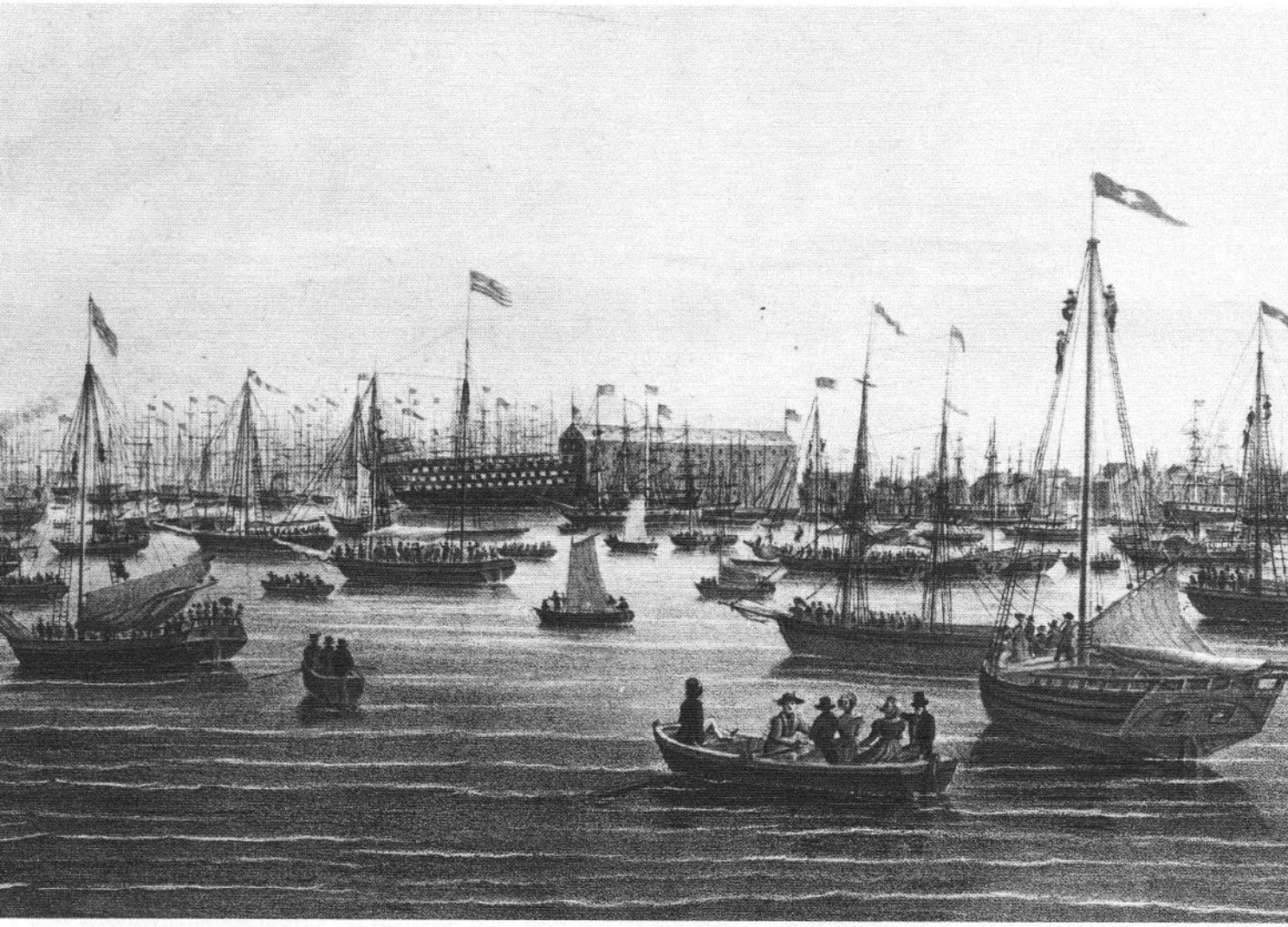
John Lenthall Naval Architect



A Guide to Plans and Drawings of American Naval and Merchant Vessels 1790-1874

By Gail E. Farr and Brett F. Bostwick

Philadelphia Maritime Museum

John Lenthall Naval Architect

A Guide to Plans and Drawings of American Naval and Merchant Vessels 1790-1874

with

A Bibliography of Works on Shipbuilding Printed in Great Britain, France, and the United States 1707-1882

Collected by John Lenthall (b. 1807-d. 1882)
Assistant Constructor, Philadelphia Navy Yard (c. 1827-38)
Constructor, Philadelphia Navy Yard (1838-49)
Chief Naval Constructor, United States Navy (1849-53)
Chief, U.S. Bureau of Construction, Equipment, and Repairs (1853-63)
and Its Successor, the U.S. Bureau of Construction and Repair (1863-71)

By Gail E. Farr and Brett F. Bostwick

Philadelphia Maritime Museum

Photographs by Jeff Hurwitz, pages 9, 11, 12, 17, 18, 26, 30, 33, 35.

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Cover illustration: Launch of the U.S. ship of the line Pennsylvania *from the Philadelphia Navy Yard, July 18, 1837, as shown in a lithograph by Lehman & Duval, c. 1837. The view depicts the Philadelphia Navy Yard at its original location at the foot of Federal Street, Southwark, where the facility was established in 1800-01. It remained the center for naval building in the city until the Navy moved to a new installation at League Island in the 1870s. John Lenthall, illustrated in a cameo portrait by Mathew Brady, was naval constructor at the old yard from 1838-49. Lithograph: PMM Collection (L 2654), loan courtesy of J. Welles Henderson; Portrait: Naval Historical Center, Washington, DC.*

Contents

Foreword

In a letter written in 1793 to Robert Morris, the Philadelphia shipbuilder Joshua Humphreys declared that it was time for this newly-independent country to have a navy. In March 1794 Congress voted to provide for naval armament, and Humphreys prepared drafts and models for the vessels he proposed.

1798 saw the formal establishment of the United States Navy Department by an act of Congress in which orders were issued to construct two docks and build or purchase six ships of war. Philadelphia was chosen as the building site for the drydocks and thus became the first shipyard operated by the United States government. Prior to 1801, naval ships were contracted for and purchased from privately-owned yards such as that of Joshua Humphreys. From 1815-75, thirty-five naval vessels were built at the Philadelphia Navy Yard.

Prominent among the naval constructors during this period was John Lenthall. Lenthall was an assistant naval constructor at the Philadelphia Navy Yard. He was then promoted to Chief Naval Constructor and later became Chief of the Bureau of Construction, Equipment, and Repairs. During his career, Lenthall was responsible for the design of wooden steam frigates such as the *Merrimac*, *Wabash*, and *Minnesota*. These vessels were recognized as the best ships of their kind before iron ships were developed.

In 1990 The Franklin Institute offered to loan to the Philadelphia Maritime Museum its collection of plans and drawings of naval and merchant vessels which John Lenthall presented to that institution in 1874. Over the past eighteen months, funding from The Pew Charitable Trusts Museum Loan Program has made it possible to catalog, conserve, and publish a descriptive guide to these important plan documents, which have been placed at PMM for a period of ten years. Incorporated into the guide is also information about a library of printed works assembled by Lenthall which was purchased for the PMM Library in 1986. Lenthall's book and pamphlet collection dates from 1707 to 1882. With another grant from The Pew Charitable Trusts we were able to conserve and catalog the printed materials. We are indeed grateful to The Pew Charitable Trusts for its generous support of these projects.

Gail E. Farr and Brett F. Bostwick worked long hours to sort, describe, and organize the plan collection; oversee its conservation; locate other repositories that have information concerning Lenthall; research his work with the United States Navy; and create this guide. Their efforts can only be described as outstanding.

PMM colleagues offered their expertise, especially Bill Ward and Jane Allen.

The Conservation Center for Art and Historic Artifacts completed the conservation work on the books, pamphlets, and plans. Monique Bourke, Ray Barber, and Robert Rynkiewicz offered computer expertise.

Jeff Hurwitz photographed and produced the prints of the plans reproduced in this guide. Due to their large size and the type of media used, the task of achieving a clear photographic image was particularly challenging.

Aiding with the production of the guide was Jonathan Shapiro.

Many others helped with the project. An advisory board met periodically to advise the staff. The Board was made up of Gladys Breuer, Curatorial Associate, The Franklin Institute; Robert Eskind, Senior Curator of Collections, Atwater Kent Museum; Christopher T. Baer, Assistant Curator, Manuscripts and Archives, Hagley Museum and Library, Wilmington, Delaware; and Merville Willis, naval architect.

Numerous repositories supplied information for this study. The project staff wishes to thank William G. Heynen, Ray Cotton, and Barry Zerby of the National Archives and Records Administration; Joseph Sheehan of the National Archives Mid-Atlantic Region Branch, Philadelphia; John Vajda and John Reilly of the Naval Historical Center, Washington; Richard H. Chlan and Michael G. Nozilo of the Philadelphia Naval Shipyard; the Department of Rare Books and Special Collections, Princeton University Libraries; the Historical Society of Pennsylvania; the Government Publications Department of The Free Library of Philadelphia; Temple University Urban Archives; Hagley Museum and Library; the American Philosophical Society; and Van Pelt Library, University of Pennsylvania.

Also adding to our information about the life and work of John Lenthall were fellow researchers Bill Crothers, Tom Heinrich, and Eleanora Gordon, M.D. Alexander Gillett provided helpful assistance. The authors are grateful to Christopher McKee, Secretary of the Navy's Research Chair in Naval History, Naval Historical Center, 1990-91, for sharing his knowledge of sources of early nineteenth-century naval officers and enlisted men. The project team also consulted notes compiled by Thomas Hornsby, a member of the Philadelphia Ship Model Society who built several models of ships based on Lenthall's drawings.

Having John Lenthall's drawings and printed works collections together at the Philadelphia Maritime Museum offers scholars an exceptional opportunity to study these items as a whole collection. With the addition of the bibliographic records of the plans by David Weinberg and the books and pamphlets by Hal Tarr to the national database OCLC (Online Computer Library Center, Inc.) researchers both nationally and internationally will know of the availability of the collections.

We are pleased with the results of the project and look forward to meeting researchers who may be interested in John Lenthall, the United States Navy, and naval architecture.

E. Ann Wilcox
Librarian

John Lenthall

A

GENERAL REGISTER

OF THE

NAVY AND MARINE CORPS

OF THE

UNITED STATES,

ALPHABETICALLY ARRANGED,

CONTAINING THE NAMES OF ALL OFFICERS OF THE NAVY AND MARINE CORPS, MILITARY AND CIVIL, COMMISSIONED AND WARRANT, WHO HAVE ENTERED THE SERVICE SINCE THE ESTABLISHMENT OF THE NAVY DEPARTMENT IN 1798.

SHOWING

THE DATES OF THEIR ORIGINAL RANK AND ENTRY,

THE DATES OF THEIR PROMOTIONS TO HIGHER GRADES,

AND

IN WHAT MANNER AND WHEN THEY LEFT THE SERVICE, IF NOT STILL IN IT.

TO WHICH IS APPENDED,

THE CONSTITUTION OF THE UNITED STATES,

AND A

REVISED EDITION OF ALL THF LAWS

IN

RELATION TO THE NAVY AND MARINE CORPS,

WITH REFERENCE TO THE "STATUTES AT LARGE."

WITH AN INDEX.

COMPILED FROM THE OFFICIAL RECORDS OF THE NAVY DEPARTMENT,

BY AUTHORITY

OF THE

Hon. JOHN Y. MASON, Secretary of the Navy,

BY

MECHLIN & WINDER, ATTORNEYS AND AGENTS,

Office opposite War and Navy Departments, Washington City.

WASHINGTON:

C. ALEXANDER, PRINTER

1848.

Title page of A General Register of the Navy and Marine Corps . . . *(1848) from John Lenthall's library. Also known as the* Navy Register, *this publication is a basic source for researching the careers of U.S. Navy personnel. The* Register *appeared annually each year, with a few exceptions, beginning in 1814. The volume shown in the photograph was a cumulative edition including all officers, military and civil, who had entered the service since the establishment of the Navy Department in 1798. PMM Collection.*

John Lenthall, Naval Architect

by Gail E. Farr

The launch of the frigate *Raritan* at the Philadelphia Navy Yard was a grand occasion. The *United States Gazette* of June 14, 1843, described this event as follows:

> We never saw so beautiful a launch. It was indeed a perfect movement, and we almost envied the laudable pride which must have thrilled the heart of the master-spirit, as he contemplated the crowning effort of his labour. Shouts and cheers burst forth from thrice ten thousand throats.

Of the ship itself, the reporters commented:

> She was designed by Mr. Humphreys but she has been built under the immediate eye and supervision of John Lenthall, Esq., one of the ablest naval architects connected with this branch of our government—modest, unassuming, and yet a complete master of his elevated profession.

That appears to have been the opinion of many associated with John Lenthall including Lenthall's mentor, Samuel Humphreys, then chief naval constructor of the U.S. Navy—a post that Lenthall himself would occupy in 1849.

