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Salem Maritime National Historic Site
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Pickled Fish and Salted Provisions

Historical Musings from Salem Maritime NHS



The Cut of One's Jib

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On the cover: Pedrick Store House, c. 1880 in its original site on Marblehead Harbor. Courtesy of the Marblehead Historical Society

Sailmaking and Rigging in the Loft

A ship without sails is a hulk, a glorified raft that floats but isn't going anywhere. Sails without rigging are just cloth sheets, blundering across the water to the whims of the capricious ocean winds. It took a small army of tradesmen to turn a floating wooden box into a proper vessel to challenge the waves. Among these skilled crafters were the sail-makers and the riggers, who worked in lofts and workshops much like the one on the second story of the Pedrick Store House to fashion acres of canvas and miles of cord into sails and rigging.

An East Indiaman like Friendship of Salem was a veritable web of line and canvas. A ship this size would require almost a quarter acre of sail to be assembled, while the rigging could be over seventeen miles long and weigh over ten tons when completed.¹ Without the aid of machine tools, blueprints, or any sort of mechanical aid, the workers would have to stitch and weave these massive objects, and then move them from the loft to the waiting ship. No small task when a single shroud could weigh more than a horse.

The Job of a Sail Maker

The loft itself would have been leased by the sail-maker.² Here he and his workers would have set up their workshop, using the large open space to stitch together the sails. Typically, sails of the Colonial era were made of canvas treated with tanbark, an organic chemical product made from the outer layers of the tanbark oak tree. In places, the material could be folded up to six layers thick, requiring the use of a leather strap or “palm” so that the needle could be forced through the cloth with heel of the hand.³

The process went like this: a sail-maker would be commissioned by a ship's master to fit out a ship. After being given the specifications of the order and conducting measurements of the ship's mast and yards, a sail-maker would draw out a paper pattern, usually at 1/8" to the foot scale, and then sketch it out on the loft floor. The canvas would be cut to this pattern, then sewn together with hemp yarn treated with beeswax and have bolt rope stitched to the edges.⁴ Fittings for attaching the sail to the mast or yard were also added.⁵ This entire process was done by hand for each sail.

The Rigger's Responsibilities

A rigger would weave ropes into the line for rigging, turning up to fifty miles of cord into almost twenty miles of line (“line” is the rigging on a ship, and is made of “cord”). The rigging would

1 “Friendship Bulletin,” Salem Maritime National Historic Site (accessed 25 July 2007), available from <http://www.nps.gov/sama>

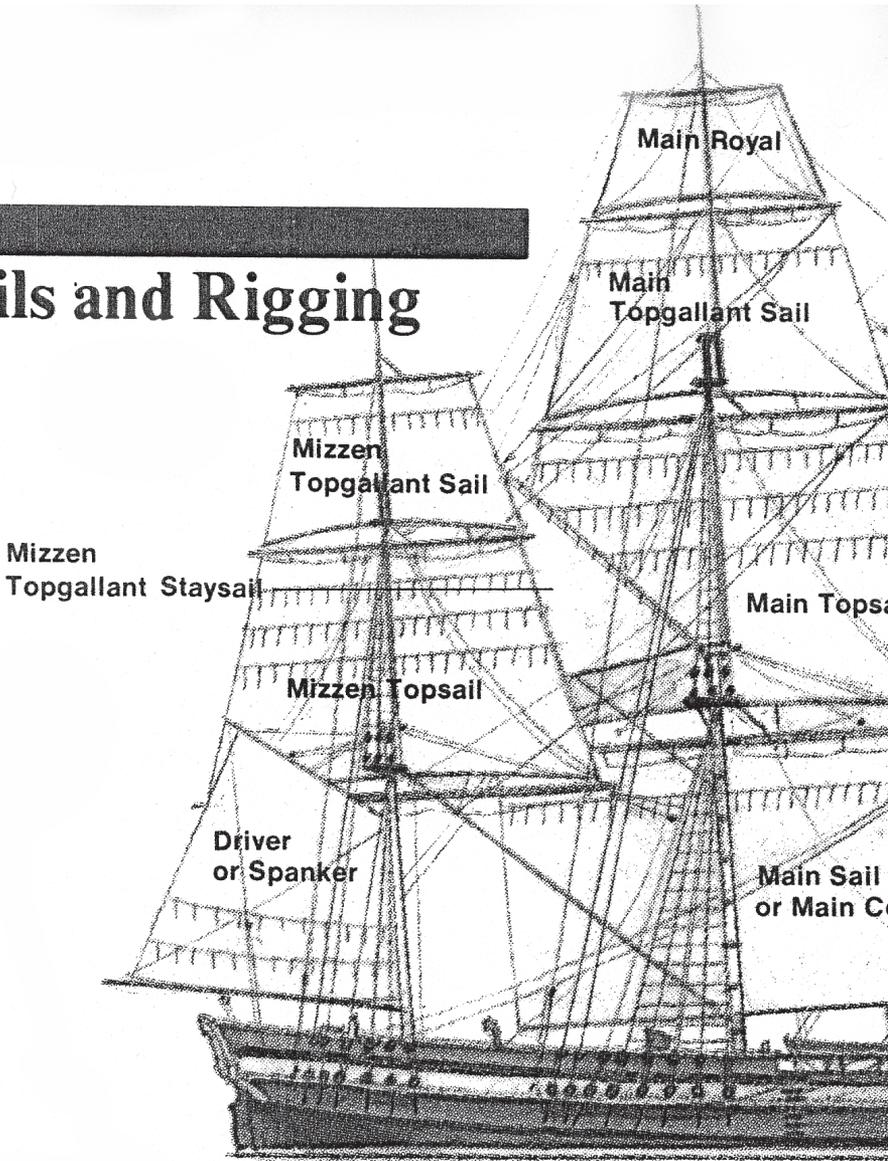
2 Judith Q. Sullivan, *The Pedrick Store House: Historic Structure Report Developmental History* (Salem, MA, 2006) 30

