



The *Half Moon* at Rondout , June 10th 2009

Photo by Chris Kendall

Hudson River Maritime
Museum
Pilot Log 2009 - 2010

THE EVOLUTION OF THE HUDSON RIVER TOWING INDUSTRY

A Number of Backwards Glances at 180 Years of Progress

by William duBarry Thomas

Towing on the Hudson River undoubtedly began in earnest with the earliest steamboats once the Erie Canal began at the time of its grand opening on 26 October 1825.¹ After that date, canal boats loaded with eastbound grain cargoes needed a way to deliver their cargoes to New York City. Nearly all of the towboats of that age were primarily side-wheel steamers which normally carried passengers.

Little is known of how the concept of the dedicated towboat developed. As the traffic on the Canal increased, it was undoubtedly found that there was more traffic than could be handled by the passenger boats. It is surmised that this occurred sometime during the mid-to-late 1830s. It should be noted that the

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A towing steamer towing a long tow of barges and canal boats through the Hudson Highlands towards Storm King Mountain.

marine propeller did not exist at this time, so that all of this earliest towing was carried out by side-wheel steamboats.

The side-wheel steamboats-whether engaged in towing or otherwise employed-were propelled by engines of two designs. One was the walking-beam engine, in which a the connecting rod from a vertically-mounted cylinder was attached to one end of a diamond shaped cast iron beam. From the other end of the beam, a rod led to a crank in the transverse shaft that led to the paddle wheels. In this way, the paddle wheels turned as a result of the up-and-down movement of the engine's piston.

The other type of engine used on the side-wheelers was the crosshead engine, similarly configured to the beam engine except that instead of the walking beam, a crosshead moved vertically in guides at each side. The connecting rod movement from the cylinder caused the crosshead to move vertically and a second connecting rod rotated the crank on the transverse shaft in the same manner as that of the beam engine. The crosshead engine, common in the early days of the steamboat, virtually disappeared from production during the late 1850s.

Most of the side-wheel towboats in use on the river were former passenger steamers which had been converted to towboats, mainly by the removal of the passenger quarters. During the entire history of the side-wheel towboat, there

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were only seven such vessels built for towing purposes between 1848 and 1873. These vessels were *Oswego* (1848); *Cayuga* (1849); *America* (1852); *Austin* (1853); *Anna* (1854); *Syracuse* (1857) and *George A. Hoyt* (1873). All were built for well-known towboat operators--A. Van Santvoord, Samuel Schuyler, Jerry Austin and Thomas Cornell. The last named vessel was somewhat of an anachronism, built at the beginning of the propeller tug era.

The last side-wheel towboat in operation on the Hudson was *Norwich*, built in 1936 beginning in 1848, she was a member of the fleet of Thomas Cornell (and later the Cornell Steamboat Company). A star performer in the 1909 Hudson-Fulton Celebration, she last operated commercially in 1917 and was dismantled in 1923. She was also the last vessel afloat powered by a crosshead engine.

Small propeller tugs appear to have made their first appearance on the river at about the time of the Civil War. One of these pioneering craft, *Wm. S. Earl*, was around the river until the later 1940s. She had been built at Philadelphia for Albany owners in 1859. The appearance of these vessels at Albany was to provide a fleet of tugs was for two principal reasons: (1) to handle the towing of barges locally, and (2) to make up the increasingly more frequent and larger New York tows composed primarily of grain traffic through the Erie Canal.

During the post-war period and beyond, the burgeoning City of New York required increasingly large amounts of materials to construct the buildings that made up the city. In those days, the principal materials of construction were bricks and mortar, both of which were manufactured along the river. A multitude of brickyards on the upper and lower portions of the river provided nearly all of the brick required for this undertaking, being carried to New York on 100-foot long wooden barges, nearly all of which were built in shipyards along the river.

Another commodity that was significant in the pre-refrigerator days was ice, and before the era of manufactured ice, the Hudson River provided a very large percentage of New York's ice needs for many years. Ice was harvested from the river during the winter and stored in riverside ice houses. The ice was shipped to New York by barge, to be used during the warmer part of the year. As a result, ice became an important factor--alongside of brick--for many years in the river's towing industry.

There was still another commodity which required transportation to New York from the middle region of the river. This was coal--the only fuel available during the 19th century. Anthracite coal was brought from the Pennsylvania fields by the Delaware & Hudson Canal to Rondout Creek, where the Island Dock (especially built by the canal company for the purpose) became the entrepôt between canal boats and river barges or sailing vessels. Similarly, rail terminals at Newburgh and Cornwall provided the means for transfer of Pennsylvania coal to barges and seagoing vessels.

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From the 1870s onwards, the size of the propeller tugboat-and its power-increased continuously, and this was not lost on the Hudson River operators. Most, if not all, of the operators utilized side-wheelers, but only a single owner was able to foresee the day in which this type of motive power would be obsolete-and eventually non-existent. This was Thomas Cornell, an owner who had come to the river in the late 1830s operating passenger steamers. His towing business grew continually, and by 1872, he had taken delivery of two propeller tugs of then large size--*Thomas Dickson* and *Coe F. Young*, each powered by a single cylinder condensing engine of about 240 horsepower. This, it turned out, was a major step towards the future.

