

# Water Works

by Vivian Yess Wadlin



Left: A portion of a postcard image of the “Rifton Carpet Mills” on the Wallkill River, Town of Esopus. The mill was owned by the Dimmick family and some of its output is on display at the Klyne Esopus Museum on Route 9W in Ulster Park. The museum is open Mon, Fri, Sat. & Sun. 11am - 4pm. Check website for seasonal hours. There is no admissions charge, though a small donation of your choosing is appreciated.

*Following the example of natural waterways, this article meanders. Hopefully, it makes connections between that H<sub>2</sub>O and some other facets of our vast land and its history that led to America’s unparalleled prosperity. Water was a natural bounty that provided a figurative and literal path to earnable wealth for our forebears, and continues for us today. After writing this story, I will never listen to the words of “America the Beautiful” quite the same way. Grace was indeed visited upon us.*

Since its discovery in 1995, an interesting, but unauthenticated rock carving beside a stream in Ulster County has fascinated novice and expert archeologists. Those believing it was carved circa 1500 BC decipher its purpose as a directional sign guiding ancient explorers and traders through a large area of what would become the United States. Skeptics think it was carved by joyful hippies on a trip of their own.

Having examined it many times, and considering the work involved in its deeply-carved lines in fine-grained metamorphic sandstone, I am not convinced it is of modern origin. That said, the petroglyph, pictured below right, is interpreted by the more-expert examiners as a map of rivers including the Ohio, Susquehanna, Hudson, Delaware, Allegheny, Mississippi, and Neversink snaking across the landscape.

What we do know about our waterways, according to geopolitical analyst Peter Zeihan from his book, *The Accidental Super Power*,\* is that America’s navigable rivers flow for 14,650 miles. For comparison, he notes, “China and Germany each have about 2,000 miles.” Pity poor France with just 1,000.

America’s and Ulster County’s early history of settlement and development almost always centered along those 14,000 + miles of navigable waterways and the bonus 3,000 miles of inland waterways protected from oceans’ wrath by barrier islands.

Again from Zeihan,

All told, this Mississippi and intracoastal system accounts for 15,500 of the United States’ 17,600 miles of internal waterways. *Even leaving out the United States’ (and North America’s) other waterways, this is still a greater length of internal waterway than the rest of the planet combined.*” Emphasis added.



Above photo: Ulster County Petroglyph, 2015

These large water systems and smaller tributaries meant the earliest settlers did not have to invent nor invest in building the necessary infrastructure (roads, aqueducts, and motive power, etc.) to produce and move goods. Rivers, well-established in their beds, also were reliable routes for travelers.

Initially, these waters provided ease of exploration for settlers and traders. Later, via the same waters, productive settlers reached out to market their wares hundreds and sometimes thousands of miles from farm, mill, or mine. All at a cost per mile that no other mode of transport then or now matched.

It was so cost effective to move goods by

water that many of the new nation’s first large-scale infrastructure development projects were undertaken to connect waterways to each other with aqueducts, canals, or rail lines. It is hard to imagine the benefit to Americans with each new connection here at home, let alone when we completed projects such as the Panama Canal in 1914.

That’s a quick but shallow big— aqua picture. Closer to home, compared to New York counties to our south, Ulster County is sparsely populated. If you spread us out, we would have 1.25 acre per person for our population of 184,000 residents. A quick review of Ulster County’s access to navigable rivers gives hint to our particular water largess. Ulster’s 1,126.6 square miles of territory is served by multiple rivers and major streams— Wallkill, Hudson, Rondout, Neversink, Esopus, and others. Just Ulster’s smaller streams are estimated to run for 2,147 miles. Then, consider those hill- and mountain-sourced rushing streams providing the almost-free, easily-captive water power used to grind, card, weave, spin, mill, sew, and saw. Today, throughout the county, abandoned mill stones adorn walls and walks.

Longtime Esopus resident, Wilson Tinney, who passed away at 102, once noted to me there was a mill on almost every farm with a strong stream. One of the many mills he was describing was located on the land where I grew up in the Town of Esopus. That sawmill was powered by dammed water. The stone dam, repaired in 1994, is visible today just off 112 Swartekill Road.

