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Flanders Field

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Flanders Fields

by Lieut.-Col. John McCrae, M.D.

In Flanders fields the poppies blow
Between the crosses, row on row,
That mark our place; and in the sky
The larks, still bravely singing, fly
Scarce heard amid the guns below.

We are the Dead. Short days ago
We lived, felt dawn, saw sunset glow,
Loved and were loved, and now we lie
In Flanders fields.

Take up our quarrel with the foe:
To you from failing hands we throw
The torch; be yours to hold it high.
If ye break faith with us who die
We shall not sleep, though poppies grow
In Flanders fields.

Lieut.-Col. John McCrae, M.D.

Tidbits from the Past

"The Crow's Nest"

A crow's nest is a structure in the upper part of the main mast of a ship or structure that is used as a lookout point.

This position ensured the best view of the approaching hazards, other ships or land. It was the best device for this purpose until the invention of radar.

In the early 19th century it was simply a barrel or a basket lashed to the tallest mast. Later it became a specially designed platform with protective railing. The barrel crow's nest was invented in 1807 by the Arctic explorer William Scoresby Sr. A statue in Whitby, North Yorkshire commemorates the event.

It should not be confused with the top, the platform in the upper part of each mast of a square-rigged sailing ship.

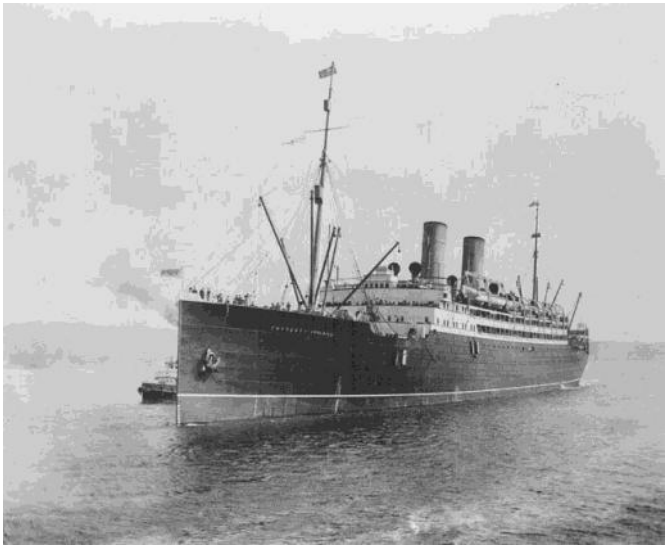
The first recorded appearance of the term was in 1807, used to describe William Scoresby's barrel crows nest platform. According to a popular naval legend, the term derives from the practice of Viking sailors, who carried crows or ravens in a cage secured to the top of the mast. In cases of poor visibility, a crow was released and the navigator plotted a course corresponding to the bird's flight path because the crow invariably headed towards the nearest land. However other naval scholars have found no evidence of the masthead crow cage and suggest the name was coined because Scoresby's lookout platform resembled a crows nest in a tree.

Sometimes the term is used metaphorically in reference to topmost structures in buildings, towers, etc.

Since the crow's nest is a point far away from the ship's centre of mass, any small movement of the ship is amplified and could lead to severe seasickness, even in accustomed sailors. Therefore, being sent to the crow's nest was also considered a punishment. The Spanish curse word carajo is derived from the punitive usage of the crow's nest.

"The Empress of Ireland"

The RMS Empress of Ireland was launched on January 27, 1906 as part of the Canadian Pacific Railway Company's "Empress" line of steamships, which carried passengers and cargo across the North Atlantic between Britain and Canada. She was 550 feet (167 metres) long, weighed 14,191 tons and her two propellers produced a service speed of 18 knots (33 miles per hour or 53 kilometres per hour). She had five passenger decks, as well as a boat deck, and could accommodate up to 1,700 passengers and crew. Mail was an important cargo for the Empress of Ireland and as such she earned the prefix RMS (Royal Mail Ship) for her maiden voyage from Liverpool in June 1906.



The Empress' career was uninterrupted until she set sail under clear skies from Québec, on May 29, 1914, with 1,477 passengers and crew and a newly promoted captain, Henry George Kendall, on the bridge. After receiving mail at Rimouski, she continued up to Father Point where the pilot disembarked, saying, "I don't think you'll run into much fog," as he climbed down the rope ladder.

Shortly after 1:30 a.m. on the morning of May 30th, Captain Kendall was warned of an approaching vessel, the Norwegian coal freighter Storstad. A thick fog suddenly rolled in and Kendall ordered a full stop to allow the other ship to pass safely. As the Storstad entered the fog bank, her First Officer later testified, there did not seem to be any possibility of a collision.

The minutes ticked by and shortly before 2:00 a.m. the crew of the Empress was shocked to see the coal freighter emerge suddenly out of the fog, less than 100 feet (30 metres) away and bearing down on them at a fast speed. Kendall grabbed a megaphone in a frantic attempt to alert the Storstad, but it was too late -- the Empress was struck violently midship. The Storstad then reversed, opening up the damaged area and letting the icy waters of the St. Lawrence flood the Empress.

Kendall made a valiant effort to beach his ship, but the collision occurred near the engine

rooms, which were quickly flooded, and the ship lost power and the ability to close the watertight doors of her bulkhead. A colossal amount of water was pouring into the Empress as she lurched violently and alarms were sounded for the sleeping passengers to abandon ship.

Only four lifeboats were safely dropped before the ship suddenly capsized, heaving the captain, and hundreds of people who had made it above deck, into the icy water. The Empress then sank so quickly that the captain later gave evidence that after being thrown into the water, he re-surfaced to see nothing but two long waves meeting -- caused by the suction of the ship being dragged to the bottom. A total of 1,012 passengers and crew perished, the great majority of them being far below deck in third class. This accident resulted in the largest number of deaths of any Canadian maritime accident in peacetime.

Shipwreck Investigations: Some of the 473 survivors were rescued by the badly damaged, but still floating Storstad, whose Captain was found responsible for the collision at the subsequent inquiry.

The wreck of the Empress of Ireland rests on the floor of the St. Lawrence, 11 kilometres off of Pointe-au-Père, Quebec, in 40 meters of water marked by a surface buoy. A monument to those lost stands in the nearby cemetery of Métis-sur-Mer, where many of the victims of this tragedy are buried.

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Library and Archives of Canada. RG 12. Transport. Volume 1245. File "Empress of Ireland."

"Pointe-au-Père." The Canadian Encyclopedia. http://66.59.133.172/index.cfm?PgNm=TCE&Params=A1ARTA0010150 (accessed September 30, 2005).

Wood, Herbert, P. Till We Meet Again: The Sinking of the Empress of Ireland. Toronto: Image Publishing, 1982.

Models of the Royal Museum Greenwich

Service Vessel

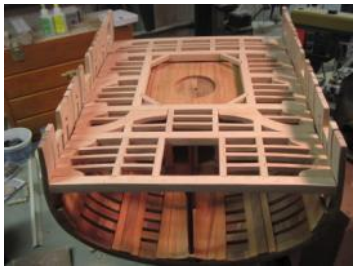
The scale of this model was not determined. This model of a launch appears to correspond to an entry in the 1906 catalogue of the Museum of Artillery in the Rotunda, Woolwich (Class XXVII No.33), which lists a "Model of a launch, showing the plan adopted by Sir W. Congreve for using the rockets in Basque Roads". It is equipped with a single oar, though it is fitted with ten thole pins. The model has been sturdily built to show a heavily framed and carvel planked boat that would withstand the shock of being used as a rocket-firing platform. The shallow draft and wide beam would have given the vessel stability, while the provision for ten oars would have been required to give the vessel optimum manoeuvrability. One suspects that the model is now incomplete; nevertheless it is an interesting and important item of the collection dating from the earliest development of rocketry.

Help Care for the Models of the RMG Collection

Source: www.rmg.co.uk

The Bomb Vessel Cross Section Model

An exclusive Model Ship Builder Modeling Project




"...This is the finest set of drawings I ever worked with!"
Mike. Rohrer—Proto-type builder

"These drawings are amazing! I'm looking forward to building this model"
Daniel Richardson—USA

"Extremely detailed plans for a model. I have to say, I'm very impressed. Great Job!"
Alfred Anderson—U.K.

"Plans arrived today... They far exceeded my expectations... Thank you!
Tristan Rockstrom—Canada

A 1:48 scale model based on Peter Goodwins "Anatomy of the Ship—Bomb Vessel Granado and original Bomb Vessel drawings by Thomas Slade.

Contains 63 pages of detailed drawings and templates of every part of the model.

