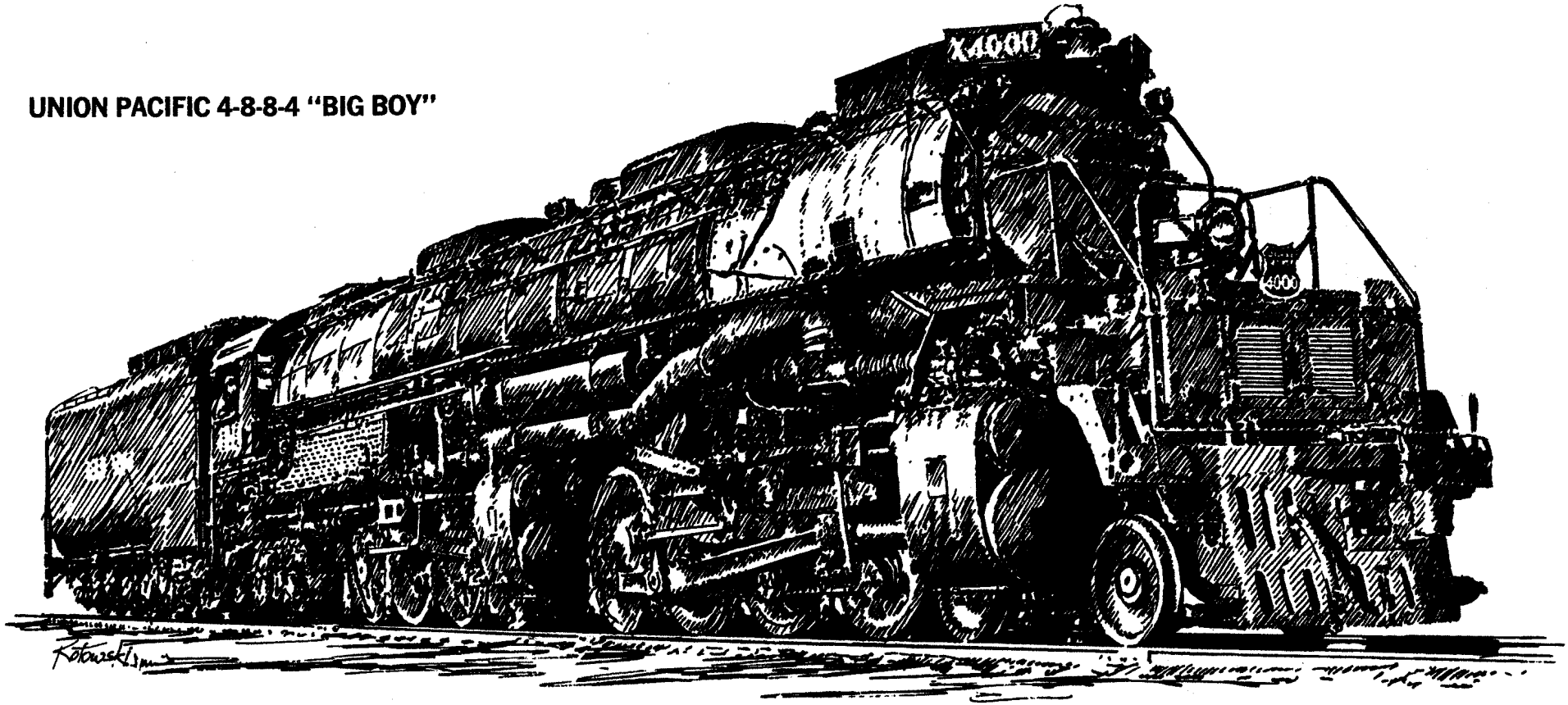
UNION PACIFIC 4-8-8-4 "BIG BOY"