Improvements in water control (weirs, dams, gear and mill designs) provided additional impetus for any farm family with a such a stream to “get milling.” They would install the mill for their own use and it sometimes developed into a source of income by milling the neighbors’ grains or sawing their lumber.

Just as the internet forced down the cost of barriers to entry in many businesses, so, too, did our extensive waterway complex over the past two centuries. Water-powered mills such as the Dimmick woolen mill, pictured above, on the Wallkill River was a capital-intensive business that flourished up through the Civil War. But unlike big mills, much of the work required to build a small mill was sweat- and smarts-equity. The biggest expense would have been the turning mechanism and the stone or other equipment the harnessed water was to drive.

This entrepreneurial leap created demand for grinding stones, flour sacks, dynamite, mules, and barrels, among hundreds of other items the newly-minted miller needed as business grew. But, no matter what was needed, its supply was just a water trip away.

To help grasp of the impact of waterpower locally, we turn to C.M. Woolsey’s *History of the Town of Marlborough*, a book that is one of the deep-wells of industrial lore:

According to Woolsey, Milton, NY, in 1864, was a small Ulster County hamlet on the Hudson in Marlborough township. It is described demographically as follows:

“Population, 2,248; taxable property, \$108,172; electors, 364; acres of improved land 9,436; 1,645 cattle; 424 horses; 2,092 sheep; 10,887 yds. of cloth, made in families; 7 grist-mills, 5 saw-mills; 2 fulling mills; 3 carding machines; 1 cotton and two woolen factory and 1 distillery.

Another discussion titled “Ancient Mills and Factories” in Woolsey’s book tells of the mills from mid-1700 to the early 1800s, listing no fewer than 18 mills in the Town of Marlborough.

The strength and variety of Marlborough’s mill population was not unique. The topography of Ulster County is, roughly speaking, ridge after ridge generally running north-south with streams gushing toward the larger rivers.

Area would-be millers were fortunate, too, because local extractive industries were rock-solid. Making local milling even more lucrative, demand for mill-stones was met with nearby Shawangunk grit, thus saving much of the shipping costs borne by mills farther afield.

Most mill stones, blue stone, cement, timber, and other goods produced in Ulster initially traveled on the Rondout and Hudson to reach farther destinations, but the availability of those items locally was just one more Ulster business advantage.

Even when milling was not in seasonal demand, many farmers crafted items needed when mills were running. They became coopers fashioning staves and hoops from the wood of local forests. Many locals “mined” rivers and lakes for ice which they stored for self-use and to keep produce and milk fresh all the way to distant markets.

Trees were harvested in the far reaches of Ulster County and floated down streams and rivers for use in transportation, construction, furniture, and the tanning industry. Specific species of wood were transformed into fruit baskets. Railroads were often built along conveniently water-carved beds that were cheaper than other terrain. This development expanded markets that had already sprung up along those waterways.

Added to our vast and networked natural

transportation system was our more than adequate-length growing season, fine soils, consistent rainfall, and the availability of all that winter-cut ice. These advantages meant the small farmer could be productive beyond the needs of his own brood. He could sell the excess of his labor and rise above subsistence farming. Importantly, he could save money in case of a failed harvest and buy food from somewhere else that had escaped the drought or storm or insect-infestation which had plagued him. In the old world of strict subsistence farming, that was a luxury of which few could have conceived.

Something else we in the age of instant information might easily overlook was the importance of communicating the “best practices” gleaned from the thousands of small hit-and-miss trials and experiments of early rural peers. With the growth of shipping and trade, knowledge was the other essential product hitching a ride. An innovation in farming, milling, pricing, animal husbandry, or storage? Word-of-mouth spread it first along the waters.

This was a microcosm of world economic development—cities trading with the widest swath of cultures developed more rapidly as inventions and knowledge planted there cross-pollinated and bloomed. These well-springs of ingenuity were historically on coasts or rivers.

Which brings us back to the petroglyph. If, as the believers in its antiquity state is true, what other area artifacts support the theory?

Hmm... sounds like future *About Town* article.