Numerous 3-dimensional constructional drawings provide you all the information you need to know to build this model. As well, it is supported by an online forum where you can ask questions, view other builds as they occur and even display your build if you wish.

Plans: $57.50CND set + Shipping/Handling

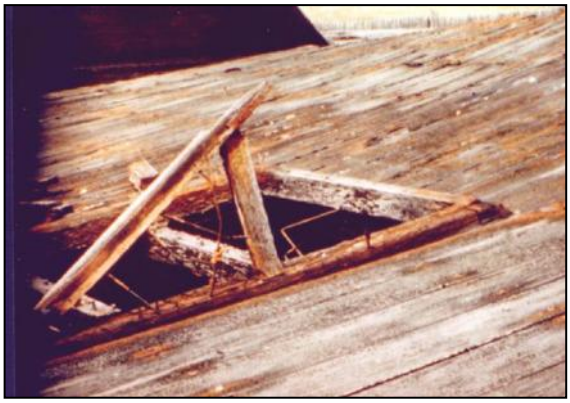
Available at www.modelshipbuilder.com

The Model Shipwrights Apprentice

"Building a Skylight"

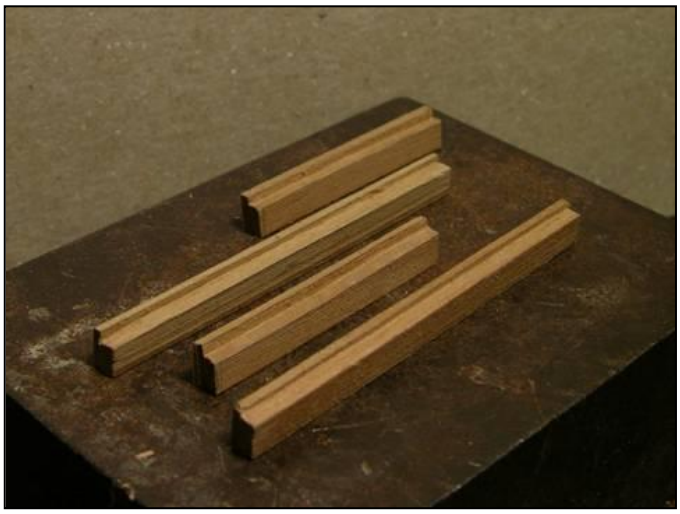
The skylight is a simple structure with a coaming, upright posts and a roof. Skylights were most often built on the cabin roof, or if there wasn't a cabin structure it could be found built directly on the deck.

The photos of shipwrecks below shows skylights and the remains of only the coamings where a skylight once was.



The building of the skylight begins with the coaming. Like a hatch coaming it raises the skylight above the deck to prevent water from running into the opening. It also serves as the foundation or base which the skylight will sit on.

Start with 4 pieces of timber cut a little longer than the finished size of the coaming.



Before assembling the coaming the lip along the inner edge has to be made.

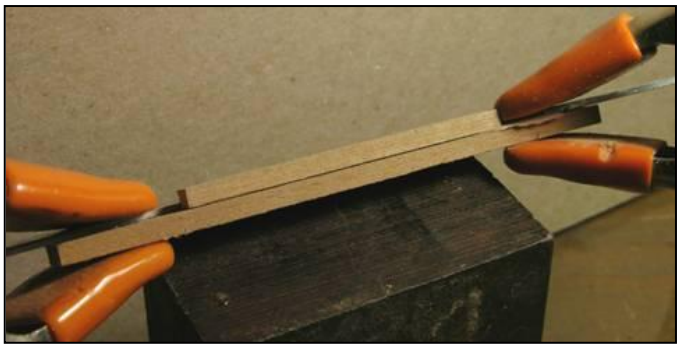
One way to make this lip is to simply glue a small strip of wood along the edge. Another way is to cut it.

We are going to cut in the lip. If you have a small table saw you can make quick work of this by setting the height of the blade and the distance to the fence, then using one length of wood and cut the groove. Then cut the pieces off to the lengths you need.

For those who do not have a micro table saw here's a simple method to cut the groove by hand.

The pieces we are going to cut are quite small, so setting them up in a simple jig will work the best.

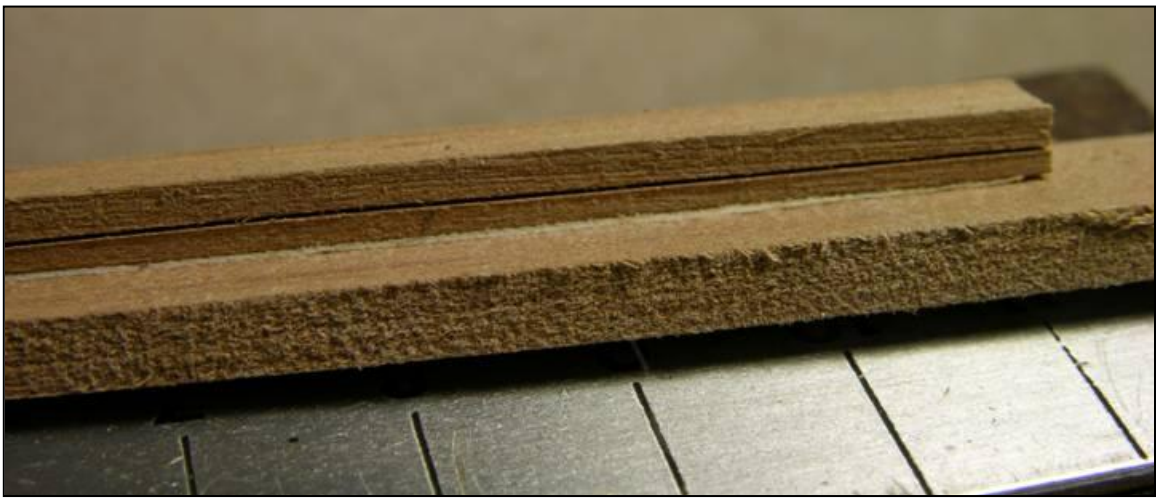
Start by using a piece of wood longer and wider than the coaming piece required. Using two sided tape and stick the coaming piece along one edge of the carrier piece of wood. In the photo a steel rule is clamped to the carrier piece and against the edge of the coaming.



The thickness of the steel rule just so happens to be the thickness of the lip. If you do not have a steel rule the right thickness just add layers of masking tape to the rule to raise it up.

In the next photo the piece is tilted so you can see how everything is held in place and how the steel rule will form the thickness of the lip.

Now for the actual cut, turn the piece so the rule is standing up and make a light cut to score the surface of the wood. You want to make a shallow score so the knife follows the rule and not the grain of the wood. Once you make the first score cut then you can use a little pressure and deepen the cut. Note the lip is under the steel rule, this is to protect the lip from the knife running off and slicing into the lip your trying to make. Once the rule is removed you can see the clean straight cut.



If you are doing your model work with power tools such as a small table saw or mill then the hardness of the wood does not matter. If your doing your model work with hand tools then your choice of wood will make a big difference. Cutting hard wood with a hobby knife is much harder to do as the knife dulls quickly and the fine tip will tend to break off. Woods such as Hard Maple, Boxwood and most exotics like rosewoods are difficult to cut with hand tools. The best woods to use if you using hand tools is Cherry, Applewood, Pearwood and Basswood.

We are going to use the same process to make the second cut as we did for the first cut. Secure the piece the same way it was done for the first cut or in the photo the coaming is set against the edge of a piece of plate glass I use on my work table. The first cut is face down on the table and a steel rule is used to cut along.

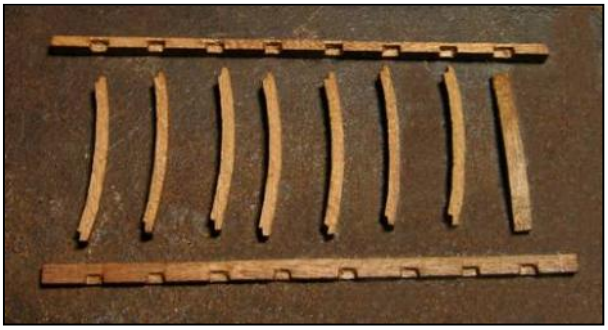
By cutting along a steel rule you get a clean, straight cut.

Alternate between the two cuts deepening them until they meet at the inside corner. Once they do you can gently lift away the excess wood.

Next come the roof beams.

Patterns for the roof beams were taken off the plans and rubber cemented to the sheet stock then cut out.

Square wood material was used for the side beams and notches were cut to take the ends of the roof beams.



Before cutting down and assembling the coamings check the size of the roof to the location of where the skylight will sit on deck.

