

# The Sentinel



A QUARTERLY MAGAZINE PUBLISHED BY THE BALTIMORE & OHIO RAILROAD HISTORICAL SOCIETY

\$8.00

VOLUME 40, NUMBER 4

FOURTH QUARTER 2018

## Winton Diesel Engines on the B&O



# Message from the President

Fall 2018

Well fellow members, another year is winding down and the holidays will be fast approaching. I hope all enjoy themselves and are safe. With this year's closing, let us review what has happened since we last communicated. The archives staff continue to move along and details will be posted in the archives report. In June, John Teichmoeller did an outstanding presentation on the development of the Patapsco Valley around Ilchester, Maryland. Thank you John! Our next **Quarterly Community Outreach Night** will be Thursday, September 13th, with a presentation by Paul Faulkner of the Western Maryland Railway Historical Society. There will be another one on November 15th; presentation to be determined. Presenters for 2019 are needed so please contact the Vice-President with your contact information. The Community Outreach Program is based on all railroad history, not just the B&O. We had an informal slide night in June and August of the collections we received from Larry Elliot and Ralph Barger. The next one will be Saturday, October 20th at 6:30pm. If you are in the area, stop in and enjoy the show. **The Eastern Mini-Con** on July 28th was a great success with almost 70 people attending.

The future of this society is always in the hands of the membership. As stated

before we need to recruit new and younger members. Unlike other railroad historical societies, our membership has stabilized. These membership numbers are due to the efforts of the officers and volunteers to keep the B&ORHS presence out in front of the public. If you can help us show the flag by doing community outreach and share the B&O's vast history, please let us know.

The **Retire-the-Mortgage** effort has gone flat. We've had about 80 members make contributions to the mortgage fund as of this writing. Please consider donating to the society to support our causes; a form is enclosed with this issue. We are only asking each member to make a \$25 contribution each year for the next three years. If this happens, our mortgage will be paid off in 2021. Please consider helping.

Mark your calendar for the second **B&ORHS Holiday Party** on December 1st; flyer enclosed with this issue.

Work will begin shortly on the 2020 society's annual calendar. We need a coordinator for this project to select photos and develop captions; please consider helping. Deadline for calendar paste up is February 12th, 2019.

The following activities are already scheduled for 2019: **Founders Day** will be March 2nd; **RPM-East Meet** in Greensburg,

(CONTINUED ON PAGE 39)

# The Sentinel

The official publication of  
**THE BALTIMORE AND OHIO  
RAILROAD HISTORICAL SOCIETY**

P. O. Box 1608  
Sykesville, Maryland 21784

E-mail: [info@borhs.org](mailto:info@borhs.org)

Website: [borhs.org](http://borhs.org)

Missing *Sentinel*: [storemanager@borhs.org](mailto:storemanager@borhs.org)

The Baltimore and Ohio Historical Society is a non-profit corporation dedicated to preserving and disseminating historical information about The Baltimore and Ohio Railroad.

Copyright ©2018 ISSN 1053-4415



## SOCIETY OFFICERS

**Greg Smith** - PRESIDENT  
[president@borhs.org](mailto:president@borhs.org)

**Nick Fry** - VP OPERATIONS  
[operations@borhs.org](mailto:operations@borhs.org)

**George Stant** - VP FINANCE  
[vpfinance@borhs.org](mailto:vpfinance@borhs.org)

**Allen Young** - SECRETARY  
[secretary@borhs.org](mailto:secretary@borhs.org)

**Chris Winslow** - TREASURER  
[treasurer@borhs.org](mailto:treasurer@borhs.org)

## BOARD OF DIRECTORS

**Bruce Elliott** (2020) **Mike Shylanski** (2018)

**Henry Freeman** (2020) **Tom Dupee** (2019)

**Dale Corn** (2019) **Grant Berry** (2018)

**Bob Hubler** (Past President)

Officers' terms expire annually. Directors' terms expire in October of the indicated year.

All directors may be reached at [secretary@borhs.org](mailto:secretary@borhs.org).

