 to 500 cars a day out of South Fork alone, for instance). Crews out of Cresson are called "snakes"; nobody seems to recall just

why. What's more, they're "mossbacks" out of Derry, "yellowbellies" from Conemaugh, and "razorbacks" from Altoona.

Names, nicknames—they're part and parcel of railroading, as indicative of the individuality of a particular railroad as its diesels are not. On Pennsy, for example, the road engine is a "hauler" to differentiate it from the omnipresent helper, and a caboose is a "cabin car." Coal and ore come in "mineral" trains.

At Gallitzin, almost 2,200 feet up, the tracks part, the eastbound pair arcing over the summit past AR Tower and the twin loops on which the helpers turn, into a deep cut, on into the 1,630-foot New Portage Tunnel, the westbound tracks coming up out of the twin portals of the longer 3,605-foot Gallitzin and Allegheny tunnels. At 9:30 a.m. the *St. Louisan* grows past AR, overtaking eastbound tonnage inside the tunnel, coming out the other end to catch a glimpse of westbound freight just diving into the adjacent Allegheny bore.

Light rain again, windshield wipers on, speed steady at 30 mph—the rulebook maximum all the way down into Altoona. Once more the railroad is watching, checking, ready to act. As each train leaves New Portage Tunnel it trips a lineside speed recorder

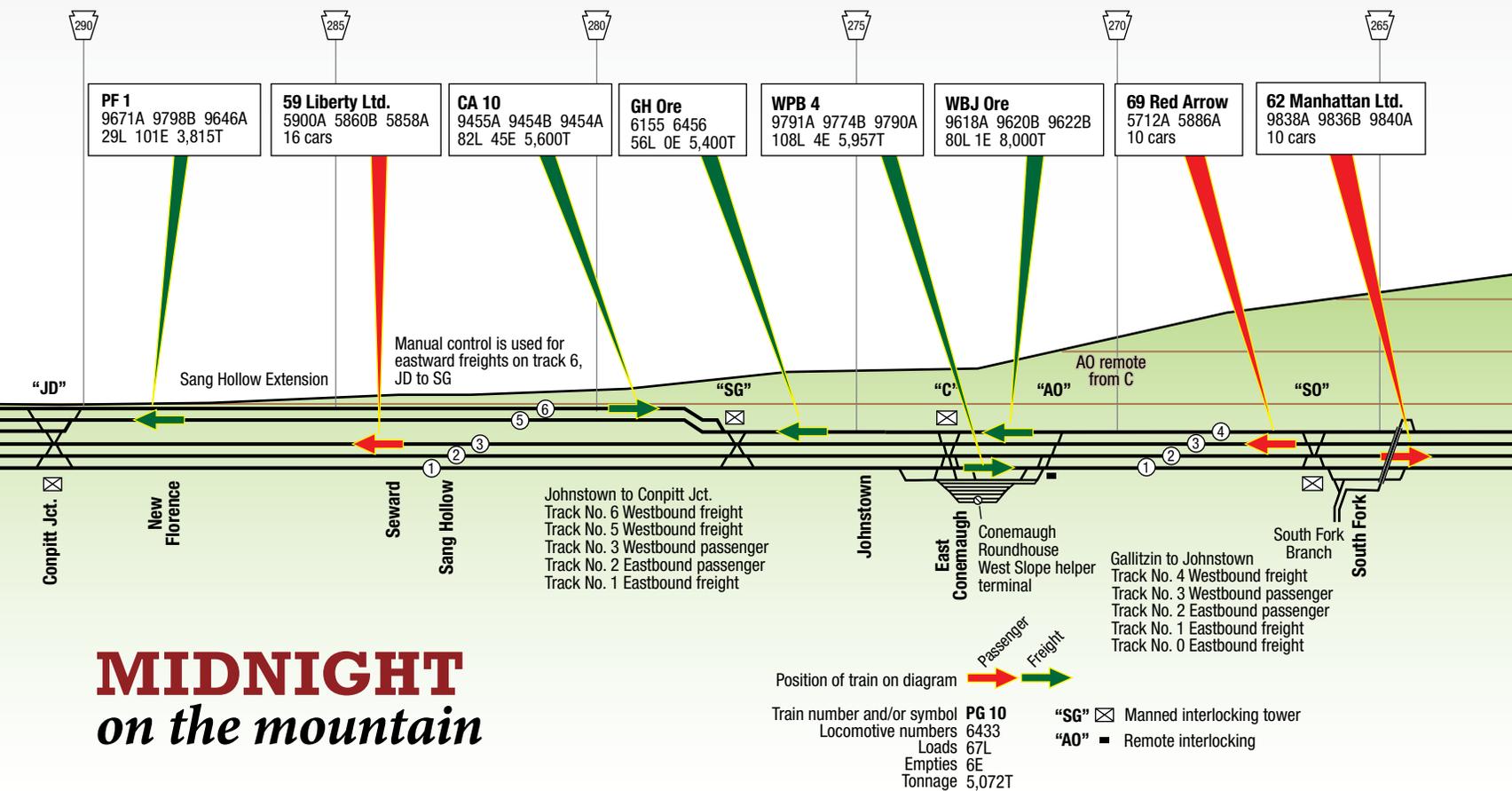
that triggers pen on paper in a machine mounted inside AR Tower. If the train should be exceeding 30 mph (or 25 on track 1, the one nearest the edge of the mountainside) a lineside siren goes off. Assuming the engineer has made no reduction in speed, the wayside signals go to the approach position, the cab signal does likewise, and the train is brought to an automatic stop. Included in the protection to alert the engineer is an automatic torpedo-placing machine that actuates. Indeed, considering the grade and the traffic, Pennsy's safety record down through the years is a profound tribute to the men who believe accidents are accidental and can thus be avoided.

The siren is silent as No. 32 drifts by, diesels idling, brake valve in lap, shoes embracing 164 warm wheels.

The engineer glances out on (he could almost spit into it) the deep, deep valley of Sugar Run, and he looks ahead in the direction of Altoona, 11 miles of railroad ahead and 900 feet lower in elevation. The signal bridges raise their guard, repeat the indications already apparent on the cab signals, then fall behind.

MG Tower. 9:40 a.m. 1,700 or so feet.

Back in the diner the waiters are clearing the tables after breakfast while the steward



MIDNIGHT on the mountain

ENGINES, INCLUDING THE CENTIPEDES



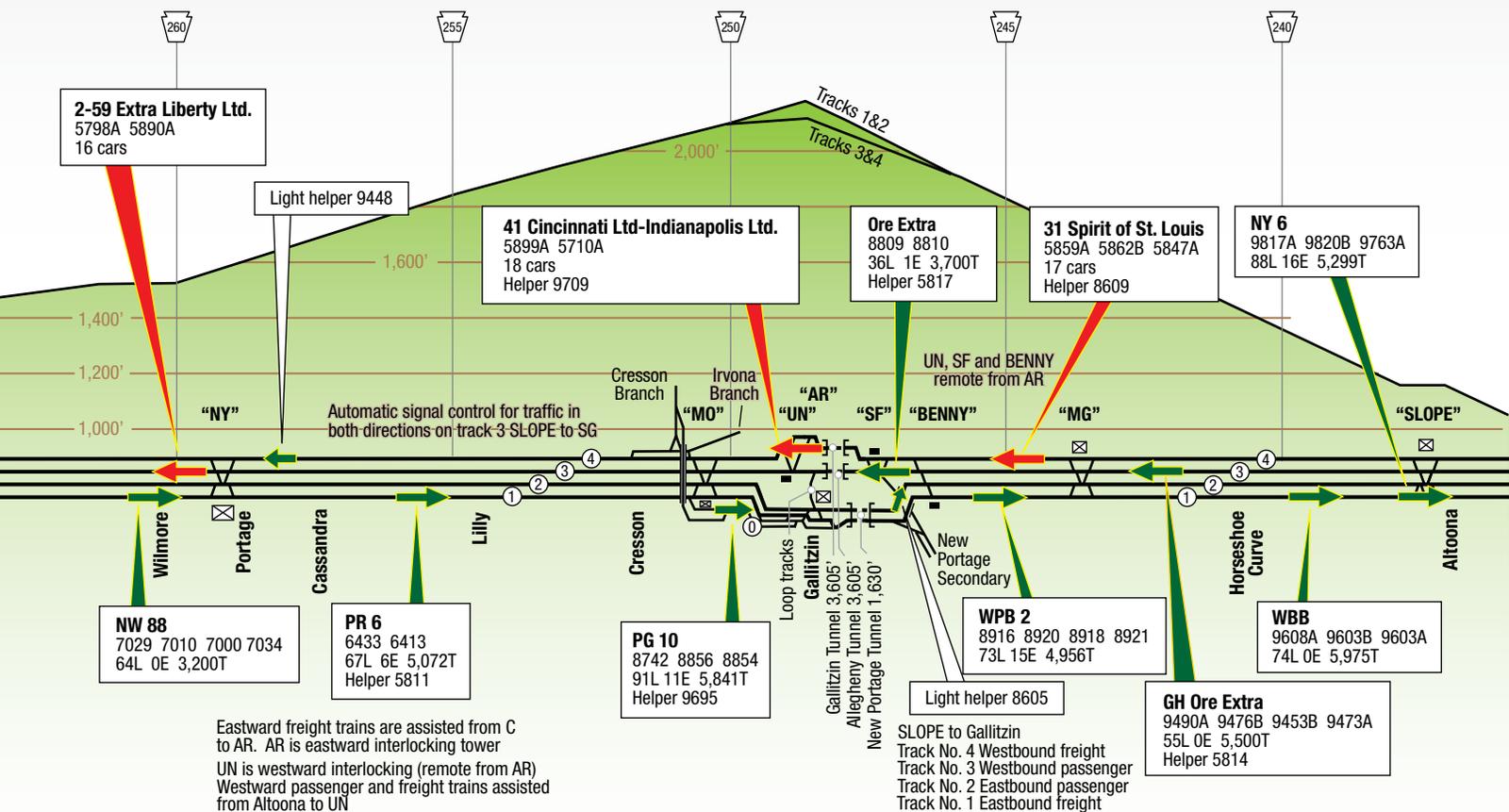
Feeding the beast: A Centipede takes fuel at Gallitzin.