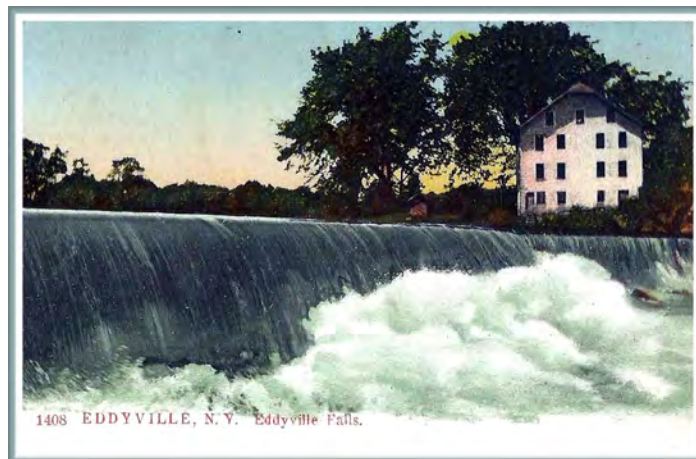
*\*Author Zeihan goes on to discuss the other geographic, political, demographic, and meteorological blessings that have made the U.S. such a formidable economic power.*

*\*\*President Carter transferred the canal to Panama in 1977—however, the US continued to oversee operations until 1999. Short story on page 11.*

*BTW: Ray Charles stirring version of “America The Beautiful” is online and it is stellar.*

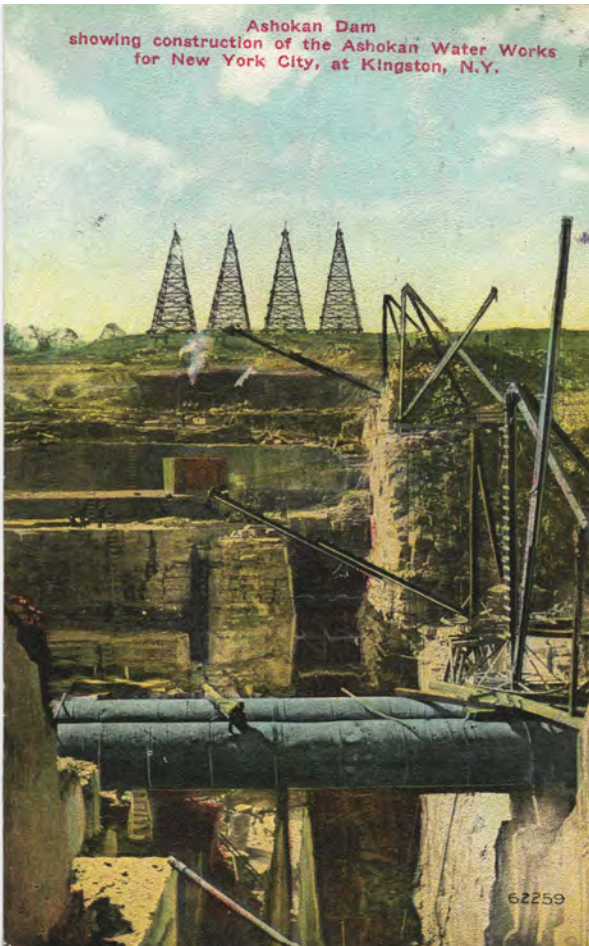
*Images are from the author’s collection.*

*More images on next page.*





*Largest Water Wheel in the World,  
Burden Mill, Troy, N. Y.*



*Ashokan Dam  
showing construction of the Ashokan Water Works  
for New York City, at Kingston, N.Y.*



*Wright's Falls, MARLBORO, N. Y.*

Postcard top: "Largest Water Wheel in the World, Burden Mill, Troy, NY." Note two men at top of yellow ladder. Burden was an iron works, and this mill was thought to be the most powerful vertical water wheel in history. Located on Wynantskill Creek in Troy, Burden is on the National Register of Historic Places. Museum to reopen soon.

Postcard far left: Ashokan Reservoir dam construction. Card text reads "...at Kingston, N.Y." however no construction of this magnitude was at Kingston.

Left: "Wright's Falls, Marlboro, N.Y." Marlboro had a large number of mills, particularly at Milton, NY in the 1800s. This card illustrates the power just waiting for the right person to build a mill.

All images from author's collection.

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