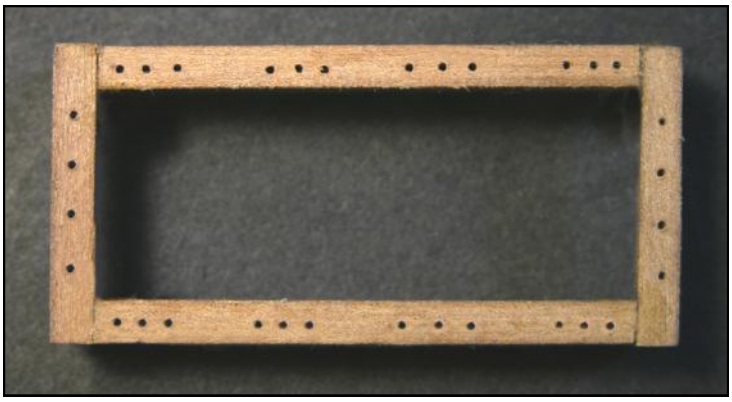
The roof has to match up with the size of the coamings and the coamings have to match up with the deck beams and carlings so they leave a lip for the ends of the deck planking to sit on.

Once the correct size of the coamings are checked then the coamings are assembled.

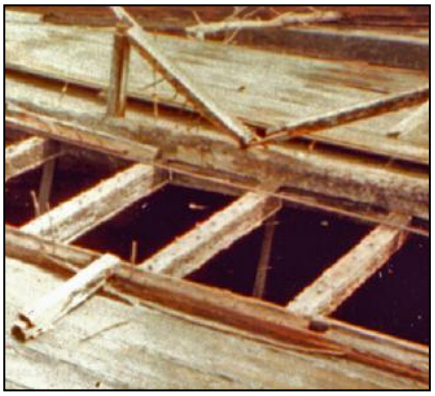
Finally you need to trim the lips at the corners. You can see the trimmed lip in the upper left corner of the photo on the last page.

Lay out the upright posts and usie a T pin or sharp pointed tool to make small starter holes so that the drill will not wander once it touches the wood.

Next mark out the holes for the iron window rods. Looking at the bottom of the coaming you can see the holes drilled all the way through the coaming for the rods.



The next step in the building of the skylight is to make the upright posts.



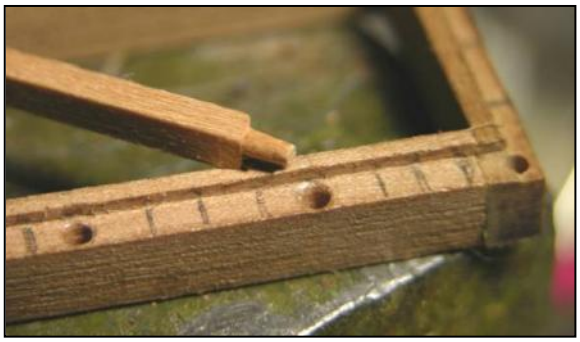
In the photo of an actual skylight to the right you can see these posts were set into the coamings with a mortise and tenon joint. The mortise can be clearly seen in the lower right of the photo.

It seems a bit extreme to make the joint but it is not all that difficult and it does create a strong joint.

Begin by cutting off the corners of a piece of square stock. Next cut the sides down. Finally drill a hole the correct size in a piece of hardwood and twist the end of the post into the hole.

If you have a steel draw plate on hand or you can drill a series of holes in a piece of metal then you can use this to twist the end of the wood into each hole until you get the desired size.

Once again if you are using a hard wood twisting the end into a hole is much harder to do than if you were using a softer wood. Final size of the posts are quite small.



Looking back on the photos of an actual skylight you can see the remains of iron rods in the openings. As a guess the rods were possibly one quarter of an inch diameter rods, which would be so small it would be almost impossible to reproduce in scale. The next best thing is to use three rods per window at a larger scale. Placement of the rods were marked out and holes drilled through the coaming. Glue on the roof structure and insert the rods from the bottom. A dab of epoxy holds them in place. When all the rods are in, snip them off flush with the bottom of the coaming. Give the sides of the skylight a light sanding and its finished.

Here is the final skylight in place on the model

On the Water: Stories from Maritime America

Office of Exhibits Central Smithsonian Institute

Throughout our history, America's waterways have served as important corridors, connecting sites within the United States, as well as linking us to other countries and continents. "On the Water: Stories from Maritime America" is a permanent exhibit at the Smithsonian's National Museum of American History (NMAH), Washington, D.C., which examines marine commerce and transportation by exploring the lives of the people who took part in the maritime trades, and the structures they employed for water travel. From stories of whaling crews, fishermen, shipbuilders, merchant mariners, and passengers, to 18th-century sailing ships, 19th-century steamboats, and 21st-century super containerships, the exhibit provides a comprehensive view of America's marine-based development.

As part of the exhibit, NMAH requested that the model makers at the Office of Exhibits Central (OEC) design and build a model of an early 18th-century slave ship for inclusion in one of the exhibit cases. Chris Hollshwander and Natalie Gallelli readily accepted the opportunity to fabricate the model, and figures of slaves and crew, respectively (photo 1). Because detailed drawings of slave ships are rare, Hollshwander and Gallelli worked closely with NMAH curator Paul Johnston to produce a representational schematic model which would illustrate the harsh and dirty conditions on board such a ship.

Photo 1. Slave ship model fabricated by OEC model maker, Chris Hollshwander, with figures by Natalie Gallelli.

Hollshwander based his model on an 18th-century merchant shipwreck, discovered and excavated on Manhattan Island, New York. He worked from drawings supplied by the curatorial team at NMAH, which included general size descriptions and notes on the structure. This provided the foundation for the creation of 3-D computer modeling which depicted what the final scale model would look like (photos 2-3). Reviewing detailed information on the slave trade in the form of graphic images and period

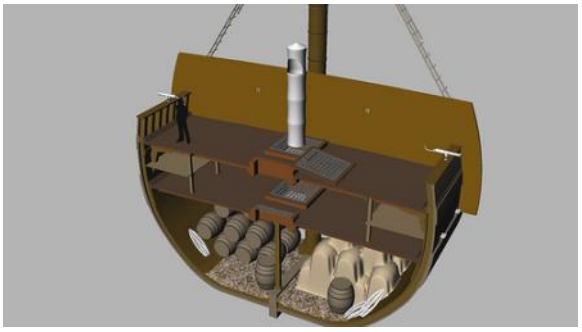


Photo 2. NMAH plans to put Hollshwander's 3-D computer drawings into its *Ship Plans List*, one of NMAH's three catalogs of ship plans available to the public.

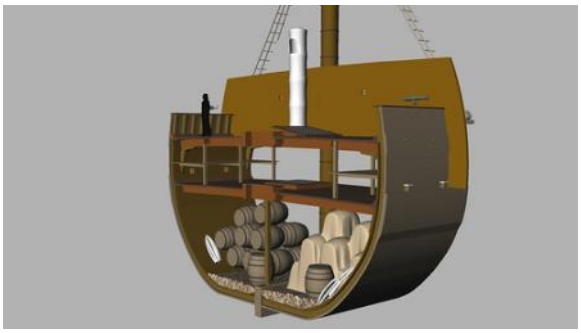


Photo 3. Slave ship 3-D computer drawing.

color renderings of slave trade vessels, as well as working closely with the curator, enabled him to refine the details before beginning to construct the actual model. This part of the process, Hollshwander noted, was critical since there seemed to be a lack of specific scaled drawings of slave ships.

Photo 4. View of slave ship model.

Mahogany was selected for the body of the model, while the mast is made of pine with rope rigging (photo 4). Hollshwander began construction by shaping the hull's 18 interior ribs on a band saw, and using a router with templates to work out how to form the "rib cage" or keel and frame. He then built the beam work for the upper and lower decks. Next, he covered the ribs and constructed the decks, using approximately 250 individually cut and stained mahogany planks. The planks were also "weathered" (sanded and roughed up with a chisel) to make them look worn.

According to Hollshwander, "This was an especially interesting project for me to work on. Thanks to my past experience with scale modeling, I had a good idea of the scale that I thought would work well to illustrate the details that the curators desired to have shown. It also gave me a chance to get back to my roots in traditional model making."

The ship's figures--which represent the male and female slaves who would have been transported on the vessel, as well as some of the crew members--are an equally compelling part of the project. The women are huddled together on the model's upper deck (photo 5); the male slaves are positioned on the lower deck either sitting or lying down (photo 6); the crew are placed close to where they would have been working.

To determine the poses, Gallelli used reference images provided by the curator, as well as additional drawings that she was able to locate which were completed during the time period, primarily by abolitionists.

Photo 5. Female slaves.

