

# HOMESTEAD STEEL WORKS AND THE UNION RAILROAD

By Bob O'Neil  
Photos by Robert Schleicher

Bob O'Neil has recreated the steel industry from incoming ore to outgoing billets and bars. His layout will be one of those you can see for yourself if you attend the 2004 NMRA National Convention in Seattle, Washington July 5-11. For indexes of all previous articles on modeling industry and on model railroads based on specific real railroad prototypes, see our website at [www.railmodeljournal.com](http://www.railmodeljournal.com)

The Walthers steel mill has been one of the most popular kits ever produced. The basic kit only depicts a very small portion of any steel mill and even less of the industry itself. Many modelers have recreated the operations within the plant. What's even more interesting, however, is recreating the operations of materials that come into the plant like ore, coke and scrap and the products leaving the plant for use in industry. Bob O'Neil has recreated both a complete mill and some of the industries that use its products. And he has selected a real railroad that serves the steel mills—the Union Railroad—owned by U.S. Steel. He has to paint and letter all the equipment, but decals for the Union Railroad are available from Jack Consoli, 2414 Wicklow Dr., Harrisburg, PA 17112.

Iron ore is shipped into the mill on the B&E via the Erie and the B&O. The Union Railroad also interchanges with the Norfolk and Western (and N&S) to receive loads of coal and limestone at Munhall and coke and coal from Clairton via the P&WV (N&W). The Union Railroad is used to ship out slabs and structural and plate steel. Some of that traffic goes to roughing mills, which produce slabs to be formed into plate and strip steel, billets that are drawn into rails and wires, and blooms that are formed into structural steel H-beams, I-beams, and angle irons.

The layout is 14 x 16 feet with a 1/2-inch plywood base supported by open-grid benchwork. Scenery contours are cut from pink foam. There is little scenery—only two trees—and one of them is dead. There is a small town

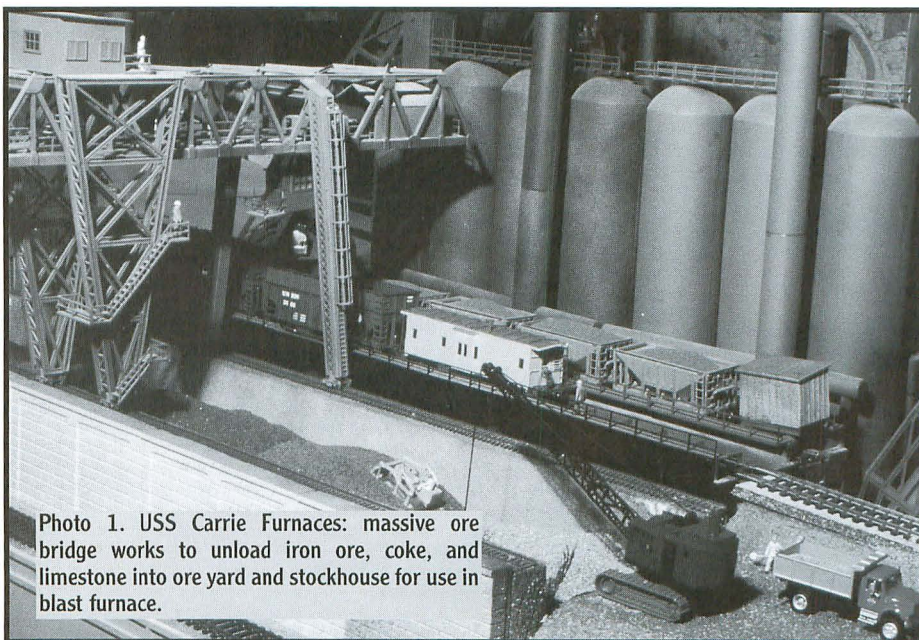


Photo 1. USS Carrie Furnaces: massive ore bridge works to unload iron ore, coke, and limestone into ore yard and stockhouse for use in blast furnace.