John Lenthall was not the sort of individual who inspires biographies. Not only did he have the ambiguous status of being a civil officer in a military organization; but throughout most of his affiliation with the navy, the nation was at peace. He spent a good part of his career as a shipbuilder and designer in Philadelphia, but, as far as is known, he had no family roots here. By 1850, he had gone to Washington to assume the numerous administrative tasks involved in designing, constructing, and maintaining the nation's navy fleet. Paradoxically, although his life's work had centered on the construction of wooden sailing and steam vessels, he suddenly found himself heading the United States Bureau of Construction, Equipment, and Repairs with little personal experience in building ironclads and monitors, then strongly advocated by other officials for use in the Union navy during the Civil War.

If Lenthall had left a written account of these experiences, its present location is unknown. Today he is most widely remembered for assembling a fine library of ship plans and drawings of early nineteenth-century naval vessels, some of which were adapted for publication for the first time in the works of the maritime scholar, Howard I. Chapelle, including the influential *The History of the American Sailing Navy* (1949). Yet forty-two years later, Lenthall's role in an expanding naval bureaucracy remains largely unexplored.

Apprenticeship 1820s-35

John Lenthall was born in Washington, DC, in 1807. He learned the trade of ship carpenter at the Washington Navy Yard where his father, also named John Lenthall, was superintendent of shipwrights. Drawings of an unidentified merchant brig (1823) and of the steamer, *Mount Vernon* (1824), labeled "Run on the Potomac" (See "Ship Plans and Drawings," this volume, entries L90.43.59-60), indicate that by his mid-'teens, the younger Lenthall was developing skills as a draftsman.

Sometime thereafter, Lenthall began working as an assistant and draftsman to Samuel Humphreys. Chapelle (*American Sailing Navy*, 354) places the beginning of the association between these two men at the Philadelphia Navy Yard around 1827-28. The documentation concerning their early work together is fragmentary, but it is clear that through this collaboration, Lenthall not only benefitted from his mentor's guidance but also secured a foothold for advancing through a system based on apprenticeship training. Samuel Humphreys's father, Joshua Humphreys, was responsible for designing the first six fighting ships for the United States Navy—an innovative type of frigate widely admired for its size, speed, and versatility. As an assistant to Samuel Humphreys, Lenthall was also exposed to the work of William Doughty who assumed the responsibilities of chief naval constructor from 1813 to 1826 even though he never formally held that title. Both Samuel Humphreys and William Doughty had been associated with the establishment of the Philadelphia Navy Yard on South Federal Street, Southwark, in 1800-01. The facility was one of a handful of naval construction sites instituted by the federal government during the early years of the century and rivaled the main yard at Washington in size and importance.

In time each naval yard had its own constructor, all of whom reported to a chief naval constructor. The latter was primarily responsible for designing ships and the former for overseeing their construction at the various yards using plans distributed from the chief constructor's office, subject to the approval of other naval officials. By the 1820s, this small hierarchy had grown to include a tier of assistant constructors at the yards, but the names of the persons in this position do not appear in the *Navy Register* and are otherwise difficult to identify.

The presence of a specification book, giving "Directions for Cutting Timber for a Ship of the Line/1827" (L90.43.506), written in Lenthall's hand, confirms that as of that date, Lenthall had become involved in naval shipbuilding, possibly at the Philadelphia Navy Yard, where the ship of the line *Pennsylvania*, designed by Samuel Humphreys, was under construction. The problem with assuming they had a continuous, unbroken mentor-apprentice relationship in Philadelphia is that Samuel Humphreys, after serving as constructor at the Philadelphia Navy Yard (1813-26), was promoted to chief naval constructor in November 1826, and his new duties undoubtedly required frequent visits to Washington. Chapelle wrote that in 1828, Samuel Humphreys recommended Lenthall for appointment as assistant naval constructor at the Philadelphia yard (Chapelle, *American Sailing Navy*, 354), but this statement could not be verified in documentation consulted for this essay.

Despite these historiographical difficulties, several points are apparent in available sources: that John Lenthall continued to perfect his drafting skills, seen in drawings of several naval and merchant vessels, c. 1826-35 (See "Ship Plans," Group 2); that he entered the naval service on 1 May 1835; and that a letter from the president of the Board of Naval Commissioners to the commander of the Philadelphia

NAVAL CONSTRUCTORS.

NAMES.	Naval Constructor.	Chief Naval Constructor.	REMARKS.
Barker, Josiah	Not known		Dismissed, 9 July, 1846
Brodie, Charles D.	13 Jan. 26		Died, 14 October, 1845
Delano, B. F.	14 Aug. 46		In service
Doughty, William	8 Feb. 13		Resigned—date not known
Eckford, Henry	13 July, 17		Resigned, 6 June, 1820
Floyd, John	11 July, 20		Last appearance, 8 September, 1830
Fox, Josiah	1 Aug. 98		Appointment revoked, 2 August, 1799
Grice, Francis	7 May, 17	1 Dec. 46	In service
Hartt, Samuel	1 June, 19		Last appearance, 6 December, 1839
Hartt, Samuel T.	15 July, 47		In service
*Humphreys, Joshua	Not known		Last appearance, 26 October, 1801
Humphreys, Samuel	17 April, 13	25 Nov. 26	Died, 16 August, 1846
Keen, James	12 Dec. 26		Last appearance, 8 February, 1831
Lenthall, John	8 Feb. 38		In service
Pook, Samuel M.	1 Jan. 41		In service
Rhodes, Foster	3 March, 41		Died, 7 November, 1846
Selfridge, C. G.	15 July, 47		In service

* Under appointment from the War Department when the Navy Department was established.

Lenthall's name appeared along with that of his mentor, Samuel Humphreys, in the Navy Register *list of naval constructors (1848). PMM Collection.*

Navy Yard, dated 20 June 1835, establishes that by that date, Lenthall was stationed there.[1] Lenthall may have been away from Philadelphia for long interludes in the period 1827-35. A sketch in the *Dictionary of American Biography* (VI, 173) states that "During several years of study in Europe he prepared drafts of 300 different ships in European navies." Possibly Lenthall pursued these studies in the late '20s or early '30s, which would explain the difficulty of finding information about this period in his career; the dates of his overseas sojourn could not be determined. We do know that John Lenthall's apprenticeship ended on 8 February 1838 when he was commissioned constructor at the Philadelphia Navy Yard.

Constructor, Philadelphia Navy Yard 1838-49
Chief Naval Constructor, Washington 1849-53

The substance of the 1835 memorandum was that "a copy of Mr. Lenthall's report to you in relation to white oak knees and planks for the storeship has been received. Necessary knees may be purchased." The reference was to the storeship *Relief*, one of several vessels then under construction as part of a program to strengthen American naval power that began after the War of 1812. Progress on the program was slow due to general disinterest in making naval appropriations and to the time-consuming nature of the work. The plan proposed in 1816-17 called for 6 improved 74-gun ships, 9 new 44-gun frigates, and 10 sloops. There was also talk of building a 120-130 gun vessel which could break through a blockade like the one the British employed in Philadelphia. Up to this point, the United States had not attempted to compete with the sea powers of Europe in building huge ships of the line.

The task of implementing this program devolved upon a newly-created board of naval commissioners who began to upgrade the yards. Two ships houses were erected at Philadelphia in 1820-21 to enclose work in progress, which was expected to extend over some years. The keel for the 120-gun *Pennsylvania*, the largest sailing vessel ever built for the U.S. Navy, was laid down in one of the buildings in 1821. Construction of the frigate *Raritan* began there in 1820, with the completion and launch, as noted, occurring under Lenthall's direction in 1843. The storeship *Relief* was one of the auxiliary vessels built under the naval expansion program. More significant, according to Chapelle, was Lenthall's role in designing a new class of sloops including the *Dale* and *Preble*; the former was launched at Philadelphia in 1839. Lenthall also advised officials on the condition and proposed alterations of older ships in the fleet. A letter from the naval commissioners to the Philadelphia yard commander requesting "the services of Mr. Lenthall . . . at Norfolk for the purpose of completing the survey upon the Frigate *United States*" indicates that this work took Lenthall to other shipyards where he enlarged his knowledge of past and present construction techniques.[2]

Perhaps more than any other American naval constructor of his generation, John Lenthall participated in attempts to introduce steam engines into the American navy. When Congress approved funds for the side-wheeler *Mississippi*, laid down in 1839, Lenthall oversaw the building of the hull and the Philadelphia firm of Merrick & Towne produced the machinery. Lenthall also directed work on the hull of the *Princeton*, the first screw-propelled vessel in the U.S. Navy. The pioneering vessel was built on a plan devised by the Swedish engineer, John Ericsson, and launched in 1843. Four years later, Lenthall prepared drafts for the side-wheeler *Susquehanna*. By the time she was completed in 1850, Lenthall had left for Washington to become chief naval constructor, serving in that capacity from 1849-53.

Bureau Chief, Washington, 1853-71

In 1842, Congress abolished the Board of Navy Commissioners and created five bureaus to handle the affairs of the Navy Department. One of these was the Bureau of Construction, Equipment, and Repairs (BCER); in November 1853 John Lenthall became its head. Correspondence in BCER records in the National Archives reveals that he was a conscientious and budget-minded administrator—characteristics which may have prompted his appointment. Congress had just completed an investigation into the performance of navy steamers the previous March, and the dubious performance of some of these vessels made it difficult to justify the addition of more steamers to the fleet. Lenthall countered such criticisms by pointing out the high cost of maintaining older vessels, reminding the secretary of the navy on December 17, 1853, "All our ships are *old* and consequently require heavy and increasing repairs . . . . . that of the 'Constitution' was $198,000."[3] Political pressures combined with Lenthall's own personal interest in structural problems to inspire what may well have been the first systematic ship-preservation studies attempted in this country, for despite whatever personal preferences Lenthall may have had favoring steam over sail, circumstances compelled him to make do with the ships available. Neither the construction or repairs appropriations were substantial, leaving the country with a shortage of serviceable vessels to fight the Civil War.

To support the North's strategy of blockading Southern ports, Lenthall, together with Samuel H. Pook, a civilian naval architect, produced a design for a class of armed steamers suitable for coastal and river patrol. Some maritime scholars have identified these "90-day gunboats," so-called because of their projected brief construction time, as the first numer-

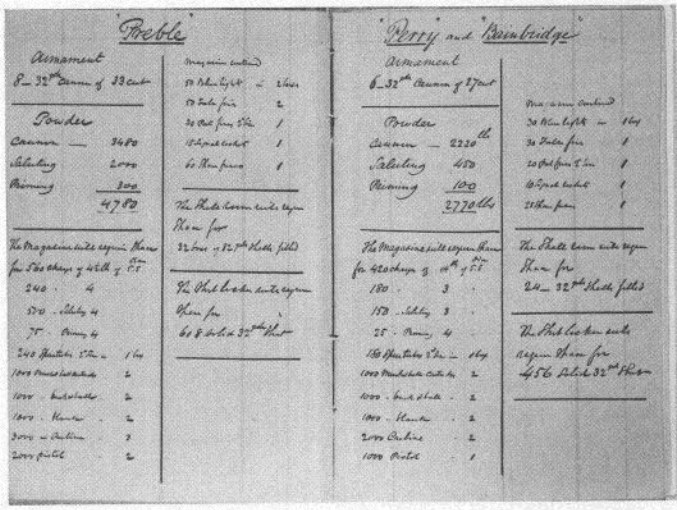
ous class of identical fighting ships introduced into the U.S. Navy. Contracted from private yards, the 23 gunboats were recorded as making 146 captures (Laing, *American Ships*, 323; Canney, *Old Steam Navy*, 91-94).

Lenthall was less enthusiastic about potentials of light-draft monitors which were unable to sail on an open sea. In 1862, the bureau system was enlarged to accommodate a new department aimed primarily at securing monitors modeled after the famous design by John Ericcson, which Lenthall opposed. Lenthall soon found himself isolated; some even accused him of being a Confederate sympathizer. Charles Cramp, designer of the armored vessel, *New Ironsides*, recalled, "Mr. Lenthall, the Chief Constructor of the Navy, and Mr. [Benjamin] Isherwood, who was on his staff as engineer, were entirely set aside, and practically disappeared from the scene as far as new constructions were concerned."[4] A movement developed to block Lenthall's appointment as chief of the newly-constituted Bureau of Construction and Repair, but he managed to override his opponents and secure the position in 1863.

Although his postwar service was made acrimonious by a scam involving an advanced steamer called the *Wampanoag*, designed by his friend Isherwood, Lenthall continued working until January 1871 when he retired from the navy with the relative rank of commodore. Eleven years later, he died of a heart attack as he was boarding a train in Washington. According to an obituary in the *Army and Navy Register*, he was survived by two daughters and two grandchildren. The *Dictionary of American Biography* (VI, 173) called him a "diligent writer on scientific subjects relating to marine architecture" and "a contributor to the leading scientific associations of this and other countries."

JOHN LENTHALL, CHIEF OF BUREAU OF CONSTRUCTION.

Engraving of John Lenthall, c. 1865. PMM Collection.



Report of ordnance stowage capacities of U.S. Navy ships, 1852. As chief naval constructor, Lenthall was responsible for surveying and repairing older vessels as well as for designing new additions to the fleet. Lenthall Collection of FI at PMM (L90.43.517).

