



Westbound at Swan Creek, Maryland, engine 5204 exemplifies the B&O's class P-5 USRA Pacifics, delivered in 1919 and the mainstay of the motive power on the Royal Blue Line. In 1926 it would be the first B&O locomotive class to work through from Washington to Jersey City, only to be displaced in 1927 when the class P-7s arrived. The photograph is circa 1920, prior to the track pan area's being paved with Belgian blocks. Note the covered steam line running between and parallel to the tracks.

Track Pans and the B&O *Royal Blue* Line

By R.N. Nelson

Photographs from the B&O Railroad Historical Society Collection

Providing much-needed water to steam locomotives was an ongoing struggle that had to be won. An adequate water level was essential since it was also a cooling agent for the locomotive boiler and firebox jacket and without it, locos

would overheat and cause an explosion.

Track pans, which were actually metal water troughs between the rails that enabled steam locomotives to scoop water on the fly, were an essential part of the B&O's relentless effort to provide

competitive passenger train service between Washington, D.C., and Jersey City, New Jersey, which began in 1832 as a rather awkward combined rail and water route and finally emerged as an all-rail route on December 15, 1886.



Some of the P-5 Pacifics used in *Royal Blue* service had their tenders extended 10 feet so they could hold 16 tons of coal and 10,800 gallons of water. But the longer range brought with it a need for bigger turntables. The tenders of P-7s could carry 19½ tons of coal and 11,000 gallons of water.

prevent the undermining and disruption of the roadbed. Better drainage also helped to prevent heavy ice buildup as a result of standing water on the roadbed in the winter.

Even so, freight trains taking water at the penstocks during icy conditions were required to stop short of the track pan area so the locomotive could cut off from the train and move, light, to the penstock to take water. This avoided having a trainman on the ground slip in the icy paved area caused by the frozen spray, had the cut been made at the penstock. Theoretically, to handle the penstock spout, the fireman would also move to and from the engine to the top of the tender where the cut was made. The paved area extended 100 feet beyond each end of the pans.

Engines scooping water would do so at a speed not exceeding 50 mph since above that, too much water would be sprayed to the trackside and wasted. Excessive speed could conceivably

cause damage to the scoop mechanism. Higher speed while scooping would also generate a higher volume of water with a greater force, resulting in excessive pressure in the tank and possibly blowing off the hatch cover. In the event two opposing trains passed at the pans, with either or both scooping water, the speed was reduced to 30 mph to prevent the spray from injuring crews or damaging the windows or contents of the train on the adjoining track, since there could be loose coal and other debris in the spray.

Below 30 mph, the scoop proved to be less effective, providing less force to push the water up the fill pipe in the tender. So the optimum speed on the B&O for scooping was 40-45 mph.

At each end of the pans was a yellow warning marker and light on a pole, not only for night operations but for days with reduced visibility.

To increase their operating range, in 1926 some of the P-5 Pacifics' tenders were extended 10 feet, increasing the "as

delivered" coal capacity from 14 to 16 tons and the water capacity from 10,000 gallons to 10,800, somewhat resolving the low-water concern. As always, there was a trade-off—the affected engines required a 90-foot turntable. All were hand-fired and did not receive stokers until 1940.

Often, if a passenger train was near the 10-car limit, the train would be doubleheaded. This was not so much to keep the schedule, but with two engines, they would not have to work as hard and individually would consume less water and coal. With this easy fix the four scheduled scoops were adequate but costly because of the expense of the second engine and crew.

But one must also consider that the second locomotive on a doubleheader would get next to nothing on a scoop, so agreements had to be worked out between the crews as to which engine would scoop, one at the first pan location and the other at the second, if possible.



There shouldn't be any guesswork involved in determining who's on this POTUS special at Deshler, Ohio, in October of 1984. The presidential private car *Ferdinand Magellan*, built for President Roosevelt, had been put back in active service so President Reagan could stump across Ohio from Dayton to Perrysburg, just outside Toledo. Even the high school band, resplendent in Revolutionary War-era tri-cornered hats, went down to the depot. (Photograph courtesy RABO)

How to Transport a President

These official 1947 B&O instructions for handling POTUS (President of the United States) specials were provided by retired motive power officer Harry Eck, and first appeared in News & Notes, the publication of the RABO Club.