During the 1880s, Cornell expanded his propeller fleet with a modest fleet, primarily built in Philadelphia, the largest being *J. C. Hartt*, which boasted a 750-horsepower compound engine. Still more technical accomplishments followed, beginning with the iron-hulled *Geo. W. Washburn*, built at the T. S. Marvel yard in Newburgh in 1890 (with a near sister, *Edwin H. Mead*, following two years later). Perhaps the only wrong decision of the era was Cornell's construction of a then enormous vessel, a 1400-horsepower behemoth named *Cornell*, at a Staten Island shipyard in 1902. She proved to have a draft too deep for service on the upper river and was sold to a New Orleans operator who kept her in service until the end of World War II.

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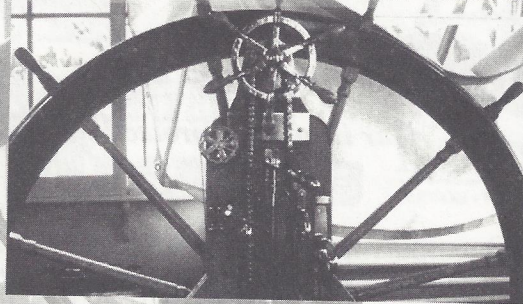
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A handful of other operators built and operated modern vessels during the period, but they were no match for the Cornell fleet and their business method. Many abandoned their river operations, some selling their vessels to the Cornell organization, at this time headed by Samuel D. Coykendall, a son-in-law of Thomas Cornell. Some of the long-time workhorses of the Cornell fleet came from these absorbed businesses, such as Ronan's *Osceola* and *Pocahontas*, built in 1883 at Newburgh and still in the Cornell fleet in the early 1930s. Another operator who failed in his tilt with Cornell was C. W. Morse, whose Knickerbocker Ice Company gave up river towing under the fierce Cornell attack.

It was during this period of increasing barge traffic that the latter day concept of the river tow came into being. The main towboat—either side-wheel or propeller driven—was in charge of the tow. As the New York-Albany tow progressed up or down the river, it was necessary to drop off or pick up barges at intermediate points along the route, such as at the brickyards, stone quarries or other industries that required barges. It was inconvenient, and in most cases, impossible for the towing steamer to accomplish this task, and in this way the concept of the “helper” tug came into being. This small tugboat would shift individual barges from the main tow to a shoreside destination without affecting the movement of the main tow. Similarly, barges were moved to the tow in

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the same way. In between these shuttle trips, the helper tug would provide its power to assist in moving the main tow, and under certain circumstances, such as rounding the potentially dangerous course change needed when rounding West Point, she would help in altering the course of the flotilla of barges.

The sheer size of these tows during the peak period of barge towing on the river was astonishing. Some of the larger tows were made up of as many as 125 barges. Assuming that the average length and beam of individual barges was around 100 by 25 feet, the area of the entire flotilla might amount to as much as seven acres!

The diesel tug made its initial appearance on the Hudson shortly after the end of World War One. The Cornell Steamboat Company purchased two 100-foot tugs that had been cancelled members of the Shipping Board's 100-vessel harbor tug fleet. These two-*Jumbo* and *Lion*-acquired in 1924 and 1925 respectively, were propelled by 600-horsepower Nelseco engines. These two line-haul tugs were joined during this period by four "helper" tugs-Cornell, Cornell No. 20, Cornell No. 21 and Cornell No. 41-all of which were converted steam tugs.

One operational breakthrough in the Cornell company's latter days was the construction and operation of the diesel-propelled *Rockland County*, a pusher tug in the style of the western river-based towing fleets. *Rockland County* was built in 1960 by Dravo Corporation at its Wilmington, Delaware yard, and was used primarily to move crushed stone-laden barges (another longtime important cargo on the river) of the New York Trap Rock Company from its quarries on the lower river.

The latest towboats seen on the river are powerful pusher tugs which move the oil barges to the upper river. These tugs, owned by K-Sea, Moran, McAllister and others, are typically of around 4000 or more horsepower, with elevated pilot houses to provide adequate visibility when moving an empty barge. Although these tugs are of a type that could never be imagined in the days of the side-wheel towboat, they are also a remarkable development that might have been unforeseen twenty-five years ago.

Today, towing on the Hudson is but a shadow of its former self. Cornell went in the 1980s, when it sold out to New York Trap Rock (although the Cornell shop buildings are still standing in Rondout Creek). Ice, coal and brick disappeared as cargoes many years ago, Still with us are petroleum, crushed stone and cement, and a small quantity of container cargo is brought from New York's container terminals to the Albany area by barge. One must remember, however, that Hudson River towboats and barges were of great importance in the development of the City of New York and the lower Hudson River virtually from the beginning of the powered vessel.

Endnotes

1 Adams, Samuel Hopkins, "The Erie Canal", published in New York in 1953 by Random House, Inc.