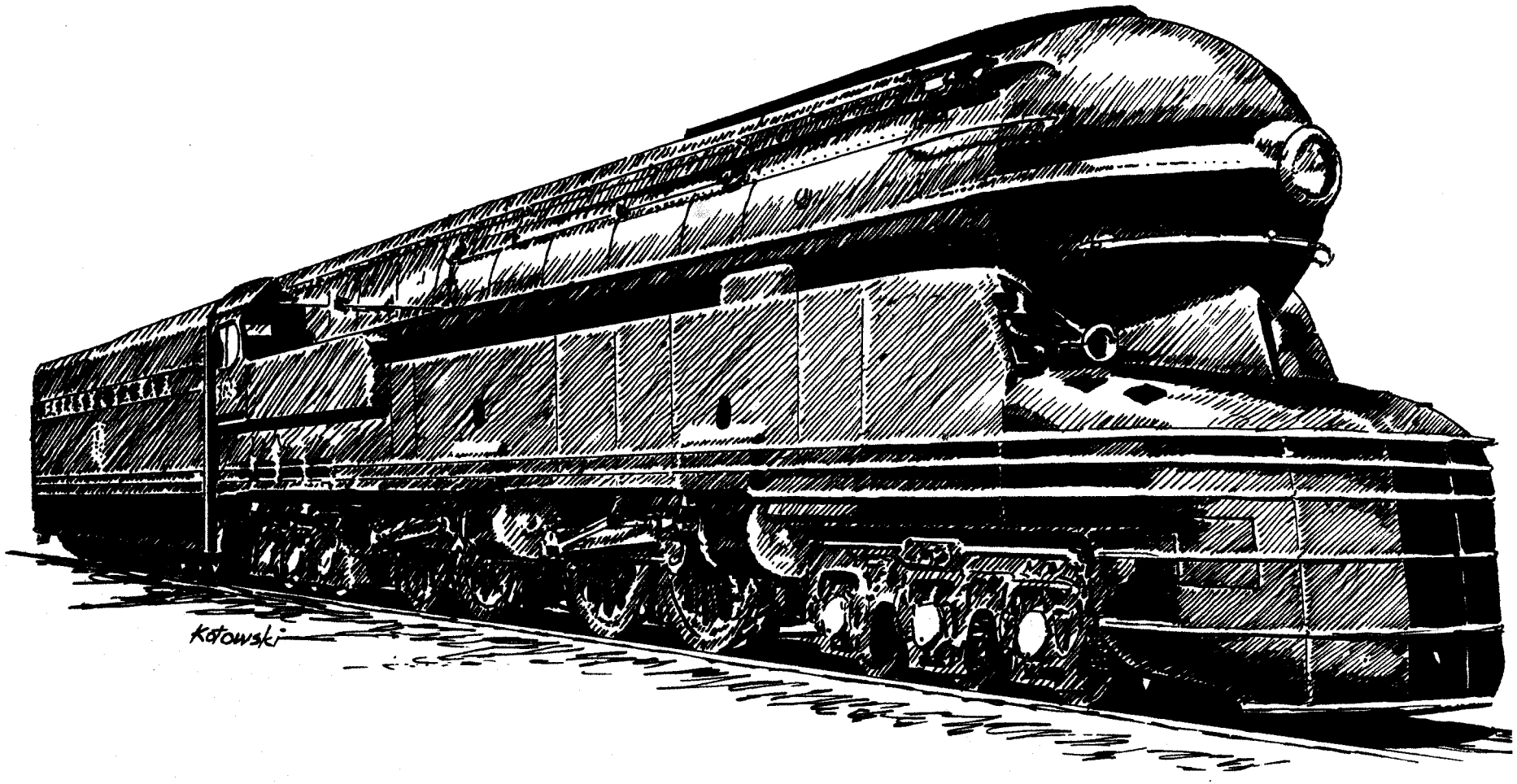
BIG BOY NOT THE BIGGEST

by Mike Kotowski

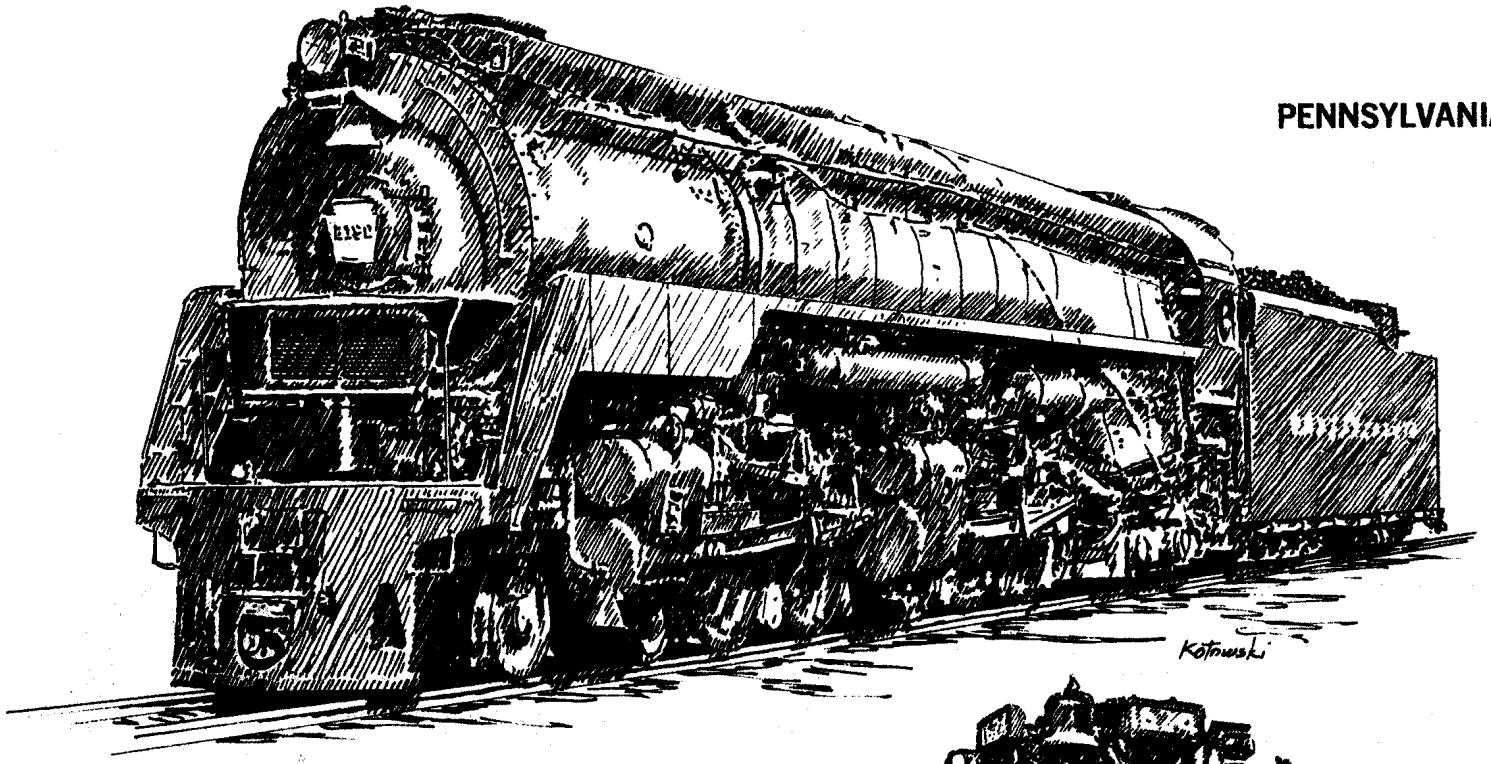
From time to time the fans of the Union Pacific, DM&IR, ERIE, Norfolk & Western, Great Northern and the Northern Pacific go round and round over which road had the biggest, heaviest and most powerful steam locomotives. This debate will probably go on ad-infinitum depending on whose favorite road and motive power is under consideration. But let us consider which steam locomotive(s) was really the biggest. Union Pacific's "Big Boy" has always received the nod as the biggest and most powerful steam locomotive ever built, but such was not the case. Depending on one's definition of biggest, i.e., longest, the honor would fall on Pennsylvania's S-1 duplex 6-4-4-6 at 140'-2½", some six feet longer than the U.P. "Big Boy." As for overall weight, the "Big Boy" tipped the scales at 1,208,750 pounds including tender, a figure which was only approached by the Duluth, Missabe & Iron Range 2-8-8-4 (1,131,675 lbs.), the NP Z-5 "5000" class 2-8-8-4 (1,125,400 lbs.). For engine to engine weight, the Virginian 2-6-6-6 at 753,000 lbs. compared to "Big Boy's" 772,000 lb. weight.

Most powerful? in horsepower? there are several steam locomotives that rated much higher than "Big Boy's" 6290 drawbar horsepower. It should be remembered that a steam engine is rated in boiler HP, cylinder HP and drawbar HP—the latter relating to available horsepower for pulling a train. The Pennsy Q-2 Duplex (4-4-6-4) static tested at 7987 HP at 55 miles per hour, a horsepower rating unmatched by any other rod driven steam locomotive. The N&W

