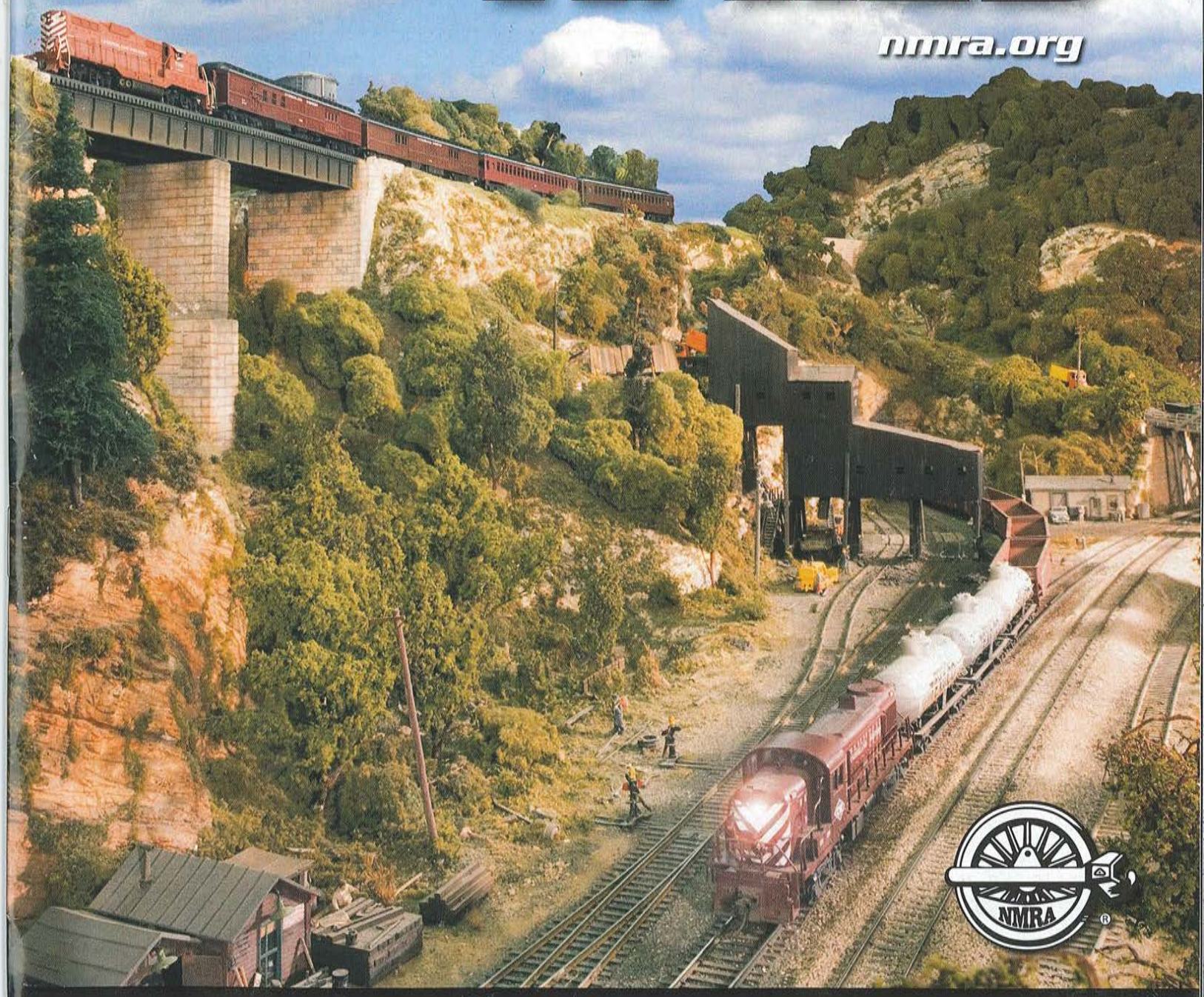
June 2009

Scale RAILS

nmra.org



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North Shore Model Railroad Club

The Chesapeake System

article by ***Malcolm Laughlin*** photographs by ***Mike Tylick***

North Shore Model Railroad Club's Chesapeake System is among the largest layouts in New England. The club has been building a layout for nearly 30 years with 600 feet of mainline in a 90-foot-long basement. NSMRC models the Virginia and West Virginia segment of a trunk line railroad that stretches from the East Coast to Midwestern gateways. Operations simulate prototypical railroads of the 1950s.

How it all Began

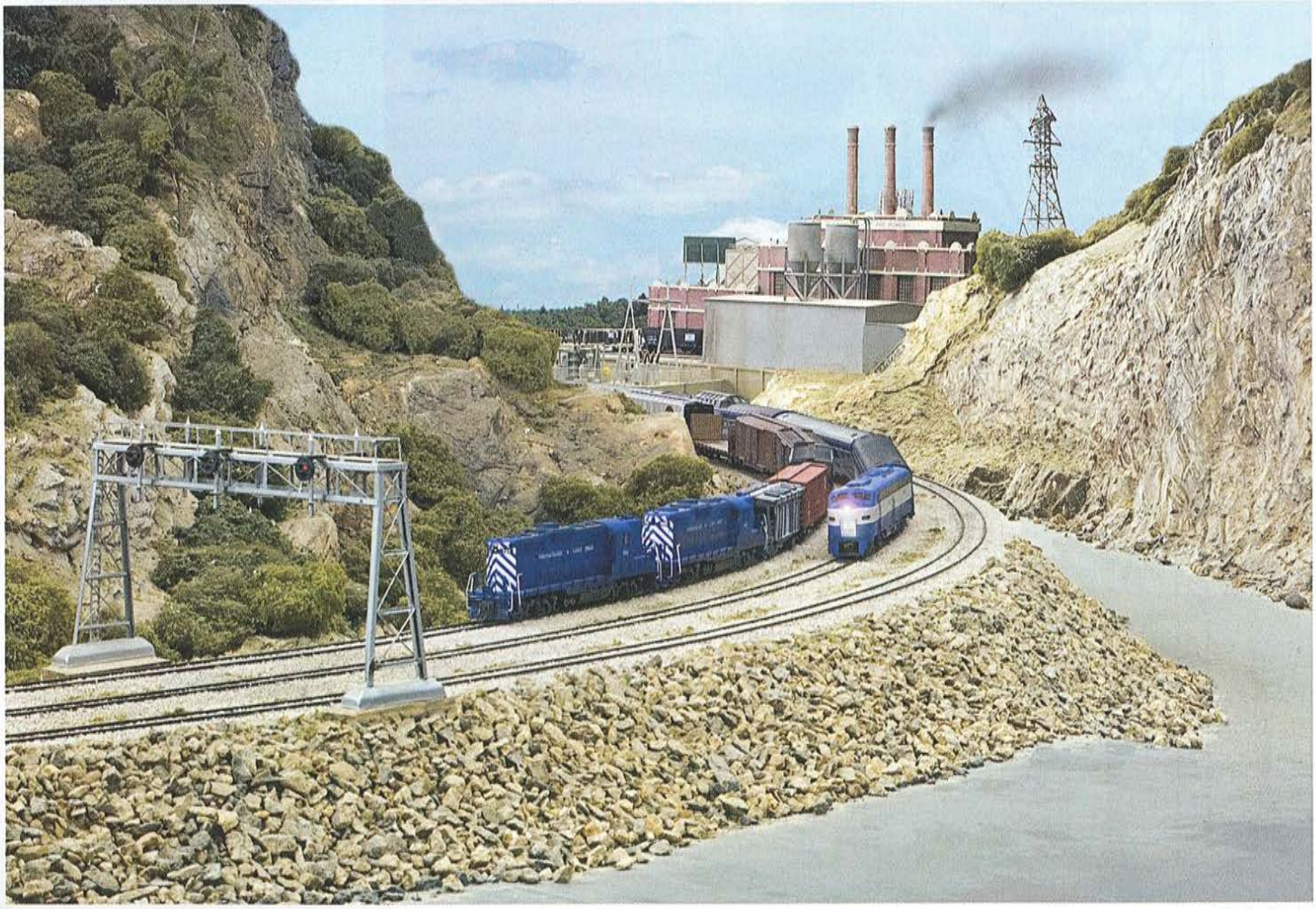
In July 1977, eight model railroaders met to discuss forming a round robin group that would meet in members' homes. A "someday" club layout was discussed, but when a home layout was offered to the group, "someday" suddenly became "now." A search for accommodations found the layout a home in a quarter of the basement of Wakefield's Brothers Restaurant. The donated layout was reassembled so trains could run while a new layout was planned. A survey of the members' desires led to a heavy coal-hauling railroad in the Mid-Atlantic States. When a new building owner asked the club to rent the full basement — a space of 45 x 90 feet — the plan grew. The design of the new layout was approved by the membership after many meetings, and construction began in March 1979.