All description of motive power has ascended what PRR men refer to simply as "The Mountain." Once, in 1876, a 4-4-0 came puffing up to the summit during a run from Jersey City to Pittsburgh while hauling the trans-continental Jarrett & Palmer theater special. In more recent years, a pair of visitors were Chesapeake & Ohio 2-10-4 3015 and Norfolk & Western 2-6-6-4 1208, both borrowed while Pennsy made up its mind on the engine that became its J1 2-10-4. Standardized engines and good engines and poor engines and experimental engines, steam and diesel.

Today diesel is in the saddle. The locomotives that pull and push up to Gallitzin are a rolling catalog of dieselization, for while Pennsy dieselized late, it bought big—from everybody. And in that postwar buying siege the road tried, only once, fortunately, to do in diesels what it had done in steam and electric: cram 6,000 h.p. into a single locomotive. From Baldwin there came pairs of 2-D+D-2 units (4-8-8-4 in steam terms) with a coupled length of 183 feet and a staggering total weight of 1,187,420 pounds. And, as Pennsy had asked, 6,000 h.p., developed by four 8-cylinder, inline, supercharged engines. These monsters with 16 traction motors and so many axles that the men dubbed 'em Centipedes were bought for limiteds but wound up on the mountain as plodding helpers, regearred to lower speeds and derated to 5,000 h.p.

They are there today, the butt of operating department scorn and the cause of personality amid a dieseldom that seldom displays it. They have odd, anemic-looking little noses, roomy cabs that remind one of a ship's bridge, and engine rooms that cause the visitor to wonder if he's got lost in the innards of a *Queen Mary*. V-belt and chain drives on the auxiliaries, clattering valves, throbbing pistons of vast diameter, and usually a considerable amount of oil around that got lost from the normal channels of lubrication. BH50's, PRR calls 'em, and they go burbling up the mountain behind the freights, all oil-smearred and caked with grime and grit.

The Centipedes are the diesels that tried to make like the power they replaced instead of hewing to the new era, and they grind along, paying the price of innocent but misguided design.



© 2013, Kalmbach Publishing Co., CLASSIC TRAINS, Bill Metzger

totals up the checks. In the lounge a man catches a glimpse of the terrain from the corner of his eye and forgets his *Business Week* to absorb a high-density, four-track, main-line railroad that apparently got lost and wound up in the middle of a mountainous nowhere. The flagman steps out on the rear vestibule and notes without noticing an obvious detail of a mountain railroad: the westbound tracks are brown with sand sprayed under straining drivers.

Horseshoe Curve. J. Edgar Thomson's semicircle of heroic proportions bending the heavy rails around to avoid a collision with the rocky fist of Kittanning Point. The *St. Louisan* rounds the 180-degree turn and the engineer takes his eye off the air-pressure gauges long enough to wave to the tourists who stand near the flagpole in the little sightseeing park at trackside. It's one of the few places in the U.S. where a railroad acknowledges that somebody might be impressed by its operations.

"Approach medium!" . . . "Approach medium!" Cab signals slant as the last signal bridge passes, then it's on into Altoona station, past a waiting Alco DL600 helper, past dwarf signals, and onto a track paved between the rails. Water, caught in the trough between rail and pavement, boils and steams as cherry-red wheels duck their flanges into it.

Altoona, elevation 1,178 feet, time 9:55 a.m. The men pick up lunch pails and climb down. A couple of razorbacks have come home.

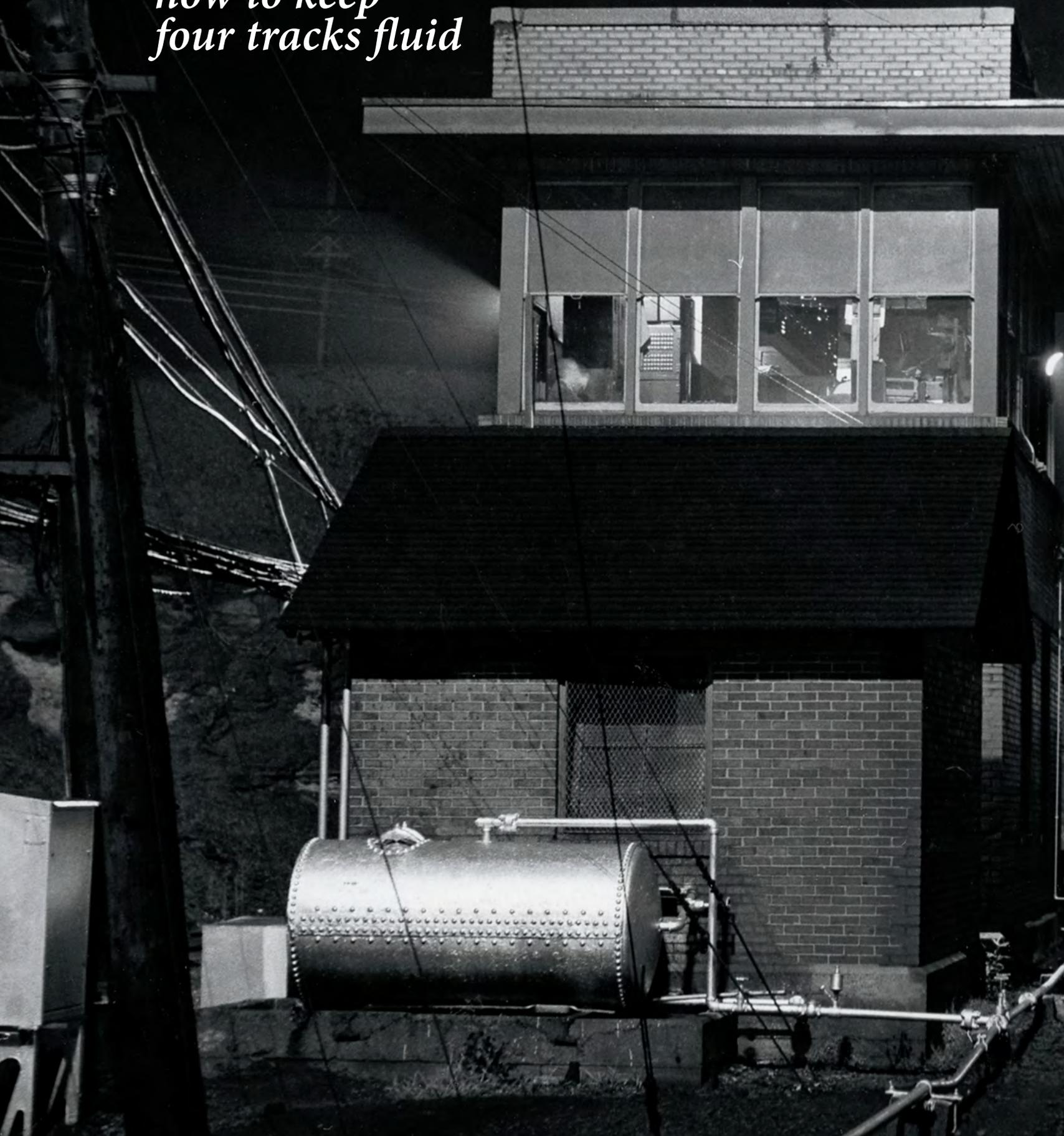


On the first curve out of Altoona, TT1's fireman looks over his train from engine 7000 (PRR's first GP9) as J1 No. 6194 drops down the mountain with a freight.