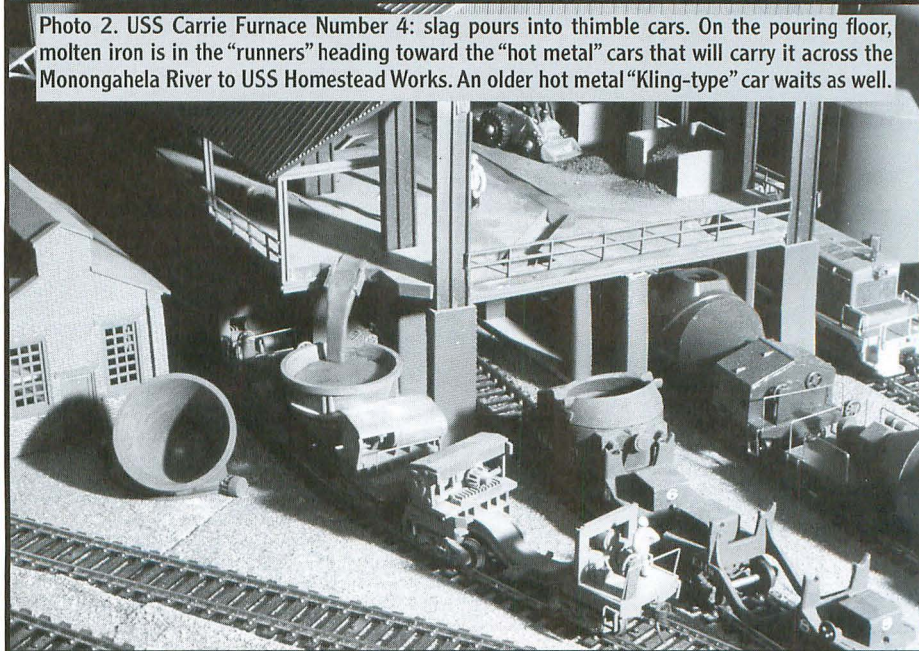
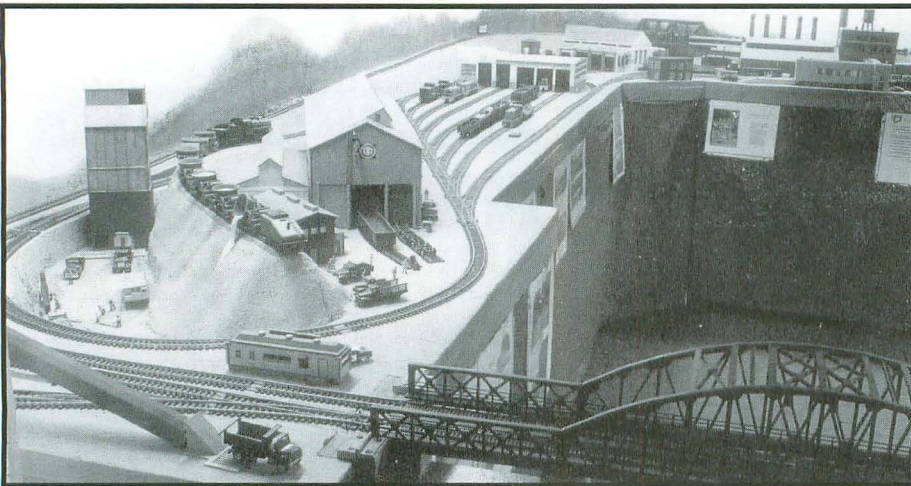


Photo 2. USS Carrie Furnace Number 4: slag pours into thimble cars. On the pouring floor, molten iron is in the "runners" heading toward the "hot metal" cars that will carry it across the Monongahela River to USS Homestead Works. An older hot metal "Kling-type" car waits as well.



# MODELING STEEL



scene at Homestead. The layout is operated using Lenz DCC and CVP Products "Wireless Throttles."

Bob has recreated much-reduced examples of the U.S. Steel Carrie Blast Furnaces at Rankin with a highline (to feed the furnaces), ore yard and ore bridge crane, the Homestead Works' Open Hearth Number 5, ingot stripper shed, soaking pits, and rolling mills. He has also modeled a portion of the Duquesne Slag Company's Southland slag dumps, crusher, and plant. **RMJ**

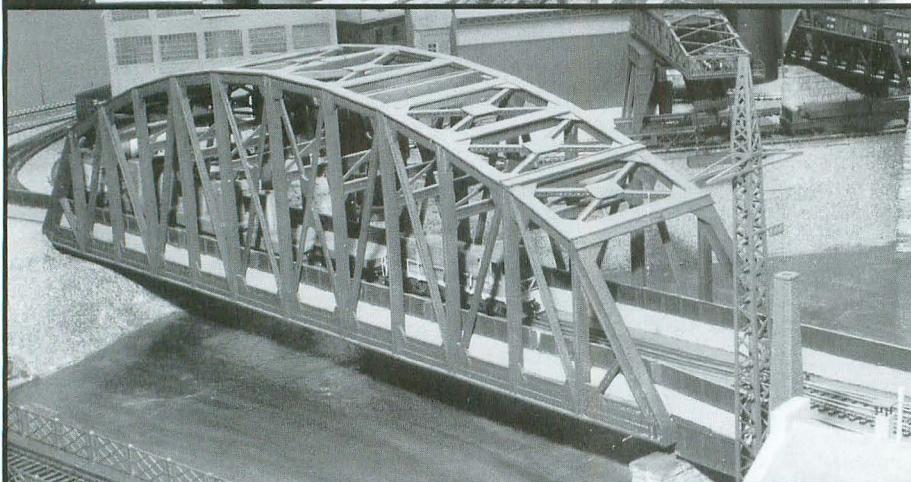
## PHOTO 5.

Slag dump near Mifflin, Pennsylvania. Loads of molten slag in thimble cars from the Carrie Furnaces is being dumped. The old tender was deliberately fixed in place to serve as a "bumper" for the slag cars. The Union Railroad car shops are in the center and the diesel shops are in the distance.