Construction has continued for almost 30 years following the original plan, except for redesign of the fifth peninsula about ten years ago. Track is about 95 percent complete, but much scenery work remains to be done. The club has been very fortunate to have over 50 talented members with all the skills necessary to build and operate an excellent model railroad.

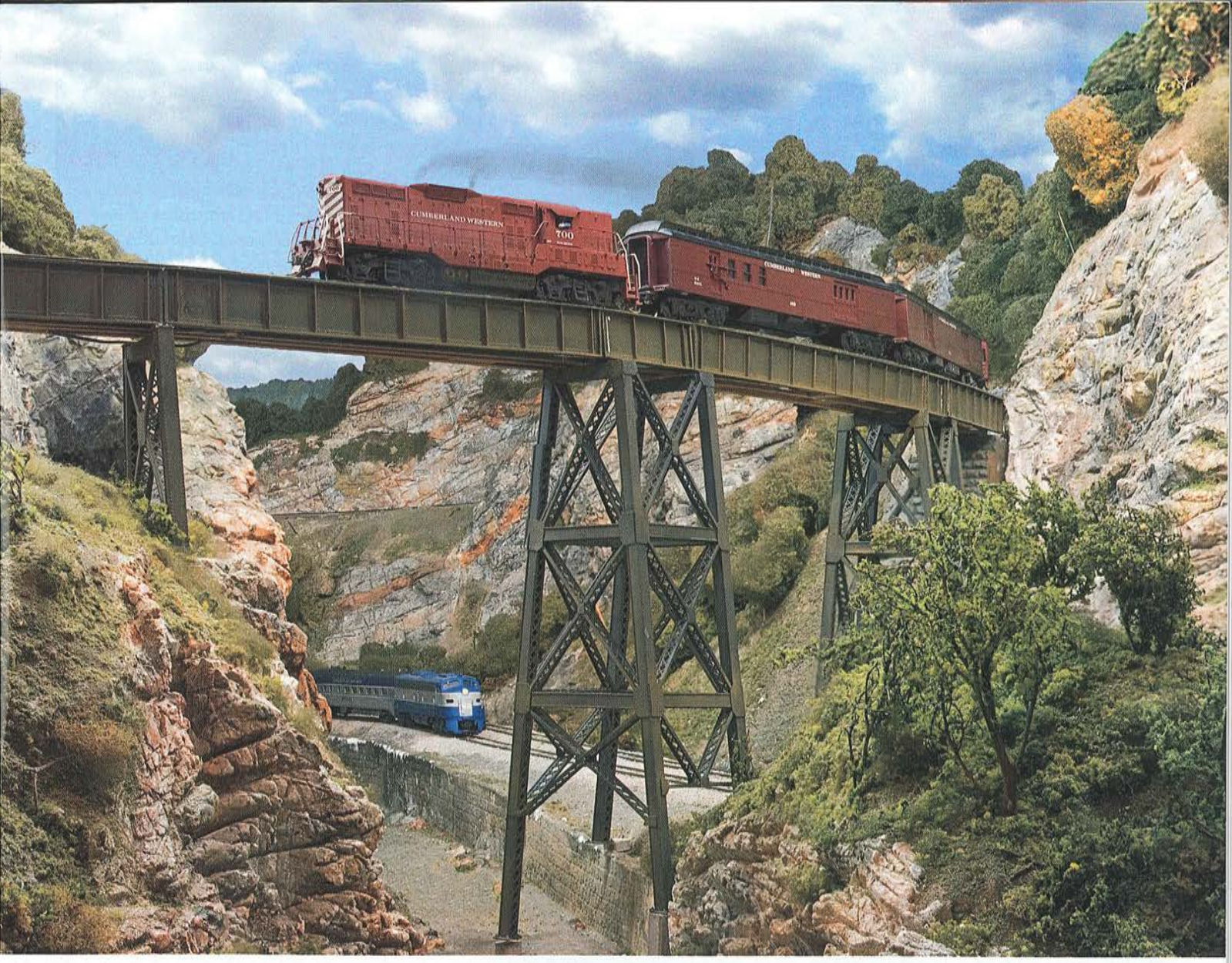
The club developed a plan for monthly operating sessions that replicate railroad operation of the 1950s. In 1986, the club was the cover feature in the May issue of *Model Railroader* magazine, followed by a feature article on Chesapeake System passenger operations in the August 1996 issue.

Our Railroad - The Chesapeake System

NSMRC's Chesapeake System is a prototypical freelance of three railroads operating under common control: Chesapeake & Lake Erie, Chesapeake & Hudson, and Cumberland Western. The routes and traffic patterns have been carefully planned to fit well into the railroad map and traffic patterns of the mid-20th century. Geographically, the Chesapeake System plays much of the



Below: **Passing through the gap, with Gap Power in the background, the *Daylight* overtakes local freight X251. As is evident in this photo, the C&LE is an all-EMD road.**



role actually occupied by Chesapeake & Ohio and incorporates the lines of several other railroads, notably Wheeling & Lake Erie, Southern, and Virginia Central.