Photo 6. Male slaves and crew member.

To begin the complex casting process, Gallelli first sculpted, by hand, a standing and a seated male figure, as well as a standing and a seated female figure, from a mixture of clay and wax, at the appropriate scale. She then made a separate silicone mold from each

sculpture (totaling four molds) by placing each figure in a small square aluminum container, and gently pouring liquid silicone on top of it. Once the silicone had hardened, Gallelli took the silicone cube out of the container, carefully cut it in half, and removed the clay and wax figure (photo 7).

Photo 7. Silicone mold with seated clay and wax figure.

Using the resulting mold, Gallelli cast five silicone copies of each sculpture by repeatedly pouring silicone into the cavity left by the clay and wax figure. Next, she used the five copies of each sculpture to produce new five-figure silicone "gang" molds so that she could make multiple copies of each figure more quickly. Gallelli subsequently cast approximately 50 copies of the figures in clay and wax using the four gang molds (photo 8).

Photo 8. Silicone gang mold with clay and wax figures.

Gallelli then heated each clay and wax figure separately in order to bend it into an individualized position. Next, she made a new silicone mold for each individualized figure. Once that was completed, Gallelli cast the final figures by pouring urethane into the cavity of each individualized mold (photos 9-10).

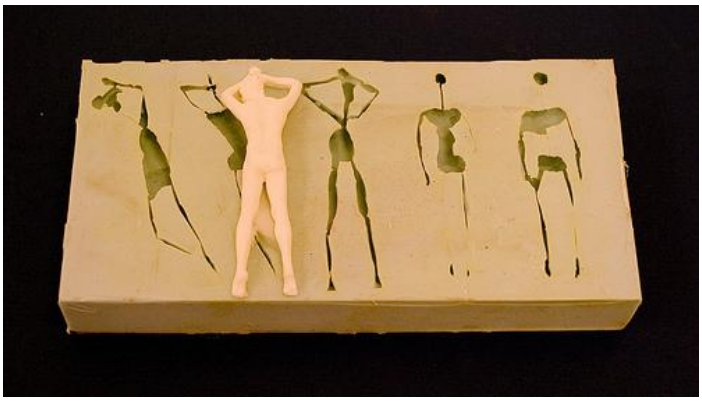


Photo 9. Urethane figure next to its individualized silicone mold.

Photo 10. Urethane figure in its silicone mold.

After the urethane figures had cured, Gallelli removed them from their molds, and painted each one, by hand (photo 11).

Photo 11. View of finished figures.

In addition to the figures, Gallelli also cast several rats in urethane, fabricated water buckets and elephant tusks out of wood, and created cloth sacks out of epoxy putty, for placement in the ship's cargo hold (photos 12-13).

Photo 12. Crew members with rats and water buckets.

Photo 13. Cloth sacks and elephant tusks.

Gallelli, too, considered herself to be fortunate to be able to participate in such a significant project. "As a figural sculptor," she said, "I was very interested in making each figure individual. I wanted to convey, through the distorted and uncomfortable positions of the figures, the horrific conditions under which the slaves traveled."

The successful collaboration among Hollshwander, Gallelli, and the NMAH curators resulted in a model and figures which are compatible in scale and character. Additionally, both Hollshwander and Gallelli agreed that they had learned a great deal about the difficult life experienced by so many on board an early 18th-century slave ship. The model is displayed in its exhibit case alongside a pair of shackles which the slaves would have worn while in transit, as well as a manilla from Nigeria. These copper or bronze bracelets were carried aboard European merchant vessels as trade goods.

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photo credits:

photo 1: Courtesy National Museum of American History; Harold Dorwin, photographer

photos 2-3: Chris Hollshwander

photo 4: Courtesy National Museum of American History; Harold Dorwin, photographer

photos 5-10: Natalie Gallelli

photo 11: Kathleen Varnell

photos 12-13: Natalie Gallelli

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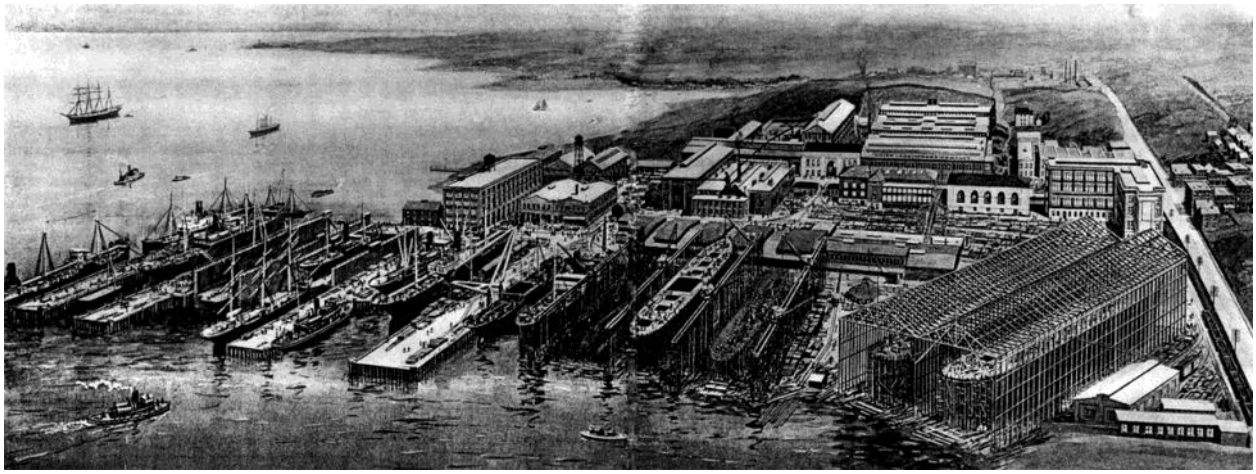
http://www.si.edu

Historic Naval Shipyards

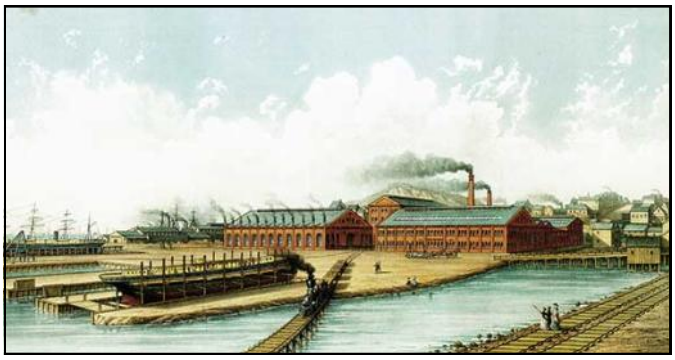
Union Iron Works



1918, Looking south, Illinois street on right, Twentieth street at large L-shaped Bethlehem office building

Union Iron Works, located in San Francisco, California, on the southeast waterfront, was a central business within the large industrial zone of Potrero Point, for four decades at the end of the nineteenth and beginning of the twentieth centuries.

The Donahue Brothers Peter and James, Irish immigrants, founded Union Iron Works in the south of Market area of San Francisco in 1849. After years as the premiere producer of mining, railroad, agricultural and locomotive machinery in California, Union Iron Works, led by I.M. Scott, entered the ship building business and relocated to Potrero Point where its shipyards still exist, making the site on the north side of the Potrero the longest running privately owned shipyard in the United States. After Bethlehem Shipbuilding Corporation bought the works in 1905, the consolidated company came to include the Alameda Works Shipyard, located across the San Francisco Bay in Alameda and the Hunter's Point shipyard to the south.



Union Iron Works circa 1880s
San Francisco Martime Museum Library

In 1885, the Union Iron Works launched the first steel hulled ship on the west coast, the Arago, built with steel from the Pacific Rolling Mills. In 1886, UIW was awarded a $1,000,000 contract to build a Naval cruiser, the Charleston, which they completed in eighteen months. From the completion of the Arago in 1884 to 1902, UIW built seventy-five marine vessels, including two of the most famous vessels of the Spanish American war, the Olympia and the Oregon.

An 1892 description of the yards stated that between 1200 and 1500 men were employed and the yearly gross revenue was between $2,000,000 and $4,000,000. By the turn of the century, the shipyard had expanded in area and employment had more than

doubled to 3,500. These industrial facilities used five types of power, distributed throughout; electricity, compressed air, steam, hydraulic and coal or gas fire. Union Iron works built a number of ships for the United States Navy. These ships include the USS Oregon laid down in 1891, and Adder-class submarines Grampus and Pike which were launched in 1902 and 1903, respectively.