**PART
3**

TIMETABLE AND SIGNAL INDICATION . . .

*how to keep
four tracks fluid*



An eastbound freight cools its heels momentarily at AR Tower, Gallitzin. The silver-painted piping and reservoir tank are indicative of an electropneumatic interlocking plant, a PRR hallmark.





Assistant Trainmaster E. L. Herman surveys the dispatching office on the 10th floor of Penn Station, Pittsburgh. Immediately ahead of him are desks E (left), responsible for the Main Line from Pittsburgh to Conpitt Junction and D (right), Conpitt Junction to Altoona.

Late—delay—stop: these are words of low esteem to any railroad dispatcher, from Bangor to Bakersfield, but to the four men who handle trains between Altoona and Pittsburgh they are nothing short of profanity. These men in shirtsleeves sit at desks in a soundproofed, air-conditioned room on the 10th floor of Pennsylvania Station, Pittsburgh, far removed from sight or sound of the droning diesels, rattling tonnage, and Tuscan-red limiteds that pass through their headphones and under their pens. The railroad places every signal and communication tool known to technology at their disposal, then asks that they do the job no machine can: keep the line fluid, the trains moving.

It's not an easy assignment. The traffic is two-direction, blended of trains of various speeds and weights and destinations. Across the 113.8-mile Main Line and its tributaries there are shifters, local freights, helper engines, preference freights, mineral trains, long-haul name passenger trains, short-haul

commuter runs. The speed these trains are allowed ranges from 15 to 50 mph for freights, from 20 to 70 for passenger trains, and up to 85 for *Aerotrain*. There are westbound drags with up to 150 cars between hauler and cabin car, and there's NF6—limited to 75 cars—taking beef on the hoof through from Chicago to Jersey City in 27 hours, sometimes 26½. There's the *Broadway Limited*, all martinis and expense accounts, and there are passenger extras with 29 cars of Railway Express plus a rider coach for the crew. Piggyback and less-than-carload and imported ore and domestic coal—yes, and Aunt Pauline riding a pass over from Greensburg to Trafford to visit her sister.

Late—delay—stop? A TrucTrain making 50 mph can overhaul an ore drag rolling only half that fast 10 miles ahead in less than half an hour. And—just ask a dispatcher—stab one passenger train in the “fleet” one minute, just 60 fleeting ticks on the second hand, and you can figure on the sixth train behind

winding up 8 minutes late.

But to get back to the 10th floor of Penn Station, which is where the chain of command, dispatcher-to-tower-to-signal-and-switch-to-train, begins. The Main Line is handled by two men, the first handling the Pittsburgh–Conpitt Junction district and the second—known as the “mountain man”—taking the trains from there to Slope, a tower on the western edge of Altoona. (Dispatchers located in Altoona itself relay the trains beyond to Harrisburg.)

In addition, a dispatcher is assigned to the old Conemaugh Division, the river-grade line from Conpitt Junction to Federal Street, Pittsburgh; and the fourth DS takes care of the Monongahela Branch—which pumps traffic into Pitcairn Yard off the Panhandle.

The Main Line DS's operate a route that is usually four tracks wide and normally worked as follows (from south to north): track 1—eastbound freight; track 2—eastbound passenger; track 3—westbound passenger; and

HEAD-END HELPER

Rain, sheets and torrents of it, is cascading out of the blackness over Altoona when the helper engineer obeys the curt swing of a lantern and couples his hood unit onto the Tuscan-red road engine of No. 49, the *General-Trail Blazer*. It's a heavy one, 18 cars, too much for three E units. So the 8606, a six-motor Alco DL600, moves in to help. Pennsy calls it an APS24ms. Sounds like gobbledegook but it makes sense—simply means an Alco passenger-switcher, 2,400 h.p., equipped with multiple-unit apparatus, and provided with a steam generator. Tonight the long end leads, so the engineer sits on the left.

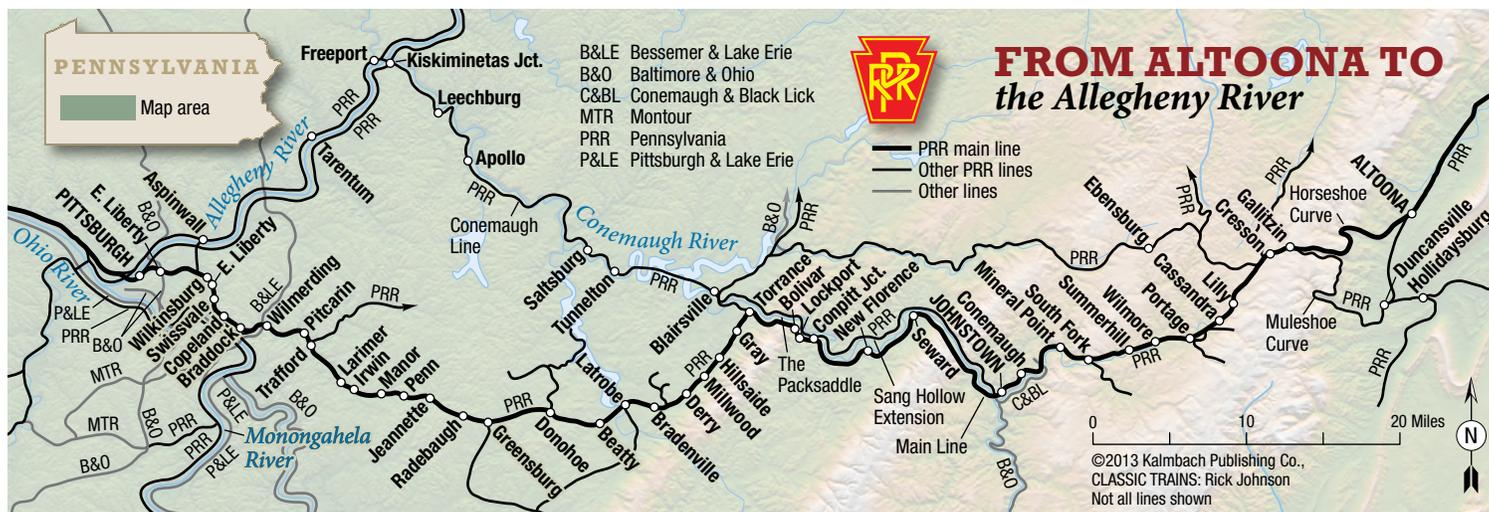
Highball! It's 9:48 p.m., only a minute off the timecard. Ahead lies 11.1 miles of 1.85 percent, and the Alco leans into it, the big turbo-supercharged V-16 under the hood talking up into the soaking night, taking the solo over the chorus of chanting V-12's strung out behind in the hauler's units.

Windshield wipers hiss as the blades stroke away the rain; the red needle of the Barco speedometer climbs to 30 mph; the fuel oil and lube oil and air pressure gauges glow green and serene. No. 7 notch on the throttle; the time-

card allows just 27 minutes for the ascent to the top.

Out of Altoona, under the signal bridges, one curve into another, headlight probing out into a gathering curtain of mist, engineer taking a glance back to be sure the train is "all black." Horseshoe, now, and as the four units and 18 cars take the most famous swing in railroading, the man at the throttle looks back at the row of rectangular window lights, at the coaches, diner, lounges, sleepers, and he says to no one in particular, "She's a pretty train, isn't she?" And she is, too; a moving band of red, cars coupled to cars, 85-foot rolling hotels, like nothing else in transportation. The engineer's right.

At 10:10 No. 49 dives into the tunnels, a whistle hoots inside the cab, cab signal indications flick, the engineer moves the throttle back to the idle position. Brakes take hold, the limited stops. Reverse, take slack, forward—the cutoff man has done his job, and the helper hurries off. "Restrictive!" . . . "Restrictive!" . . . "Conemaugh Loop" and "Conemaugh she is," and the Alco runs around the loop and waits for AR Tower to let it downhill to catch No. 69.



track 4—westbound freight. These track assignments are varied when local conditions warrant, of course. At Pitcairn Yard, for example, track 1 is on the yard side of the main line and virtually a lead track for freights arriving and departing, thus eastbound passenger trains are diverted to track 3 between towers WG and SZ, which bracket Pitcairn at its west and east ends. Elsewhere, a track is signaled for operation in either direction—No. 3 between Johnstown and Altoona is an example—and the DS can put any train on it without the usual formalities; normally he'd have to issue train orders to run anything against the normal current of traffic.