Notes

1. John Rodgers to James Barron, 20 June 1835. Philadelphia Navy Yard Collection, Princeton University Libraries.
2. Charles Norris to Charles Stewart, 19 February 1840. Philadelphia Navy Yard Collection, Princeton University Libraries.
3. Entry 49, Records of Bureau of Construction, Equipment, and Repairs, Record Group 19, National Archives and Records Administration.
4. Cited in Augustus C. Buell, *The Memoirs of Charles H. Cramp* (Philadelphia, 1906), 80. For further background on the internal politics of wartime naval construction, see Edward W. Sloan III, *Benjamin Frank Isherwood, Naval Engineer* (Annapolis, 1965).

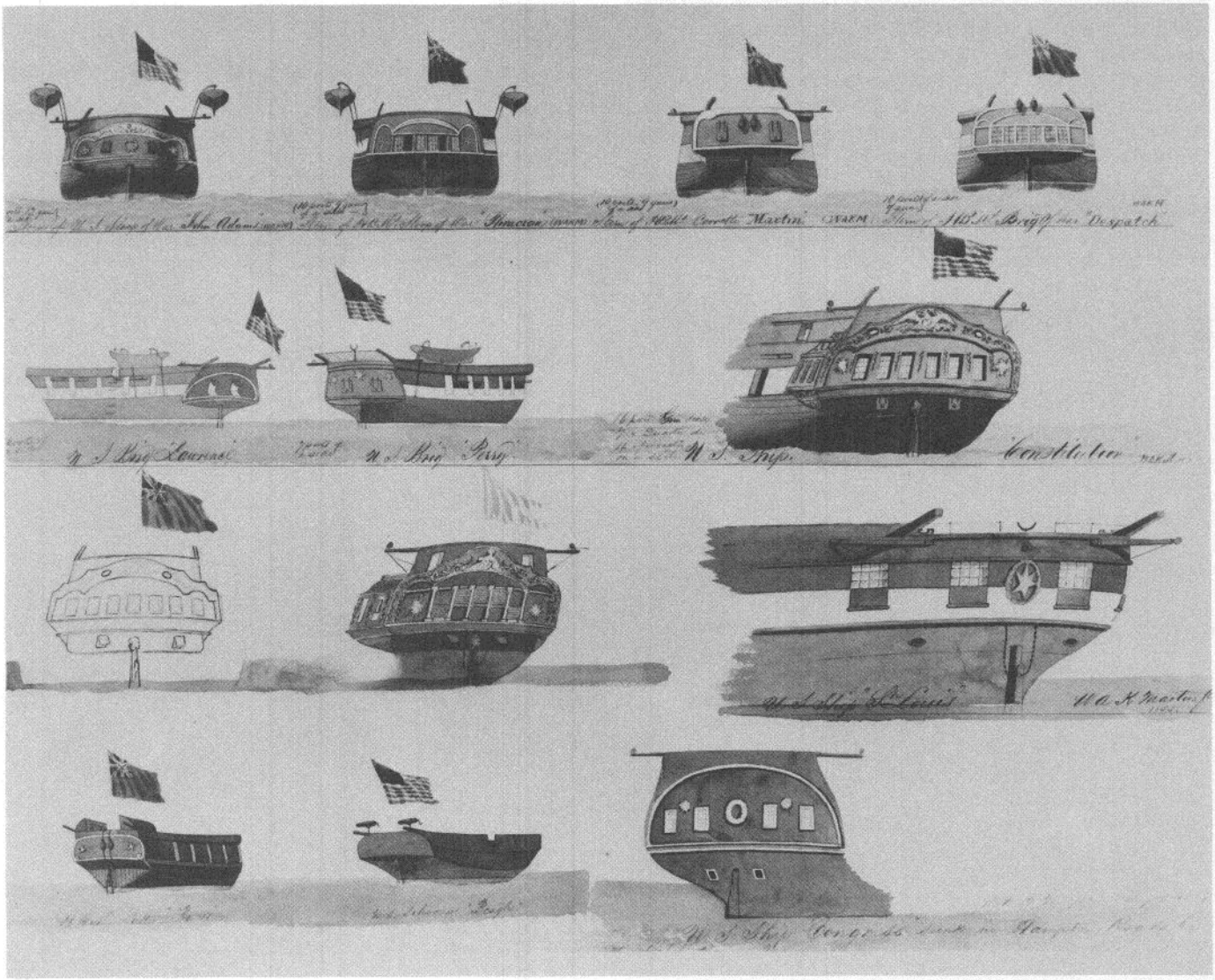
Ship Plans and Drawings

John Lenthall Collection of The Franklin Institute at the Philadelphia Maritime Museum
518 items, 1790-1874.

Arranged and Described by Gail E. Farr and Brett F. Bostwick

The collection of ship plans and drawings which John Lenthall presented to The Franklin Institute in 1874, and now preserved and catalogued at the Philadelphia Maritime Museum, contains a marvelously diverse representation of ship types, designs, and media employed by naval architects from the late eighteenth century through the early 1870s. Although most of the pieces depict American vessels, there are several representations of British and French ships.

Technically speaking, the period was one of dramatic changes evidenced by the introduction of the steam engine, the paddle wheel, the screw propeller, and, eventually, iron framing and plating. Perhaps even more significant was the experimentation which marked the design of naval vessels. In his original six American frigates (1797), the American shipbuilder, Joshua Humphreys, transformed the concept of a seagoing man-of-war from a heavily-armed, 3- or 4-deck ship of the line to a faster, more compact alternative which was more suited to the capabilities and budget of the young United States. Britain, France, and Spain were the acknowledged leaders in naval strength up till Nelson's victory at Trafalgar in 1805, from which Britain emerged predominant. France was more advanced in the arts of metalwork which laid the basis for modern armament. The United States lagged behind both these countries in the size and number of ships in



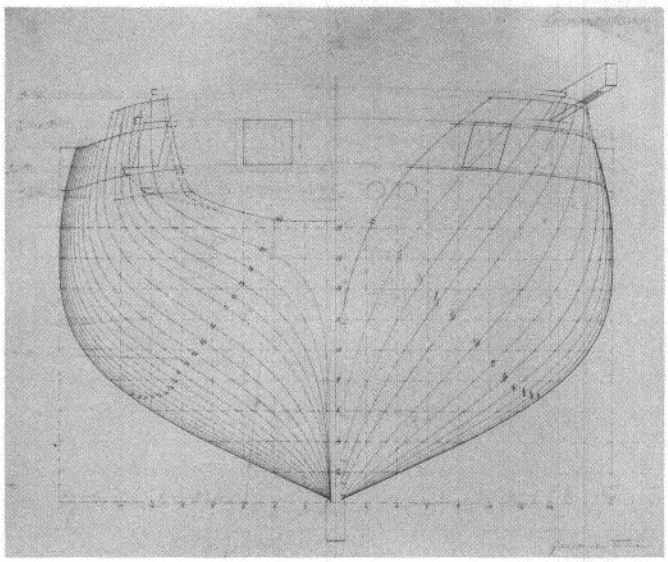
Early nineteenth-century naval vessels ranged in size from brigs and schooners to sloops, frigates, and ships of the line. This watercolor by W. A. K. Martin, 1859, illustrates some of the distinctive features of these classes including their stern carvings. PMM Collection (659/P64.9.4).

its navy fleet and in its attempts to employ ironclads. But naval officials were persuaded to employ the screw propeller almost as soon as John Ericsson made the technology available.

With these thoughts in mind, the archivist-historians associated with this project tackled the daunting task of processing John Lenthall's collection of naval-architectural plans. At various times, The Franklin Institute had inventoried the pieces, had some of them conserved, and imaginatively employed a number in exhibits depicting the evolving profession of naval architecture in a maritime history gallery. But the bulk of the collection was inaccessible to researchers, mainly because of the large size of the documents, the numerous handwritten notations, the lack of access to supporting documentation such as registers or yard logs to persons researching there, and the sheer difficulty of creating and maintaining a usable system for storing and retrieving oversize documents. The recent processing of the collection in a spacious work area at the Philadelphia Maritime Museum made it possible to analyze and compare these documents on what may have been the first such occasion in many years.

The basic unit for organizing the plans has been the project group—that is, the entire set of documentation for a particular vessel. From early on, it appears to have been the practice among American naval architects to use a drawn plan, rather than to rely on a model alone, and often to create only one paper document for each vessel or type of vessel. The Lenthall Collection includes several plans which appear to have been copied from a master prototype issued by the chief constructor and distributed to builders at the respective navy yards.

The terms "plan" and "drawing" have been applied rather loosely, for although the documents appear to be drawings in the modern sense of the term, they were actually based on mathematical computations and were meaningful to builders used alone or with a three-dimensional model. On these documents would appear three views, or **lines**: the **sheer plan**, showing the longitudinal curvature of the hull as shown in a side elevation; the **half-breadth**, showing the curve as seen from above; and the **body plan**, which indicated the shape of the cross sections of the hull at certain specified frames (definitions from Chapelle, *American Sailing Navy*, 30-36). After the 1830s, naval designers were more likely to produce profiles, deck layouts, sail plans, and details of individual structural elements including guns, carriages, and other mechanical elements. Altogether the Lenthall Collection contains at least 70 tracings—far more than originally suspected because of their small size and light weight. The majority of the plans are drawn in pen or ink on paper; some are mounted on linen.

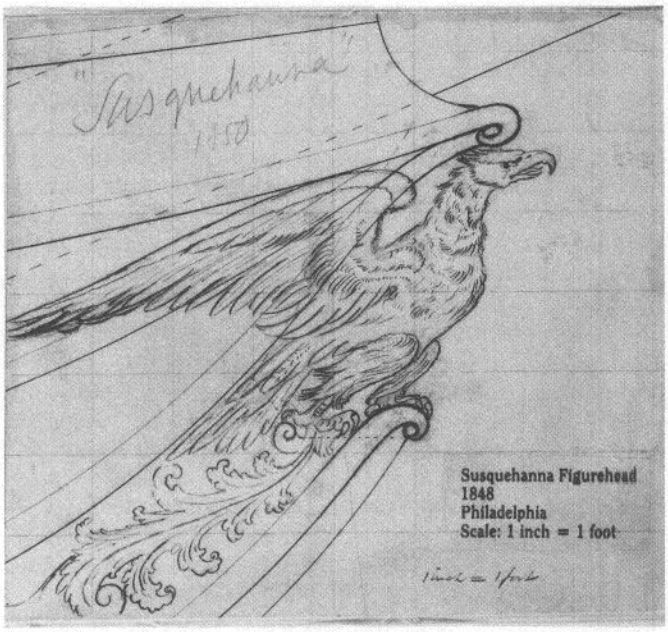


Body plan of Germantown, *c. 1843-46, showing the curves of the hull. Lenthall Collection of FI at PMM (L90.43.159).*

Careful study revealed that the collection consisted of four discrete bodies of material acquired by Lenthall at different times, under different circumstances, and from a variety of colleagues. Their contents depict stages in Lenthall's career. They also appear to represent a conscious attempt on the collector's part to paint the broader picture of naval architecture as seen through the prism of documentation for the various projects he was involved with. Most of the items are labeled and numbered in Lenthall's hand; several have long explanatory notes such as "Not built" and the reasons; dates; dimensions; the kinds and quantities of timber used and where obtained; and other information added sometime after the drawings were originally executed. Although the accuracy of these appended dates is in some cases difficult to verify, Lenthall was extraordinarily systematic in organizing the collection, which he possibly undertook as a retirement project to prepare the pieces for transfer to The Franklin Institute. Why he chose to donate the plans there rather than leave them with the Navy Department is not known, but clearly he had a lifelong professional interest in The Franklin Institute and went to some lengths to ensure that the plans were sufficiently well identified to be used to illustrate the history and science of naval technology to persons not otherwise experienced in reading such documentation.

Within the four groups, the project staff members have attempted to arrange the items insofar as possible in chronological order *by date of when the document was created.* This may confuse researchers who are searching for a ship with a particular launch date, for some of the plans appear in file-number order ten or twenty years after the ship was constructed. It was our decision to present the vessels in the order in which they appeared to have intersected Lenthall's career—particularly since his work involved equal parts "construction" and "repair." Moreover, some of the drawings appear to have been made for no particular purpose other than to satisfy Lenthall's own curiosity about ships as artifacts. For example, he drew the 74-gun *Franklin* on at least three different occasions: 1824, 1850, and again in 1853. In those cases for which Lenthall possessed a construction drawing as well as a drawing of a later repair, alteration, or survey, all the drawings for that vessel have been filed under the date of the first plan in the group. Question marks indicate that information could not be ascertained from available sources. An alphabetical index of ships represented in the plans and drawings, keyed to a number to indicate location by group, is found at the back of this guide.

Researchers unfamiliar with ship-architectural material may wish to consult one of the various dictionaries of sailing terms when using these holdings. In addition to those appearing in the list of references (back of guide) are several sources containing definitions and illustrations of various



The Lenthall Collection includes ornamental drawings such as this figurehead for Susquehanna. *Lenthall Collection of FI at PMM (L90.43.253).*

classes of naval ships. William N. Brady, *The Kedge-Anchor; Or, Young Sailors' Assistant* (18th ed.; New York, 1874; or other editions) is an excellent contemporary source, written in textbook style, for learning the fundamental elements of ship class, sails, and rigging.

The following descriptions have been compiled from information which was recorded on a processing worksheet containing a number of categories for transcribing information. These categories were designed to correspond to the data fields of the USMARC AMC format, the internationally-recognized standard for exchanging information about manuscript material.