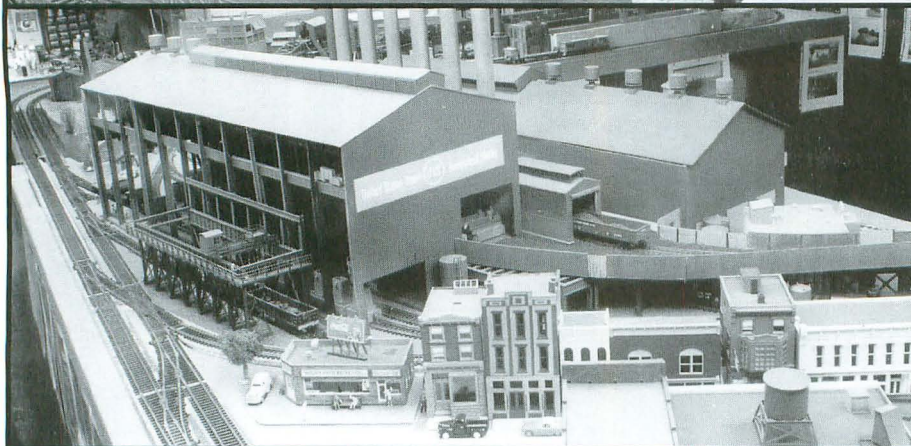
## PHOTO 6.

In the foreground we see the flat cars with loads of ferrous scrap being pushed up the highline at Open Hearth number 5 to feed the furnaces with recycled iron and steel. Mesta Machine Co. (still in business as "WHEMCO" West Homestead Engineering & Machine Co.) Mesta, located just beside USS Homestead, made most of the large presses, rolling mills and forging machinery that shaped the steel ingots coming from the open hearth furnaces throughout the Monongahela Valley plants. Their customers included all the US Steel Plants, Jones & Laughlin, Bethlehem Steel, etc. They had their own open hearth, but also received special large steel ingots from nearby Homestead Works.



## PHOTO 8.

Union RR "Hot Metal Bridge" connected the USS Carrie Furnaces at Rankin, Pennsylvania and the vast Homestead Works across the Monongahela River.



## PHOTO 9.

The Open Hearth Number 5 is virtually at the back door of the Homestead business district.



PHOTO 7.

The downtown area of Homestead is in the foreground with the Mesta Machine Company on the far right and the Union Railroad Car Shops in the upper left. The slag company tower is a Walther's 3053 Coke Oven & Quencher, and the Union Railroad car shops is a converted Walther's 3052 Rolling Mill. Three more Rolling Mills were used for Open Hearth Number 5.



PHOTO 10.

Looking across the access aisle with the Carrie Furnaces on the right and center, downtown Homestead in the upper left, and Open Hearth Number 5 and its five visible stacks in the upper center.

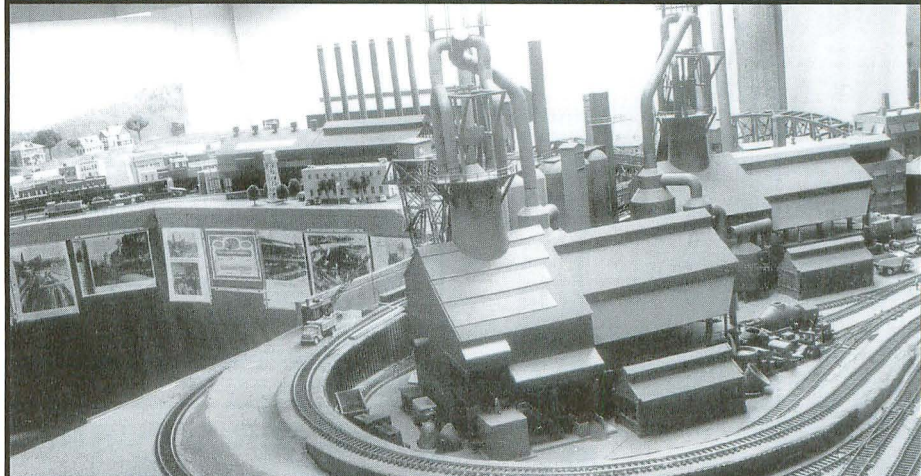


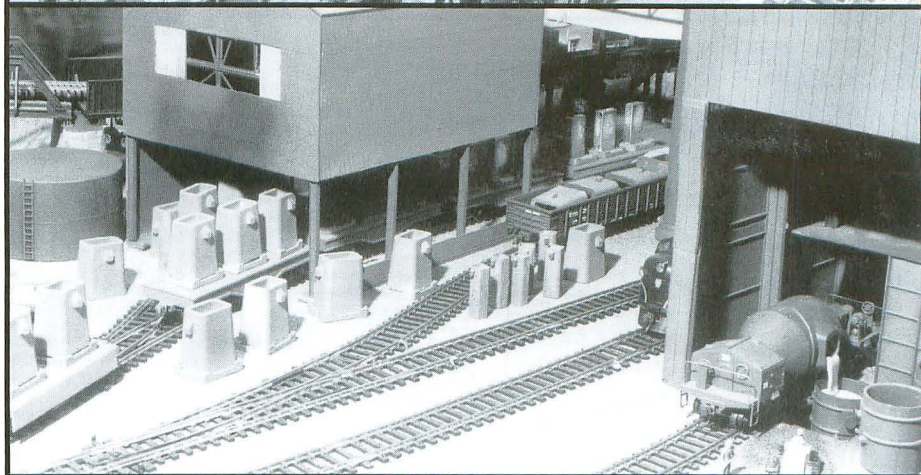
PHOTO 11.