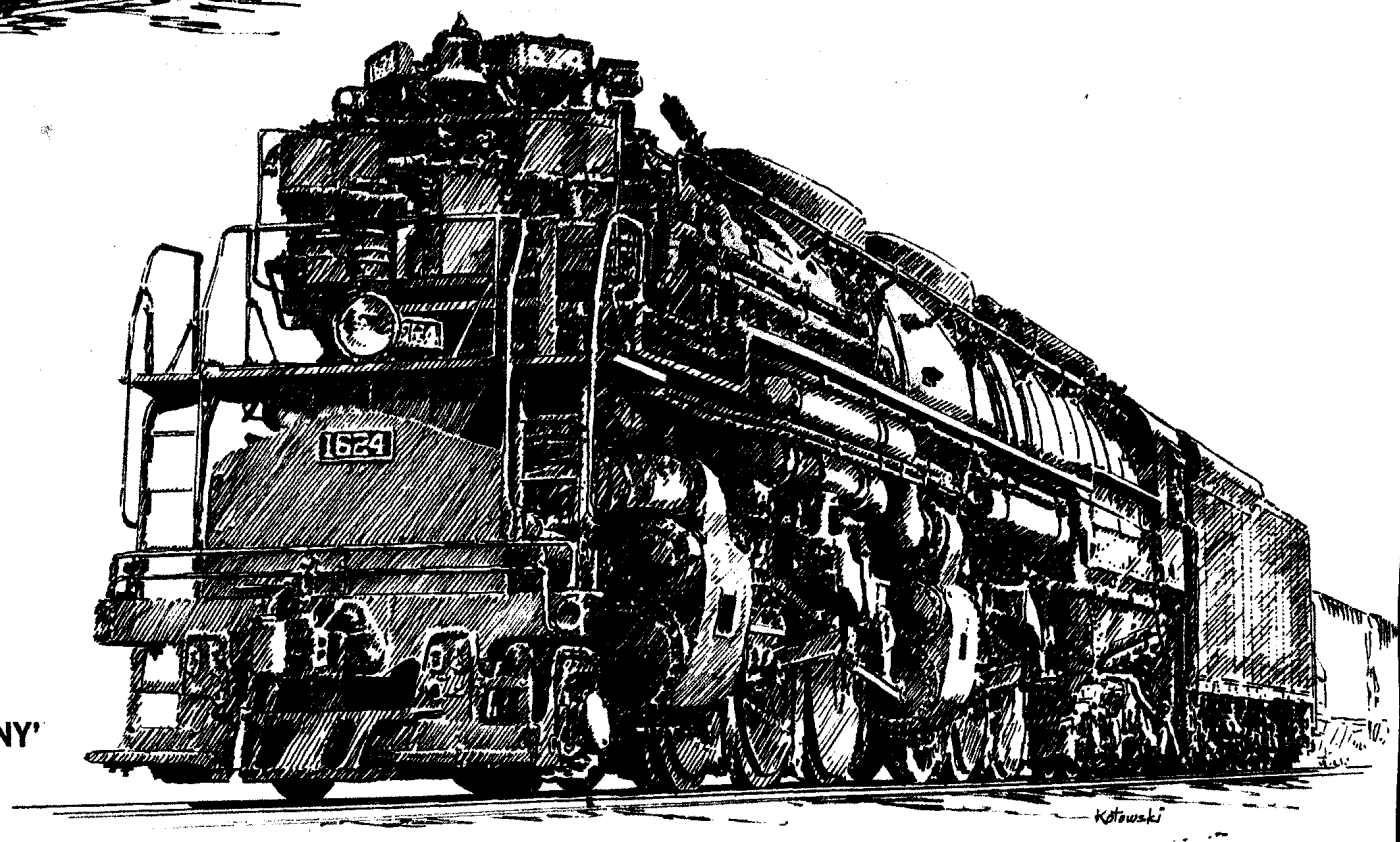
(Text Continued on Page 12)