3 John Newman, SAMA

4 “Rigging,” The Ship Götheborg (accessed 25 July 2007), available from <http://www.soic.se>

5 “Charles Mallory Sail Loft,” Mystic Seaport: Museum of America and the Sea (accessed 25 July 2007), available from <http://www.mysticseaport.org>

Sails and Rigging



Above: The sails of a ship rigged East indiaman.

Main
Topgallant
Staysail

Fore Royal

Fore
Topgallant Sail

Topgallant Sail
(pronounced T'gans'l)

Staysail
(pronounced Stays'l)

Topsail
(pronounced Tops'l)

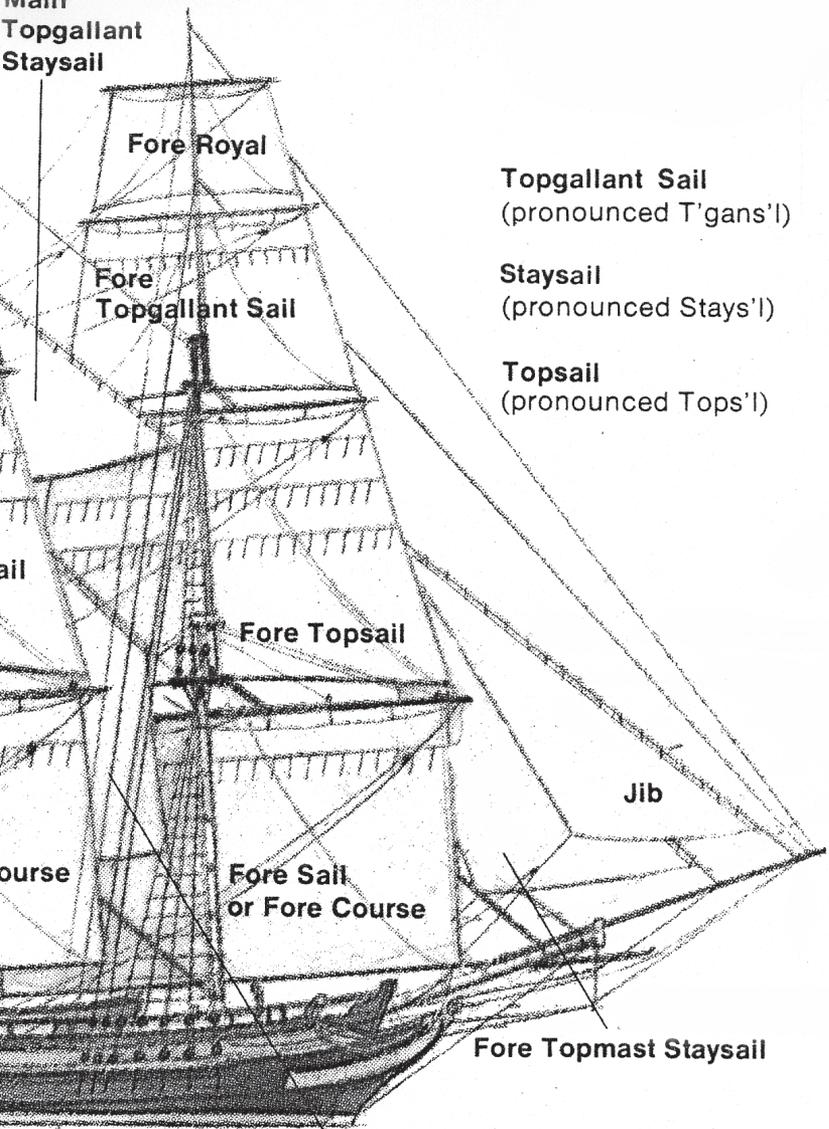
Fore Topsail

Jib

Fore Sail
or Fore Course

Fore Topmast Staysail

Main Topmast Staysail



be made from either hemp or manila rope, then treated, or “slushed,” with high-grade pine, or “Stockholm,” tar.⁶ While the tar did provide some degree of weatherproofing and extend the line’s life, it did have some properties that made it less than enjoyable to work with. Beyond the rather pungent aroma, it would start to melt and revert to a gelatinous state in the heat, making climbing the rigging a potentially messy proposition. Additionally, it becomes brittle and hard when cold. One of the more recognizable marks of a rigger would have been the black tar stains on his hands and face.

Working in the Sail Loft

The riggers had a somewhat different economic position than the sail-makers. The Pedrick loft, like all such lofts of the time, was owned – or at least leased – by the sail-maker. Riggers had no workspace of their own. Rather, custom dictated that the sail-makers provide the riggers for their clients.⁷ It is similar to the modern concept of sub-contracting. Thus, while the rigger had his own specialized gear for the job, he had no personal workshop. For the rigging, he would work in the sail-maker’s loft, requiring him to lug his gear from one loft to the next.⁸ Commonly, some of a rigger’s tools would not be his own, but rather borrowed from the sail-maker he was working for.

This arrangement was beneficial primarily to the merchants and the sail-makers, as it meant that rather than the riggers marking up their prices to accommodate loft rent, they could be hired on a per job basis.⁹ It was reinforced and encouraged by Provincial laws outlawing the improvement or occupancy of any building for rigging or sail-making lofts without the express consent of the town officials. The law’s intention was to prevent fire, as a wooden building filled with vast amounts of cloth, rope, tar, and other such materials were a significant fire hazard. However, given that the merchants very often were the town officials, or at least the power behind them, the riggers knew not to expect much from the officials.¹⁰