Iron and steel scrap has always been an ingredient for recycling in the open hearth process. Especially during World War II when metal salvage operations were crucial. Here an overhead crane loads general mill scrap into gondolas. The scrap will be cut up and put into special steel boxes loaded on flat cars which will take them up a highline into the other end of Open Hearth number 5. A special "charging machine" empties each box of scrap into the open hearth.



PHOTO 12.

Ingot cars entering the stripper shed at Homestead. After cooling, the ingot molds will be removed by an overhead crane and the ingots sent to the "soaking its" to be re-heated back to about 2700° F (glowing cherry red) to prepare them for the roughing mills where they will be rolled into billets, blooms or slabs. In the right corner can be seen a hot metal car pouring molten iron into a transfer ladle for delivery to Homestead's Open Hearth number 5.





# MODELING STEEL

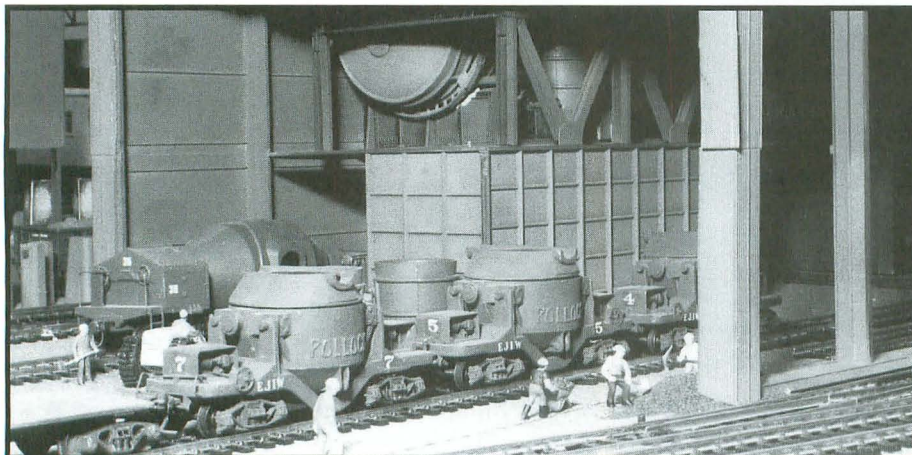
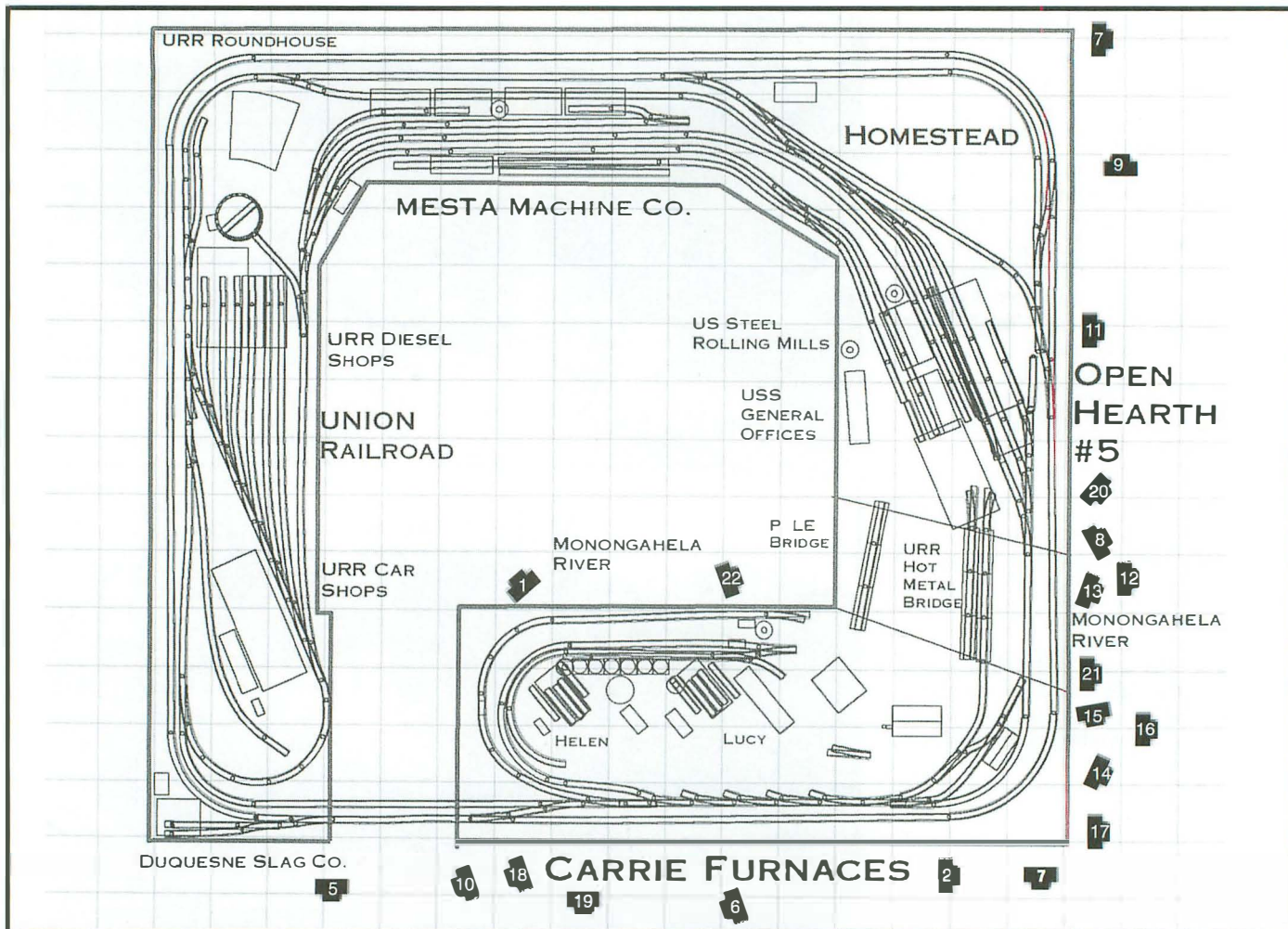