In 1902, the Union Iron Works was absorbed into a combine called the United States Shipbuilding Company and was mired in three years of litigation. In 1905, the entire 40-acre (160,000 m2) shipyard was purchased by Bethlehem Shipbuilding Corporation for one million dollars. Charles M. Schwab stood on the steps of the UIW office building on twentieth street during the auction. At this point, he was the only bidder. Schwab was widely believed to have engineered the demise of the U.S. Shipbuilding Corporation in order to gain control of the industry. Whether or not that was true, he certainly benefited from the collapse of the US Shipbuilding combine.

At the time of the 1906 San Francisco Earthquake, the coastal passenger liner Columbia of the San Francisco and Portland Steamship Company had been undergoing a refit at the yard's hydraulic drydock. The earthquake caused the iron hulled Columbia to shift off her supports and roll onto the drydock on her starboard side. This rendered the drydock, a key feature of the yard, damaged beyond economic repair. The Columbia on the other hand, despite being partially flooded and damaged, was repaired and returned to service in January 1907. In 1908, Bethlehem Shipbuilding Corporation bought the Hunters Point, San Francisco, California drydocks. In the pre-World War I era, Union Iron Works built several navy ships that became internationally famous due to the Spanish-American war; Commodore Dewey's flagship the Olympia. After 1905, the shipyard operated as part of Bethlehem Steel, and produced both warships and merchant ships.

The Vagaries of Masting & Rigging

by Wayne Tripp

In previous articles (see, for example, the April and June 2013 articles), the use of a ship's principal dimensions (such as length or breadth) to determine the length of spars during the age of sail has been discussed. In this month's article, I am going to take a side step and provide a cautionary tale related to this historical approach.

In the late 18th century, Joshua Humphreys (and others) engaged in a debate over not just the construction of the first American Frigates, but also the outfitting and, particularly, the rigging. The following discussion is pulled from the archival records of the time available at The Papers of the War Department project (PoWDP) - http://wardepartmentpapers.org/index.php. There are an amazing array of scanned documents available there – some more useful than others.

About the Papers of the War Department

On the night of November 8, 1800, fire devastated the War Office, consuming the papers, records, and books stored there. Two weeks later, Secretary of War Samuel Dexter lamented in a letter that "All the papers in my office [have] been destroyed." For the past two centuries, the official records of the War Department effectively began with Dexter's letter. Papers of the War Department 1784-1800, an innovative digital editorial project, will change that by making some 55,000 documents of the early War Department many long thought irretrievable but now reconstructed through a painstaking, multi-year research effort available online to scholars, students, and the general public.

These Papers record far more than the era's military history. Between 1784 and 1800, the War Department was responsible for Indian affairs, veteran affairs, naval affairs (until 1798), as well as militia and army matters. During the 1790s, the Secretary of War spent seven of every ten dollars of the federal budget (debt service excepted). The War Office did business with commercial firms and merchants all across the nation; it was the nation's largest single consumer of fabric, clothing, shoes, food, medicine, building materials, and weapons of all kinds. "Follow the money," it is said, if you want to learn what really happened, and in the early days of the Republic that money trail usually led to the War Office. For example, the War Department operated the nation's only federal social welfare program, providing veterans' benefits (including payments to widows and orphans) to more than 4,000 persons. It also provided internal security, governance, and diplomacy on the vast frontier, and it was the instrument that shaped relations with Native Americans. In many respects, the papers lost in the War Office fire of 1800 constituted the "national archives" of their time.

The United States Congress authorized the original six frigates of the United States Navy with the Naval Act of 1794 on 27 March 1794 at a total cost of $688,888.82. These ships were built during the formative years of the United States Navy, on the recommendation of designer Joshua Humphreys for a fleet of frigates powerful enough to engage any frigates of the French or British navies yet fast enough to evade any ship of the line.

Although the naval act of 1794 specified the class of frigates to be built--three of forty-four guns and three of thirty-six guns--the specific design was left to the executive in charge. Knox, in turn, assigned the task of actually designing these first two classes of naval vessels to Joshua Humphreys, a Philadelphia shipwright.

Secretary Knox suggested to President Washington that six different construction sites be used, one for each ship, rather than building at one particular shipyard. Separate locations enabled the allotted funds to stimulate each local economy, and Washington approved the sites on 15 April 1794. At each site, a civilian naval constructor was hired to direct the work. Navy captains were appointed as superintendents, one for each of the six frigates as follows:

Ship	Site	Guns	Naval constructor	Superintendent
Chesapeake	Gosport, Virginia	44	Josiah Fox	Richard Dale
Constitution	Boston, Massachusetts	44	George Claghorn	Samuel Nicholson
President	New York, New York	44	Forman Cheeseman	Silas Talbot
United States	Philadelphia, Pennsylvania	44	Joshua Humphreys	John Barry
Congress	Portsmouth, New Hampshire	36	James Hackett	James Sever
Constellation	Baltimore, Maryland	36	David Stodder	Thomas Truxtun

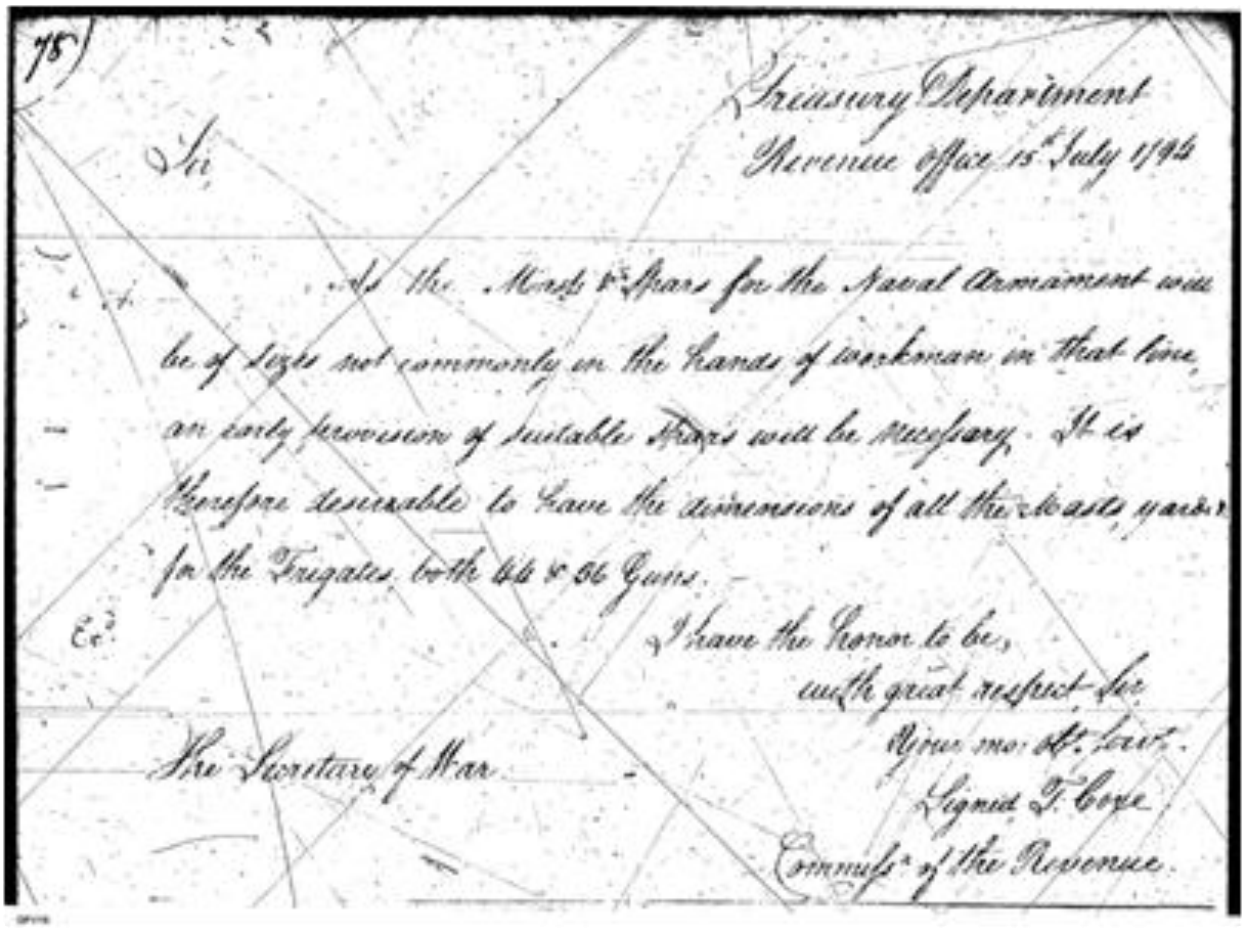
The work of laying out the hull designs for the two classes of American frigates began in a Philadelphia molding loft. Humphreys and Fox first constructed scale half-models of the hulls that could then be disassembled for the production of full-sized templates. These templates were to be used by the various shipyards in constructing the actual ships.