## EDITORIAL STAFF

**Ken Wing**, EDITOR—[sentinel@borhs.org](mailto:sentinel@borhs.org)

**Clifton Linton**, **Gene Stebbins**,  
and **Richard Zeren**, ASSOCIATE EDITORS  
[sentinel@borhs.org](mailto:sentinel@borhs.org)

**Al McEvoy**, ARCHIVES

**Greg Smith**, (INTERIM) ARCHIVES PHOTO EDITOR

**John Teichmoeller**, B&O MODELER

**Craig Close**, RUNNING LIGHT EDITOR

**Roberta Poling**, Thunder Grafex, Ltd.,  
GRAPHIC DESIGN—[roberta@thundergrafex.com](mailto:roberta@thundergrafex.com)

## Contributors welcome:

Articles, manuscripts, photographs, reviews, and other historical data are solicited for publication. Original material will be returned upon publication. Send all material to:

**Ken Wing**, [sentinel@borhs.org](mailto:sentinel@borhs.org)

or mail hardcopy material to

P.O. Box 1608, Sykesville, MD 21784

## COMPANY STORE

Orders: **Company Store link at [borhs.org](http://borhs.org)**  
[storemanager@borhs.org](mailto:storemanager@borhs.org)

## MEMBERSHIP

[membershipchair@borhs.org](mailto:membershipchair@borhs.org)

One year regular membership is \$45.00. For other classes or inquiries, write to the Society's P.O. Box address, or email [membershipchair@borhs.org](mailto:membershipchair@borhs.org).

For an address change, write to the P.O. Box address, or email [address@borhs.org](mailto:address@borhs.org)

Memberships, once accepted, cannot be returned.

## In This Issue

**WINTON DIESEL ENGINES PIONEER ON THE B&O RAILROAD** BY GENE STEBBINS ..... 3

**THE SAGA OF 58501 ON THE B&O** BY NICK FRY ..... 13

**B&O CHINA: An Overview of the Various Patterns and Manufacturers**  
Used by the Baltimore and Ohio Railroad BY ALLEN YOUNG ..... 15

**LIBRARY PLATFORM: Video Review: B&O Steam** BY BOB CHAPMAN ..... 22

**SOLVING THE MYSTERY OF B&O 445**  
Edward Hungerford's Great Illusion BY DWIGHT JONES ..... 23

**THE OSCAR G. MURRAY EMPLOYEE BENEFIT FUND** BY JOHN GEIST ..... 31

**OBITUARY: William Barringer** BY JOE NEVIN ..... 34

**RUNNING LIGHT** ..... 35

**ARCHIVE CENTER REPORT** ..... 39

## On the Front Cover

EA 51 wears evidence of winter on display outside at the B&O Museum. This was EMC's very first E-unit, leading the way for hundreds of subsequent locomotives across the nation. Similar styling was later developed for thousands of F-units. Inside, two Winton engines powered this pioneer (see story page 3). The freight-style pilot is not original.

(Image Courtesy of the B&O Railroad Museum.)



B&O 50 Class AA at EMC with new shovel nose in background; UP M10002 in foreground. Since 50 was delivered in 1935, the shovel nose was applied at Mt. Clare in 1936, and M10002 was built in 1936, 50 was back at EMC in 1936 to address some teething problems. Per Jim Mischke, 50 had both electrical problems and truck mechanical problems. (Collection of B&ORRHS)

# Winton Diesel Engines Pioneer on the B&O Railroad

By Gene Stebbins

As the B&O moved into the 1930s, the competition for passengers became more intense. On the east coast, the Pennsylvania Railroad rolled out electrified service, promising the end of smoke and cinders, as well as eliminating time-consuming stops for coal and water. In 1935, the B&O responded by embracing a new technology developed by an industry outsider—GM's Electro-Motive Corporation. The B&O ordered one of the first diesel-electric locomotives as its answer to the Pennsylvania Railroad's electrification between major East Coast markets.