For further information, see Gail E. Farr and Brett F. Bostwick, compilers, "The John Lenthall Collection of Ship Plans 1790-1874 in the Philadelphia Maritime Museum Library" (PMM, April 1991). This item-list inventory gives titles for each drawing as well as their individual accession numbers.

Plan Key

Abbreviations Used for Technical Data:

lbp.	Length between perpendicular
l.	Length
b.	Beam
br.	Breadth
dph.	Depth of hold
dr.	Draft
bm.	Builder's measurement. Used in England until 1873, the builder's measurement is the number of tuns (casks) of wine a ship could carry.

Sources of Technical Data:

U.S. Navy Vessels: Verification of ship type and class of naval ships from the *Register of the Commissioned and Warrant Officers of the Navy of the United States . . .* , also known as the *Navy Register* (1824-1870). Dimensions, tonnage, launch date, and names of owners, from the U.S. Naval History Division, *Dictionary of American Naval Fighting Ships* (8 vols., 1959-81).
Merchant Vessels: Documentation on ships before 1874 was not readily accessible. For ships after 1874, information is drawn from the American Bureau of Shipping *Record* (1874-1900).

Abbreviations for other sources listed as references are as follows (full citations given in the reference sources):

ABS	American Bureau of Shipping *Record*
AFS	*The American Fishing Schooners*, Chapelle
APS	*American Passenger Ships*, Emmons
AS	*American Ships*, Laing
ASA	*American Steamships on the Atlantic*, Ridgely-Nevitt
ASC	*American Sailing Craft*, Chapelle
ASN	*The History of the American Sailing Navy*, Chapelle
CN	*The Confederate Navy*, Stern
DANFS	*Dictionary of American Naval Fighting Ships*
EP	*Encyclopedia of Philadelphia*, Jackson
FS	*Fighting Ships*, Hough
HASS	*The History of American Sailing Ships*, Chapelle
MS	*Merchant Sail*, Fairburn
MVUS	*Merchant Vessels of the United States*
NAS	*North Atlantic Seaway*, Bonsor
NR	*Navy Register*
NUS	*The Navy of the United States*, Emmons
OSN	*The Old Steam Navy*, Canney
ROP	*Register of Officer Personnel, United States Navy*
SNUS	*The Steam Navy of the United States*, Bennett
SRN	*Ships of the Royal Navy*, Colledge
SSS	*The Search for Speed under Sail*, Chapelle
TF	*The Frigates*, Gruppe
USRC	*The United States Revenue Cutters*, Kern

Group 1: John Lenthall's Mentors

58 plans (1790-1853)
L90.43.1-58

Group 1 consists of plans which document the work of Lenthall's mentor Samuel Humphreys, shipbuilder Josiah Fox, and draftsman and constructor William Doughty, in building or repairing ships of the first U.S. Navy at Philadelphia and other shipyards. Among them are the 74-gun ships of the line *Columbus* and *Franklin*. The group includes approximately 20 photostats of originals in possession of the National Archives and Records Administration.*

British Navy Ships

Holdings:
1 document (1790)
FI L90.43.1

Description: This is a broadside printed for D. Steel, Bookseller, London, listing the general dimensions of ships for each class of the British Royal Navy. Tables provide data on 10 classes ranging from a 14-gun ship to a 100-gun ship. The broadside lists the number of guns on each deck, the length and weight of guns, and the dimensions of masts, yards, blocks, and rigging.

United States

Frigate
Dimensions: lbp. 175′; b. 43′; dph. 14′; dr. 23′
Tonnage: 1,576 gross
Launch: 10 May 1797
Owner: U.S. Navy

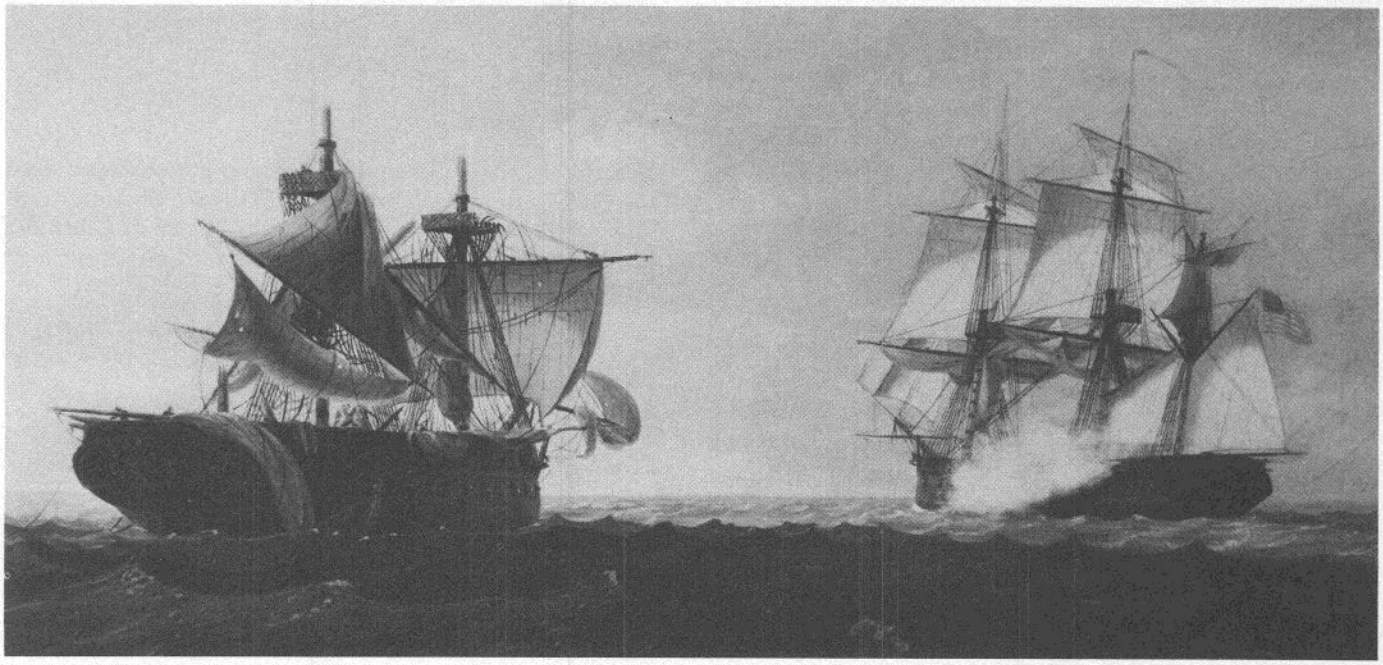
History: The 44-gun frigate *United States*, authorized by an Act of Congress in March 1794, was designed by naval architect Joshua Humphreys and constructed at his shipyard in Philadelphia. She was the first of six ships built for the newly-created United States Navy and her mission was to protect American interests from French privateers in the West Indies. During the War of 1812, she defeated the pride of the Royal Navy, the frigate *Macedonian*, in a spectacular battle off the coast of Portugal. From 1815 to 1849, she was engaged in various duties in the Mediterranean and the Caribbean. *United States* was decommissioned in 1849 at the Norfolk Navy Yard and deteriorated there until 1861, when Confederate troops seized the yard and commissioned her the CSS *United States*. Later in the year, she was scuttled when the Confederates abandoned the yard. She was raised in 1865 and broken up the following year.

References: *NR* (1824): 27; *DANFS*, VII: 413-17; *ASN*: 118-19, 129-30; *EP*, III: 929; *FS*: 170; *HASS*: 87; *ROP*: 78.

Holdings:
1 plan (1796) + 5 photostats of 1796, 1840, and 1889 plans.
FI L90.43.2-7

Description: The outstanding piece in this file is a sheer, half breadth, and body drawing signed, "Wm. Doughty Fecit 1796 Octr," with notes in Lenthall's hand, "From the original plan by Joshua Humphreys, JL." Item (.3) is a later blueprint copy of item (.2) The next three pieces are photostats made during an 1840 survey of the ship at the Norfolk Navy Yard. The file also includes an 1889 Bureau of Construction and Repair tracing of an 1822 original.*

*Designates photostat of an original with a "C & R" (Bureau of Construction and Repair) file number.



Engagement between the frigates United States *and H.B.M.* Macedonian, *oil painting attributed to Thomas Birch, c. 1815-20. PMM Collection (81.55.1).*

Hassan Bashaw
Brig
Dimensions: l. 93′; b. 27′; dph. 11′
Tonnage: 275 gross
Launch: 1798
Owner: Dey Hassan of Algiers
History: The Barbary States were notorious for capturing merchant ships and holding their crews for ransom or selling them as slaves. The United States government signed a treaty (a tribute) with the largest of the four states, Algiers, which dictated that the Americans make a cash payment to the Dey of Algiers in exchange for letting United States ships sail unharmed. In lieu of a cash payment, the United States agreed to construct four "corsair" vessels—a 32-gun frigate, a brig, and two schooners. The brig, named *Hassan Bashaw*, was designed and built by Samuel Humphreys in Philadelphia. She was built for speed and for carrying a heavy armament, features which appealed to the Dey. She was later captured by the Portuguese.
References: *DANFS*, III: 268; *ASN*: 135-36, 138-39; *HASS*: 93, 127; MS, I: 650, 655-56, 660.

Holdings:
1 plan (1798)
FI L90.43.8

Description: Sheer, half breadth, and body plan with dimensions.

Washington
Ship of the Line
Dimensions: lbp. 190′; b. 54′; dph. 19′; dr. 24′
Tonnage: 2,250 gross
Launch: 1 October 1814
Owner: U.S. Navy
History: By the end of the War of 1812, the United States realized they needed stronger ships to break blockades and cause more damage to British merchant shipping. Three 74-gun ships were authorized as a result. One of the ships of the line, *Washington*, was constructed at the Portsmouth Navy Yard by Hartt and Badger. In 1816-17, she sailed as the flagship of the Mediterranean Squadron to act as a deterrent against the Barbary States. She was placed in ordinary at New York in 1820 and remained there until broken up in 1843.
References: *NR* (1824): 27; *DANFS*, VIII: 123-24; *ASN*: 57, 123, 283-84; MS, V: 3063.

Holdings:
1 plan (1799)
FI L90.43.9

Description: Notes on this document suggest that *Washington* was based on an earlier plan by Joshua Humphreys which was adapted for construction in 1814. The drawing is a sheer, half breadth, and body plan labeled "Draught of a 74-Gun Ship by Joshua Humphreys" and "Copied from the original by Benjn. Hutton Junr/Phila/April 1st 1799." Hutton a designer and draftsman who worked with Joshua Humphreys. The name "Washington" is handwritten on the front of the ship, possibly at the time of *Washington*'s construction in Portsmouth, 1814, using Joshua Humphrey's design.

Gunboat
Dimensions: lbp. 71′; b. 18′; dph. 4′ (plan)
Launch: 1804
History: This double-ender gunboat was designed by Josiah Fox to be rowed or sailed.
Reference: *ASN*: 194, 196.

Holdings:
1 plan (1804)
FI L90.43.10

Description: Sheer and body plan listing dimensions with note, "Built in 1804."

John C. Stocker
Merchant Ship

Holdings:
1 photostat of an 1807 original plan.
FI L90.43.11

Description: Photostat of a sheer, half breadth, and body plan signed by Samuel Humphreys in Philadelphia, February 1807.*

Caledonia
120-gun ship
Dimensions: l. 205′; b. 54′; dph. 23′
Tonnage: 2,602 builder's measurement (bm)
Launch: 25 June 1808
Owner: British Royal Navy
History: H.M.S. *Caledonia*, a 120-gun, three-deck warship, was constructed at the Plymouth Dockyard, England. Her design was based on an earlier French three-decker, *Commerce de Versailles*.
References: *SRN*: 69; *FS*: 194, 196.

Holdings:
4 plans [1808?]
FI L90.43.15-18

Description: Four plans, all pencil and ink on paper, with the note, "from the papers of Wm Doughty." Drawings contain handwritten notes, some believed to be in Lenthall's hand. Drawings are mainly deck plans with one sheer, half breadth, and body plan.

Sloop of War
Launch: 1812
Owner: French Government
History: A 32-gun sloop of war.

Holdings:
1 plan (1812)
FI L90.43.12

Description: An outboard profile and sail plan of a French sloop.

152-Gun Ship

Holdings:
1 plan (c. 1810-20) + 1 film negative of the c. 1810-20 original plan.
FI L90.43.13-14

Description: Ink drawing of a sheer, half breadth, and body plan with handwritten note, "a three-decked ship as proposed by William Doughty, not built," and initialed "JL." A film negative of an original plan for a "Ship of 152 Guns," signed Wm. Doughty, is also in the file.

Guerriere

Frigate
Dimensions: lbp. 175′; b. 45′; dph. 14′
Tonnage: 1,508 gross
Launch: 20 June 1814
Owner: U.S. Navy
History: The 44-gun frigate *Guerriere* was named after the 49-gun British frigate destroyed by the U.S. frigate *Constitution* at the beginning of the War of 1812. She was designed by William Doughty and constructed by Joseph and Francis Grice in Kensington, Philadelphia. *Guerriere* sailed on her first cruise to the Mediterranean under Captain Stephen Decatur where she helped put an end to pirating by the Barbary States. During the years 1821-28, *Guerriere* served as a schoolship. She was decommissioned in 1831 and broken up in 1841 at Norfolk.
References: *NR* (1824): 27; *DANFS*, III: 181; *ASN*: 256, 264; *HASS*: 104; *MS*, I: 751-55, II: 760, 801, V: 2761-62; *TF*: 158.