So much for track. The trains themselves operate by "timetable and signal indication." In actual practice, only scheduled passenger trains have any authority; everything else is an extra, even though—as in the case of symbol freights like TrucTrains TT1 and TT2—times may appear in the employee timetable as a matter of information only.

Each dispatcher gets an advance briefing on the traffic, not only from the man he relieves, but also from passenger and freight movement directors—men who calculate

what is to be moved and how many trains to move it in . . . and when. The dispatcher's actual contact with his trains in terms of number or symbol, engine, tonnage, time, etc., comes from the DS in the adjoining district, or—in the case of a freight ready to enter the main from a yard like Pitcairn or Conemaugh—from the nearest tower.

The dispatcher, then, is the brains. His hands—the fingers that carry out his strategy—are the towers. Between Pittsburgh and Altoona there are 19 of them, some of them controlling other interlocking plants by remote control, all but one of them manned 24 hours a day. West to east, the first one is Pitt, opposite Penn Station in Pittsburgh; the last is Slope, just outside Altoona. Towers C and AR, located at Conemaugh and Gallitzin, respectively, each have an operator and a leverman; the balance are one-man jobs. Each tower is a little empire of railroading within itself, controlling the four main tracks from a home signal at either end of a 2- or 3-mile zone, plus all signals and switches in between. From the limits of one tower to the next the trains operate in what

amounts to automatic block signal territory. Plus cab signals and speed control.

Symbolic of a Pennsy tower is a pumping station and seemingly miles of silvered pipe. This much is evidence of electropneumatic power switches. As opposed to the all-electric system orthodox on most other roads, especially in C.T.C. territory, Pennsy prefers compressed air because it costs less to install and is simpler to maintain. And it's fast: flip a lever in the tower and—*slap!*—the points go over just-like-that, which helps in dense traffic operation. Out on open track, with signals giving a clear indication, trains can move on a 4-minute headway (in mountain operation this time-spacing goes up to between 5 and 8 minutes, depending on how close the towers are to each other), which gives some idea of how fast and how often the traffic can descend upon a tower. Electropneumatic switches . . . inductive communication (the towers are tied into the train-phone system) . . . cab signals . . . tracks signaled for either-direction traffic—on PRR these matters aren't gimmicks but facts of life.

Vital too, Pennsy feels, are its unique, elaborate, one-color, multi-indication, posi-



At Pittsburgh Region desk F (foreground), the dispatcher for the Esplen (south end of the Ohio Connecting Bridge)–Brownsville, Pa., line works with a new style of trainsheet, while his colleague on desk I, Pittsburgh–Gould Tunnel, Ohio, uses the standard type.

tion-light signals. Erected on the signal bridges that span four tracks, each such signal consists of a large circular steel pate through which holes are punched to accommodate up to nine small hooded white lamps. No moving parts . . . no mistaking of colors . . . indications are identical, day or night . . . and any such signal can display four basic indications—plus additions if a three-lamp bar is mounted below.

An additional but seldom-remarked advantage of the position-light signal is that if any one bulb in a row of three fails, there is still enough of the aspect to give an indication to the engineer. Even assuming, that is, he didn't have his cab signals to rely on.

Essentially, the lights duplicate the movement of a semaphore arm: vertical for clear, a 45-degree angle for caution, horizontal for stop—plus variations on a theme. On Pennsy these signals can and do display up to 13 different aspects, indicating not just the basic speeds of train operation (clear, slow, stop)

but a wide gamut of moods in between.

For instance, a passenger train hitting a mile a minute approaches an interlocking plant with turnouts or crossings limited to 45 mph. The varnish gets a medium-clear—horizontal bulbs glowing on the black disc above a vertical column of lights on a bar below. Which means the limited brakes to 45, proceeds through the plant at that pace, then resumes normal running speed. No holding back for the next signal, no delay, automatic, 1-2-3. Again, the position-light signals spell out C-A-U-T-I-O-N in an almost infinite number of ways, depending on who's and what's ahead. An engineer might get slow-approach, which requires him to approach the next signal prepared to stop. Or it might be a medium-approach, which requires him to drop down to a “medium speed,” which, in turn, means half his authorized speed (other factors being equal) and not to exceed 30 mph.

And on Pennsy all of this data on track

conditions ahead is displayed to the engineer twice; once on the signal bridge, again in the cab. Cab signals aren't there just to decorate the place; they are the engineer's authority to proceed in inclement weather, in snow or fog or whatever, when the wayside signal is invisible to the crew. If the cab signal aspect changes, a horn blows in the cab—and the engineer must acknowledge the change by moving a lever. Within 8 seconds, too, or brakes take hold automatically. In other words, you install a seasoned man in the driver's seat and expect him to expedite with all the tools of modernism at his disposal that technology can dream up. But, if he fails, as must inevitably occur sooner or later with mortals, that is not the last resort. The silent partner, the machine, is there to take over.

To comprehend the faith a Pennsy engineer places in cab signals you have to find a ripe situation—say, the cab of a helper unit leaving Gallitzin, coming downgrade light, following two more ahead on track 2 . . . in

GALLITZIN CUTOFF MAN

It requires more than 100,000 men and women—approximately the population of Madison, Wis.—to operate the Pennsylvania Railroad. Or to put it another way, 1 out of every 10 American railroaders works for Pennsy. Most of them sit at desks, others operate the lathes and overhead cranes and forges in the shops, a comparatively small group achieves every small boy's ambition by holding down the cab seatboxes and cabin car cupolas of the trains themselves. A few work by night, by themselves; their only companions are the darkness and the trains that thread it.

One of them occupies a tiny hut in a deep, rocky cut at the west end of the twin tunnel portals at Gallitzin, Pa. When the trains pause there, it's his job to step in between the road passenger engine and the helper that has assisted it up the mountain from Altoona, and uncouple them.

They call him the "cutoff man."

He doesn't have much of an office—just a hut, with a caboose stove to ward off the chill of the fog and mist and rain. That, and a phone, a copy of the Ten Commandments, a handwritten table of passenger-train arrival times, a phone, an electric lantern, and a pair of extra coupler knuckles.

He doesn't really need a schedule because when a train is due the position-light signal on the bridge near the hut flicks its shaded spears of light from stop to restrictive (indicating the crossovers are lined so the helper can move onto the turning loop). The limited moves in behind a stab of headlight beam and reluctantly pauses; the cutoff man steps in, turns angle cocks, parts air hoses, uncouples, swings his lantern. The helper moves off, then the limited leaves . . . and once more the cutoff man waits alone.



The Gallitzin cutoff man waves away the Alco road-switcher that helped the *Liberty Limited's* E units up from Altoona.

deep, moist, cottony fog. The headlight beam stabs out eagerly, bangs into a wall of white, and jumps back in surprised reflection. Less than 50 feet of visibility, maybe not that much. At 30 mph, 175 tons' worth of road-switcher eats up that distance in the seconds you could count on the fingers of one hand. And yet 30 on the nose it is, the galloping unit held in check by its dynamic brake, the only assurance of safety between locomotive and what's ahead being a vertical row of tiny white lights at the engineer's shoulder. Now and again the cab signal flicks to an angle, a horn blows and is acknowledged, and speed drains off to a walk . . . then "Clear!" and "Clear!" between engineer and fireman, and it's back up to 30 mph. Safety plus speed—the very best caliber of signaling. On another road such a system might add up to useful luxury; on Pennsy it's bread and butter.

Communications, too, are pertinent. Take a westbound piggybacker, TT1, which has rolled down off the west slope of the Alleghenies, swung through Johnstown, then bridged the Conemaugh River to take track 6 on the opposite bank from the Main Line. Normally TT1's three GP9's would lead its flats and trailers down to Conpitt Junction and there, at JD Tower, take to the old Conemaugh Division for the run to Conway Yard. Not today, though. A work train has the Conemaugh tied up for a period of hours. The dispatcher decides to put the hotshot over on the Main Line; TT1 has plenty of power for the heavier grades involved and the only alternative is a nasty delay. But—TT1's engineer may be qualified only for the Conemaugh, in which event a man who is

OK'd will have to be sent out to join the train. What to do? The DS simply calls the nearest tower, whose operator then picks up his train-phone and says, "JD calling TT1, JD calling TT1." As it turns out, the engineer is qualified. Thus, signals are lined up at JD to put TT1 on the main stem; a trio of Geeps hits and yields to the crossovers; and 34 truck trailers go swinging across to track 4. There's been no delay, no stop, no tissues and "19" order hoops. Just a few words spoken from tower to moving train . . . and in Chicago tomorrow morning the truckers will find their loads spotted when Pennsy promised.