THE BALTIMORE AND OHIO RAILROAD COMPANY Operating Department INSTRUCTIONS FOR HANDLING OF TRAIN AT THE DISPOSAL OF THE PRESIDENT OF THE UNITED STATES

1. Special train will be placed at his disposal (if he so desires) and the movement of such train over any portion of the road will be given right over all other trains of any class or character.
2. It will not be stopped, except for operating reasons, nor will it be run on side track when possible to avoid doing so. The best equipment will be selected for such train and given

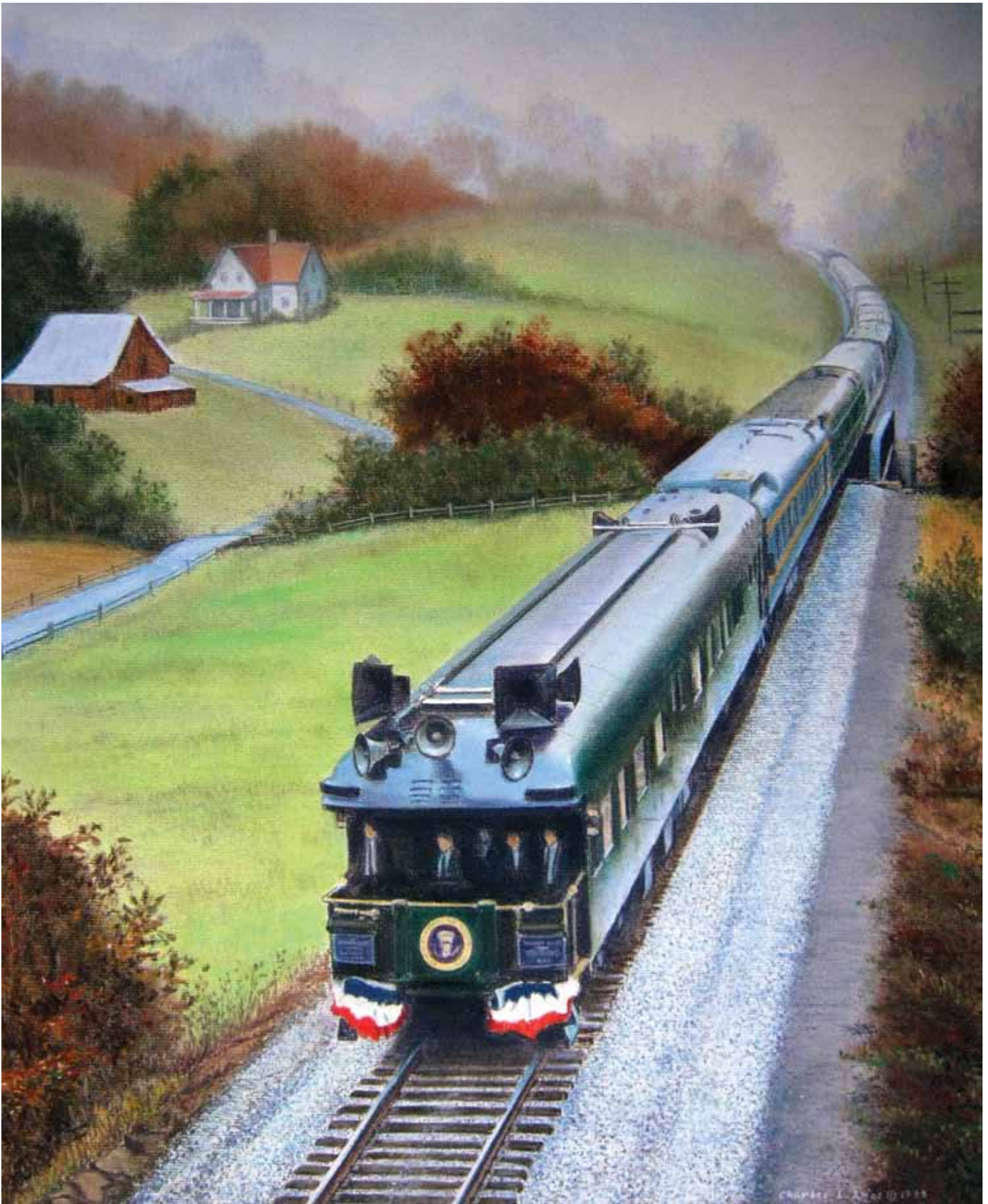
careful inspection before being used. Selected men will be placed in charge of the train and one of the operating officers will accompany the train over each division—preferably the Superintendent.