Holdings:
6 photostats of 1813 original plans.
FI L90.43.19-24

Description: All six plans are photostats of sheer, half breadth, and body plans and deck arrangements reproduced from 1813 originals.* Two plans have the note, "Examined by Wm Doughty, Naval Constructor."

Frolic

Sloop of War
Dimensions: lbp. 117′; b. 31′; dph. 14′
Tonnage: 509 gross
Launch: 11 September 1813
Owner: U.S. Navy
Frolic and her sister ships, *Peacock* and *Wasp*, 18-gun sloops of war, were three of six sloops authorized by Congress in January 1813 for the war against England. William Doughty drafted the preliminary plans.
History: *Frolic* was built at Charlestown, Massachusetts, by Josiah Barker. While on her maiden patrol in the West Indies, she encountered the British 36-gun frigate *Orpheus* and the 12-gun schooner *Shelbourne*. Being outgunned, *Frolic* sailed away attempting to escape. After a long chase, she was finally captured and commissioned in the Royal Navy as the coast-guard ship *Florida*. She was broken up in England in 1819.
References: *DANFS*, II: 451; *ASN*: 260, 263; *HASS*: 105.

Holdings:
1 photostat of an 1813 original plan.
FI L90.43.25

Description: Photostat of an 1813 construction draft giving dimensions and "copied from originals . . . by Wm Doughty . . . approved by Wm Jones, Sec of the Navy."*

Peacock

Sloop of War
Dimensions: lbp. 117′; b. 31′; dph. 14′
Tonnage: 509 gross
Launch: 19 September 1813
Owner: U.S. Navy
History: The sloop of war *Peacock* was built by Adam and Noah Brown in New York. She was a swift sailer and, according to Howard Chapelle, her design influenced the sloop of war class for the next twenty-five years (*HASS*, 110). Her success as a cruiser and her speed made the Navy realize the importance of this class of ships. *Peacock* made various voyages between 1814 and 1821, sailing mainly in the Mediterranean. From 1824-27, she sailed in the Pacific protecting the American merchant and fishing industry. She was decommissioned in 1827 and broken up the following year.
References: *NR* (1824): 27; *DANFS*, V: 240-41; *ASN*: 258-62; *HASS*: 105-08; 110; *MS*, II: 789-90.

Holdings:
1 photostat of an 1813 original plan.
FI L90.43.25

Description: Photostat of an 1813 construction draft giving dimensions and "copied from originals . . . by Wm Doughty . . . approved by Wm Jones, Sec of the Navy."*

Wasp

Sloop of War
Dimensions: lbp. 117′; b. 31′; dph. 14′
Tonnage: 509 gross
Launch: 1813
Owner: U.S. Navy
History: Built by Cross and Merrill at Newburyport, Massachusetts, *Wasp* had a brilliant but short career in the United States Navy. Between May and August 1814, *Wasp* sunk a total of eight British ships before putting in for provisions. She set sail at the end of the month and managed to capture or destroy seven more British vessels. After her capture of the brig *Atlanta* in September 1814, *Wasp* departed and was lost at sea with all hands.
References: *DANFS*, VIII: 140-41; *ASN*: 256-58, 282; *HASS*: 105; *MS*, II: 790-91.

Holdings:
1 photostat of an 1813 original plan.
FI L90.43.25

Description: Photostat of an 1813 construction draft giving dimensions and "copied from originals . . . by Wm Doughty . . . approved by Wm Jones, Sec of the Navy."*

Transfer
Schooner
Dimensions: lbp. 93′; b. 22′; d. 10′
Tonnage: 176 gross
Launch: [1812-14?]
Owner: Captain Charles Stewart
Reference: *SSS*: 227-29.

Holdings:
1 plan [1812-14?]
FI L90.43.26

Description: One plan, pencil and ink on paper, showing the half breadth and body plan of the ship with a note, "a very fast vessel." The draft was probably a working drawing used in the yard.

Corvette
Dimensions: lbp. 150′; b. 36′; dph. 18′ (plan)
History: The 28-gun corvette was not constructed.

Holdings:
1 plan (c. 1810-20) + 1 film negative of the c. 1810-20 original plan.
FI L90.43.27-28

Description: The original is labeled, "Corvette of 28 Guns by William Doughty" and "not built JL."

Spark
Brig
Dimensions: lbp. 103′; b. 25′; dph. 12′
Tonnage: 310 gross
Launch: 1813
Owner: Baltimore merchants
History: *Spark*, a 12-gun brig, was originally built as a privateer brigantine to run the British blockade of the Chesapeake during the War of 1812. Instead she was purchased by the Navy from her Baltimore owners to join a fast sailing fleet which would be used to raid British merchant shipping in the West Indies, but the war ended before she could be readied. After the War of 1812, *Spark* cruised the Mediterranean until 1821 when she was transferred to the Caribbean to protect American interests against pirates. After returning to New York in 1825, she was judged too rotten to repair and sold shortly afterward.
References: *NR* (1824): 27; *DANFS*, VI: 574; *ASN*: 288-90; *MS*, I: 751; *SSS*: 238-39.

Holdings:
1 plan [1813?]
FI L90.43.29

Description: Sheer, half breadth, and body plan.

Row Galley
Dimensions: l. 40′; b. 10′; d. 3′ (plan)
Launch: 1814
History: Chapelle writes that during 1813, William Doughty designed a new class of gunboat called the barge (*ASN*, 276). These gunboats carried one or two guns and were fitted for rowing only. They were intended for use on lakes and rivers, not the open sea.
Reference: *ASN*: 276-77.

Holdings:
1 plan (1814)
FI L90.43.30

Description: Sheer, half breadth, and body plan, which also shows the inboard profile and deck plan. Handwritten note, "Copied from the Original Feb. 7, 1814/Examined by William Doughty, Naval Constructor."

Draft Plan
Ship of the Line
Dimensions: lbp. 191′; b. 51′; dph. 21′ (plan)
lbp. 196′; b. 53′; dph. 21′ (new ship)

Holdings:
1 plan (1815) + 1 film negative of the 1815 original plan.
FI L90.43.31-32

Description: The original is an ink-on-paper drawing of the sheer, half breadth, and body plan, labeled "Construction Draught of the 74-Gun Ship" and signed William Doughty, 1815. This plan is a preliminary design which may have been used in a modified form to build the 74-gun ship *Columbus*. Dimensions for the original design and the modified version appear on the plan; they appear to be in Lenthall's handwriting. The film negative is a reproduction of (.31).

Franklin
Ship of the Line
Dimensions: l. 190′; b. 54′; dph. 19′; dr. 24′
Tonnage: 2,243 gross
Launch: 25 August 1815
Owner: U.S. Navy
History: The 74-gun ship of the line *Franklin* was designed and built by Samuel Humphreys and was the first ship constructed at the Philadelphia Navy Yard. *Franklin*, along with the 74-gun *Washington* and *Independence*, were built for the Navy because the United States had been severely impeded by the naval blockades imposed by British warships during the War of 1812. The Navy felt they needed more powerful ships which would be able to break any future blockades and would be able to create havoc among foreign merchant shipping if necessary. *Franklin* served as the flagship of the Mediterranean Squadron from 1817-20, then as the flagship of the Pacific Station from 1821-24. In her later years, she operated as a receiving ship until broken up in 1852.
References: *NR* (1824): 27; *DANFS*, II: 442; *ASN*: 283-84; *HASS*: 111-12; *MS*, V: 2760-62.

Holdings:
8 plans (1815, 1824, 1850, 1853)
FI L90.43.33-40

Description: Drawings are mostly pencil and ink on paper. One plan is from 1815, the year of her launch, and the others are from the mid-1800s, when she was decommissioned. Several have the handwritten note, "as built in 1815/Drawn from the mould loft dimensions."

Columbus

Ship of the Line
Dimensions: l. 191′; b. 53′; dph. 21′; dr. 25′
Tonnage: 2,480 gross
Launch: 1 March 1819
Owner: U.S. Navy
History: *Columbus* was designed by William Doughty and constructed at the Washington Navy Yard. The 74-gun ship sailed in the Mediterranean periodically until 1843 when she operated in the Far East to support American commerce. *Columbus* lay in ordinary from 1848-61 when she was set afire to prevent her capture by the Confederates.
References: *NR* (1824): 27; *DANFS*, II: 150; *ASN*: 309-10, 315-16.

Holdings:
1 plan [1819?]
FI L90.43.42

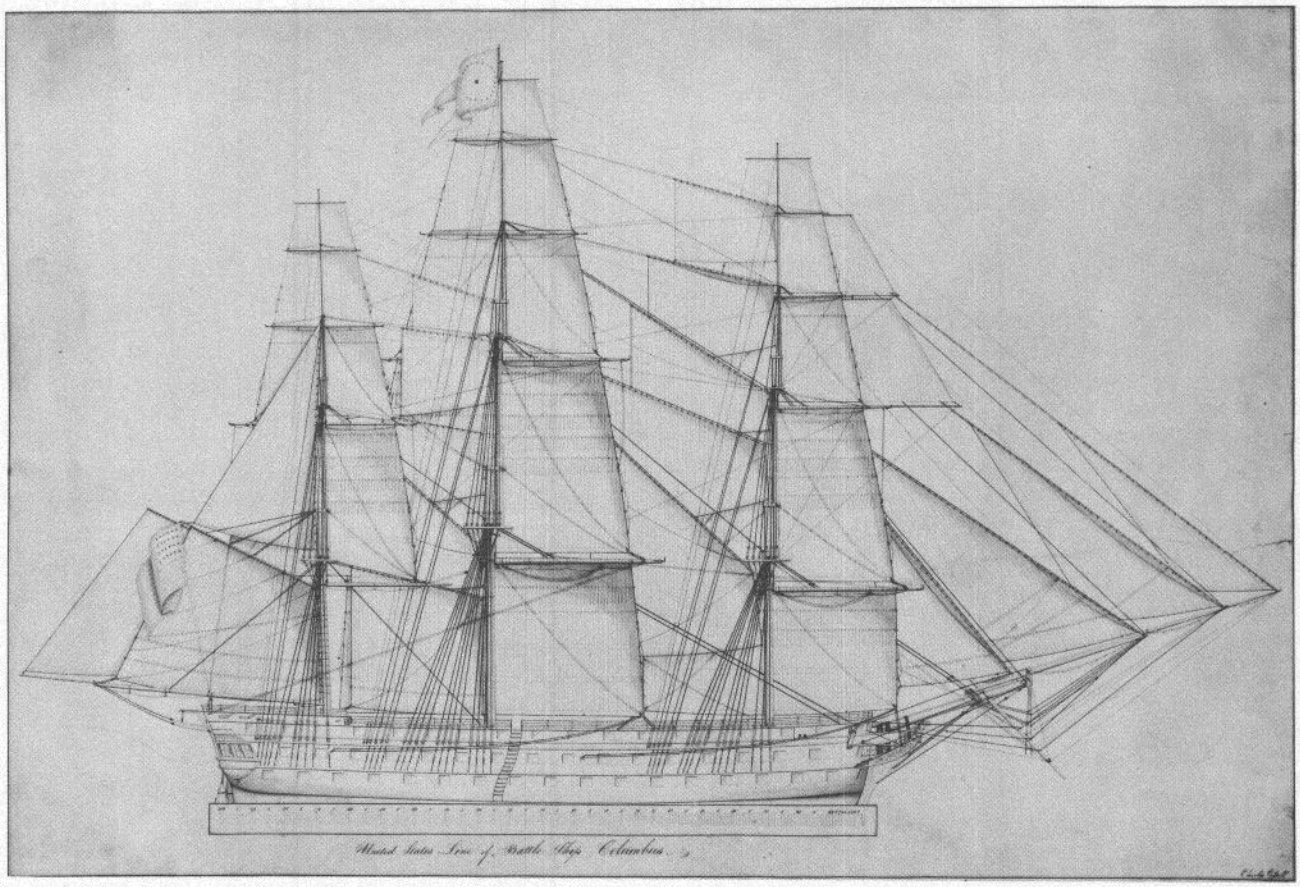
Description: Highly visual ink-on-paper drawing of the sail, spar, and rigging plan of the "United States Line of Battle Ship *Columbus*."

North Carolina

Ship of the Line
Dimensions: l. 196′; b. 53′; dph. 21′
Tonnage: 2,633 gross
Launch: 7 September 1820
Owner: U.S. Navy
History: The 74-gun ship *North Carolina* was designed by William Doughty and built at the Philadelphia Navy Yard. She served as the flagship for Commodore John Rodgers in the Mediterranean before being transferred as the flagship of the Pacific Station. A powerful ship, she helped protect American commerce in the Pacific until sold in 1867.
References: *NR* (1824): 27; *DANFS*, V: 107; *ASN*: 314; *HASS*: 115.

Holdings:
1 plan [1820?]
FI L90.43.222

Description: Ink-on-tracing paper, a detailed drawing of a 42-pound gun carriage.