So it's a lot of railroad loaded with a lot of trains—but what of this four-track railroad today? The Pennsylvania has operated its transmountain transportation plant in essentially the same manner throughout most of this century. Cab signals and a certain amount of reverse-running signaling are the only postwar additions to the ease or efficiency of the basic dispatching setup.

Yet the trade press is jammed to the margins with the wonders of centralized traffic control, particularly where its installation permits abandonment of multiple track. New York Central has just reduced four tracks to two between Cleveland and Buffalo, for instance, in a move that places Pennsy rather unavoidably in the spotlight. The truth of the matter is, of course, that nobody would like the advantages of C.T.C. more than PRR (it has 341 route-miles of it elsewhere on the system and plans to install more), and not too long ago signal experts examined those 113.8 miles between Altoona and Pittsburgh

to see what might be achieved. The problem always proves complex and thus far insoluble by C.T.C. As compared with the NYC setup, Pennsy operates more trains and it operates them in mountain territory (*i.e.*, slower speeds, helper movements, etc.). It operates, in fact, a unique property, beyond the realm of conclusive comparison.

At that, Pennsy's present setup is not as divorced from the essential elements of C.T.C. as, say, a single-track road out in the Middle West with only automatic block and manual switches.

Signals and switches are remote-controlled now—from the towers (several of which have been consolidated in recent years). In this area C.T.C. could hope only to super-remote by grouping all these functions on one or two panels in Pittsburgh—and Pennsy isn't at all sure the economy involved would be worth the loss of on-the-ground supervision represented by the operator in the tower. As for reduction in track, if all the movements consisted of symbol freight and passenger trains running on prearranged, constant schedules, maybe three tracks would do. But drop in the extras, helpers, all the unexpected that is a daily guess, and you'd freeze a fluid railroad.

C.T.C.? Pennsy doesn't say "no." Simply "not yet." Can you blame it? ■

PHILIP R. HASTINGS, who made the photos for this story, was among the most gifted and influential rail photographers. Born in Vermont in 1925, he became a psychiatrist. He and David P. Morgan collaborated on numerous articles during the 1950s. Hastings died in 1987.



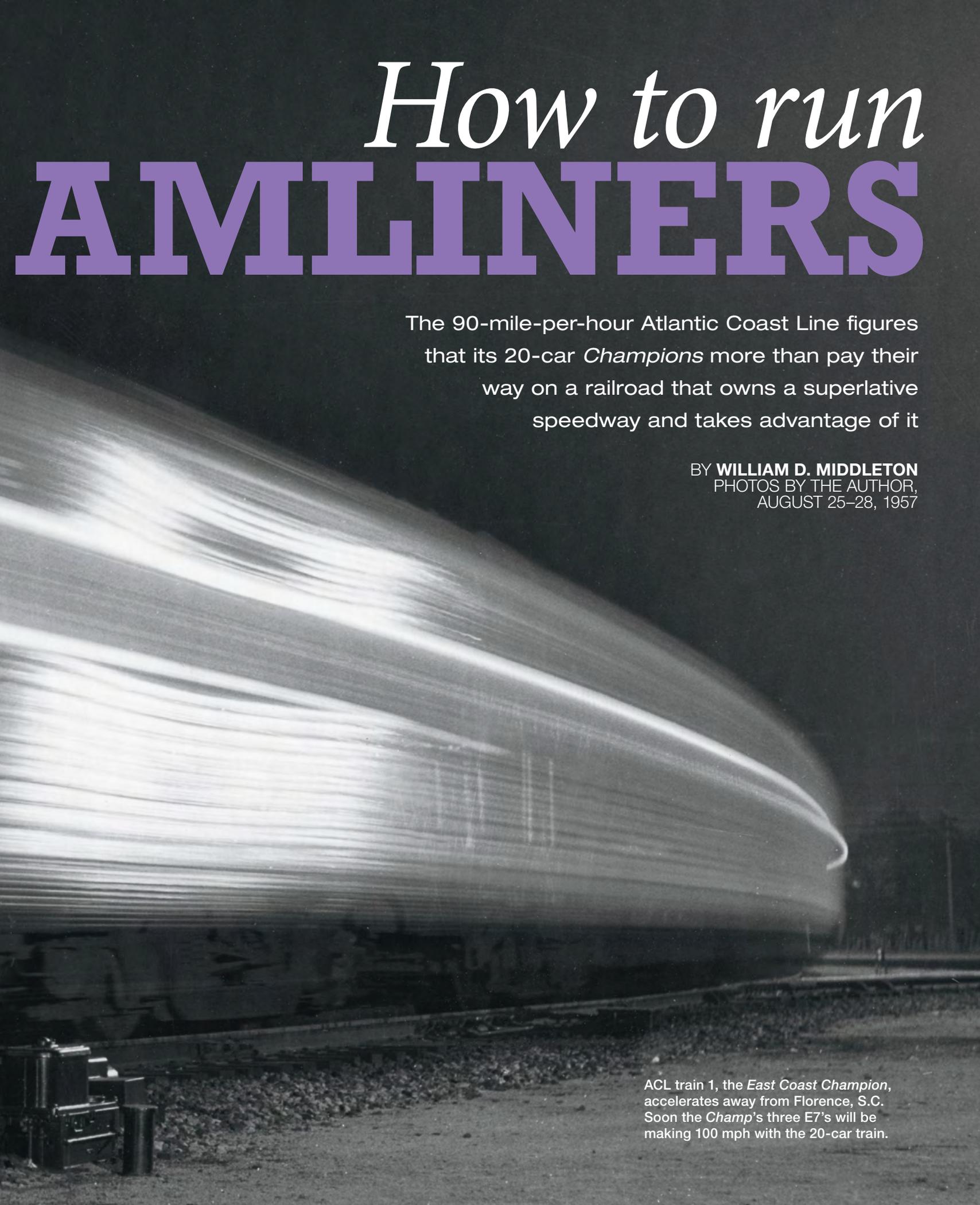
MARCH
1958

STRE

How to run AMLINERS

The 90-mile-per-hour Atlantic Coast Line figures that its 20-car *Champions* more than pay their way on a railroad that owns a superlative speedway and takes advantage of it

BY **WILLIAM D. MIDDLETON**
PHOTOS BY THE AUTHOR,
AUGUST 25-28, 1957



ACL train 1, the *East Coast Champion*, accelerates away from Florence, S.C. Soon the *Champ's* three E7's will be making 100 mph with the 20-car train.



In San Antonio in June 1957, Southern Pacific President Donald J. Russell took a long, hard look at the railroad industry's Interstate Commerce Commission formula passenger deficit of nearly \$700 million for 1956 and at his own road's more than \$55 million share of it. Then he announced: "We're going down that road of discontinuing long-haul passenger service with a gradual transition toward the elimination of all passenger service."

Russell's gloomy predictions for the passenger business were echoed by spokesmen for more than a few other railroads. But they were by no means universally accepted.

Among those taking a vigorously opposite stand was Atlantic Coast Line. A few months after Russell's pessimistic forecast, ACL's Passenger Traffic Manager T. K. Lynch predicted, "Within the foreseeable future we think there's a place for good passenger service."

Coast Line has backed up this optimism for the passenger business with diesels, streamliners, and a large-scale modernization program for its conventional equipment; new air-conditioned stations and major

right-of-way improvements; and vigorous promotion of an outstanding passenger service the road believes is here to stay.

For those who take the ICC formula at face value, it was difficult to share Lynch's hopefulness. For on the ICC basis for allocation of costs to passenger operation, Coast Line lost more than \$12.5 million carrying passengers during 1956.

Why the optimism, then?

ACL's reasoning is simply this: "We take in over \$17 million in passenger revenues each year, and we think passenger operations contribute something to net profits. We couldn't save \$17 million if we dropped all our passenger business." Coast Line's cheerful outlook for the future of its passenger business was borne out by a 6.3 percent increase in 1956 passenger revenues over those for 1955, and passenger revenues for 1957 are running ahead of 1956's.

Coast Line's success with passengers is based at least partly on some highly advantageous characteristics of its traffic and the area it serves. ACL has no commuters and far fewer short-haul passengers than most roads.

Instead, its passenger traffic is largely long-haul. Most Coast Line passenger traffic is Florida vacation travel. It's a traffic that grows heavier every year, and for years, Coast Line has been getting the greatest share—about two-thirds—of the rail volume to and from Florida. The entire six-state southeastern area served by Coast Line is enjoying a period of unprecedented population and economic growth, which contributes to ACL passenger traffic.