Regardless of which trade a man worked in, sail-making or rigging, it was not an easy life. During the colonial era the Pedrick Store House and other buildings like it were unheated and extremely cold during the bitter New England winters. It didn’t help that the Store House would have been more exposed to the weather than inland structures. Deep snow or fierce cold would have stalled work for days or even weeks at a time.¹¹

Maintaining a Rigged Vessel

A major portion of both trades’ work involved maintenance. While a new ship might require a full crew of thirty riggers a full month to fit out, existing ships required constant upkeep. Modern sails and rigging are made from synthetic fibers; but the 18th century canvas sails and manila ropes were not so durable. Exposed constantly to water, wind and extremes of temperature, they would start to rot and decay quickly. On average, a sail might

6 John Newman, *SAMA*

7 Ashley Bowen, *The Journals of Ashley Bowen (1728-1813) of Marblehead, Philip Chadwich Foster Smith, ed. (Portland, Maine, 1973) 142.*

8 *ibid*, 139

9 *ibid*, 149

10 *ibid* 140

11 Sullivan, *Pedrick Store House*, 32

last three or four years, while shrouds and other rigging two or three.¹² This was assuming they were not damaged by storms, accidents, or occasionally during the Revolution and later conflicts, bullets and cannonballs.

In the last few centuries, surprisingly little has changed in the art of turning a hull into something worth calling a ship. Modern technology makes the process safer and easier, and synthetic fibers are far more durable than canvas and hemp, the art of rigging and sail-making itself remains more or less unchanged. The sails and rigging on *Friendship* were mostly made by hand, using needle and thread and marlin spikes and other such tools just as the workers in the Pedrick loft did two centuries ago.

¹² John Newman, SAMA

Bibliography

"*Friendship* Bulletin," Salem Maritime National Historic Site. Accessed 25 July 2007. Available from <http://www.nps.gov/sama>

"Charles Mallory Sail Loft," Mystic Seaport: Museum of America and the Sea. Accessed 25 July 2007. Available from <http://www.mysticseaport.org>

Sullivan, Judith Q. *The Pedrick Store House: Historic Structure Report Developmental History*. Salem, MA. 2006

Smith, Philip Chadwick Foster, ed. *The Journals of Ashley Bowen (1728 – 1813) of Marblehead*. 2 vols. Peabody Museum of Salem in cooperation The Colonial Society of Massachusetts, 1973

"Rigging." The Ship Götheborg. Accessed 25 July 2007. Available from <http://www.soic.se>

Newman, John. Oral interview. Rigger at Salem Maritime National Historic Site.

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