The partnership between Humphreys and Fox quickly became strained. Though Fox had been selected as Humphreys' assistant, Fox possessed greater technical skill in ship design. Fox criticized the large size Humphreys demanded, insisting that overbuilding the ships would render them cumbersome and unwieldy. He also disagreed with the bluntness of Humphreys' stem design, arguing that a stem of more rake would afford the ship better speed and agility. Soon the disagreement between the two men grew to the point that Humphreys would only communicate with Fox through letters. As the schism grew, both men began to pursue their own independent designs, presenting them to Knox for approval. Feeling unqualified to judge the respective qualities of the designs, Knox turned to yet a third designer, William Doughty. Through this intercession, the final plans were accepted. The approved designs were a compromise, incorporating Humphreys' preference for an unusually large size along with Fox's technical improvements.

As one can easily imagine, even with the same draughts for each vessel, some level of individuality intruded on the standard design. The controversies slowly evolved, and were particularly intense between Fox and Humphreys. During the period of construction, a debate developed concerning the dimensions of the spars and rigging for the two classes of frigates. This debate ultimately involved not only Humphreys and Fox, but also Captains Thomas Truxton and John Barry. The final result can only be described as an American Original Solution, but we will get to that shortly.

In archival records collected from the PoWDP website, a picture of the construction of each of the classes of frigates can be discerned. Letters discuss the estimate for the dimensions , quantity and type of timbers for the construction, estimates of the labor required, and the status of construction. There is evident in the documents an interest in standardizing the dimensions of materials as much as possible to facilitate the acquisition and manage costs. Yes, even this early building program experienced cost over runs!

The discussion, for this article at least, begins in July, 1794 when Tench Coxe, Commissioner of Revenue, writes to Secretary Knox requesting information.



Treasury Department
Revenue Office 15th July 1794

Sir,

As the Masts & Spars for the Naval Armament will be of sizes not commonly in the hands of workmen in that line, an early provision of suitable Spars will be necessary. It is therefore desirable to have the dimensions of all the Masts, yards for the Frigates, both 44 & 36 Guns.

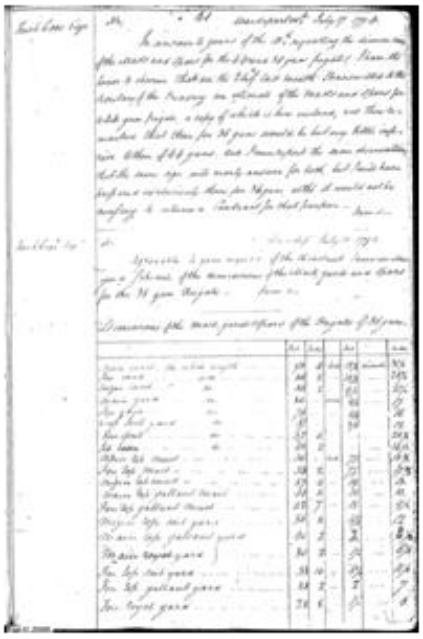
I have the Honor to be,
with great respect &c.
Your mo: ob: Servt.
Tench Coxe
Commissr of the Revenue.

The Secretary of War

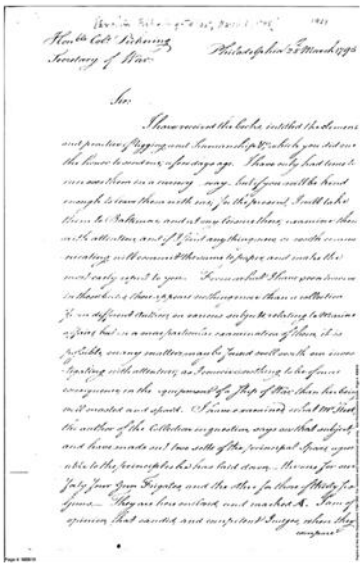
As the Masts & Spars for the naval armament will be of sizes not commonly in the hands of workmen in that line, an early provision of suitable spars will be

necessary. It is therefore desirable to have the dimensions of all the masts, yards &c. for the frigates, both 44 and 36 guns.

Secretary Knox replies with a copy of information provided (apparently by Humphreys)

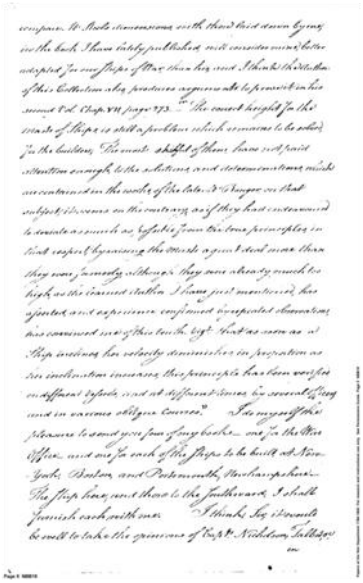


March, 1795 – Captain Truxton writes to Secretary Pickering concerning the proportions of masts and yards.



I have received the books intitled the elements and practice of rigging and seamanship &c which you did me the honor to send me a few days ago. I have only had time to run over them in a cursory way but if you will be kind enough to leave them with me for the present I will take them to Baltimore and at my leisure there examine them with attention and if I find anything new or worth communicating will commit the same to paper and make the most early report to you. From what I have seen hover in these books there appears nothing more than a collection of different numbers on various subjects relaying to Marine affairs but in a[ ] particular examination of them it is possible many matters may be found well worth our investigating with attention as I conceive nothing to be of more consequence in the equipment of a ship of war than her being well masted and spar'd. I have examined what Mr. Steel, the author of the collection in question, says on that subject

and have made out two setts of the principal spars agreeable to the principles he has laid down, the one for our forty four gun frigates, and the other for the thirty six guns. They are here enclosed and marked A. I am of opinion that candid and competent judges where they



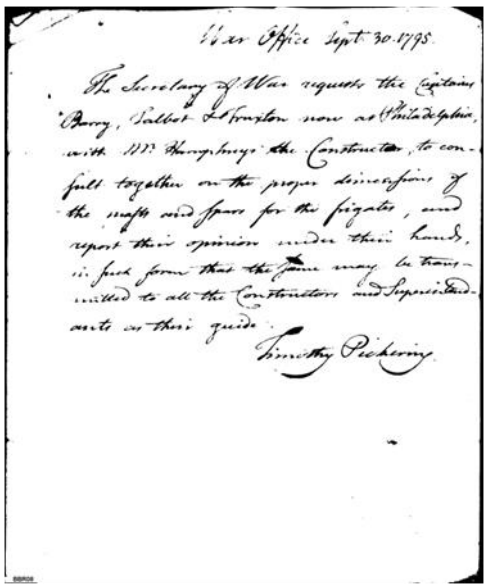
compare to Mr. Steels dimensions, with those laid down by me in the book I have lately published will consider mine better adapted for our ships of war than his, and I think the author of this collection also, produces arguments to prove it in his second vol Chap VII, Page 273. The correct height for the masts of ships is still a problem which remains to be solved for the builders; the most skillful of them have not paid attention enough to the solutions and determinations which are contained in the works of the late Mr. Ranger(?) on that subject it seems on the contrary, as if they had endeavored to deviate as much as possible from the true principles, in that respect, by raising the mast a great deal more than they were formerly although they were already much too high, as the learned author I have just mentioned has asserted and experience confirmed by respected observations ahs convinced me of this truth[ ] "that as soon as a ship inclines her velocity diminished in proportion as her inclination increases, this principle has been verified on different vessels, and at different times by several officers and in various oblique courses." I do myself the pleasure to send you four of my books – one for the war office and one for each of the ships to be built at New York Boston and Portsmouth, New Hampshire. The ships here, and those to the southward, I shall furnish each with one. I think, Sir, it would be well to take the opinions of Capts Nicholson, Talbridge in writing and requested their observations on {keel} and my dimensions as also the opinion of these respective builders, Capt Barry and Mr. Humphreys being on the spot, can be consulted at any time. As I have quoted a part of Mr. Steele's remarks on masting which is against his own system, I submit to you whether a copy of the sums on this letter had not better be sent to the above gentlemen.