In the Southwest, the Santa Fe faced increasing difficulties in providing acceptable water for its locomotives, and so it

too turned to the new diesel locomotives, taking two of the first five turned out by EMC. Soon, EMC brought out a more stylish diesel locomotive, the EA model. B&O bought all twelve units produced. Somewhat similar TA, E1, and E2 models were purchased western roads.

Key to GM's development of these locomotives was the Winton Engine Company of Cleveland. Their diesel engine made these pioneering locomotives possible. This is Winton's story.

Alexander Winton started just like the Wright Brothers, a bicycle builder in the late 1800s in Ohio. In the last several decades of the 19th century, the bicycle craze swept America, offering young men

the newest answer to personal transportation. Bicycles were light and portable, and did not require feed or stable as a horse did. Hundreds of inventors, tinkerers, and blacksmiths set about supplying the local demand and trying to make a better bicycle. Many turned to manufacturing bicycles.

The next step was to make a similar machine with a motor, another way of supplanting the horse. Some made two-wheeled and three-wheeled conveyances, but most made four-wheeled vehicles. Winton's career followed the trend—he soon turned to making automobiles in Cleveland, incorporating his company in 1897. His car, with a 10-hp engine, padded seats, and B.F. Goodrich tires, went around



B&O 50 Class AA interior showing Winton Engine. (Collection of B&ORRHS)

a Cleveland horse track at more than 33 miles per hour, more than twice the speed of the fastest horse. In 1897, he drove one of his automobiles from Cleveland to New York, attracting national attention. The next year, Winton sold 22 automobiles.

By 1900, the company was making 25 cars a week, and selling them for \$2,000 each, which was more than the average person's yearly wages. In 1902, the company had 1,500 employees at its Cleveland factory, and soon added a delivery truck and racing car to its line. Although Winton reached an annual total of 2,450 vehicles in 1915, Henry Ford's inexpensive Model T soon caused Winton sales to drop. They made only 600 cars in 1922, and by 1924 the company ceased automobile production,

but Winton continued making the engines that had been designed for various other applications.

The Winton Engine Company had been established in 1912 to supply not only power for Winton motorcars, but also engines for marine use and stationary power plants. The company built mostly gasoline-powered engines, but built its first experimental diesel engine in 1916. During World War I, Winton supplied the government with engines, both gasoline and diesel, for a wide variety of applications in the war effort.

One of the early customers for Winton engines was another Cleveland-based company, the Electro-Motive Engineering Company, which later changed its name

to simply the Electro-Motive Company. EMC was an engineering and sales company, with no manufacturing facilities of its own. It designed self-propelled cars for use by railroads, utilizing a gasoline engine driving a generator, which powered electric motors on the axles of the unit, similar to the motors in a street car. EMC contracted the construction and assembly of its doodlebug cars to railroad car builders such as Pullman, St. Louis Car Company, and General Electric's Erie facility, and the vast majority of EMC's products used Winton engines. Railroads found these gas-electric cars useful for secondary runs, replacing a full train of engine and several coaches. Their gasoline engines proved quite economical and reliable compared to other engines of the time, but after several accidents involving fires on gas-electric cars, both Winton and EMC turned to the development of oil engines, commonly called distillate engines, which used a mix of light oil as fuel, reducing the fire hazard, but these engines required high-voltage ignition systems, and proved to require excessive amounts of maintenance.

The Winton Engine Company moved to develop a lighter diesel engine for various applications, primarily for marine use. In the late twenties, Charles Kettering of GM's Delco Division, was seeking engines for his new yacht. He had developed a number of technical innovations for GM, the most notable being the automobile self-starter, eliminating the cumbersome crank. Through his research, he became aware of the advanced work Winton was doing in the diesel engine area, and he convinced General Motors to buy the company in 1930. Very soon after, GM also bought Winton's best customer, the Electro-Motive Company, which had fallen on hard times as the Great Depression set in. Initially, Electro-Motive was a subsidiary of the Winton Engine Company, but soon both were renamed Electro-Motive Corporation and the Winton Engine Corporation respectively, as subsidiaries of General Motors. In 1937, Winton's locomotive engine business was absorbed into EMC, and the non-railroad business became the Cleveland Diesel Engine Division of General Motors. Both units utilized essentially the same Winton product.