Columbus was one of the new ships of the line commissioned by the navy after the War of 1812. John Lenthall was a young apprentice at the Washington Navy Yard during Columbus's *early years in the fleet. Lenthall Collection of FI at PMM (L90.43.42).*

Pennsylvania

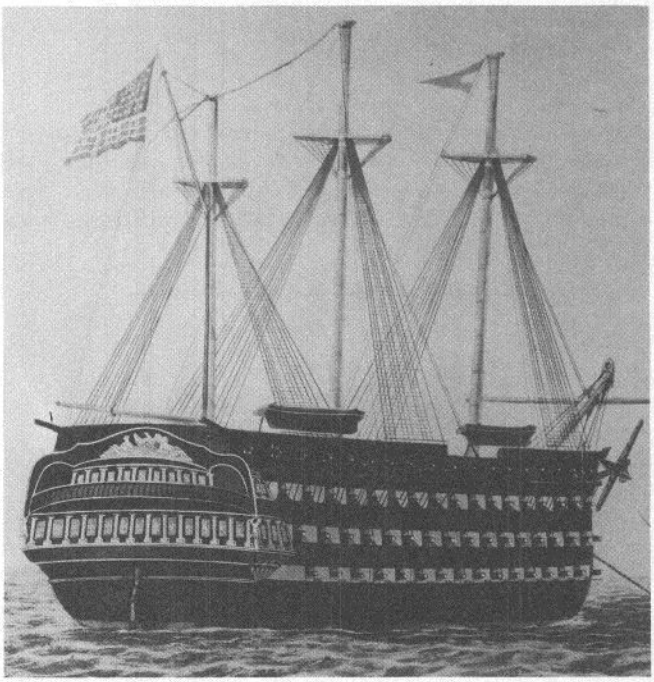
Ship of the Line
Dimensions: l. 210′; b. 56′; dph. 24′
Tonnage: 3,105 gross
Launch: 18 July 1837
Owner: U.S. Navy

History: The 120-gun ship *Pennsylvania* was designed and built by Samuel Humphreys at the Philadelphia Navy Yard. She was the largest sailing vessel ever built for the United States Navy and was designed to break the stranglehold of naval blockades, from which the United States suffered greatly during the War of 1812. *Pennsylvania* was on the stocks from 1821 until 1837, when she was finally launched. This massive warship, which could carry a complement of 1100 officers and men, never saw any action and remained in ordinary until 1842 when she was designated a receiving ship for the Norfolk Navy Yard. At the beginning of the Civil War, *Pennsylvania* was burned to prevent her from being used by the Confederates.

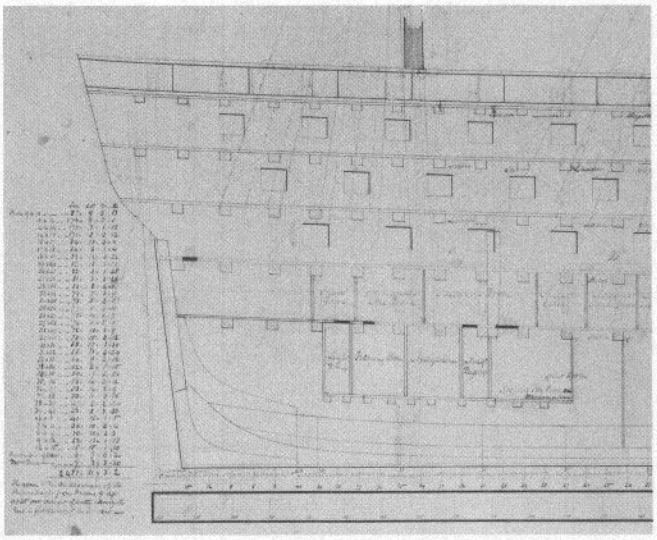
References: *NR* (1833): 76; *DANFS*, V: 250; *ASN*: 338-39, 371-74; *HASS*: 117, 128; *MS*, V: 2761-62.

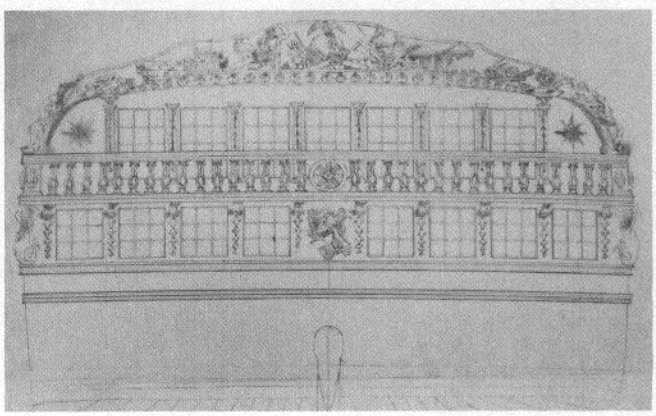
Holdings:
14 plans [1816-37?] + 1 specification book (1827)
FI L90.43.43-56, .506

Description: Several drawings detailing the sail plan, stowage tanks, deck plans, and launching plan, along with various hull sections, and one drawing of the stern carvings. Most are working drawings with handwritten construction notes. A few are initialed by John Lenthall who was at the Philadelphia Navy Yard as the ship was nearing completion.



Pennsylvania *(above) represented an attempt to rival the powerful three- and four-deck ships of foreign navies. Plans of the inboard profile and stern carvings (below) reflect the varied uses of wood which was the standard construction material for shipbuilding in this era. Watercolor by W. A. K. Martin, c. 1850s, PMM Collection (647/70.52.20); Drawings: Lenthall Collection of FI at PMM (L90.43.44 and .48).*





Dolphin

Schooner
Dimensions: l. 88′; b. 23′; dph. 10′; dr. 12′
Tonnage: 198 gross
Launch: 23 June 1821
Owner: U.S. Navy

History: In the early 1820s, pirating was increasing dramatically in the West Indies. In order to deal with this threat to American merchant shipping, the United States government decided to construct several new schooners. *Dolphin*, which carried 10 guns, was built at the Philadelphia Navy Yard. She cruised in the Pacific her entire career until 1835, when she was declared unseaworthy and sold.

References: *NR* (1824): 27; *DANFS*, II: 284; *ASN*: 324-26; *HASS*: 114; *MS*, V: 2762; *SSS*: 215.

Holdings:
2 plans [1821?]
FI L90.43.57-58

Description: Sheer, half breadth, and body plans, one with the annotation, "U.S. Schooner *Dolphin*/Built in Phil. in 1821."

Group 2: John Lenthall

242 plans (1823-74)
L90.43.59-300

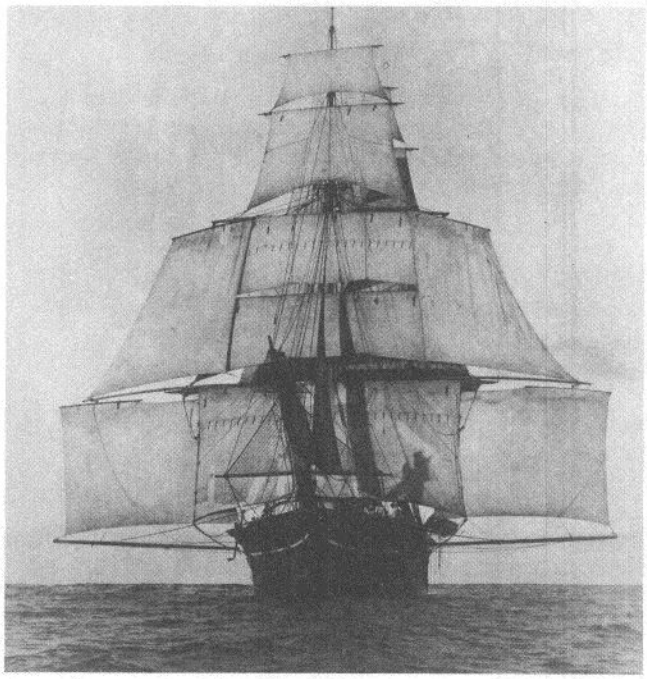
Group 2 contains plans, drawings, and diagrams detailing the work and professional interests of John Lenthall from the time he began his apprenticeship in the 1820s up through his first years of retirement. Included are designs for hulls built under Lenthall's direction, surveys of ships being evaluated for repair, and lines drawings of vessels which Lenthall was interested in recording for personal reference. A number of the drawings depict merchant vessels, reflecting Lenthall's awareness of innovations being explored by commercial builders, including steam engines. Also of note are diagrams for ordnance. The presence in Lenthall's library of works by the French artillerist, Henri-Joseph Paixhans (1822, 1825), suggests that Lenthall was familiar with experimentation underway to develop shell guns to replace solid shot. Accounts of the construction of the frigate *Mississippi* appearing in the Philadelphia *Public Ledger* (undated article, June 1841, PMM Library clipping file) indicate that this early addition to America's steam navy was equipped with Paixhans guns.

Brig

History: A merchant brig constructed around 1823.

Holdings:
1 plan (1823)
FI L90.43.59

Description: Sheer, half breadth, and body plan with a note, "No. 1/The first draws made by JL in 1823," probably drawn in the vicinity of Washington, DC.



Sloop of war Saratoga, *launched 1842, was part of the last class of sailing vessels constructed by the U.S. Navy before the advent of steam propulsion. PMM Collection.*

Mount Vernon

Steamboat
Dimensions: lbp. 100′; b. 20′; dph. 7′ (plan)
Launch: 1824

Holdings:
1 plan (1824)
FI L90.43.60

Description: Sheer, half breadth, and body plan listing the dimensions. Handwritten note, "Built in 1824/Run on the Potomac." Possibly the merchant steam vessel, *Mt. Vernon*, listed in William M. Lytle and Forrest R. Holdcamper, *Merchant Steam Vessels of the United States 1790-1868* (New York: Steamship Historical Society of America, 1975), 150.

Silas Richards

Packet Ship
Dimensions: l. 120′; b. 29′; d. 14′
Tonnage: 454 gross
Launch: 1824
Owner: Mr. [?] Keen
History: *Silas Richards* was built by Isaac Webb and Company of New York. She operated on the New York-Liverpool Blue Swallowtail Line from 1824-34, then as a China packet until 1841. The rest of her career was spent as a whaling ship until she was lost in the South Pacific in 1854.
References: MS, II: 1102-03, 1110, 1206, IV: 2160, V: 2783-84.

Holdings:
1 plan [1824?] + 1 photostat of a c. 1824 original plan.
FI L90.43.88-89

Description: The ink-on-paper original is a sheer, half breadth, and body plan. The photostat is labeled, "Draft Plan for Mr. Keen/Ship Laid to be the *Silas Richards* of New York."

John Adams

Frigate
Dimensions: lbp. 139′; b. 32′; dph. 16′
Tonnage: 544 gross
Launch: 5 June 1799
Owner: U.S. Navy
History: *John Adams* was one of five frigates whose construction was funded by various merchants along the East Coast. She was built by the citizens of Charleston, South Carolina, for the United States government. The 28-gun frigate was designed by Josiah Fox and spent the years preceding the War of 1812 sailing in the Mediterranean protecting against the Barbary pirates. After the war, *John Adams* was sent to the West Indies to help control pirating and remained in the Caribbean until 1829 when she was laid up at Norfolk Navy Yard and entirely rebuilt.

References: *NR* (1829): 66; *DANFS*, III: 521; *ASN*: 161, 167; *ROP*: 74.

Holdings:
2 plans (1826)
FI L90.43.61-62

Description: Ink-on-paper drawings of the fore and after body.

Frigate
Dimensions: lbp. 179′; b. 45′; dph. 14′ (plan)

Holdings:
2 plans (1826)
FI L90.43.63-64

Description: Fore and after body plans, one with handwritten notes, "They were put on this large scale in order that the Steamer Frigates 'Merrimack', 'Wabash', and 'Minnesota' might be formed in such manner that the timber on hand could be used without waste. . . ." It is dated 1826, which is very early for steam vessels. It might be an early design that was put on hold because the steam frigates mentioned in the note were not launched until 1855.

Peacock
Sloop of War
Dimensions: lbp. 118′; b. 31′; dph. 14′ (plan)
Tonnage: 559 gross
Launch: 1 November 1828
Owner: U.S. Navy
History: The 18-gun sloop of war *Peacock* was constructed on a design prepared by Samuel Humphreys for the New York Navy Yard. She was supposedly the repaired *Peacock* (1813) but according to Chapelle, she was an entirely new ship (*ASN*, 356). Reasoning behind this was that when the Navy had no funds to construct a new vessel, they often had the ship rebuilt under the guise of being repaired. From 1829-37, *Peacock* made various cruises to the West Indies, South America, and the Far East. Her final assignment was with the Wilkes Exploring Expedition of the South Atlantic and Pacific until wrecked on the Columbia River, Oregon in July 1841.
References: *DANFS*, V: 241; *ASN*: 356-58.

Holdings:
1 photostat of an 1828 original plan + 1 plan [1840-50?]
FI L90.43.65-66

Description: The photostat is a reproduction of an 1828 original sheer, half breadth, and body plan.* The original piece is an ink-on-paper drawing of the fore and after body plan with notes on where built and lost.