Advantageous traffic characteristics would not in themselves guarantee Coast Line's success in the rail passenger business, however. Because the traffic is there, so is the competition; and ACL operates in one of America's most highly competitive travel markets. On almost all of its important passenger routes, ACL competes for rail passenger travel with the aggressive Seaboard Air Line Railroad, and ACL must compete with heavy highway travel and three major airlines. Coast Line gets more than its share of the traffic through a passenger operation that is not only extremely well equipped in physical plant, but aggressively operated and promoted.



Having arrived from Washington behind Richmond, Fredericksburg & Potomac E8's, the Miami-bound *East Coast Champion* stands at Richmond's Broad Street Station with a fresh set of Coast Line E's.

Although Lynch is concerned about airline competition, he believes that most air travel growth is new business or has come from automobiles. "With over 88 percent of intercity travel going by auto now," Lynch points out, "any means of public transportation must get most of its increase from automobiles." He looks to the same source for prospective Coast Line passengers.

His railroad realized years ago that it couldn't make money in short-haul travel. It believes that because of low population density in much of the South, railroads cannot provide the frequency of service required for short-haul travel; the automobile has proven itself more convenient for the short-haul rider. For more than 20 years ACL has been systematically eliminating its money-losing local and branchline trains. In 1920 the average Coast Line passenger rode only 64 miles; today he rides 382 miles.



Engineer J. F. Brunson sounds the horn on an E unit at the head end of train 75, the southbound *Havana Special*. Brunson's district was Florence, S.C.–Savannah, Ga.

Because so much of its passenger traffic is Florida vacation travel, ACL is subject to a winter-season peak, although Florida's growing popularity as a year-round resort has helped level the rise from prewar years. Passenger revenues for the five winter months, December through April, are currently some 15 percent greater than those for the other seven months.

In addition to seasonal peaks in passenger volume, Coast Line has a seasonal variation in coach vs. Pullman business. Pullman travel is up in winter, when the well-heeled tourists travel; coach traffic is heavier in summer.

To handle the winter travel peak, ACL supplements its year-round trains with two winter-season trains, the *Florida Special* and the *Miamian*, which are the only seasonal runs on any railroad between the Northeast and Florida. All-Pullman and streamlined, the *Florida Special*, now in its 67th year, is Coast Line's finest and fastest train. Tops among the year-round trains, and ACL's biggest moneymakers, are the streamlined *East Coast Champion* and *West Coast Champion*, which carry both coaches and Pullmans. In the summer months, an *Advance East Coast Champion* has been operated on weekends.

Coast Line runs two additional year-round trains between the Northeast and Florida, the *Havana Special* and the *Everglades*, and the year-round *Palmetto* between the Northeast and Georgia. Normally outfitted with heavyweight cars, these trains are

partially furnished during the off season with streamlined, lightweight cars from the *Florida Special*. Some 75 percent of ACL passenger revenues are taken in by its mainline through trains operating between the Northeast and Georgia and Florida. ACL depends on partners Richmond, Fredericksburg & Potomac and Pennsylvania Railroad for its Florida trains' Richmond–Washington–New York legs, and on Florida East Coast south of Jacksonville, Fla., for ACL's Miami trains.

Coast Line gets a share, too, of the growing travel volume between the Midwest and Florida. ACL's Western Division handles the every-other-day Illinois Central–Central of Georgia streamliner *City of Miami* between Albany, Ga., and Jacksonville, and the every-other-day Pennsy–Louisville & Nashville streamliner *South Wind* between Montgomery, Ala., and Jacksonville. Until recently these trains ran every third day, along with the *Dixieland* (named *Dixie Flagler* until 1954), a Chicago–South Florida train of Chicago & Eastern Illinois and L&N via Evansville, Ind., which ACL handled between Atlanta and Jacksonville until it ceased on November 17, 1957. That route still hosts the lesser daily *Dixie Flyer*.

The *East Coast Champion* leads all ACL trains with gross revenues averaging \$9 a mile, while the *West Coast Champion* takes in an average of around \$7 a mile. The *Florida Special* grosses an average of \$6.25 a mile.

Aggressive passenger traffic promotion—



Head-end crewmen of Richmond–Jacksonville time freight 109 look out from their purple and silver F7 before departing Florence, S.C., with six diesels and 121 cars.



In another view at Florence, a laborer uses a long-handled brush to clean the windshield of E6 No. 520 at the head of train 375, the Washington–Jacksonville *Everglades*.

through special fares, package tours, and a well-planned advertising program—has helped build Coast Line's passenger volume; but equally important, it has helped to level off the seasonal variations in traffic.

ACL, in company with other southeastern railroads, boosts its summer season traffic with special 30-day round-trip coach fares for travel between the Northeast and Florida. Ordinary round-trip fares are 180 percent of the one-way fare; the 30-day summer fare is only 150 percent of the one-way rate. ACL is not sure family fares will produce additional revenue and so doesn't offer them.

Since 1954, ACL has offered its all-expense "Champion Vacation" package tours to Florida. Although they're available year round, Champion Vacations are primarily a summer promotion, slanted toward the economy-minded vacationer. They're available for several Florida resort cities, with a wide choice of hotel and motel accommodations. Similar tours are offered to Havana, Cuba, and Nassau, Bahamas. The tours are sold through travel agents and other railroads, as well as through ACL's own offices. Champion Vacations have proven an outstanding success. Sales during summer 1956 were almost 50 percent greater than those during 1955 and almost 60 percent greater than in 1954.

During 1956, Coast Line began experimenting with all-expense New York "theater party" tours, designed to promote north-bound vacation travel. The usual tour package includes two or three shows, sightseeing, and hotel accommodations. So far the tours have been well received, with most of the sales to Florida residents, but ACL still regards them as experimental.

Coast Line also operates an extensive all-expense conducted-tour business to Washington and New York for high-school student groups. Most of the groups are carried on regular trains, but occasionally special trains are required. Because of the reduced group fares, Coast Line does not find the tours overly profitable in themselves, particularly when special trains must be operated, but the road considers them valuable because they introduce new people to train travel. ACL successfully promotes many other types of group travel by offering group fares.

Active promotion of the rail-auto plan, the Rail Travel Credit Card, and operation of 25 passenger-traffic offices (16 on-line, 9 off-line) are other parts of the passenger program.

Coast Line gets the most out of a limited promotional budget by concentrating its advertising in the Northeast. As ACL puts it, "that's where the traffic is." Passenger ads are confined almost entirely to newspapers.

Once ACL lures the passengers aboard its trains, it tries to make sure they'll come back for more by offering outstanding equipment and service.

Coast Line operates one of the finest pas-

SPECIFICATIONS FOR A SPEEDWAY

... and the fleet at midnight

0 25 50 100 miles

© 2013, Kalmbach Publishing Co., CLASSIC TRAINS, Jay Smith

-  Coded track circuit signaling (intermittent inductive CTC)
-  CTC being installed
-  CTC-equipped track
-  ACL double track
-  ACL single track
-  Other railroads
- Not all lines shown.

- ACL Atlantic Coast Line
- B&O Baltimore & Ohio
- CoFG Central of Georgia
- C&WC Charleston & Western Carolina
- C&EI Chicago & Eastern Illinois
- CN&L Columbia, Newberry & Laurens
- FEC Florida East Coast
- IC Illinois Central

- L&N Louisville & Nashville
- PRR Pennsylvania
- RF&P Richmond, Fredericksburg & Potomac



No. 91, West Coast Champion

- New York–Tampa, St. Petersburg, Sarasota
- Coaches, sleepers, tavern-lounge, dining cars
- Daily

No. 87, Florida Special

- New York–Miami (connections to Naples)
- Coaches, dining cars
- Daily in winter season

No. 77, Palmetto

- Washington–Savannah (connections to Wilmington, Augusta)
- Coaches, sleepers, dining car
- Daily

No. 78, Palmetto

- Savannah–Washington (connections from Augusta, Wilmington)
- Coaches, sleepers, dining car
- Daily

No. 2, East Coast Champion

- Miami–New York
- Coaches, sleepers, tavern-lounge, dining cars
- Daily

No. 1, East Coast Champion

- Washington–Jacksonville
- New York–Miami
- Coaches, sleepers, tavern-lounge, dining cars
- Daily

No. 88, Florida Special

- Miami–New York (connections from Naples)
- Sleepers, dining cars
- Daily in winter season

No. 7, Miamian

- New York–Miami
- Coaches, sleepers, tavern-lounge, dining car
- Daily in winter season