PENNSYLVANIA 6-4-4-6 DUPLEX S-1

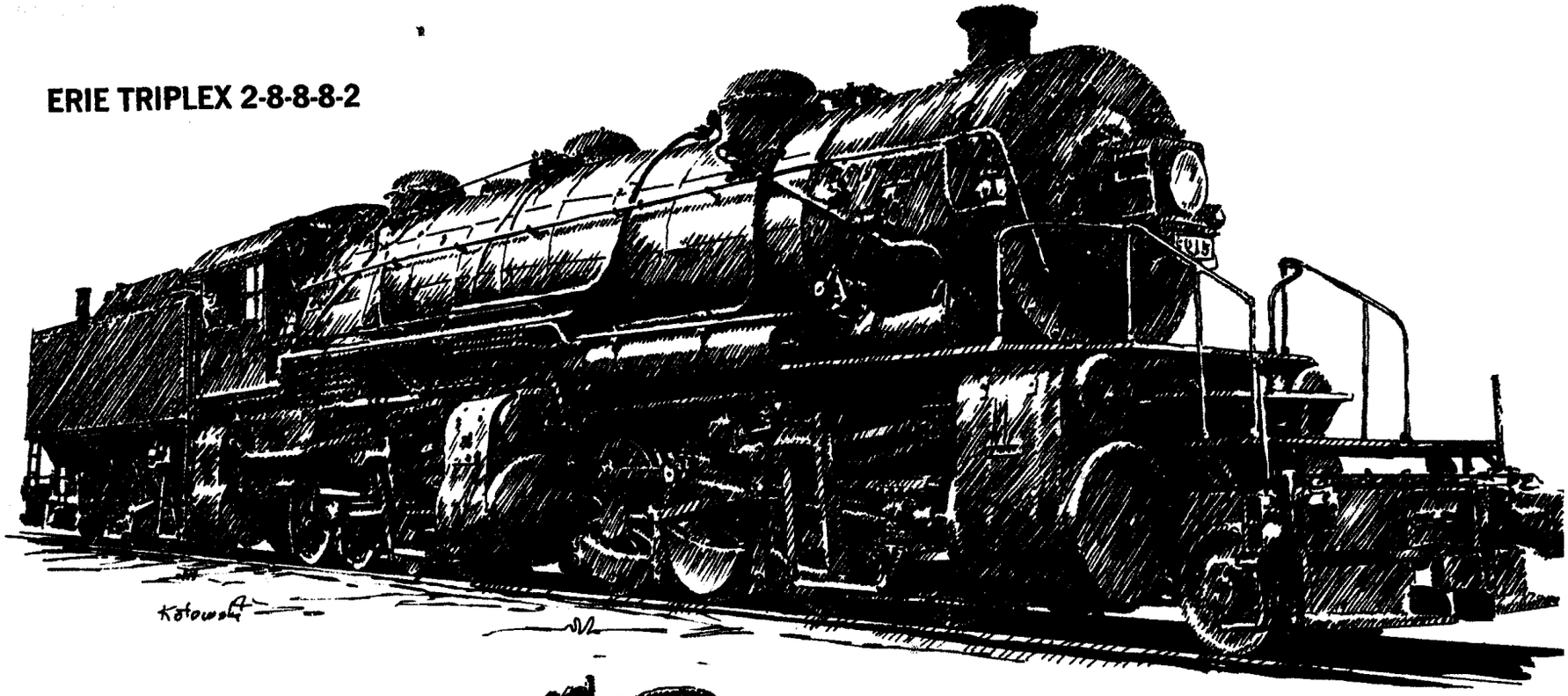


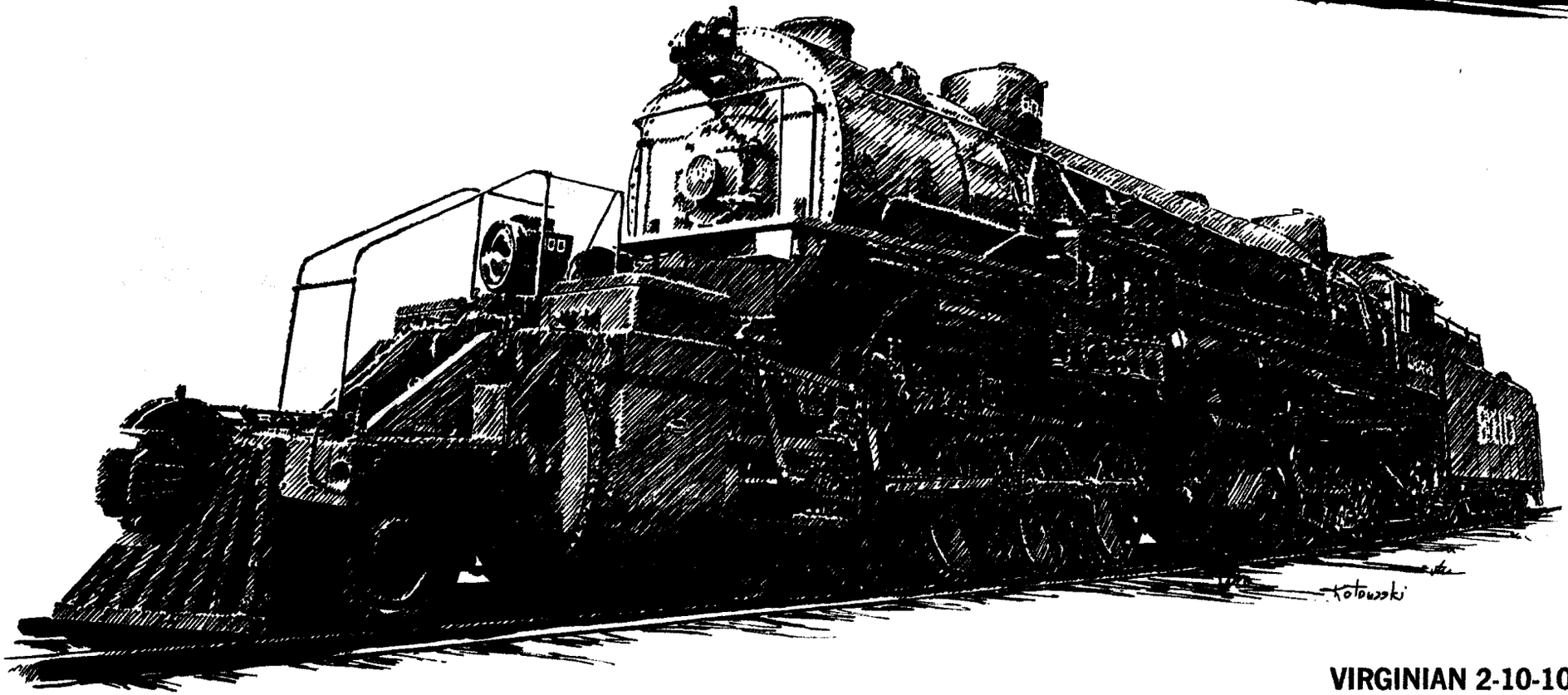