Not more than one officer, in addition to the regular crew, will ride on a steam locomotive, preferably the Road Foreman of Engines or Supervisor of Locomotive Operation,

and his special duty will be to keep a close lookout on the fireman's side for facing point switches, signals, obstructions, etc.

Not more than two officers, in addition to the regular crew, will ride in the cab of a diesel locomotive, one of them to be the Road Foreman of Engines or the Supervisor of Locomotive Operation.

When diesel power is used a Diesel



RABO Club member Charlie Amos, an accomplished artist, did this pastel of President Reagan's campaign train rolling through Ohio in the fall of 1984. Called the Heartland Special, the train by that era was on Chessie System's Western Division Business Unit, known in its B&O days as the Toledo Division. This was the cover art for Ray Lichty's RABO News & Notes for July 2011, which featured extensive reporting on the B&O's involvement with presidential specials. The original art is part of the collection of Bill Howes, who kindly provided us with a copy.



The cab crewmen are likely wondering what the photographer finds so interesting; for them it's just another day aboard an EM-1. For railfans, it's an excellent opportunity to study the rod, crank, bracket and rope system that was used on all of the big locomotives, one of the few things that can be cited as "standard" on a railroad known for expediency.

EM-1 Update

By Greg Smith

Photographs from the Author's Collection

With the announcement that a Bachmann Spectrum EM-1 should be available in fall 2011, additional information has surfaced on details pertaining to these locomotives.

Tom Davidson, a B&O modeler from Hagerstown, Maryland, and I had a chance to talk about numerous topics that needed further research and discussion: whistle linkage, sandboxes, headlights, radiator cover, and overfire jets.

Tom also had a stack of books and photographs to reinforce his points about his interpretations of the photographs. After an hour of discussion, here are the conclusions we came to:

Most brass models do not have an accurate representation of the whistle linkage on the B&O EM-1s. From the whistle to a bracket behind the rear sandbox the linkage is a rod, not a rope; photos show this clearly. The rod went through a support bracket midway between the steam dome and the sandbox, and connected to a cam that rotated on a shaft placed on two supports behind the sandbox.

Outside the inner supports of the rear bracket hung a cam at the same angle as the outside cam. To this was attached a

pull cord that went inside the engine cab on the engineer's side.

The supports on the rear bracket were trapezoidal plates attached to the rear sandbox. For the rivet counter this is an important detail in prototype modeling.

As the years went by in service the rods were bent and became wavy from crews stepping on them.

In a previous article I wrote on the EM-1s (*Sentinel* Volume 31 Number 2, second quarter 2009), I mentioned that the sandbox fillers were relocated after the production of 7609. Photographs from the late 1940s of 7607-09 show the fillers located front to back, not side by side. Since this was only a couple of years after production we can possibly conclude they were constructed that way.

A picture of 7608 on the cover of Kalmbach's book by Martin J. McGuirk, *Baltimore & Ohio Railroad in the Potomac Valley*, show this locomotive with no large shield over the sanding valve like the locomotives before and after 7608. This photograph was taken in November of 1951 and since with anything on the B&O the only "standard" is the width of the rails, draw your own conclusions about why this was done.

There has been some discussion about the headlights on the EM-1s. All were constructed with single-bulb Pyle National headlights. Twin sealed-beam headlights were installed on a select few during the 1950s. It is important that research be done to identify the locomotives that had this feature, and in what time frame.