PHOTO 13.

In the foreground are Kling-type hot metal cars, which have made a delivery of molten iron to the mixer building at Open Hearth number 5. In the background can be seen a newer type of "bottle car" pouring its hot metal into a transfer ladle. Batches of hot metal were combined in the large steel-and-refractory drum or "mixer" in the top center of this picture, in order to provide consistency for the open-hearth steel-making process.



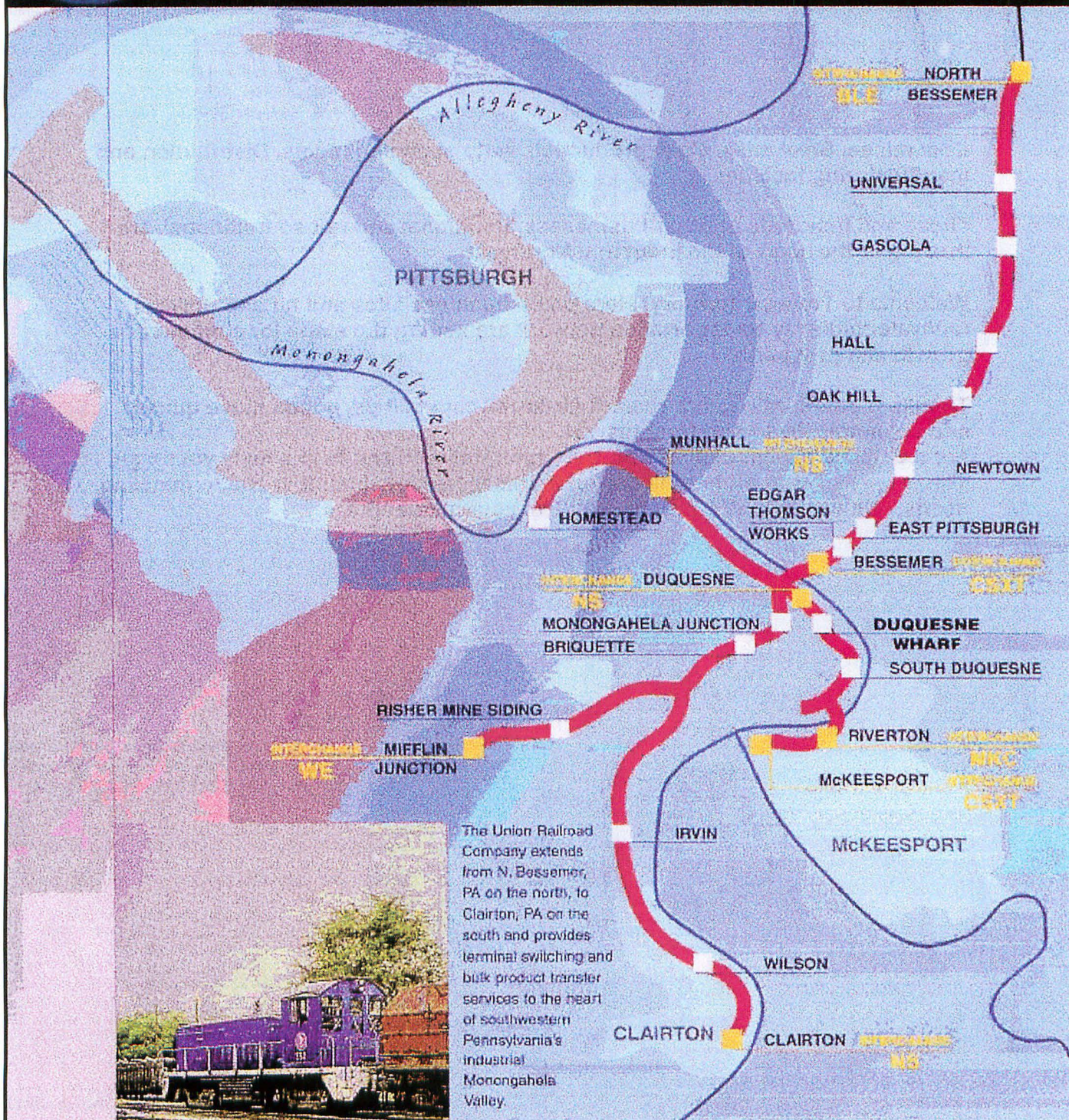
PHOTO 14.