PENNSYLVANIA 4-4-6-4 DUPLEX Q-2



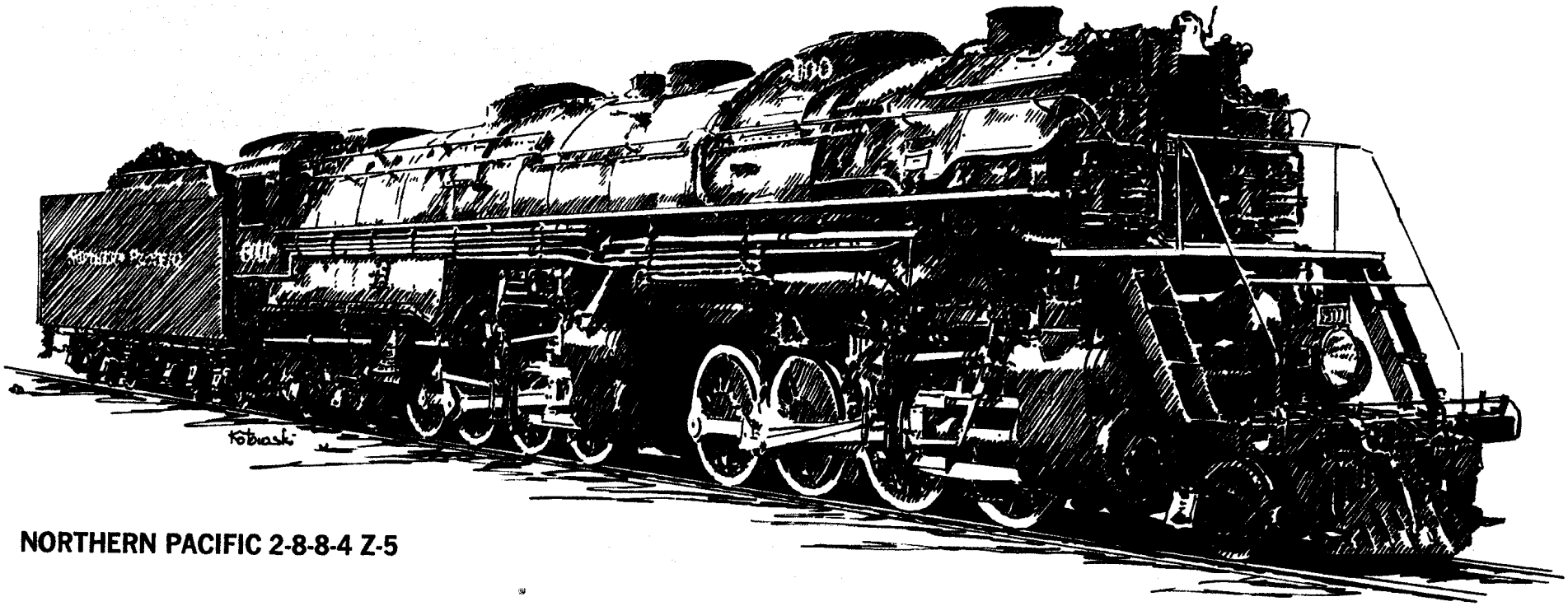
CHESAPEAKE & OHIO 2-6-6-6 "ALLEGHENY"