Chesapeake & Hudson runs from Fredericksburg, Virginia, via Potomac Yard to Mechanicville, New York. At Fredericksburg, the railroad connects with Chesapeake & Lake Erie, which runs between Richmond, Virginia, and Chicago, with connections to Pittsburgh and Cleveland. C&H has trackage rights over C&LE to Nickless Yard at Elkton, Virginia. At Elkton, there is interchange with the Norfolk & Western line to Hagerstown. Cumberland Western goes west from Nickless through Charleston to Huntington and beyond to St Louis.

Only part of this very large railroad is actually modeled: the segment from Charleston, eastward across the Allegheny Mountains into the Shenandoah Valley of Virginia, then through the Blue Ridge Mountains and eastward across Virginia to a large seaport on Chesapeake Bay. The unmodeled portions of the Chesapeake are simulated by a large hidden fiddle yard.

Key stations and interchanges are in geographically correct locations. Larkin Falls represents Orange, Virginia, where the VC connected with Southern. Elkton is an actual town in the Shenandoah Valley near N&W's Shenandoah Yard. Charleston is the point of transition from mountain railroading to the Ohio River Valley. The C&LE line north and west from Elkton carries traffic connecting with Western Maryland at Elkins.

Basic Layout Features

The layout is organized on a long straight backbone connecting five large, irregularly shaped peninsulas. Each peninsula is divided in half by either high scenery or a sky backdrop. The curving, divided peninsulas and aisle ways help to convey a sense of realism by forcing the viewer to see only a small portion of the layout at a time. This has the effect of seeming like the trains are "going somewhere" as they move around the layout.

Above: **CW train No. 51 crosses the Kehoe River Gorge, while along the river we see an eastbound C&LE passenger train coming off the Chicago Line into Schuyler Jct.**

The mainline connects at either end to an active straight-through fiddle yard along the back wall. It connects to the modeled part of the railroad at seven locations, including lines to Cleveland, St. Louis, Richmond, and Washington. Interchanges to the Southern and N&W and a branchline also go to the fiddle yard. The yard can be used to stage as many as 20 trains.

In addition to the heavy mainline of the Chesapeake System, the layout includes the HOn3 Meyerford County Railroad that winds through the third peninsula, serving a town and mine branch. There are plans for a trolley line in the Fredericksburg area.

Construction

Under construction for 30 years, several different construction techniques have been employed. The layout's basic bench work is 1x4 L-girder. Yards are on hard surfaces; some plywood, some with homasote laminated to plywood (from earlier days), with more recent construction using luan or Aspen roadbed atop the plywood. The mainline consists of a mix of hand-built spline (older) and cookie-cutter plywood (today). The most recent construction was drawn in CAD, printed to full size, and used as a pattern for cutting the plywood. Risers to maintain vertical alignment, which was set using a laser level as a reference, support the roadbed.

Track

All visible track is hand-laid Code 83 rail for mainlines and Code 70 in some sidings. Hidden track is Code 100 flex-track. Currently, individual wood ties are laid on a roadbed of Aspen laminated to the plywood subgrade. Ties are sanded smooth, and nickel silver rail is then laid down and spiked in place. All visible switches are hand-built, with pre-fab used off-scene. This gives good control over track geometry and allows creative planning. The railroad even has two double slip switches in the track complex at the main passenger station.

Controls

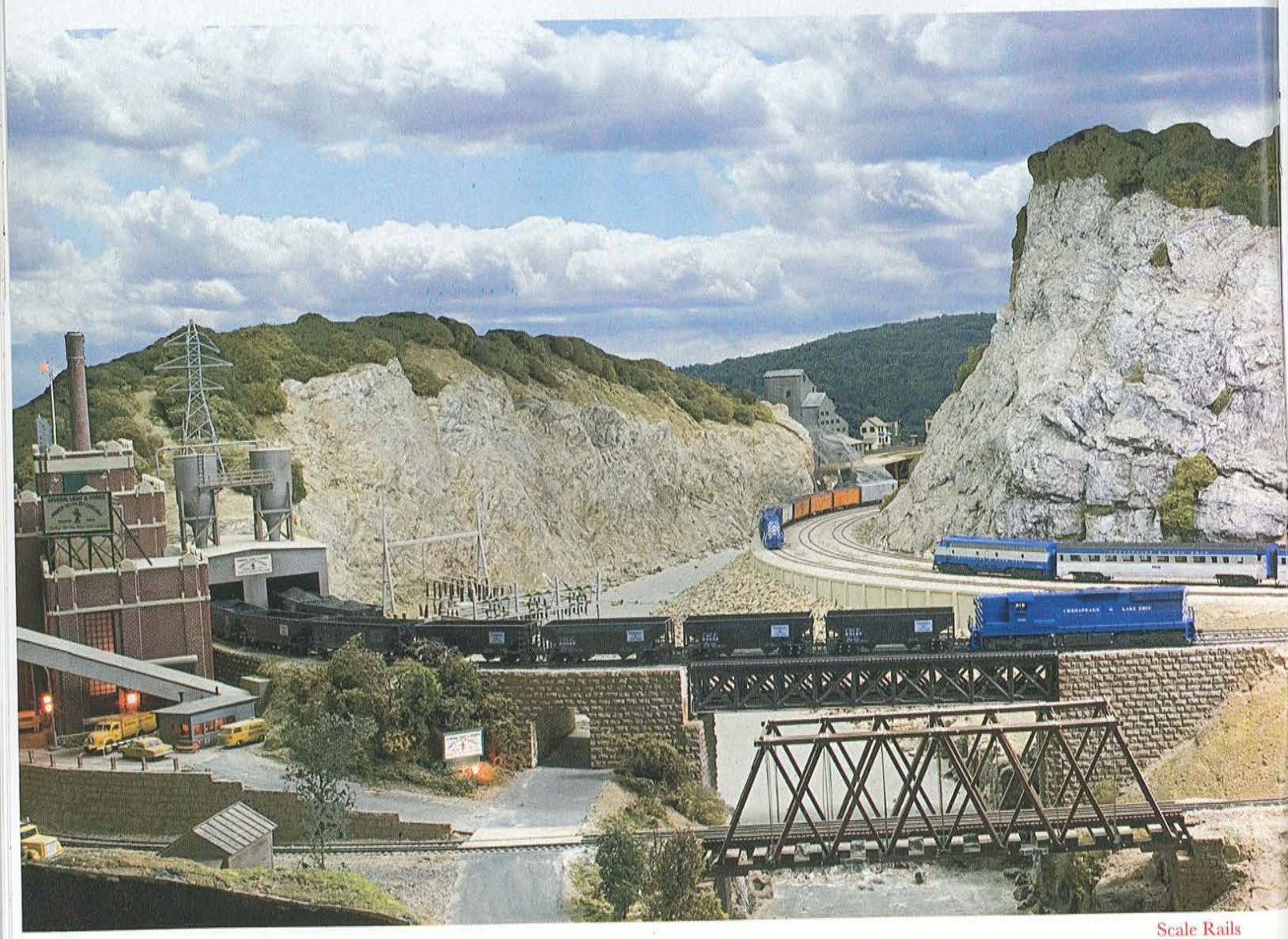
The layout was built using multiple DC plug-in cab controls. A block of track is assigned to a throttle by using a shorted jack plugged into sockets in a diagram painted on the fascia of the layout. In the last few years, DCC has been installed for operating sessions. However, with a great deal of heritage DC power in the members' collections, we have retained DC controls and have successfully run both modes simultaneously.