In the early thirties, the US Navy announced a new program to develop



B&O 50 on the *Royal Blue* at Philadelphia, Pennsylvania, August 1935.

*(Photograph by W.R. Osborne, H.H. Harwood Collection. Image Courtesy of the B&O Railroad Museum.)*



EMC Demonstrators, EMC 511-512, DP-1, diesel, Electro-Motive Corporation, circa 1935, possibly Camden Station.

*(Photograph by L.W. Rice or Howard N. Barr, Sr. Image Courtesy of the B&O Railroad Museum.)*



B&O Engine 50, diesel, Electro-Motive Corporation, Baltimore, Maryland. (Photograph by L.W. Rice. Image Courtesy of the B&O Railroad Museum.)

better diesel engines, primarily for submarine applications, but also for other smaller surface craft. Their requirements matched closely the specifications of a new Winton diesel engine under development, a two-stroke unit offering increased power with a reduction of weight, when compared to the traditional four-stroke diesels of the time. The two-stroke engine weighed less than half that of a traditional four-stroke engine of comparable horsepower. Development of the new engine, the Model 201, was pushed to provide a working 12-cylinder model for the Navy in 1934, as well as two eight-cylinder units to provide power for the GM exhibit at the Century of Progress Exposition in Chicago that same year.

These early Model 201 units featured significant innovations, primarily fuel injectors and advanced welded steel construction. The only Model 201 engines made were the experimental units provided to the Navy and the two units utilized in the Chevrolet exhibit at the Chicago Exposition. Production of an improved Winton 201A engine began in 1934, with application of eight-cylinder 600-hp units to the Budd Zephyr trains and several Union Pacific streamliner sets, as well as 16-cylinder units for US Navy submarines.

EMC next designed a box-cab diesel locomotive unit for passenger trains, similar in appearance to P5 box-cab electric

units used by the Pennsylvania Railroad on its Washington to New York rails. EMC contracted for their construction to two corporations. The St. Louis Car Company constructed two units for the Santa Fe Railroad, numbers 1 and 1A, and General Electric constructed three units in their Erie plant. Two units were retained by EMC for use as demonstrators and research units. The third, B&O locomotive number 50, was put to work pulling the *Royal Blue* from Washington to New York. B&O could advertise the luxury train as free of smoke and cinders without the enormous costs of electrification.

EMC also sold a number of switching locomotives, primarily for use in eastern cities where smoke abatement restrictions were being instituted. All these locomotives used the Winton Model 201A engine. At the same time, Cleveland Diesel was supplying 201A engines to the US Navy. B&O owned one Winton-engined switcher, a model SW 600hp B-B-trucked locomotive built November, 1936—the first year of the model's production. It was delivered as B&O 2 and leased to and sub-lettered for the B&OCT. The SW was similar to the SC introduced the year before, having a welded instead of cast frame.

Next EMC designed a streamlined locomotive with a slanted front and a cab located above the unit further back from

the front offering a safer location for the operating crew. This followed the general arrangement of several Union Pacific units heading streamliner trainsets, but the radiator intake was relocated, following complaints that the front air intake grills on the UP units accumulated excessive debris. On the new units, EMC moved the air intakes closer to the engines along the sides of the units. These streamlined units were called EA locomotives. Model EB was a similar booster unit with no cab. These locomotives achieved high horsepower ratings by using two units, each containing two 12-cylinder Winton engines, all controlled from one cab in the first unit. Baltimore and Ohio bought the first EA-EB two-unit locomotive, originally numbered 51 and 52, but the EB unit was renumbered shortly after delivery to 51. Later, at various times, it was renumbered 51x and 51B. This was because railroad executives feared that if they were numbered separately, railroad unions might insist each unit have a crew. Later, as these fears did not materialize and confusion reigned as sets were broken up and assigned to new configurations, each unit received a unique number. B&O also bought the only other five EA-EB sets, all using the Winton Model 201A engine, for use by streamlined trains across the B&O system.

The shortcomings of the 201A engine led to a research effort by both Winton and