No. 55

- Florence–Wilmington
- Sleepers, coaches, café-lounge
- Daily

No. 375, Everglades

- Washington–Jacksonville
- Coaches, sleepers, dining car
- Daily

No. 376, Everglades

- Jacksonville–Washington
- Coaches, sleepers, dining car
- Daily

No. 75, Havana Special

- New York–Miami (connection to Wilmington)
- Coaches, sleepers, dining car
- Daily

No. 76, Havana Special

- Miami–New York (connection from Wilmington)
- Coaches, sleepers, dining car
- Daily

No. 11, South Wind

- Miami–Chicago (connections from Sarasota, St. Petersburg, Tampa)
- Coaches, sleepers, dining car, coach bar-lounge
- Every other day

No. 37

- Jacksonville–St. Petersburg
- Coaches
- Daily

No. 38

- St. Petersburg–Jacksonville
- Coaches
- Daily



GULF OF MEXICO

ATLANTIC OCEAN

ACL'S PASSENGER POOL

September 30, 1957

LIGHTWEIGHT CARS

Type	Number of cars	Roller-bearing cars
Coach	55	55
Tavern-Lounge-Observation	7	7
Dining car	17	17
Twin-unit diners (5 dining room, 5 kitchen-dorm)	10	10
Passenger-Baggage-Dormitory	6	6
Baggage-Dormitory	2	2
Baggage	2	2
Sleeping car (leased to Pullman Co.)	48	48
TOTALS	147	147

HEAVYWEIGHT CARS

Type	Number of cars	Roller-bearing cars
Coach	119	46
Tavern-Lounge	6	6
Cafe-Lounge	2	2
Dining car	34	34
Baggage-Dormitory	8	8
Passenger-Baggage	23	10
Railway Post Office	14	14
Mail-Baggage	38	25
Express-Baggage	167	53
Express Refrigerator	49	49
Sleeping car (37 leased to Pullman, 10 in U.S. Gov't. pool)	53	0
TOTALS	513	237
GRAND TOTALS	660	394



A blue lantern by the pilot of E7 No. 539, heading up the *East Coast Champion* at Florence, indicates the train is not to be moved during its 5-minute servicing stop.

senger-car fleets in the U.S. The backbone is a group of 147 stainless-steel lightweight roller-bearing cars. ACL bought its first lightweights in 1939, when it launched the *Champion* streamliner, and the fleet was expanded with 120 postwar cars.

The *East Coast Champion*, *West Coast Champion*, *Florida Special*, and the summer-only *Advance East Coast Champion* are made up entirely of lightweight, stainless-steel cars.

During recent years, ACL's Rocky Mount, N.C., shops have been carrying out a rebuilding program for 25 of the road's older standard coaches. In mechanical features and interior appointments the rebuilds are equivalent to new cars, differing only in heavier weight. They're equipped with modern air conditioning and heating equipment, large lounges, new reclining seats, streamlined exteriors, full-width diaphragms, tightlock couplers, and roller bearings.

A leader in the application of roller bearings to both freight and passenger equipment, Coast Line has applied them to 46 out of a total of 119 standard-weight coaches.

With its passenger operation already well equipped, Coast Line is currently "just watching" new developments in rolling stock. Domes and high-level trains are ruled out on ACL through trains by tunnel clearances at Washington Union Station, and Coast Line doesn't regard dome operation south of Richmond practical because most



As the head-end-heavy *Havana Special* departs Rocky Mount, N.C., an E unit waits to back into the station to pick up train 49, the *Special's* connection to Wilmington.



trains run at night. Although competitor Seaboard recently met the tunnel clearance problem with its glass-top *Silver Meteor* “Sun Lounges”—the next best thing to a dome—ACL hasn’t yet moved to meet the challenge. Coast Line hasn’t seen anything in the new lightweight train derby that provides the comfort it regards as necessary for its predominantly long-haul service.

Atlantic Coast Line regards good dining-car service as a vital part of a successful passenger operation, and the road is remarkably fortunate in being able to provide an excellent dining service while it is keeping its dining-car operating ratio among the lowest in U.S. railroading (third lowest in 1956). ACL has managed to accomplish this by eliminating waste and increasing efficiency, rather than cutting corners in service or food quality. For example, the road has developed the art of swinging diner staff from one train to another to minimize dead time for crews.

Coast Line patrons continue to enjoy all the niceties of dining-car service in the traditional manner. The varied ACL menus feature such specialties as a Florida Fruit Platter and a North Carolina Country Ham Breakfast. A special tip to travelers: try the ACL Steak Platter.

For almost all of its dining-car services, Coast Line sticks to the conventional single-unit dining car. Five “twin-diner” two-car units are operated on heavily traveled runs, and a few cafe-lounge cars (part diner, part lounge), operated with less than a full crew, are used on light passenger runs.

ACL got its first two passenger diesels in



C.T.C. signals, angled for better visibility on a left-hand curve, preside over train 76, the northbound *Havana Special*, as it slows for its Charleston, S.C., station stop.

NEW HAND ON THE THROTTLE

On August 1, 1957, Champion McDowell Davis retired after more than 64 years with the Coast Line, the last 15 of them as its president. Colorful “Champ” Davis was a strong-minded individualist who painted his diesels purple, announced his railroad was staying in the passenger business “in a big way,” and declared himself opposed to weakening of ICC control over the industry, preferring to see the same controls applied to non-rail transportation. Improvement and maintenance were his unending concern, and he built ACL into one of the nation’s finest railroad plants. The 78-year-old bachelor, who lived only for the Atlantic Coast Line and the Episcopal Church, made railroading a seven-day-a-week job—and expected his subordinates to do the same.

To fill the big gap left by Champ Davis’s retirement, ACL’s board of directors picked an able, young (45) Virginian, W. Thomas Rice, president of the Richmond, Fredericksburg & Potomac since 1955. Tom Rice graduated from Virginia Polytechnic Institute as a civil engineer in 1934, then began his railroading career in the PRR’s operating department. He was called to World War II active duty in the Army’s Railway Operating Battalion and served three years overseas, where he rose to the rank of lieutenant colonel in command of the Iranian State Railways.

Rice resumed his railroad career with RF&P in 1946 and was promoted from superintendent of Potomac Yard to superintendent at Richmond, then general superintendent, and finally president. Rice’s RF&P career spanned the transition from steam to diesel, and he won his reputation as an outstanding railroader through his role in the road’s modernization.

After taking over his new job at ACL’s Wilmington, N.C., headquarters, Tom Rice immediately set out on a series of inspection trips to familiarize himself with Coast Line and its territory, and quickly won the confidence of employees and the press with his friendly approach and frankness.

Rice is a family man, and he believes that the man who can’t find time from his job for his family isn’t up to the job or needs help. Rice contends there’s a rightful place for all forms of transportation and enough business for all. On one of his first trips from his Richmond home to Wilmington, he startled ACL railroaders and illustrated his point by showing up on an airliner.



New Coast Line boss Tom Rice arrives at HQ in Wilmington. ACL

1939 for the new *Champion*, liked what it saw, and followed through with an order for 18 more in 1940. Today’s passenger fleet for the all-diesel Coast Line consists of 64 2,000-h.p. or 2,250-h.p. passenger units, backed up by 68 1,350-h.p. or 1,500-h.p. dual-service units. During the peak winter season, ACL has enough straight passenger units to operate all its mainline trains while the dual-service units take over branchline runs and supplement the mainline pool.

All mainline passenger units operate out of a single pool at Jacksonville. ACL gets good mileage—over 17,000 miles a month—out of its passenger power by assigning long runs. A Tampa–Richmond or Jacksonville–Richmond round trip is a typical diesel assignment, with units cut out at Jacksonville when they’re due for periodic maintenance. Coast Line diesels once had even longer runs, through to Miami over Florida East Coast and to Washington over RF&P. Today they stay on home rails, except for several units which operate from Jacksonville to Chicago over L&N and Pennsy on the *South Wind*.

Purple diesels, stainless-steel streamliners, and roller bearings are only part of the Coast Line passenger story. In its passenger-train operation, ACL takes a back seat to no one. The road operates the fastest New York–Florida service, and it eas-

ily leads all other southeastern railroads in high-speed mileage. At important servicing points, such as Florence, S.C., ACL’s tight schedules give yard crews just 5 minutes to service a streamliner and get it rolling again. Heads-up crews and modern equipment make it possible. Coast Line passenger trains consistently chalk up 96 to 98 percent maintenance-of-schedule records.