Norfolk Boat
Dimensions: lbp. 29′; b. 6′; dph. 2′ (plan)
Launch: 1830

Holdings:
1 plan (1830)
FI L90.43.67

Description: Sheer, half breadth, and body plan with the note, "Norfolk Boat from a model of Com. Barron brought by him from that yard." The reference is to James Barron, Commandant of the Norfolk (Gosport) Navy Yard.

Camel
Launch: [1830?]
History: A type of floating dry dock, the camel is a watertight vessel that is placed underneath a ship; the water is then pumped out and the ship is raised. This camel was used for repairing a 74-gun ship.

Holdings:
3 plans (1830-31, 1834)
FI L90.43.68-70

Description: Sheer, half breadth, and body plans, one with a handwritten note, "Plan of Camel for 74-Gun Sloop." Also an ink-on-paper drawing with the note, "Scale of Tonnage of 74-Gun Ship 1830/Drawn for Plan of Camel."

Brig
Dimensions: lbp. 109′; b. 28′; dph. 19′ (plan)
Launch: 1832

Holdings:
1 photostat of an 1832 original plan.
FI L90.43.71

Description: Photostat of an original sheer, half breadth, and body plan, labeled "same dimensions as the Brig 'Morgan'/ same midship frame but [. . . ?] forward and aft" signed S. Humphreys, 1832.*

Medea
Side-wheel Steamer
Dimensions: l. 173′; br. 31′; dph. 20′ (plan)
Launch: September 1833

Holdings:
4 plans [1833?]
FI L90.43.72-75

Description: Ink-on-paper drawings of the sail and spar plan, displacement curve, and sheer, half breadth, and body plan. Two of the documents are initialed by John Lenthall.

John Marshall
Launch: 1834

Holdings:
1 plan (1834)
FI L90.43.76

Description: Sheer, half breadth, and body plan.

Relief
Storeship
Dimensions: lbp. 109′; b. 30′; dph. 12′
Tonnage: 468 gross
Launch: 14 September 1836
Owner: U.S. Navy
History: In 1833, Congress increased funding for the construction of new vessels for the Navy. Part of the money was used to build new storeships to replace the worn-out ships. *Relief* was designed by Samuel Humphreys and laid down at the Philadelphia Navy Yard. She operated with the United States South Sea Surveying and Exploring Expedition from 1838-40 when she was overhauled. For the next twenty years, *Relief* operated off South America and in the Mediterranean providing supplies to ships. During 1864-66, *Relief* sailed with the Asiatic Squadron; in 1871-77, she served as a supply ship in Washington, DC. She was sold in 1883.
References: *NR* (1840): 68; *DANFS*, VI: 67; *ASN*: 385-89.

Holdings:
10 plans (1835-36) + 1 specification book (1835)
FI L90.43.77-86, .512

Description: Several detailed drawings, mostly ink-on-paper, of the hull sections, various deck plans, and the windlass. Also included are the sail and spar plan, fore and aft body plan, and the launching diagram.

Isabella
Schooner
Dimensions: lbp. 78′; b. 18′; dph. 8′
Tonnage: 109 gross
Launch: 1832
History: According to Chapelle, the schooner *Isabella* was a type of Chesapeake schooner that was used in the West Indies trading industry (*SSS*, 294). *Isabella* was constructed in Baltimore, Maryland.
Reference: *SSS*: 291-95.

Holdings:
1 plan [1832?]
FI L90.43.90

Description: Sheer, half breadth, and body plan with the annotation, "A Fast Baltimore Brig."

Georgiana
Sailing Ship
Dimensions: l. 130′; br. 30′ (plan)
Tonnage: 554 gross
Launch: 1836
Owner: Heckschers family
History: *Georgiana* was constructed in Philadelphia for a New York merchant family.
Reference: *MS*, V: 2767.

Holdings:
1 plan (1836)
FI L90.43.91

Description: Pencil-on-paper drawing of the sheer and half breadth plan, with the annotation, "Built by [Vogle?] & Pearson Phil. 1836/Sailed out of New [York?]."

Dolphin
Brig
Dimensions: l. 88′; b. 25′; dph. 11′; dr. 13′
Tonnage: 224 gross
Launch: 17 June 1836
Owner: U.S. Navy
History: The 10-gun brig *Dolphin* was designed by Samuel Humphreys at the New York Navy Yard. She was considered by many to be one of the fastest sailing ships in the Navy. *Dolphin* served mainly in the African Squadron protecting American commerce and intercepting slave ships until she was laid up at the Norfolk Navy Yard in 1860. She was set afire the following year to prevent her capture by Confederate forces.
References: *NR* (1840): 68; *DANFS*, II: 284; *ASN*: 392; *HASS*: 118, 128.

Holdings:
1 plan [1836?]
FI L90.43.92

Description: Detailed tracing, drawn with ink, of the sail and spar plan.

Flora
Frigate
Launch: [1837?]
History: The 36-gun frigate *Flora* was probably constructed by Samuel Humphreys, but no record of a frigate with this name can be found in the *Navy Register* during this period.

Holdings:
1 plan (1837)
FI L90.43.93

Description: Inboard profile of the "Frigate *Flora* of 36 guns/ Plymouth 23 September 1837/Sam Humphreys." Documentation on this ship could not be located in American or British registries.

La Pique
Frigate
Dimensions: l. 160′; br. 48′; dph. 14′ (plan)
Launch: [1837?]

Holdings:
2 plans [1837?]
FI L90.43.93-94

Description: Fore and aft body plans giving the dimensions of the vessel.

Congress
Frigate
Dimensions: lbp. 179′; b. 46′; dr. 22′ (plan)
Tonnage: 1,867 displacement
Launch: 16 August 1841
Owner: U.S. Navy
History: *Congress*, constructed at the Portsmouth Navy Yard on a design by Samuel Humphreys was the largest sailing frigate built for the United States Navy. The 44-gun ship sailed from 1842-53 with the Pacific and Brazilian Squadrons and in the Mediterranean Sea. During the Civil War, she was assigned to the Atlantic Blockading Squadron, but on March 8, 1862, she was attacked by the Confederate ironclad *Virginia* and sank.
References: *NR* (1845): 66; *DANFS*, II: 163; *ASN*: 402, 404-05; *HASS*: 117.

Holdings:
7 plans (1837) + 1 specification book (1839)
FI L90.43.95-101, .508

Description: Several paper and tracing drawings, mostly of the fore and aft body, but also a sail, spar, and rigging plan. A couple of the drawings are signed by John Lenthall.

Cyane
Sloop of War
Dimensions: l. 132′; b. 35′; dph. 15′; dr. 16′
Tonnage: 792 gross
Launch: 2 December 1837
Owner: U.S. Navy
History: *Cyane*, an 18-gun ship designed by Samuel Humphreys, was laid down at the Boston Navy Yard. *Cyane* spent most of her career sailing in the Pacific until she was laid up in 1871 and sold in 1887.
References: *NR* (1840): 67; *DANFS*, II: 226; *ASN*: 397-99; *HASS*: 117, 128.

Holdings:
3 plans (1837)
FI L90.43.102-104

Description: Sheer, half breadth, and body plan, with one initialed "JL."

Levant
Sloop of War
Dimensions: l. 132′; b. 34′; dph. 15′; dr. 16′
Tonnage: 792 gross
Launch: 28 December 1837
Owner: U.S. Navy
History: *Levant* sailed the Pacific station until September 1860, when she left Hawaii on a course for Panama and never arrived. She was lost at sea with all hands. The 18-gun sloop was designed by Samuel Humphreys and launched from the New York Navy Yard.
References: *NR* (1840): 67; *DANFS*, IV: 95-96; *ASN*: 397-99; *HASS*: 117, 128.

Holdings:
1 plan (1837)
FI L90.43.103

Description: Pencil and ink on paper drawing of the body plan.

City Ice Boat
Iceboat
Dimensions: l. 170′; b. 26′; dph. 12′ (plan)
Launch: 1837
Owner: City of Philadelphia

Holdings:
3 plans (1837)
FI L90.43.113-115

Description: Sheer and half breadth plan, fore and aft body plan, and "Scale of Tonnage for Iceboat/Philadelphia June 10, 1837/John Lenthall."

Dale
Sloop of War
Dimensions: l. 117′; b. 32′; dph. 15′; dr. 15′
Tonnage: 566 gross
Launch: 8 October 1839
Owner: U.S. Navy
In 1838, the United States Navy decided to construct a new class of ships which were rated as 16-gun sloops. The sloops, named *Decatur*, *Marion*, *Yorktown*, *Dale*, and *Preble* were lighter ships and were better equipped to sail to distant stations. They could also carry a heavier armament. The design of this new class was given to John Lenthall to complete.
History: *Dale* was constructed at the Philadelphia Navy Yard and spent the early part of her career sailing in the Pacific and African waters protecting American commerce and trying to eliminate the African slave trade. During the latter half of her career, she operated as a training and receiving ship until transferred to the Maryland Naval Militia in 1895. *Dale* was renamed *Oriole* in 1904 and sold in 1906.
References: *NR* (1840): 67; *DANFS*, II: 233; *ASN*: 402; *HASS*: 118.

Holdings:
8 plans (1838-39) + 2 specification books (1837, 1839)
FI L90.43.105-112, .514-515

Description: Sheer, half breadth, and body plans along with drafts of the main deck and rigging plan. Several are signed "J Lenthall."

Preble

Sloop of War
Dimensions: l. 117′; b. 32′; dph. 15′
Tonnage: 566 gross
Launch: 13 June 1839
Owner: U.S. Navy
History: The sloop *Preble*, built by the Portsmouth Navy Yard, sailed in the Mediterranean, Atlantic, Pacific, and East Indies on various missions for the United States Navy between 1840-60. During the Civil War, *Preble* served in the Gulf Blockading Squadron until she caught fire and sank off Florida in 1863.
References: *NR* (1840): 67; *DANFS*, V: 368; *ASN*: 402; *HASS*: 118; *MS*, V: 3064.

Holdings:
4 plans (1838-39) + 1 specification book (1837)
FI L90.43.107-108, .111-112, .514

Description: Sheer, half breadth, and body plans.

Clarion

Bark
Dimensions: lbp. 90′; b. 23′; dph. 13′ (plan)
Tonnage: 226 gross
Launch: 1838
Owner: Joseph P. Vogels
History: The ship *Clarion* was an important vessel in the evolution of screw propulsion, for she was the first screw steamer introduced into either merchant or naval service and the first to cross the Atlantic with this mode of propulsion. Originally, the *Clarion* was designed as a three-mast sailing bark but, in 1840, she was purchased and converted into a twin-screw steamship using the Ericsson propeller. She had a unique arrangement in that the twin screws were connected by external shafts. The success of the steamer *Clarion* helped prod the Navy into building the steam frigate *Princeton*.
References: *AS*: 112-13; *ASA*: 83-86; *MS*, II: 1376; *OSN*: 22.

Holdings:
1 plan [1838?]
FI L90.43.116

Description: Sheer, half breadth, and body plan with a handwritten note, "Custom House Dimensions. . . . "

Shenandoah

Packet Ship
Dimensions: l. 143′; b. 32′; dph. 21′
Tonnage: 738 gross
Launch: 1840
History: *Shenandoah*, one of many packet ships that sailed between Liverpool and Philadelphia, was constructed by John Vaughan and Sons, Philadelphia.

Holdings:
2 plans (1840)
FI L90.43.117-118

Description: Detailed sail and spar plan along with a sheer, half breadth, and body plan. Both have the annotation, "Built by John Vaughn [sic] & Sons/Philadelphia."

Plan for Forge (1841)

Holdings:
1 plan (1842)
FI L90.43.119

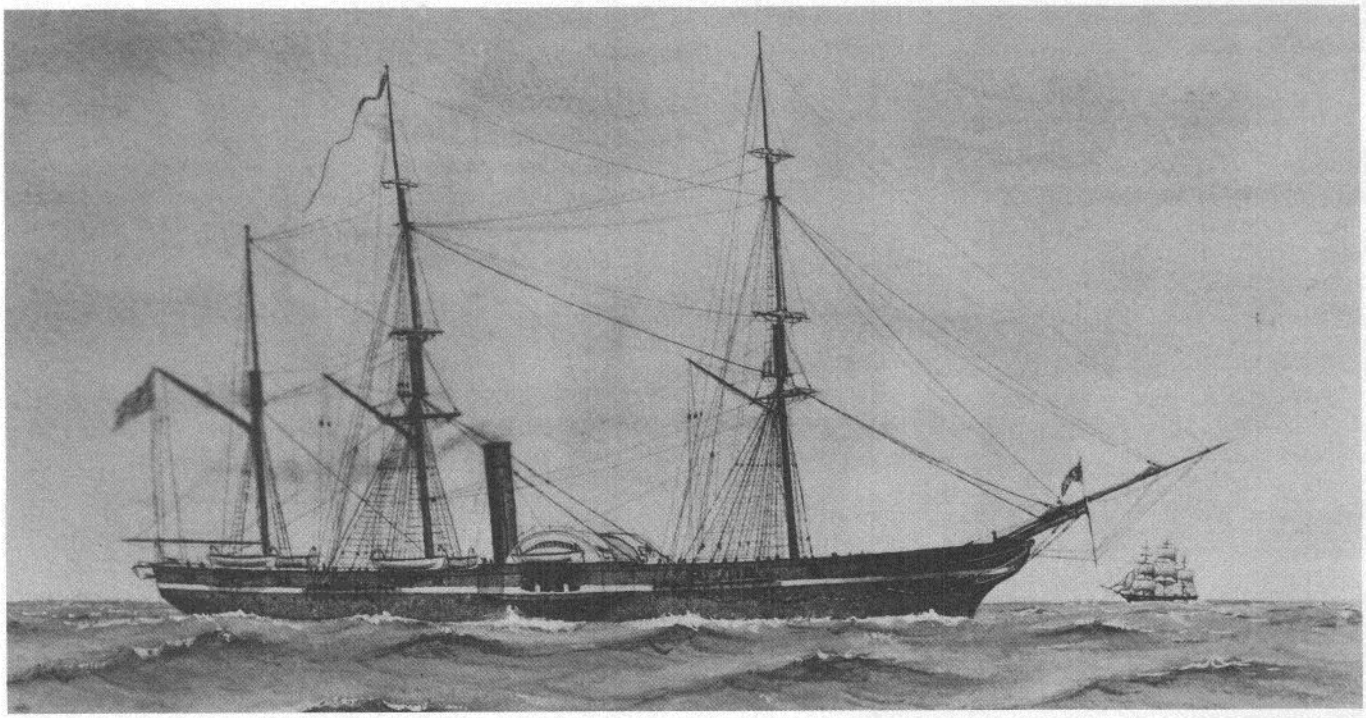
Description: Colored ink on tracing paper with notes in French. Contains handwritten annotation, "*Machine pour forger les grosse piéces inventée au Creusot en 1841*" signed James L. Cox, 15 April 1842. Roughly translated, "Machine for forging large pieces invented by Creusot in 1841."