A Tour of the Layout

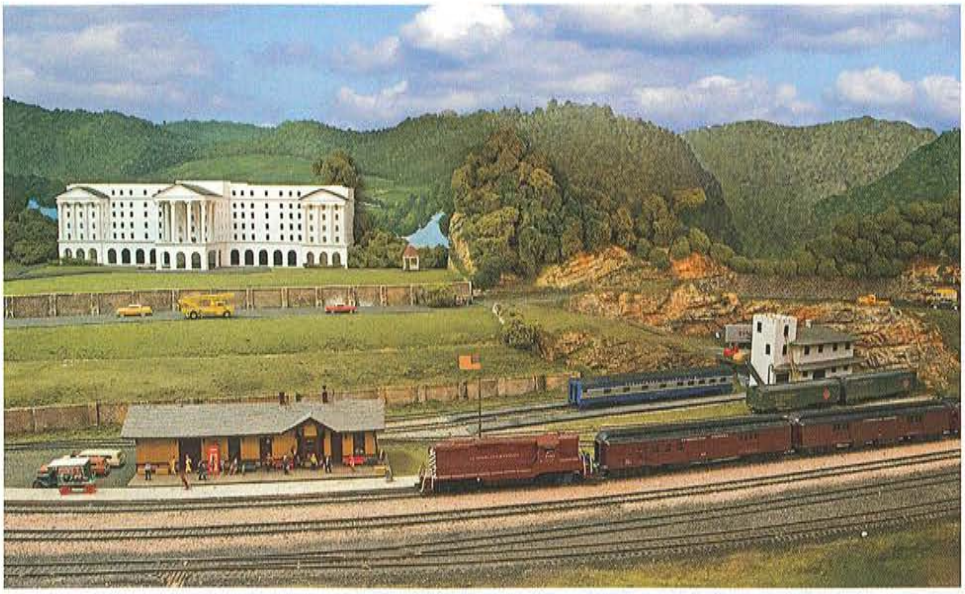
For a look at some of the features of the layout, let's take a day trip touring the C&LE and CW from Richmond to Charleston, West Virginia. We'll see the most interesting features of the layout.

First Peninsula – Fiddle Yard to Raskob Jct.

We'll ride west to Elkton on C&LE's *Allegheny Daylight*, the new deluxe domeliner that makes a daylight trip from Richmond to Cleveland in 15 hours. The seven-car train is in C&LE's new streamliner colors, stainless steel with blue letter



Below: **Heading into the Water Gap, the *Allegheny Daylight* meets local freight X202. In the foreground, a switcher serves Gap Power Company.**



Left: **The first station west of Elkton is Crystal Springs, home of a famous resort, similar to and highly competitive with the Greenbrier. We are arriving on No. 51. In the evening, the sleeper in the background will be added to Train No. 11 for passengers to Indianapolis, Chicago, and other Midwest destinations.**

boards. On the head end is a C&LE E8. Four coaches follow a baggage-RPO car, one with a vista dome, a diner, and a vista-dome observation lounge with parlor car seating for 14 passengers. We board at Richmond's Union Station (represented by one end of the fiddle yard) and take our seats in the vista dome as the *Daylight* departs Richmond on C&LE and RF&P joint track. We reach C&LE rails at Raskob Jct., just east of the Fredericksburg passenger station. This is also the junction for the C&H line from Washington. Looking down the C&H line to our right as our train rounds the curve, we can see the junction of the freight line to Port Dibble at Hampton News. The port is the Chesapeake system's coal export and ore import terminal.

On the inside of the long curve to the station, we'll see the busy Fredericksburg Produce Terminal. This is a destination for reefer traffic from western connections at Chicago, St. Louis, and Kansas City. Fredericksburg is the main sorting center for central Virginia for both Railway Express and the U. S. Post Office. As we pull into the station, we see their large buildings just to the left. Many C&LE passenger trains pick up and set off mail and express cars at Fredericksburg.

Second Peninsula – Fredericksburg and Riverside

The second peninsula begins with Fredericksburg passenger station. Passengers to Charleston and Louisville connect here with train No. 15, the Chesapeake & Hudson's daytime Washington–Louisville service. It's a convenient connection and, looking back from the dome as we depart, we see No. 15 arriving behind pair of C&H F7s. Waiting on another track is train No. 51, the Charleston local. It has head-end cars from Washington that arrived during the night on mail and express train No. 67 from Washington.

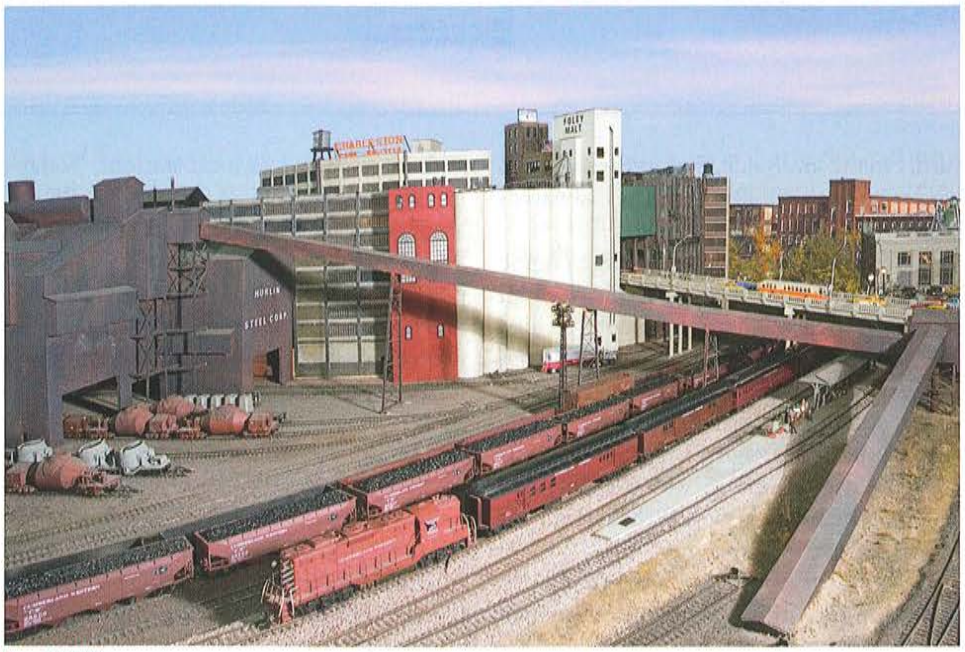
Now we pass through the busy Riverside industrial area. An interesting industry here is the Larrabee Truck Works. Passersby can sometimes see a just-built fire engine being loaded in an end-door box car. On the eastbound track, we see local freight train X202 with meat and produce for the Fredericksburg Riverside area. The local switcher will need to make some fast moves to get the perishables spotted for a noon delivery commitment.