The whole length of the masts and spars of our 44 gun frigates, according to Mr. Steels method

Main Mast	109 1/6 feet	Bowsprit	65 ½ feet
Fore "	97	Gib boom	46 ¾
Mizen "	93 ½	Spanker boom	69 1/6
Main top mast	65 ½	gaff	113 1/8
Fore " "	58 ½	Main Yard	97
Mizen " "	49	Fore "	86 ¾
Main Top gallant mast	32 ¾	Cross jack yard	60 ½
Fore " " "	29	Main topsail "	69 1/6
Mizen "	24 ½	Fore " " "	60 ½
Mizen topsail yard	46 1/6 feet	Fore Top g^{t} yard	36 ¾ feet
Main top g^{t} yard	41 1/3 "	Mizen D^{o}	27 ¾

The whole length of ditto for our 36 gun frigates of the same

Main Mast	101 ¾ feet	Spankerboom	64 ¾ feet
Fore D^{o}	96 ¼	Gaff	40 1/3
Mizzen D^{o}	87 ¼	Main Yard	90 ½
Main top mast	61	Fore D^{o}	79
Fore D^{o}	54 ¾	Cross jack yard	56 ½
Mizzen D^{o}	45 ¾	Main topsail D^{o}	64 ½
Main top G^{t} mast	30 ½	Fore D^{o}	56 ½
Fore D^{o}	27 1/8	Mizzen D^{o}	43
Mizzen D^{o}	22 ¾	Main Top g^{t} Yard	38 ½
Bowsprit	61	Fore D^{o}	34
Jib boom	43 1/3	Mizzen D^{o}	25 ¾


War Office Sept 30. 1795.

The Secretary of War requests the Captains Barry, Talbot & Truxton now at Philadelphia, with Wm Humphreys the Constructor, to consult together on the proper dimensions of the masts and spares for the frigates, and report their opinion under their hands, in order that the same may be transmitted to all the Constructors and Superintendents as their guide.

Timothy Pickering

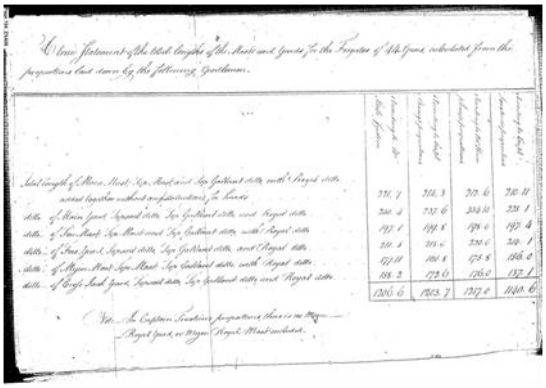
NV The mizzen top mast and the top gallant mast are here calculated with common heads only and not for poles

September, 1795 - Thomas Pickering (Interim Secretary of War, Jan. 2, 1795 to Jan. 26, 1796) requested that Captains Barry, Truxton and Talbot meet with Joshua Humphreys to "consult together on the proper dimensions of the masts and spars for the frigates; report their opinion under their hands; transmitted to all the constructors and superintendents as their guide".

This consultation resulted in the issuance (October 1795) of the declaration below which includes the dimensions based on the British system (from David Steel, 1794), the calculations by Captains Barry and Truxton (columns 2 & 4 respectively), and those by Mr. Humphreys.

Examining this declaration provides some interesting insight into the vagaries of determining the dimensions of spars &c.

A True statement of the length of the masts and yards for the frigates of 44 guns, calculated from the proportions laid down by the following gentlemen:



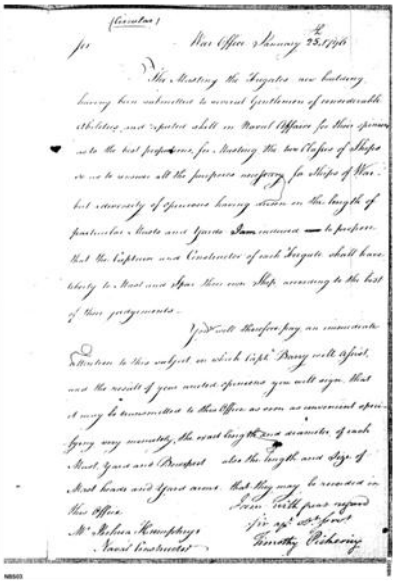
Dimension	Steel	Barry	Humphreys	Truxton
Total length of main mast, top mast & top gallant ditto, with royal ditto added together without any deductions for heads	221.7	214.3	212.6	210.11
Ditto of Main yard, topsail ditto, top gallant ditto and royal ditto	240.4	237.6	234.10	225.1
Ditto of fore mast, top mast and top gallant ditto with royal ditto	197.1	199.8	198.0	197.4
Ditto of foreyard, topsail ditto, top gallant ditto, and royal ditto	211.5	215.0	220.0	214.1
Ditto of Mizzen mast, top mast, top gallant ditto with royal ditto	177.11	161.8	175.8	156.0
Ditto of Cross jack yard, topsail ditto, top gallant ditto, and royal ditto	158.2	172.6	176.0	137.1
	1206.6	1203. 7	1217.0	1140.6

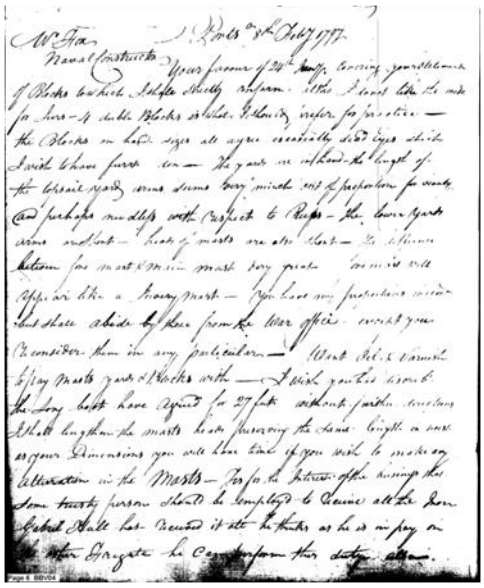
Note In Captain Truxtons proportions there is no mizzen royal yard or mizzen royal mast included

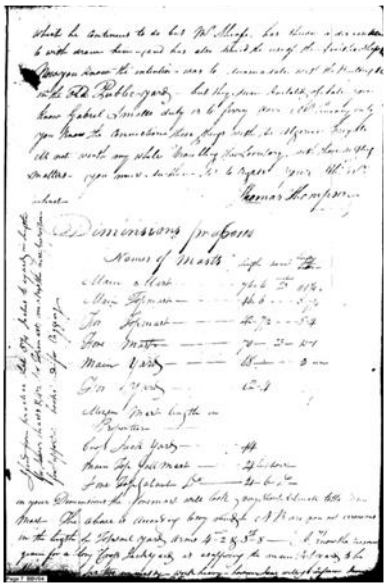
January 25 1796 – Pickering writes to the Naval Constructors

The masting the frigates now building having been submitted to varied gentlemen of considerable abilities and reputed skill on naval affairs for their opinions as to the best proportions for masting of the two classes of ships so as to answer all the purposes necessary for ships of war but a diversity of opinions having arisen on the length of particular masts and yards I am induced to propose that the captain and constructor of each frigate shall have liberty to mast and spar their own ship according to the best of their judgments.

You will therefore pay an immediate attention to this subject on which Capt Barry will assist and the result of your noted opinions you will sign that it may be transmitted to this office as soon as convenient specifying very minutely, the exact length ad diameter of each mast, yard ad bowsprit also the length and size of mast heads and yard arms that they may be recorded I this office.







So – was this the end – the decision to let each captain and constructor make their own decision concerning the masts and yards? Probably not – as can be seen in the following 1797 letter from Captain Thompson (Porstsmouth) to Josiah Fox.

And, so, the quest for an effective tool for determining the dimensions (and proportions) continues. My current search is for the book referenced by Captain Truxton in his March, 1795 letter to Secretary Pickering.