Mesta Machine Company is in the upper left with the P&L E bridge and the Union Railroad's "Hot Metal Bridge" over the Monongahela River in the center.





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# MODELING STEEL



PHOTO 15.  
The Union RR "Hot Metal Bridge" at Rankin, Pennsylvania just across the Monongahela River from Homestead. This unusual bridge has solid steel flooring, and concrete and girder walls to prevent bridge damage and possible explosions from hot metal spills. Here, a URR switcher shoves a string of ingots onto the bridge, coming from Homestead Works, followed by a yellow URR caboose.

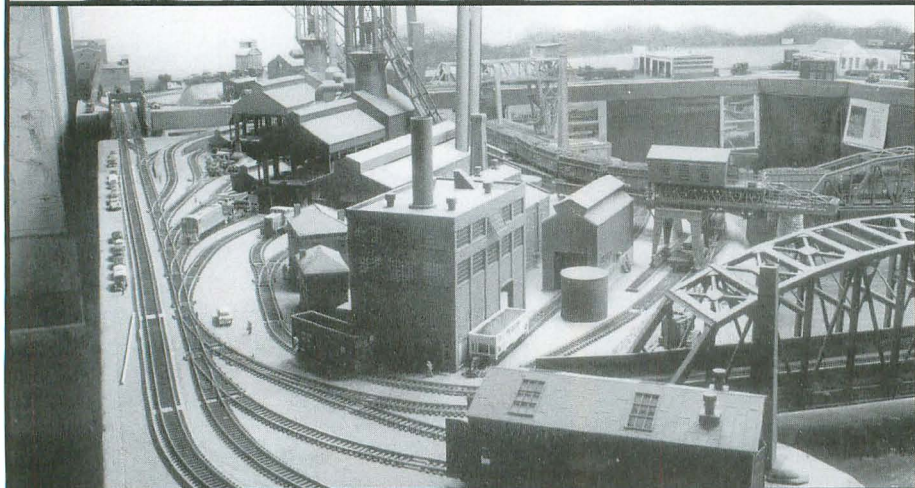


PHOTO 16.  
The entire Carrie Furnace complex is visible with the Monongahela River on the far right.

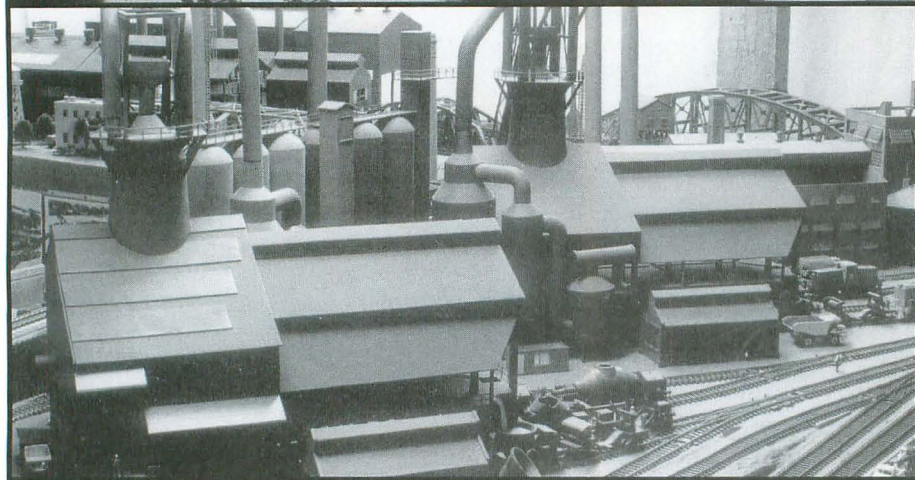


PHOTO 18.  
Two complete Walthers 3054 Blast Furnaces With Cast House kits and several Rlx (Pikestuff) kits were used to create the Carrie Furnaces.

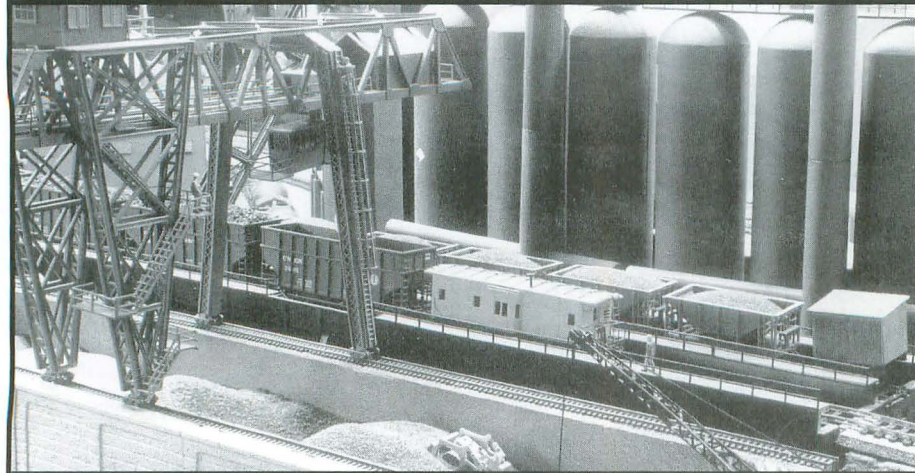


PHOTO 22.  
The massive rolling ore bridge is used to unload iron ore, coke and limestone.



