

The Navigation's Boats

by
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In the early days of the canal, most of the boats operating were open (no deck), had a draught of three feet, and were capable of carrying about 25 tons. The cargo (for the most part anthracite) was covered with canvas tarps to shed rain water. The coal was unloaded at the wharves of Philadelphia along the Schuylkill. Coal destined for transshipment was later taken to the facilities along the Delaware River. With the advent of steam propulsion the canal boats were rafted (tied together) and towed up the Delaware by steam tugs to Port Richmond for unloading and stockpiling, from which it was loaded on to larger sailing ships for transport to New York, Long Island Sound, New England and elsewhere.

When the Delaware and Raritan Canal opened through New Jersey in 1834, a new route to New York City became available and this had

an immediate effect on canal boat designs. In order to make them suitable for the longer tow up the Delaware to Bordentown and for the crossing of Raritan Bay under tow, boats were built with decks and hatches, rendering them much more seaworthy. Some were also equipped with a stable so that the mule team could be taken aboard. Asa Packer (the founder of Lehigh University) was involved with canal boat building on the Lehigh Canal and his successful design for a decked boat with hatches seemed to fill the bill for the Schuylkill Navigation. He, and his brother Robert, took large contracts from Stockton & Stevens, of New Jersey, for building boats at Pottsville to engage in the direct coal trade to New York. At the end of three years the brothers dissolved the partnership, Asa returning to Mauch Chunk, and Robert locating in Reading. By 1843, a large number of "Packer boats" were



operating on the Schuylkill hauling anthracite directly to the New York market via the D&R. According to Solomon White Roberts in his report to the managers in 1845 (prior to the final enlargement), this was a highly successful boat design. He wrote, "The best boats now in use upon the Schuylkill Navigation are seventy feet long and thirteen feet two inches wide, and when drawing forty-six inches of water they carry 66 tons of coal; and it is found that every additional half inch displaces one ton of water, or adds one ton to the boat's capacity of carrying; so that such a boat when drawing five feet three inches will carry 100 tons; which has been verified by actual experiment with a boat which carried that cargo safely to New York."

Most of the impetus for the subsequent enlargement of the Schuylkill Navigation came from this burgeoning trade. As noted above, increasing the depth of the canal would increase the carrying capacity significantly. Further, the D&R was built to a higher standard, having locks

of 110' by 18' in the chamber, permitting larger boats capable of carrying 180 to 200 tons of anthracite. These became the dimensions chosen for the enlarged Schuylkill locks and the canals were widened and deepened to a minimum depth of 6 feet. Following the enlargement, boats were built to the maximum size that would fit in the locks, with a large number of them engaged in the through trade to New York.

During the peak tonnage years of the 1850s, the standard boats in use on the Schuylkill were of the Bullhead type featuring a rounded bow section, with an overall length of 100 feet, a beam width of 17½ feet, and drawing nearly 6 feet when fully loaded with a burden of 180-200 tons of anthracite coal. In 1859, a fleet of 1400 boats were operating on the Schuylkill Navigation, carrying 1.7 million tons of cargo, of which 1.4 million tons was anthracite, to the markets of Philadelphia, New Jersey, New York, Long Island Sound, Delaware, and the Chesapeake Bay.