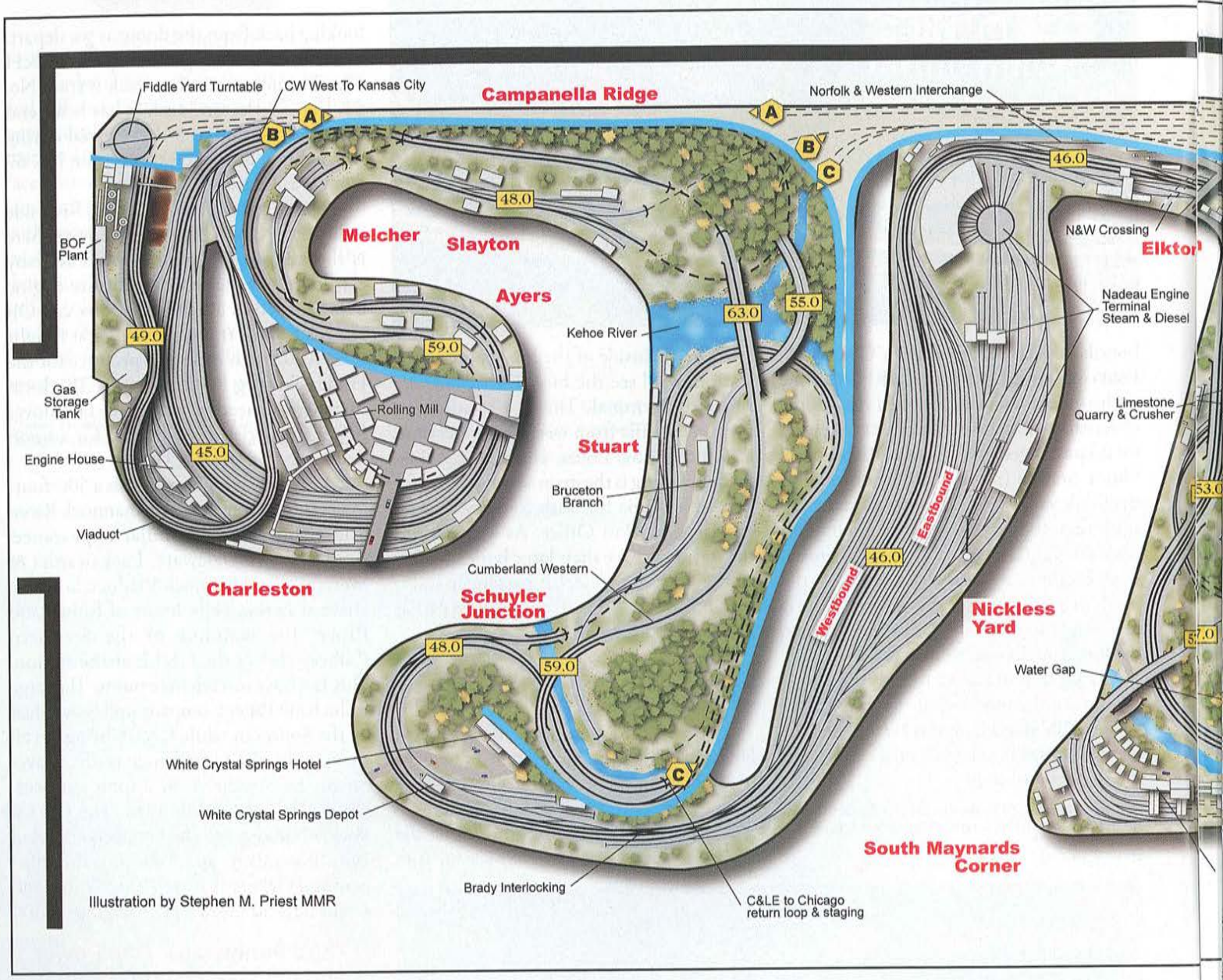
Leaving Riverside, we cross a 500-foot-long viaduct over the Rappahannock River. The viaduct has a familiar appearance, similar to the Delaware, Lackawanna & Western's Tunkhannock Viaduct. Soon we arrive at Larkin Falls, home of Robichaud Paper. The mainline of the Southern Railway crosses the C&LE at the station. This is a busy interchange point. The large Robichaud Paper Company mill is switched by the Southern while C&LE brings in all the wood pulp. Interchange traffic moves down the Southern on a long connecting track to the fiddle yard. The C&LE Waynesboro Branch also connects at Larkin Falls. It winds its way back into the third peninsula where it serves Rhee Mine, and towns beyond in the upper staging yard.

Third Peninsula – Gap Power and the Waynesboro Branch

Now our train swings west into the Blue Ridge Mountains. The railroad passes through a gap in the mountains toward Elkton. The far side of the peninsula represents the Shenandoah Valley and transition to a more rural scene. As we enter the gap, we see hopper train HCE switching Gap Power Company. HCE brings coal from the Huntington, West Virginia, area mines on the Cumberland Western. (The power company is connected with Rhee Mine on the Waynesboro branch through a ten-foot tunnel, enabling an empties in/loads out system of hopper cut movements. There is no

Below: **Train No. 51 ends its run at Charleston. To the left we see the east end of the extensive Hurlin Steel plant.**





obvious connection between movements at the mine and those at the power company.)