ERIE TRIPLEX 2-8-8-8-2





VIRGINIAN 2-10-10-2 "80



NORTHERN PACIFIC 2-8-8-4 Z-5

class "A" 2-6-6-4 was dynamometer tested at better than 7500 HP at a mile-a-minute in actual service, while the Alleghenies of the Virginian and the C&O were tested in service at 7498 horsepower. A performance comparison of HP to train weight showed the 2-6-6-6 Allegheny accelerating 160 cars (14,083 tons) from zero to 19 miles per hour in one mile! Some drag race!

Most powerful . . . in tractive force? Many engines surpassed the "Big Boy" by a considerable margin. Overall champs were the Triplexii of the Virginian and the ERIE. When worked simple the VGN 2-8-8-8-4 pulled at 199,600 pounds while the ERIE 2-8-8-8-2 developed 196,000 pounds of pulling power. One fact about these engines remains, however, and that was that a triplex used up all of its steam before it could get a train rolling and was therefore best considered a "noble" experiment.

No experiments were the Virginian "800" class 2-10-10-2 compounds. They sported the world's largest boilers for steam locomotives at 118 inches in diameter, with 11,785 square feet of heating surface. Also unsurpassed were the low pressure cylinders with a four foot diameter bore and a tractive force of 147,220 pounds compound and 176,600 pounds simple—a long way beyond the rated 135,375 pounds of tractive force of the "Big Boy." As a matter of fact, the Northern Pacific's Z-5 developed 140,000 pounds of pull as did the DM&IR's Yellowstones. The heaviest "heave-ho" for a simple articulated went to the Great Northern's R-2 2-8-8-2 at 153,000 pounds, while the Western Pacific "250" class 2-8-8-2 generated 137,000 with an additional 13,900 pounds from its booster engine. The WP engine and the R-2 were both million pound plus locomotives in the weight department. Not to be left out, the N&W Y-6 compounds, when operated as simple engines, produced 152,206 pounds; compound they produced 126,838 pounds tractive effort.

Now where does this leave the Union Pacific's 4-8-8-4? For one, it was the only engine class of that wheel arrangement in this country. It was the only eight coupled articulated with 68 inch driving wheels. It indeed was the heaviest rod-steam locomotive, and it operated at 300 psi boiler pressure. All points considered, the "Big Boy" had more power and weight stuffed into a single package than did any other steam engine—that is perhaps why the U.P. "4000" class was so often called the world's biggest and most powerful steam locomotive.