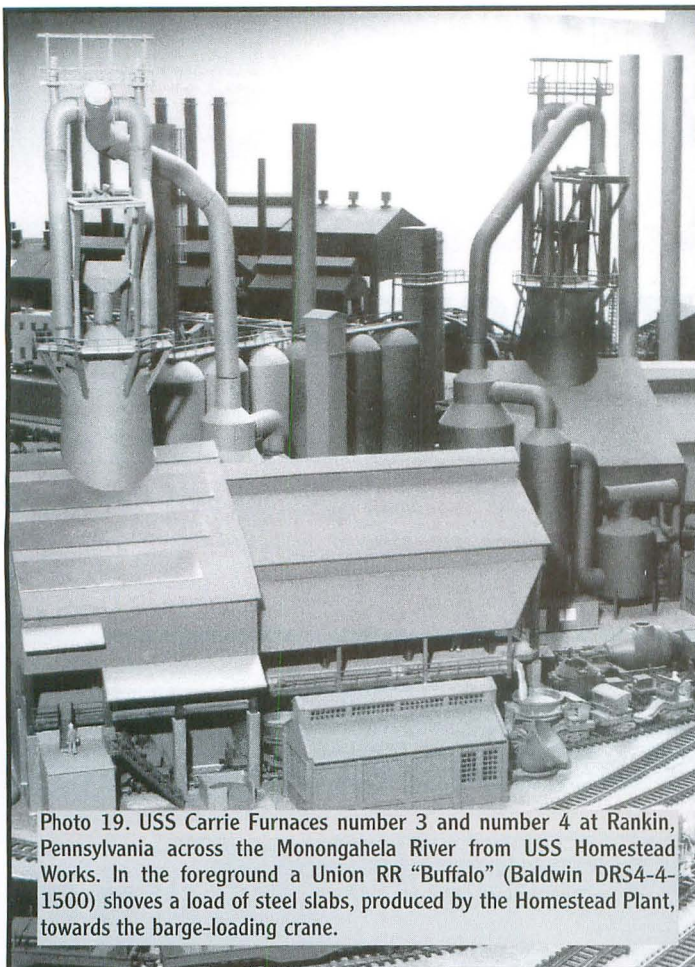


Photo 19. USS Carrie Furnaces number 3 and number 4 at Rankin, Pennsylvania across the Monongahela River from USS Homestead Works. In the foreground a Union RR "Buffalo" (Baldwin DRS4-4-1500) shoves a load of steel slabs, produced by the Homestead Plant, towards the barge-loading crane.

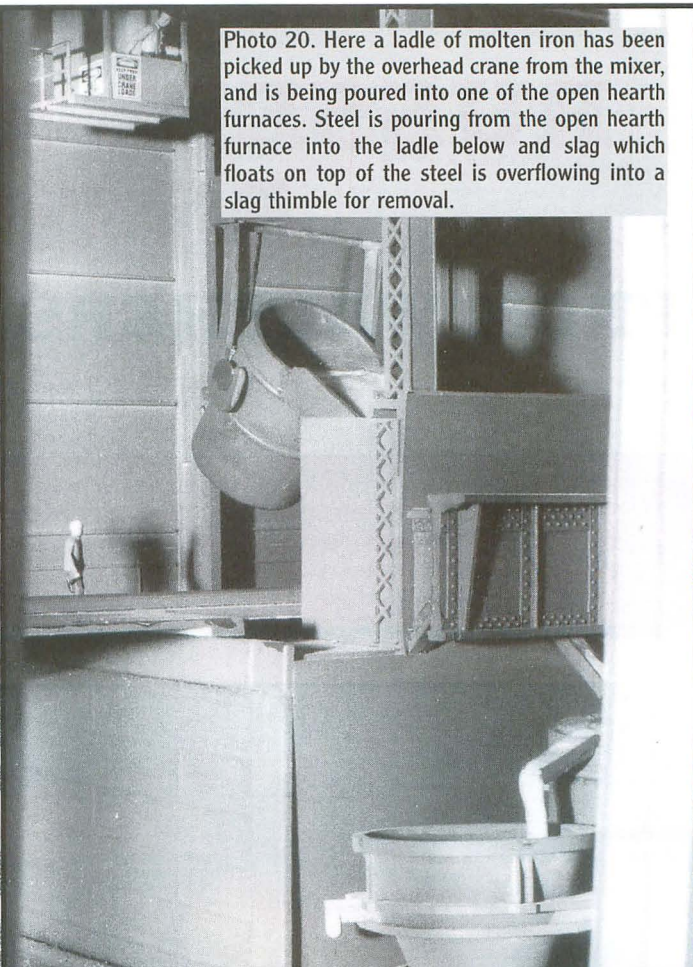


Photo 20. Here a ladle of molten iron has been picked up by the overhead crane from the mixer, and is being poured into one of the open hearth furnaces. Steel is pouring from the open hearth furnace into the ladle below and slag which floats on top of the steel is overflowing into a slag thimble for removal.