A Visit to Elkton Terminal Facilities

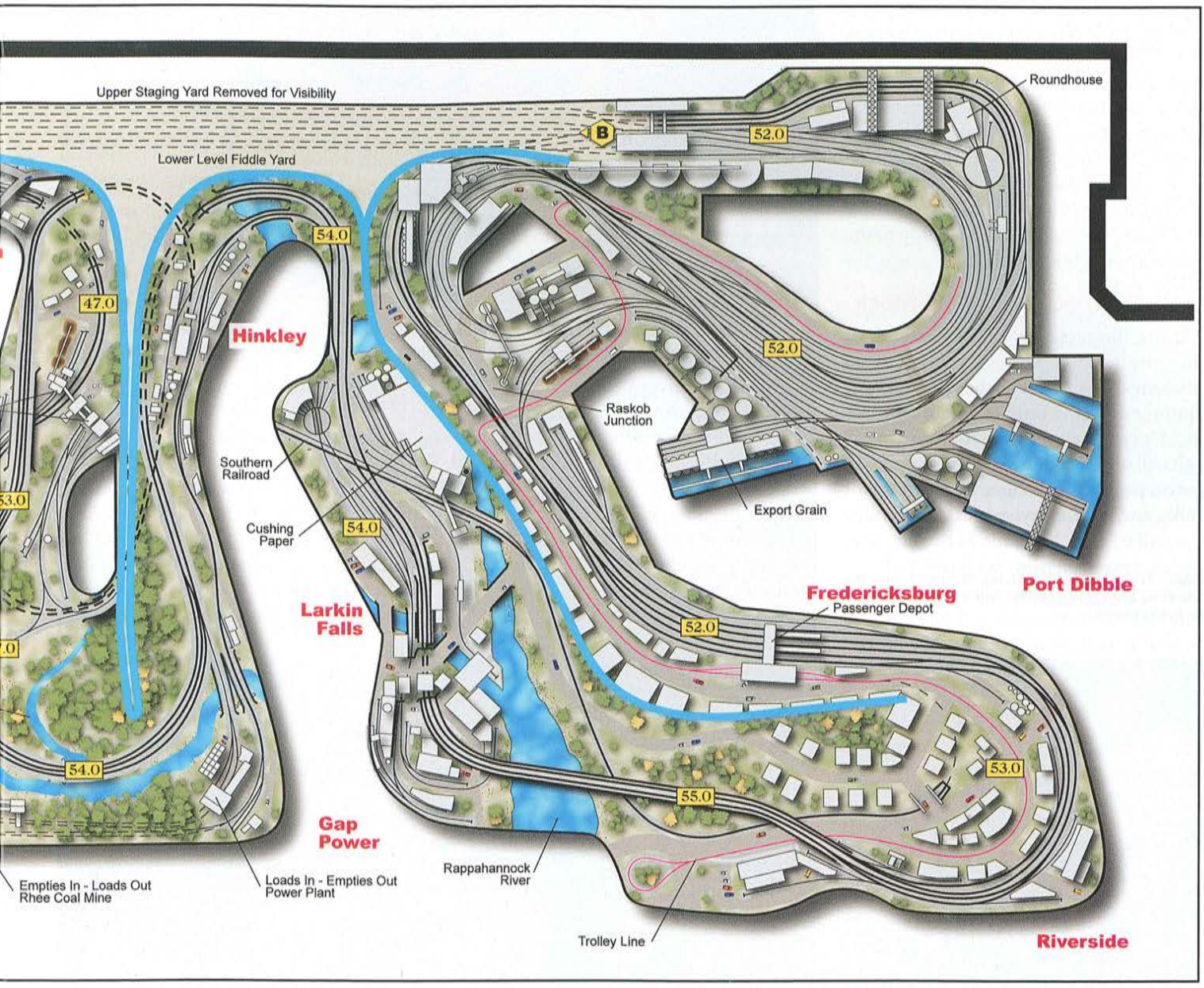
From Gap, there is a long grade down to Elkton, headquarters of the Chesapeake & Lake Erie. At Elkton, we leave the *Allegheny Daylight* for a quick tour of Nickless Yard and Nadeau Engine Terminal facilities. Nickless is actually two yards divided by the mainline, reflecting the history of the Chesapeake System railroads as independent until their recent consolidation. The westbound yard on the north side of the tracks is the former C&LE yard. On the south side, the larger eastbound yard was the terminal yard at the east end of Cumberland Western.

Adjacent to the yard is a large engine servicing facility with a turntable, 14-stall roundhouse, diesel shop, and fueling facility. Although today's operation is mostly dieselized, an interesting collection of steam power can still be seen at NET. C&LE 4-8-2s still handle drag freights, and Cumberland Western uses steam on way freights. But much of the steam power in the terminal is out of service.

We return to the station to take No. 51 to Charleston. This train handles the mail and express work at local stations. Today's train is pulled by one of CW's new GP7s. It arrives with an Elkton express car to be set off. Train No. 51 has working storage mail, express, and RPO-baggage cars for Charleston and two coaches. We take the last seats in the rear coach. With its vestibule end windows, it's a poor man's observation car.

Fourth Peninsula – Crystal Spring and through the Mountains

Leaving Elkton Station, we pass through Nickless Yard. Swinging around the end of the peninsula, we pass White



Crystal Springs, a large resort hotel patterned after White Sulphur Springs on the Chesapeake & Ohio. Faithful to the prototype, we've modeled a siding that a train can pull through and drop a sleeper without doing any switching.

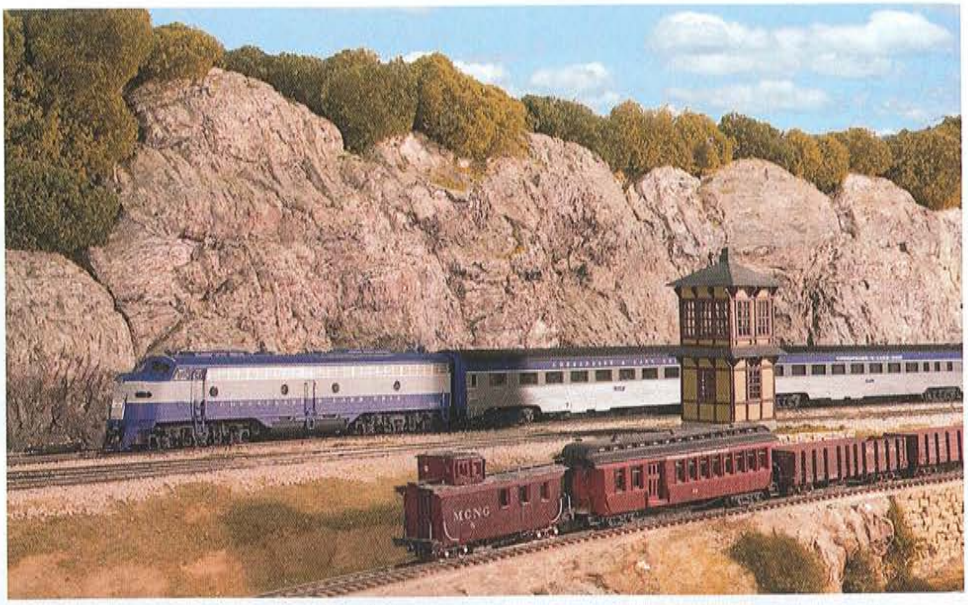
Leaving the Springs, we pass through Schuyler Jct. onto the Chesapeake Western. Here, the C&LE's double-tracked mainline to Cleveland and Chicago disappears northward up the Kehoe River valley returning to the fiddle yard. We enter single-track CTC territory and pass through the small industrial town of Stuart, home of Edelstein Furniture. The crowded yard and four other industries make the Stuart Turn a popular switching assignment. In the siding is the Bruceton Turn powered by a 2-8-0. The Bruceton Branch is the last outpost of steam power in the Elkton area.