Aft Magazine Section Model Plans

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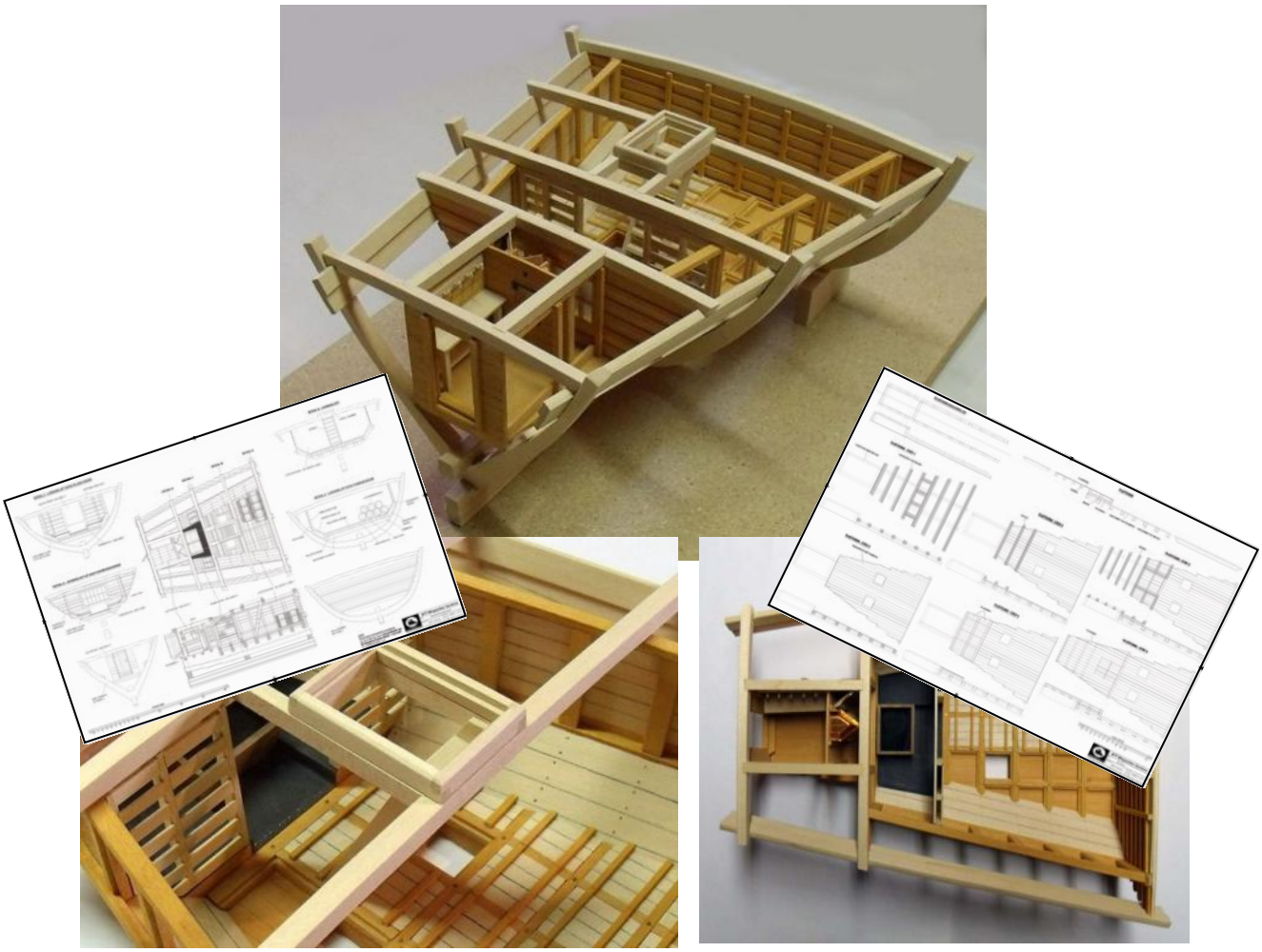

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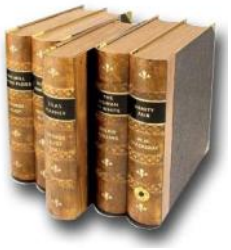
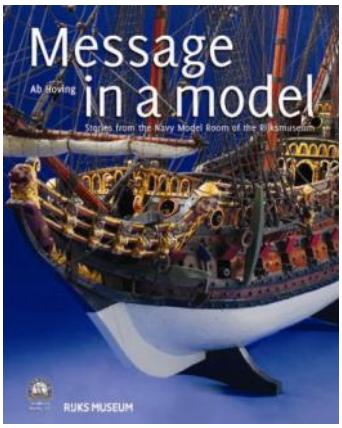


The Book Nook

Books of interest for the Model Ship Builder
and ship building enthusiasts



Message in a Model, Stories from the Navy Model Room of the Rijksmuseum
By Ab Hoving

Sea Watch Books, LLC
www.seawatchbooks.com

ISBN: 978-0-9837532-6-1

Message in a Model provides the reader with but a small insight into the truly amazing career of Ab Hoving at the Rijksmuseum. Through images and historical narrative Ab Hoving takes you through 50 models from the hundreds in the Rijksmuseums collection that he and a small handful of his team have worked on restoring and maintaining since 1989.

A wide variety of model types are included in this collection that he has selected to write about. It contains fully rigged models, cross section models, ships fittings, topographical models as well as detail models such as the section covering Capstans, anchors, or cross section of cannons.

The reader will find the image quality in this book quite exceptional in this readers opinion. The vast majority of the pictures are color, with only a handful of black and white images throughout the book.

Over all I found it an interesting read. As a modeler this is one of those books that will be found in my reference library close at hand, whether it be to use as reference material or simply to admire the pictures of models in times when needing some inspiration for my own modeling endeavors.

Don't forget to check out the
Model Ship Builder Amazon Bookstore.

Badges: Heraldry of Canadian Naval Ships

HMCS Montreal (FFH 336)

Azure per pile transposed Argent above two bars wavy in base Azure a coronet of fleur-de-lis andmaple leaves Azure fimbriated Argent.

Significance: The ship is named after the city of Montreal. The badge depicts a stylized mountain bordering a river, and superimposed upon themountain, a coronet of fleur-delis and maple leaves. The river represents the St. Lawrence River; the mountain, Mount Royal, in the midst of the city. The coronet indicates the mountain's royal name and is composed of fleur-de-lis and maple leaves, the former in recognition of the city's role as the leading metropolis of the province, and the maple leaves of the ship's status as a Canadian ship of war. The white and blue colours on the badge are those of the flag of the Province of Quebec.

Source: Various

Gene's Nautical Trivia

Nautical Terms

H	E	A	D	W	A	Y	U	U	R	D	B	U	F	L	C	K	K	L	Q
P	B	R	S	I	G	P	N	K	K	E	Z	T	D	K	M	C	A	J	K
C	T	F	O	W	C	O	D	O	U	N	R	R	D	B	J	P	K	N	L
W	O	B	A	D	N	R	E	X	J	I	O	T	E	U	Z	N	I	A	G
D	G	U	E	A	E	T	R	E	M	C	C	T	A	S	P	G	N	V	P
D	W	V	R	L	S	E	W	G	C	A	P	E	D	Z	U	F	I	I	P
B	X	J	L	S	O	J	A	I	Y	P	L	M	A	W	N	T	L	G	U
R	X	I	V	V	E	W	Y	Y	A	S	A	C	H	L	O	B	W	A	Z
S	T	A	R	B	O	A	R	D	B	I	N	X	E	W	W	J	F	T	O
O	U	T	B	O	A	R	D	Z	O	Z	I	S	A	S	E	R	I	I	G
T	G	B	U	O	Y	F	P	C	A	E	N	I	D	N	B	I	T	O	K
M	O	O	R	I	N	G	C	I	R	B	G	T	Q	K	V	X	P	N	D
Y	X	Y	E	D	J	H	Q	J	D	E	B	B	C	M	E	F	O	K	U
O	L	A	F	N	W	A	E	J	Y	L	Y	K	R	S	N	A	E	H	V
O	L	W	E	N	F	O	R	E	A	N	D	A	F	T	Z	L	Q	N	D
D	X	E	K	U	Z	B	E	A	R	I	N	G	S	K	D	O	G	D	I

Aboard
Adrift
Aloft
Bearing
Below
Buoy
Capsize
Course
Dead Ahead
Ebb
Fore-and-aft
Gangway
Headway
Knot
Lee
Mooring
Navigation
Outboard
Planing
Port
Rode
Starboard
Trim
Underway
Yaw

Test Your Nautical History and Terminology Knowledge

1. A vessel made fast to the bottom using a single anchor is said to be 'anchored'. If two anchors are used, the boat is said to be?

2. Born in 1394, he established a naval observatory for the teaching of navigation skills, and is considered by most historians as chiefly responsible for Portugal's "age of exploration". Who was he?

3. For centuries, sailors have gathered on deck at night to view this magnificent cloud phenomena, shining against the otherwise black sky and reflecting on the still sea. What term is used to describe this cloud?

4. If you heard a seaman refer to the term 'small stuff', what is likely to be the object of his or her attention?

5. What is the international distress voice signal, and what is most likely it's origin?

6. French, Portuguese, Spanish, Algonquin, and Ontario are all variations of what common and popular "tool" of seamanship?

---

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

ANSWERS:

Test Your Nautical History and Terminology Knowledge

1. Moored
2. Prince Henry ("the Navigator")
3. Noctilucent
4. Usually, line or rope less than an inch in circumference.
5. Mayday, from the French m'aidez, or "help me"
6. They are all variations of Bowlines.