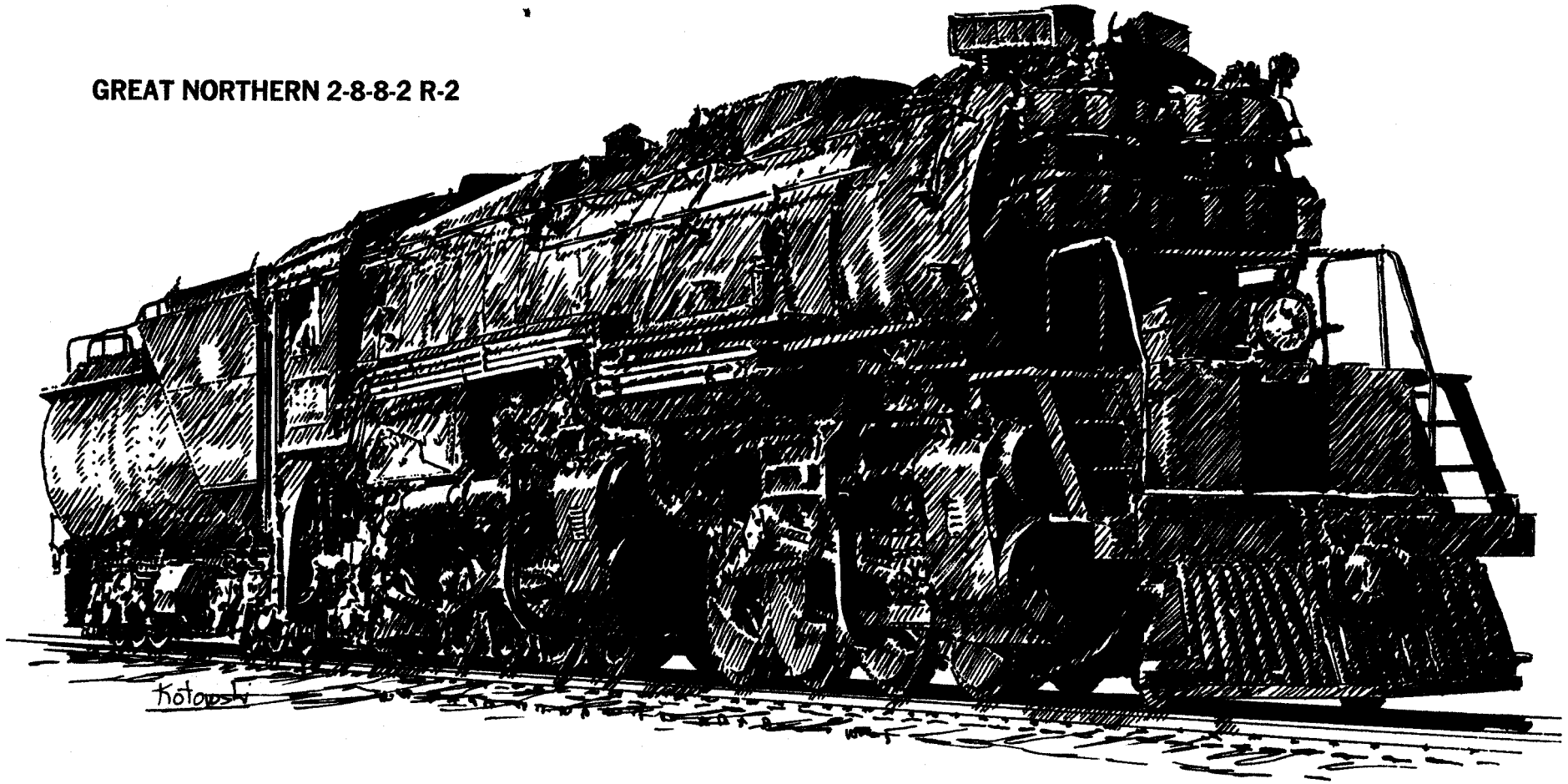
For those wishing to model the "Big Boy" in HO scale, many importers have produced this engine since the late 1950s. LMB, GEM, AUSTIN and PFM imported brass versions, and AHM a plastic model. In "O" scale, the late Max Gray, U.S. Hobbies and the Westside Model Company have continued the tradition—the latter with a super detailed model costing close to $2300.

The Triplex in HO (Virginian 2-8-8-8-4) was imported by Westside; the ERIE version by LMB some years ago. In "O" scale, Westside again had the VGN engine built and is working on the ERIE engine for later this year.

The Duluth, Missabe & Iron Range "Yellowstone" was imported by PFM as a Crown model, by Akane in 1962(c) and now Westside . . . all HO gauge.

The NP Z-5 and the GN R-2 have been born again and again by PFM in HO gauge, while the 2-6-6-6 was imported by Akane, PFM (Crown) and has been advertised to be resurrected again by that same importer. Max Gray imported an

GREAT NORTHERN 2-8-8-2 R-2



"O" gauge version of this massive engine, the date of which escapes this researcher.

As for the WP engine, no model has been imported except, perhaps, for custom built versions that were not advertised.

The Virginian 2-10-10-2 was imported years ago (?) and again just recently by NJ Custom Brass in HO scale.

The Norfolk & Western Y-6 was produced by PFM in the early '60s as a Crown model and by AHM in plastic for the budget minded . . . both in HO gauge.

So if you now are inclined to pursue a "Big Boy" in HO scale for your road or collection be prepared to lay out at least $700, and more like $1200 for a current model. The "O" gauge version has previously been mentioned regarding price. Perhaps one thing can be said about the engine that was called the "biggest, most powerful," et al: it may well be the most expensive!

Bibliography: Swengel, "The American Steam Locomotive, Vol. I"; Alexander, "American Locomotives"; Kratville, "Big Boy"; Westing, "The Locomotives That Baldwin Built"; Newton-Gregg, "1925 Locomotive Cyclopedia."