A few photographs have popped up showing a cover over the front radiator on the pilots of some EM-1s. No specific data have yet been found about when, why, and how long this was a practice. Speculation is that in the later year during the winter season the cover was installed to keep the radiators from freezing during the harsh weather in northern Ohio. It was not a consistent practice on all of the locomotives in this class so the question is, was it a local shop modification or a test by the B&O to attempt to correct an ongoing problem? Input accompanied by documentation would be welcomed.

Finally, there's the topic of overfire jets. These devices were intended to reduce smoke in urban areas. On some locomotives it did make some improvement in firing the boiler.



B&O Airslide covered hopper 830011 was in a train passing the station at Laurel, Maryland, when author Jim Rogers took this picture. Part of the first series of N-47s built in 1960, it had friction-bearing trucks carrying a light weight of 56,500 pounds.

Airslide Covered Hoppers of the Baltimore & Ohio

By Jim Rogers

EDITOR'S NOTE: On-line sites list Airslide as a trademark, and capitalize it accordingly. We too will do that wherever it is used)

As covered hopper design parameters evolved during the 1930s, the 50-degree slope sheet became a standard and worked well for the usual cement, sand and minerals hauled. But powdery commodities such as flour, starch and sugar would compress and tend to cake up in the car, making discharge difficult.

So the B&O turned to another specialized freight car type, the Airslide covered hopper. The concept of introducing compressed air underneath the load to “fluidize” the commodity was developed in the early 1950s. According to a recent Athearn data sheet, the Fuller Company of Catasauqua, Pennsylvania, patented the Airslide. The General American Transportation Company built the first Airslide cars in 1953, numbered GACX

42000 – 42004. The September 1953 issue of *Chemical Engineering News* noted a nationwide tour of an Airslide car and a full-scale working display.

The design featured hopper bays formed into deep troughs lined with a layer of air-permeable fabric.

The customer receiving the load would need a source of compressed air to connect to the car for unloading.

The original design was for a car with a single discharge bay and a capacity of 2,600 cubic feet. A two-bay design was also available with a capacity of 3,660 cubic feet.

Unfortunately, data are very sparse regarding the early use of Airslide cars on the B&O. While the 1956 Annual Report references the acquisition of five Airslide cars, presumably in the year 1955, the cars do not appear in the Summary of Equipment or among the equipment diagrams. The word “acquisition” would seem to

indicate a purchase, as the next paragraph in the 1956 Annual Report went on to discuss some additional equipment that had been leased the previous year.

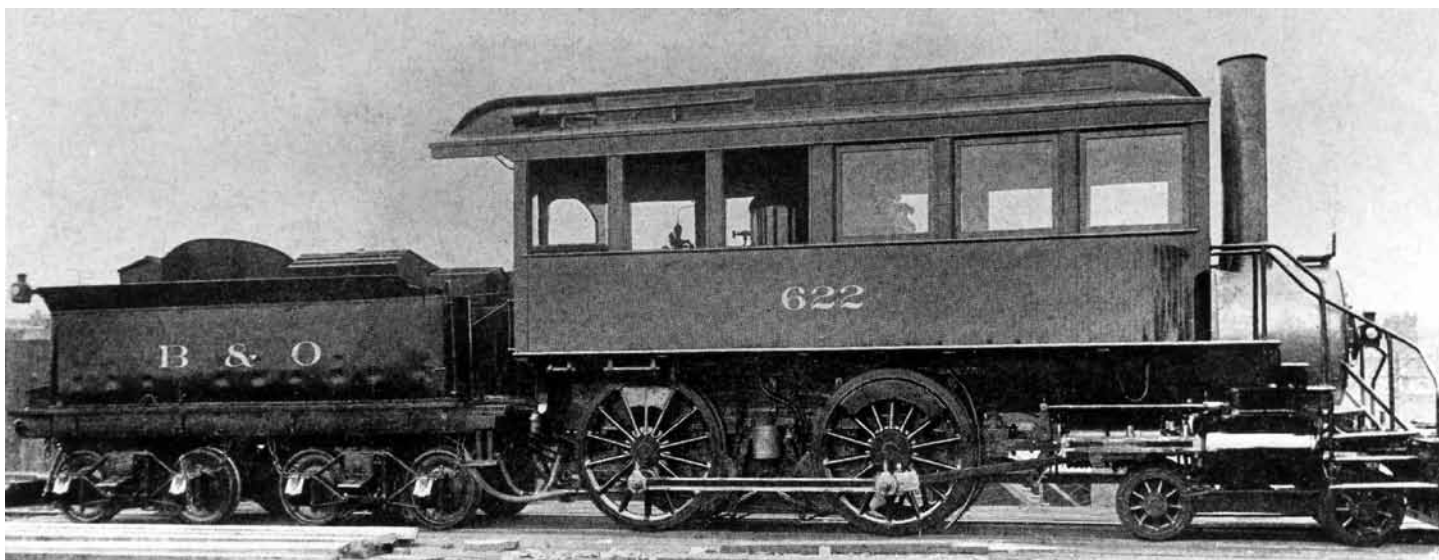
The early group of cars was numbered as follows:

- B&O 630075 – 630079,
ex GACX 42555 – 42586.

This group was later renumbered 830000 – 830004 about August of 1956 and classed N-45. These may be the cars referenced in the 1956 Annual Report.

Subsequent to the N-45 cars were three additional groups from GACX:

- B&O 242391 – 242395,
ex GACX 42391 – 42395;
probably built December 1955
- B&O 243791 – 243814,
ex GACX 43791 – 43814;
probably built August 1958
- B&O 245167 – 245174,
ex GACX 45167 – 45174;
probably built November 1961



Baltimore & Ohio 4-4-0 Number 622, built at Mount Clare shops in January 1869 as 2nd Number 122 with 17" x 24" cylinders, 64" drivers, 140 lbs pressure, and 78,000 lbs weight, became Number 622 in 1884, and was converted to an inspection engine in 1902. According to Edson it was retired by 1897, but its conversion was covered in trade and general press in July 1902. Press mentions continued until 1904. It was off the roster by 1912. Note that there is no headlight installed in this photo. Its steam dome can be clearly seen through the first open window, which is into the cab. According to press reports it had a pilot on the rear of the tender, but this is not seen in this photo. Also note the different finishes of the smokebox, cylinders and stack. The drawing on the third page calls for Russia Iron only on the smokebox, helping to account for the differences. (B&O Railroad Museum collection)

Another B&O Inspection Locomotive?

By Ron Goldfeder

Drawings from the Author's Collection

Those who have looked through Larry Sagle's book *B&O Power* may have seen the photo of inspection locomotive Number 622 on page 212 with the caption saying, "There is no record of how many the B&O had like this."

On page 18 of William D. Edson's all-time roster book Number 622 is the only one identified as having been converted to an inspection locomotive. It is also the only one for the B&O seen in the trade press, with articles about it in *Railway Age* on August 15, 1902, page 166, with the same photo used, and also in *Railway and Engineering Review* on August 23, 1902, page 625, where a drawing was found as well as an opposite-side photo.

Given this trade press coverage and the references in the books, I also thought it was the only one. But while doing research for a survey article on inspection locomotives in general I was able to search through several newspaper databases where I found an article about another one, locomotive Number 618.

Before going into the specifics of these

two locomotives, some words about inspection locomotives in general would be in order. There were apparently 93 on American railroads between 1845 and 1939. Early ones on the Philadelphia & Reading, Lackawanna, Lehigh Valley, and New York & New Haven were small examples with entirely enclosed bodies and of the 2-2-2T or 4-2-2T wheel arrangement. The sole surviving example is the Philadelphia & Reading Coal & Iron Company's *Black Diamond*, which is a 2-2-2T built by Baldwin (Number 10174) in August 1889.

In the 1870s the 4-2-4T wheel arrangement was introduced. The first of these may have been the *Star* of the Central Railroad of New Jersey. The Lehigh Valley and New York Central & Hudson River also had similar single driver inspection locomotives.

Starting in 1881 the railroads that favored the inspection locomotive began to convert them from older 4-4-0s that were too light for heavier and longer trains but whose machinery was in good

enough condition for light duty, pulling two or three office cars on favorable terrain. Often such locomotives ran without any trailing cars.