With the 1955–56 winter season, the road began 100-mph operation of its all-roller-bearing-equipped streamliners, making possible a 10-hour running time over the 645-mile Richmond–Jacksonville main line and permitting the first 24-hour New York–Miami schedules in history. After two years of 100-mph operation, ACL has found it can reduce maintenance costs and still hold its fast schedules with a lower top speed, although the edge has been taken off some of Coast Line’s fastest timings. Effective October 27, 1957, ACL’s top speed was limited to 90 mph. Its fastest train under current schedules (1957–58 winter season) is the northbound *Florida Special*, which does the 645 miles in just 9 hours 50 minutes and makes the Miami–New York distance in 24 hours flat.

The story of high-speed operation on Coast Line goes back at least a dozen years before 1955. Before World War II, ACL simply didn’t have the physical plant required for extremely high speeds, setting in motion in

1939 a still-continuing improvement program that has cost nearly \$300 million to date. The program, which didn’t get under way in earnest until 1943 because of the war, has bought the diesels, passenger cars, Centralized Traffic Control signaling, automatic train control, new rail, and track alignment that have made possible Coast Line’s position as a high-speed railroad. Almost every mile of track has benefitted from heavier rail and new ties and ballast. The Western Division, formerly the rundown Atlanta, Birmingham & Coast, got an almost entirely new track structure, C.T.C. where no signaling existed before, modern communications, and new and rebuilt structures. The entire Coast Line was 100 percent dieselized by 1953.

But nowhere did Coast Line’s overhaul have a more profound effect on its passenger operation than on the Richmond–Jacksonville main line. This 645-mile artery moves well over three-quarters of the 5,300-mile system’s passenger traffic. It was a good piece of railroad before ACL went to work on it, and it’s a far better one today.

Except for several short, single-track stretches over bridges, and alternate routes between Jesup and Folkston, Ga., ACL’s Richmond–Jacksonville main is double track all the way. Between 1943 and 1950, the main line’s 100-pound rail was replaced with 131- or 132-pound steel. Most of its ties have been replaced with treated 9-footers, and the brand-new track structure has been set down in a solid bed of crushed granite ballast.

Coast Line’s virtually water-level route was well engineered to begin with, but even this has been vastly improved. Extensive realignments have eased or eliminated nearly 100 curves. Dips and peaks in the grade line were reduced, primarily to improve freight operation, but they’ve helped passenger trains as well. Roadbed shoulders have been widened for greater stability and to permit the use of off-track maintenance equipment.

Superior maintenance of way plays an important part in the ACL passenger success story. Recently retired President Champion McDowell Davis (for whom the streamliners are named) long emphasized a high standard of maintenance, a standard that more than once brought Coast Line criticism for “over-maintenance.” Davis argued that it provided a built-in cushion against hard times, but its more tangible result is a smooth-as-glass ride for ACL’s 90-mph streamliners that is not merely a copywriter’s wishful thinking.

Nothing was more vital to the speed-up than signaling, and the road has invested \$15 million in this area alone. The main line was already equipped with an automatic block system with semaphore signals, but the entire system was modernized for high-speed operation. Searchlight signals utilizing coded track circuits have been installed and block lengths increased to an av-



Operator Mrs. L. H. McBratney keeps the Coast Line streamliners on the move during the night trick at WG Tower in Florence. The C.T.C. console here controls the 12.6 miles of main line from Florence north to Pee Dee, S.C.

erage of 2 miles. Intermittent inductive Automatic Train Control is in use from Richmond to Waycross, Ga., and it will extend all the way to Jacksonville by the end of 1958. C.T.C. signaling for reverse operation has been installed at 10 locations on the main line, including several single-track stretches across bridges and at points where freight and passenger traffic is congested. Still more C.T.C. is on the way for the main line.

Coast Line's new president, youthful W. Thomas Rice, finds the outlook encouraging for his road's passenger traffic, believing that long-haul passenger service—in spite of air competition—can be operated with satisfac-

tory results if it is maintained on a high level. At the same time he sees little future for what short-haul traffic remains, saying, "I believe it reasonable to assume that Coast Line will continue to enjoy long-haul passenger business for the foreseeable future, but undoubtedly the private automobile will continue to make inroads upon the short-haul travel market."

One of the important objectives of Atlantic Coast Line's 15-year, \$300 million rehabilitation and modernization program was the retention and development of passenger traffic. Reviewing the program's results, President Rice finds ACL in peak physical

condition, well equipped to provide the high level of service he feels is necessary to preserve passenger traffic.

Looking at the passenger problem in general, Rice feels the industry may be on the threshold of a revolution in passenger-train service similar to that of the depression days of the 1930s, when air conditioning, streamliners, and diesels renewed the desire of the public to travel by rail. He points to new types of equipment tailor-made to meet particular requirements—high-level equipment for long-distance travel, and the experimental lightweight trains for short-distance travel—as encouraging trends. ■



Living the Vista-Dome dream: Passengers on the *California Zephyr* enjoy the view from one of the train's five Vista-Dome cars. Built during 1945–1958 for 22 railroads, primarily in the West, where scenery warranted and clearances permitted them, dome cars were an effective tool in attracting travelers throughout the increasingly automobile- and airliner-oriented 1950s. Willard V. Anderson

My Bucket List!!

Visit the Nevada Northern Railway!

Become a Member SAVE \$\$\$!

Operate a Steam Locomotive!

Work on a Railroad for a Week!

Attend a Winter Photo Shoot!

Spend the Night in a Caboose!

Make Reservations **TODAY!!!**

866-407 8326

Be the Engineer



Operate a Locomotive! You are the Engineer - Instruction included.
Be the Engineer - 14 Mile Trip
 Diesel \$645 Steam \$845
 Members: Diesel \$545; Steam \$745
Ultimate Engineer Package - 2 Trips
 Both Steam & Diesel...\$1,095 (28 miles)
 Members: \$945

Winter Photo Shoots



Time Travel! Set your watch back a century, and experience world class photographic opportunities. Witness railroading as it was in the last century. Photograph century-old original steam locomotives pulling vintage freight and passenger cars that are original to the railroad! An incredible event!

Winter Photo Shoot
 2 1/2 Days.....\$450
 Both Weekends.....\$295

Members:
 2 1/2 Days.....\$395
 Both Weekends.....\$745

Railroad Reality Week



Work on the Railroad! Learn, hands-on what it takes to run a 19th century railroad. You will work in a machine shop, crew a train, repair track, operate a diesel locomotive. For one week you will have the greatest adventure of your life!
 Adult Session.....\$995
 Dates: June 5 or Aug 17

Sleep in a Caboose Sleep in a Bunkhouse



Unique Opportunity! Spend the night in the 19th century! Sleep in a Caboose or in the Crew Bunkhouse in a National Historic Landmark Railroad Yard. Then ride the train!

Caboose Overnight.....\$115

Members: \$80

Caboose Overnight & Train Ride.....\$165

Members: \$139

Bunkhouse Overnight.....\$95

Members: \$95

Bunkhouse Overnight & Train Ride..\$185

Members: \$150

(Accommodations: 2 adults and a child)

**GIFT CERTIFICATES
AVAILABLE**

NEVADA NORTHERN RAILWAY
 A NATIONAL HISTORIC LANDMARK

E A S T
 E L Y

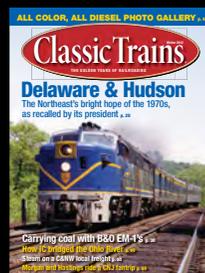
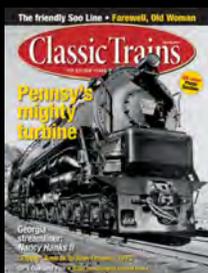
1100 AVENUE A • ELY NEVADA 89301
 (866) 407- 8326 • WWW.NNRY.COM

AN ERA of change

From luxury streamliners to the last gasps of steam, *Trains of the 1950s* captures the dynamic “transition era” on America’s railroads.

- Testing diesels on the NYC • GN’s streamliner spending spree • Diversity at Joliet Union Station
 - All-color photo gallery • Piggyback progress on the SP • Atlantic Coast Line’s fast fleet
- The road-switcher revolution • Midwestern vacation, 1953 • N&W: Steam’s last true believer
 - Pennsy’s Altoona–Pittsburgh main line

For more fascinating stories about the classic age of railroading, subscribe to *Classic Trains* magazine. Each issue contains compelling firsthand accounts; spectacular photographs; information on great locomotives, passenger trains, and railroad companies; and much more!



Subscribe today at
www.ClassicTrainsMag.com
or call 1-800-533-1644

Monday – Friday, 8:30 a.m. – 4:30 p.m. CST. Outside the United States and Canada call 262-796-8776, ext. 661. Please have your credit card ready.