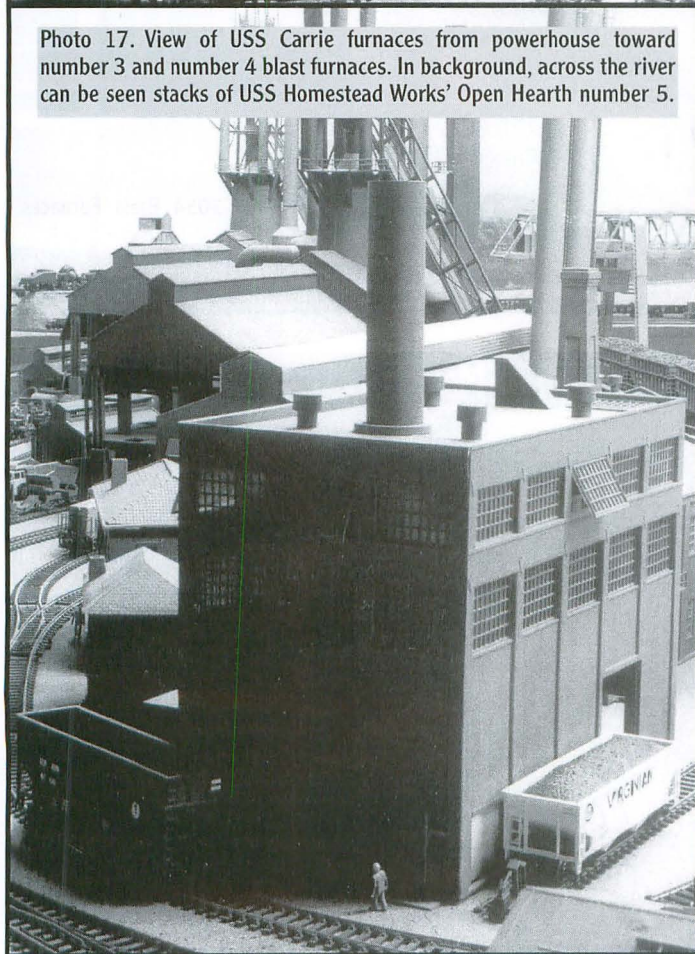


Photo 17. View of USS Carrie furnaces from powerhouse toward number 3 and number 4 blast furnaces. In background, across the river can be seen stacks of USS Homestead Works' Open Hearth number 5.

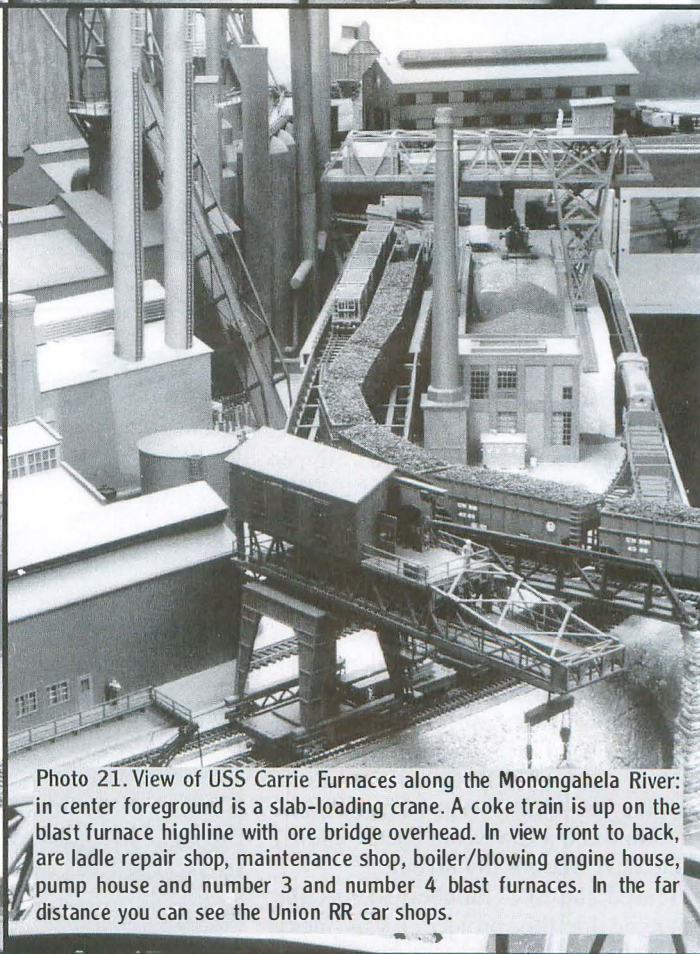


Photo 21. View of USS Carrie Furnaces along the Monongahela River: in center foreground is a slab-loading crane. A coke train is up on the blast furnace highline with ore bridge overhead. In view front to back, are ladle repair shop, maintenance shop, boiler/blowing engine house, pump house and number 3 and number 4 blast furnaces. In the far distance you can see the Union RR car shops.