Leaving Stuart, the route goes behind a mountain and reappears at a much higher level. We see a spectacular panorama of Appalachian Mountains requiring the CW to use many bridges and tunnels. Out of sight behind Stuart, the Bruceton Branch diverges, appearing next at the coal-mining town of Mikesville. Here is a coal tipple, where trucks from small mines dump coal in railroad cars.

Finishing our Tour at Charleston

Passing the summit at the east end of Campanella Ridge siding and heading downgrade to Charleston, our train runs right through the Melcher Mine facilities, pauses briefly at the small town of Slayton, and moves around to the fifth peninsula at Ayres. Small local industries, together with coal mines, provide an interesting local freight operation. The Hitop branch, locally referred to as the Rat Hole, leaves the mainline at Slayton, and goes to the fiddle yard.

Now we are at Charleston, the west end of the modeled railroad. The large Hurlin



Right: **The tower controls the east end of the three track section through the Water Gap.**

Steel mill dominates the city, making this a key point for both passengers and freight. The Charleston yard is nestled between Hurlin Steel's rolling mills and its new BOF plant. The line passes a coal and ore trestle and heads out of sight to the west. These tracks continue behind the backdrop to the east end of the fiddle yard.

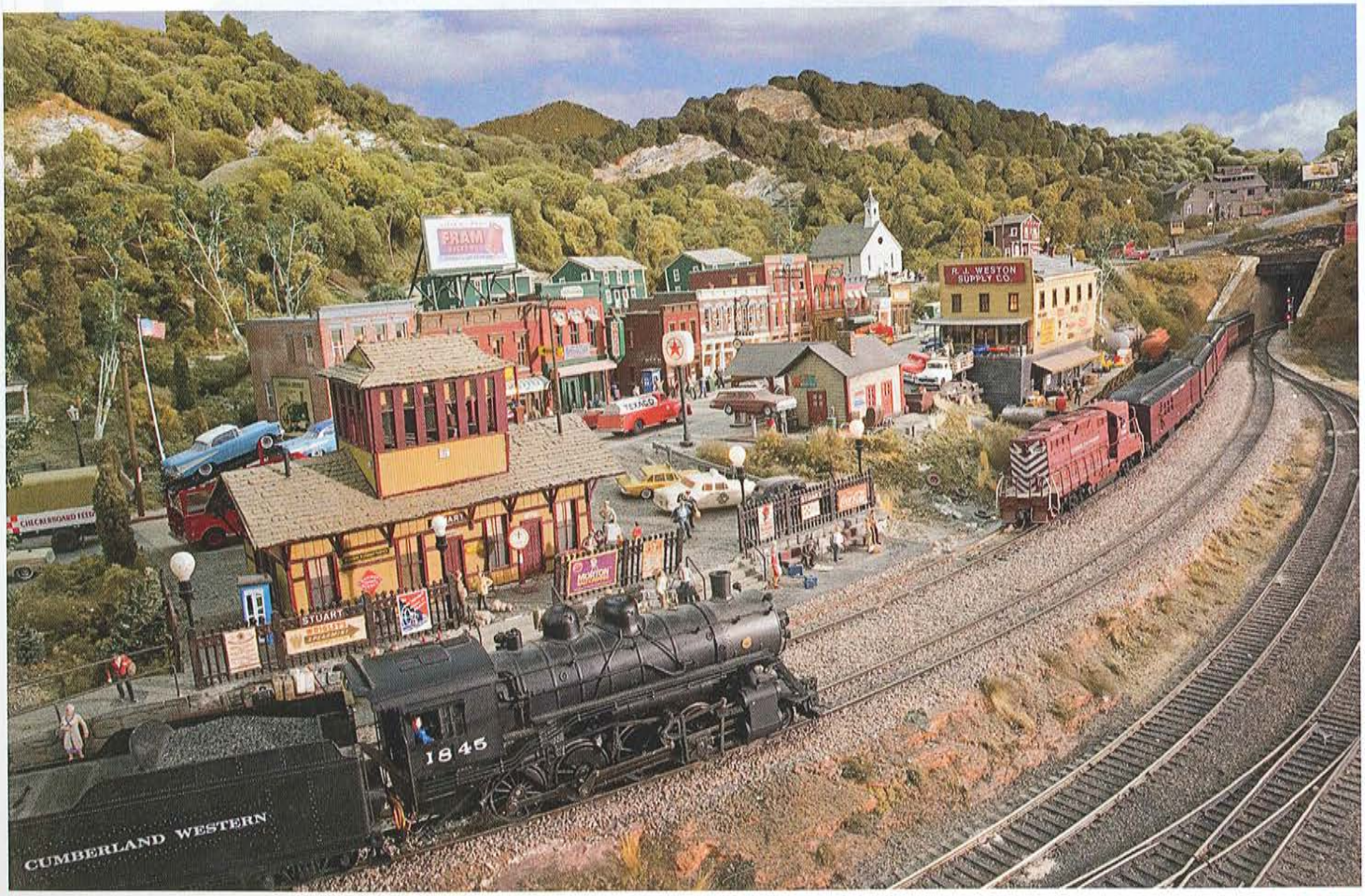
Locomotives and Rolling Stock

The interests of NSMRC members range from those who want to focus on railroads of the 1950s to those eschew any equipment that would look out of place on 21st century railroads. A visitor to the club will see SD45s in a 1980s Chesapeake System paint scheme, box cars without roof walks, and modern cylindrical hoppers.

For operating sessions, the club owns enough locomotives and cars to run a full 1950s-era operating session. Locomotives are painted with a different color scheme for each of the three railroads. Cumberland Western is powered mainly by Alco-GE diesels. C&LE is an all-EMD road with E8s pulling most passenger trains and GP7s and F7s in freight service. Chesapeake & Hudson runs EMD power on its Virginia Division, but an early set of GE U-boats can be seen on the daily local freight between Washington and Elkton.

Passenger cars also are painted in the three color schemes: On C&LE we see primarily its own blue and gray cars. C&H and Cumberland Western have several through trains along with through C&LE Richmond cars, so trains are a variety of color schemes. Union Pacific and ACL cars can also be seen for through services to San Francisco and Miami.