Most of the 40 4-4-0 inspection locomotives were conversions, with only five being built new (two for Philadelphia & Reading, two for Lake Shore & Michigan Southern, and one for Central Railroad of New Jersey).

The drawing of B&O Number 622 illustrates many of the features of such conversions. The bodywork has three windows for the passenger compartment, with a partition between that area and the back three windows for the crew's cab. These partitions usually had windows in them to allow the crew a view forward, at least on the engineer's side. Some had a rest room on the fireman's side in front of the partition.

The boiler was given extra lagging and an insulating air space was left between it and the cover over the boiler that was in the center. The floor as well as the boiler's covering was carpeted, and there was

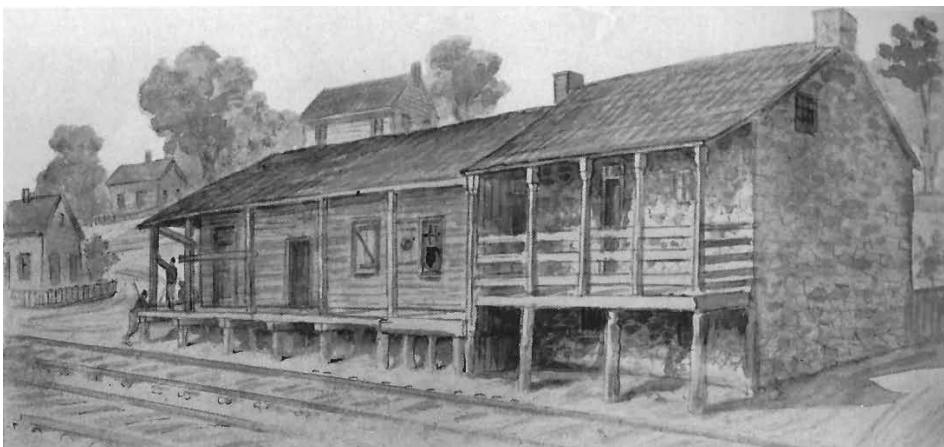


Duffields Station is open to some inspection on its north (back) side, where volunteers went in in 2008 to put a new tin roof on the stone segment of the building. The wooden section is probably beyond repair.

Historic B&O Station in Duffields, West Virginia, in Dire Straits

By Alex Mayes

Photographs by the Author Except as Noted



This drawing of Duffields Station in better days appears in the *James E. Taylor Sketchbook: With Sheridan Up the Shenandoah Valley in 1864: Leaves from a Special Artist's Sketchbook and Diary*. A Western Reserve Historical Society Publication, it was issued by Morningside Press in 1989. Our image was provided by Jack Snyder of Shepherdstown, West Virginia, who is part of the effort to save the station.

In 1839 a landowner in what is now the Eastern Panhandle of West Virginia, Richard Duffield, erected a stone and wood structure on the B&O right of way west of Harpers Ferry to serve as a freight and passenger station.

The station was built in a rural community known as Duffields, which

consisted of two churches, two stores and a grist mill. Its exact location was in Jefferson County, 6.3 miles west of Harpers Ferry, which is now at milepost 87.9 on CSX's Cumberland Sub.

The Duffields station is reportedly the second oldest surviving purpose-built combined freight and passenger station

in the United States. The oldest is the B&O depot in Ellicott City, Maryland, on the Old Main Line, built in 1830-31.

The station served as an important commercial and social center for the community and surrounding area in the ensuing years, shipping and receiving agricultural and other goods, and serving as a passenger depot.

The station and the area surrounding it were the site of a daring raid by Col. John S. Mosby's Partisan Rangers on June 29, 1864, to support Confederate Gen. Jubal A. Early's Washington raid. As Early marched north down the Shenandoah Valley, Mosby and his men rode to Duffields from Upperville, Virginia. They planned to disrupt Federal communications by cutting telegraph lines and seizing a B&O train.

Mosby learned from captured Union pickets that an eastbound train was due in 15 minutes, at noon. Mosby quickly posted a howitzer on a knoll overlooking the station, guardhouse and stockade that housed the Federal garrison, sent a courier to the stockade and informed the officer