Below: **Train No. 51 is arriving at Stuart, and the Bruceton Turn waits on the siding. Mikesville is in the background.**



Operating the Railroad

The club's monthly operating session aims to reproduce 1950s trunk line railroad operations. We use an event-based plan, using nominal times for sequencing trains. This allows a very flexible group size. While up to 20 operators can be kept busy, the operation works well with as few as eight to ten operators.

A chief dispatcher controls the operation, assigning crews to trains. In contrast to TT&TO operation focusing on train movement details, our operations are oriented toward movement of cars in blocks and trains. The chief dispatcher manages the sequence of trains to make connections and avoid yard congestion.

A schedule card shows the sequence of events for each train. It shows blocks to be handled and where cars are to be switched. Passenger schedule cards show the train consist. In single-track territory, the schedules show train priorities to be used by crews when there is no dispatcher.

We model the main trunk line of the railroad. Freight from the Midwest flows east, on both CW and C&LE routes, to Nickless Yard, where it is classified and continues east toward Richmond, Washington, and Mechanicville. Freight from the eastern regions flows west to Nickless, where it is sorted for trains on routes to Chicago and to Louisville, St. Louis, and Kansas City. The layout design is unusual in its representation of heavy traffic on multiple routes serving a central classification point.

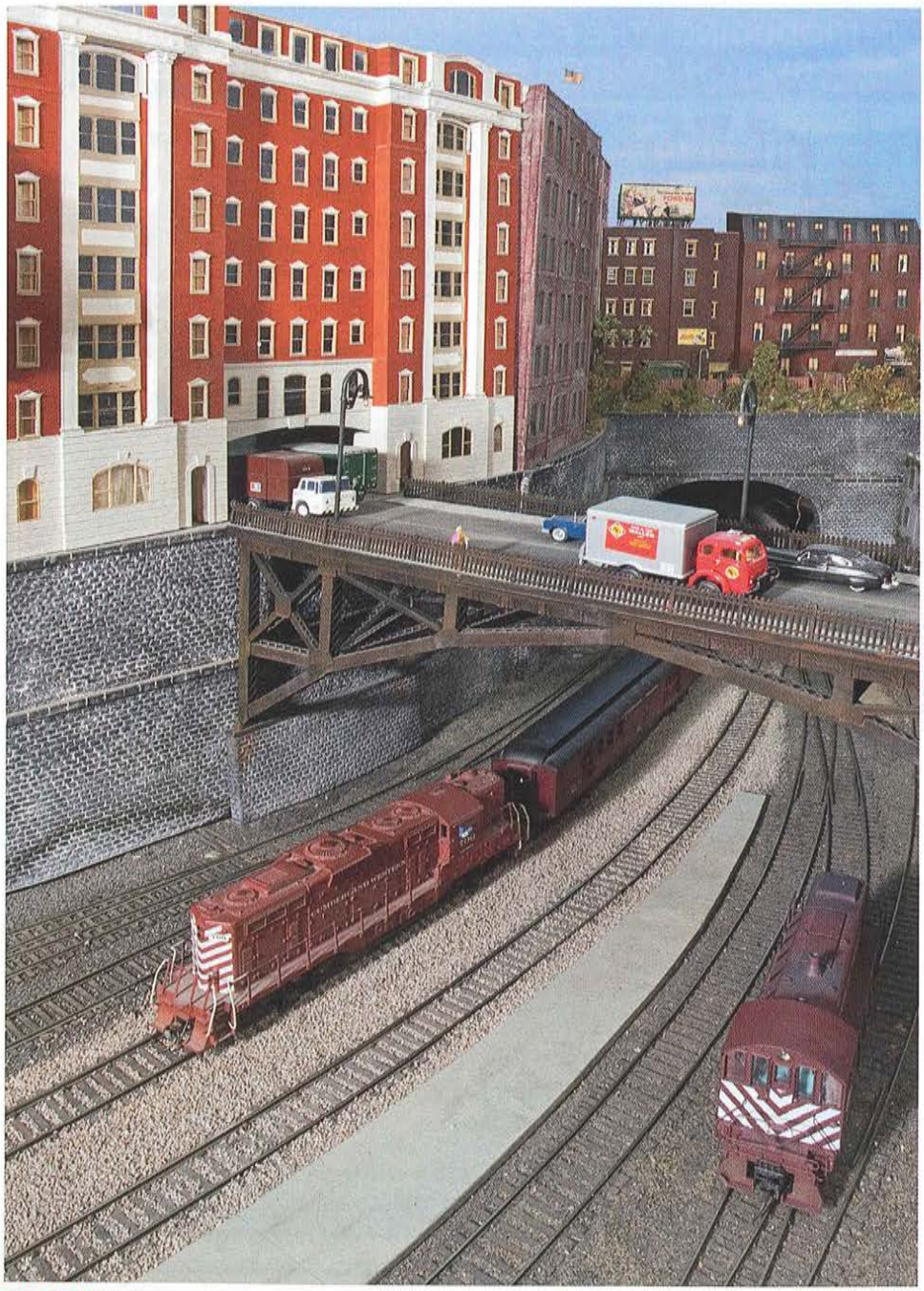
The railroad has three types of freight trains. Through freight trains between Richmond and Wheeling/Chicago on the C&LE add and drop cars at Nickless. Other trains providing C&H/CW through service between Mechanicville and St. Louis are also handled at Nickless. Division locals handle cars between Nickless and the local yards. For each branch or industrial area, a wayfreight or switcher handles cars for local industries. Freight train blocking policies posted at each yard ensure an orderly flow of traffic to our customers.

Schedules for CW and C&LE trains handling perishables are based on delivery cutoff times in Chicago and St. Louis as they were in the late 1950s. Meat from Chicago arrives at Nickless in the early evening, based on an afternoon receipt in Chicago the previous day. Produce is on another train about 12 hours later. All waybills are made so that traffic flows on the railroad will reflect what one might have observed on a railroad in our area in the 1950s.

To control car movements, we use the four-part waybill system. Waybill production uses an Excel system that combines movements randomly, so that nearly all waybills have different car itineraries. Aside from the usual data, our waybills have origin and destination color codes, important aids to making up trains in the fiddle yard.

Trains are staged in an active fiddle yard. It has nine double-ended staging tracks, a turning loop that includes five more staging tracks, and three yard tracks that are used to hold cars between trains. A second turning loop will soon be in place at the opposite end of the yard. Besides staging trains, the fiddle yard has a switching role during an operating session. Many arriving trains are turned, switched, and dispatched in the same session.

The club's method of dispatching provides operating sessions that have little repetition of train movements. Cars are seldom noticed making repetitive movements. The operations evoke a realistic sense of observing a railroad operation of the 1950s.



Left: **Train No. 51 enters the station at Charleston. To the right we see the express track and Robbins Publishing, a user of paper shipped from Larkin Falls.**