Brig

Dimensions: l. 100′; b. 25′; dph. 11′ (plan)
Launch: 1842
History: This plan might be for the brigs *Somers* or *Bainbridge*, built and launched in 1842, for the dimensions match up.

Holdings:
1 plan (1842)
FI L90.43.120

Description: Beautiful sail, spar, and rigging plan, ink on tracing paper, with dimensions and signed "J Lenthall."



Mississippi. *Like other early naval steam vessels, the ship was equipped with sails to save fuel and to provide propulsion in case the engines failed. PMM Collection.*

Mississippi

Frigate
Dimensions: l. 229′; b. 40′; dph. 23′; dr. 19′
Tonnage: 3,220 displacement
Launch: 5 May 1841
Owner: U.S. Navy

History: The 10-gun side-wheel steamer *Mississippi* was designed by Samuel Humphreys and John Lenthall and constructed at the Philadelphia Navy Yard under Lenthall's supervision. Her engine, built by Merrick & Towne, could obtain a maximum speed of 10 knots; at 229 feet, she was the longest ship in the Navy. She sailed with the Home and West Indian Squadrons until the start of the Mexican War when she became the flagship of Commodore Matthew C. Perry in the Gulf of Mexico. From 1852-54, *Mississippi* made several important stops in the Far East including bringing Commodore Perry to Japan to negotiate a trade treaty with the Japanese. During the Civil War, *Mississippi* was assigned to Admiral Farragut's squadron to attack New Orleans. When ordered upstream in March 1863, however, she ran aground. When she could not free herself, she was set afire to prevent her capture by Confederate forces.

References: *NR* (1845): 67; *DANFS*, VI: 387-88; *AS*: 329-30; *MS*, V: 2762; *NUS*: 30-35; *OSN*: 11-16, 173.

Holdings:
15 plans (1841, 1848) + 4 specification books (1837-41)
FI L90.43.121-134, .298, .510-511, .513, .516

Description: All but one of the plans are from 1841 and they detail construction of the frigate, including information about the size and location of the paddle wheel. There is a nice ink-on-paper drawing of the sail and spar plan and a detailed drawing of the 8″ gun carriage.

Missouri

Frigate
Dimensions: l. 229′; b. 40′; dr. 19′
Tonnage: 3,220 displacement
Launch: 7 January 1841
Owner: U.S. Navy

History: *Missouri*, a 10-gun side-wheel steam frigate, was constructed at the New York Navy Yard. *Missouri* along with her sister ship *Mississippi* helped demonstrate the advantage of steam propulsion to the government. Unfortunately, just two years after her launch, *Missouri* caught fire off Gibraltar and sunk.

References: *DANFS*, IV: 390-91; *OSN*: 11-15, 168.

Holdings:
1 plan [1841?]
FI L90.43.294

Description: Plan of the crank hatch on the gun deck.

Scale of Tonnage

Holdings:
1 plan [1840-50?]
FI L90.43.41

Description: A chart showing the displacement curve of the following ships (1819-41): *North Carolina*, *Columbus*, *Dale*, *Preble*, *Relief*, *Congress*, *Mississippi*, *Missouri*, *Cyane*, *Levant*, *Porpoise*, and *Dolphin*.

Truxtun

Brig
Dimensions: lbp. 102′; b. 28′; dph. 13′; dr. 12′
Tonnage: 329 gross
Launch: 16 April 1842
Owner: U.S. Navy
History: Realizing that there was a shortage of small sailing vessels, the Navy appointed Francis Grice and Samuel Humphreys to design a few sailing brigs. *Truxtun*, designed and supervised by Grice at the Norfolk Navy Yard, was a small, powerful sailing brig. *Truxtun* sailed in the Mediterranean until 1846, when the United States and Mexico went to war. She was operating off the coast of Mexico when she got caught on a reef and was unable to free herself. *Truxtun* was set afire to prevent the Mexicans from using her.
References: *NR* (1845): 67; *DANFS*, VII: 315; *ASN*: 433-36; *HASS*: 121, 128.

Holdings:
1 plan (1843)
FI L90.43.135

Description: Sail and spar plan signed by John Lenthall.

Saratoga

Sloop of War
Dimensions: lbp. 146′; b. 35′; dph. 16′
Tonnage: 882 gross
Launch: 26 July 1842
Owner: U.S. Navy
History: The 20-gun sloop *Saratoga* was the first of a new class of warships that were designed to carry heavy armament. Considered large for the sloop of war class, she proved to be a fast sailer. She was built at the Portsmouth Navy Yard and sailed in the South Atlantic assisting and protecting American merchant ships. She also sailed in the Far East to help open up the trade route to Japan. Beginning in 1876, she served as a training ship for the Navy until sold in 1907.
References: *NR* (1845): 66; *DANFS*, VI: 336-39; *ASN*: 427, 429; *HASS*: 118, 120, 129.

Holdings:
4 plans (1842-43)
FI L90.43.136-139

Description: The drawings for this vessel include an inboard profile, deck plan, sail and spar plan, and a sheer, half breadth, and body plan.

Raritan

Frigate
Dimensions: lbp. 174′; b. 45′; dph. 14′; dr. 22′
Tonnage: 1,726 gross
Launch: 13 June 1843
Owner: U.S. Navy
History: *Raritan* was laid down at the Philadelphia Navy Yard in 1820 and launched in 1843. Her construction was authorized by Congress at the end of the War of 1812, but delays prevented her from being launched until 23 years later. Chapelle points out in his book *The History of the American Sailing Navy* (338) that the delay of the 44-gun *Raritan* was probably caused by the building of the 120-gun *Philadelphia*. The massive warship took all of the ship carpenters away from other projects like the *Raritan*. She sailed with the Home Squadron from 1844-48 and as the flagship of the West Indies Squadron from 1849-52. She was laid up until 1861, when she was burned to prevent her capture by the Confederates.
References: *NR* (1845): 66; *DANFS*, VI: 35-6; *ASN*: 457; *HASS*: 114; *MS*, V: 2761-62.

Holdings:
9 plans (1842-44)
FI L90.43.140-148

Description: Most of the documentation focuses on the deck layout and arrangements. Almost all are ink-on-paper with John Lenthall's signature on two of the plans.

Lawrence

Brig
Dimensions: lbp. 109′; b. 26′; dph. 13′; dr. 16′
Tonnage: 364 gross
Launch: 1 August 1843
Owner: U.S. Navy
History: *Lawrence* had a very short career with the Navy due to design flaws: her draft was too deep and her cargo space was insufficient to carry adequate supplies. Her one mission during the Mexican War was to provide protection for American shipping. The brig was decommissioned in 1846 and sold shortly thereafter.
References: *NR* (1845): 67; *DANFS*, V: 331; *HASS*: 124-25; *SSS*: 315-17.

Holdings:
3 photostats of 1843 and 1846 (?) original plans.
FI L90.43.149-151

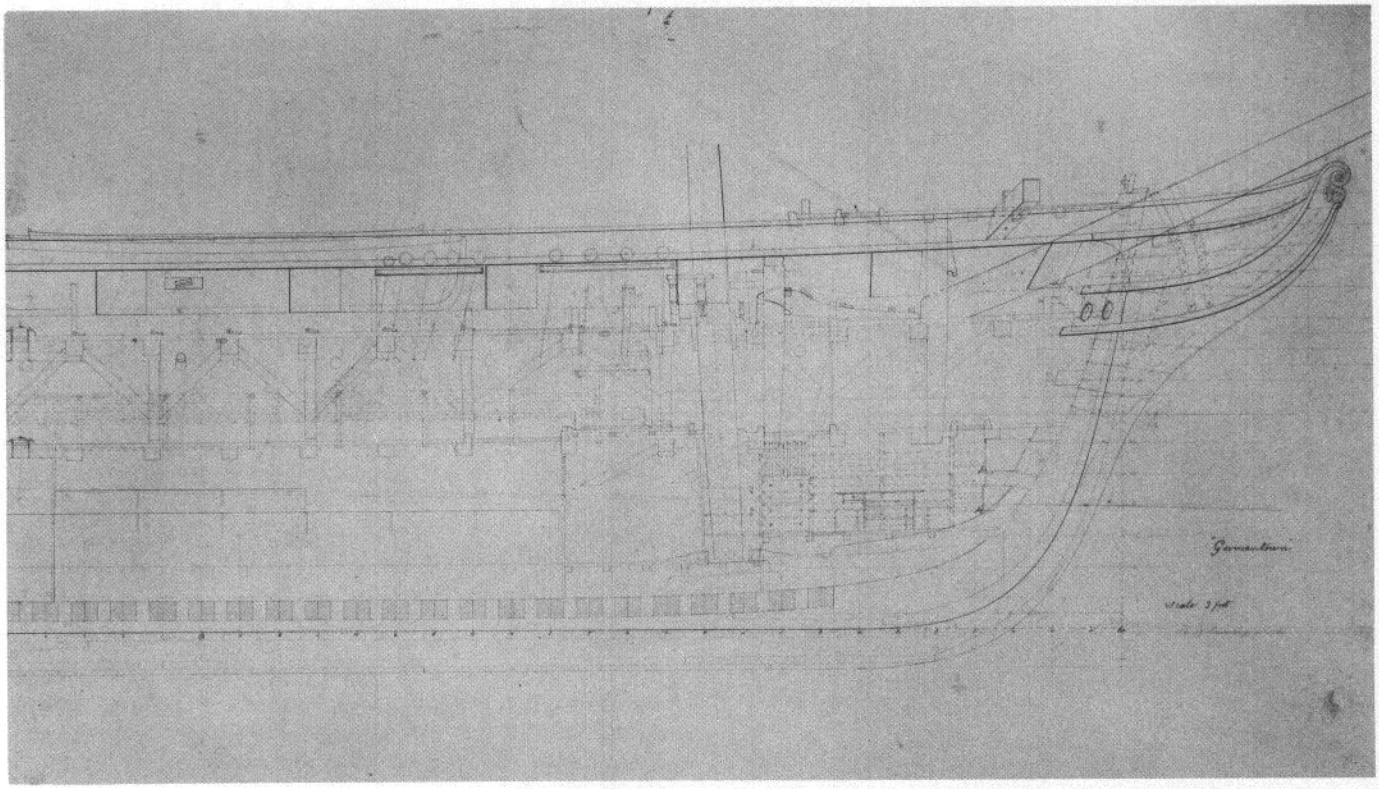
Description: These copies of original documents include an inboard profile and deck plan, a sheer and half breadth plan, and a body plan.*

Plymouth

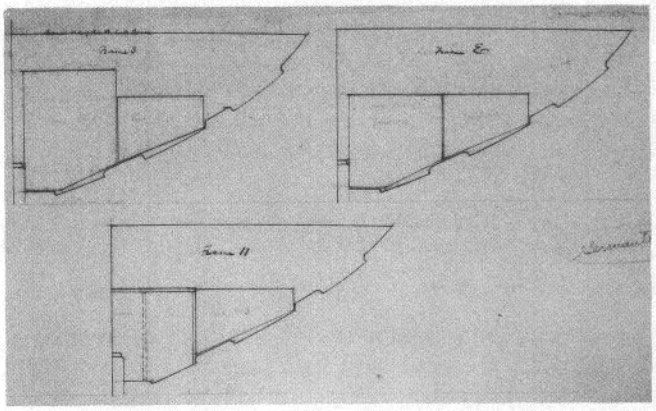
Sloop of War
Dimensions: lbp. 147′; b. 38′; dph. 17′
Tonnage: 189 gross
Launch: 1843
Owner: U.S. Navy
History: *Plymouth*, a 20-gun sloop of war was designed by Samuel M. Pook and built at the Boston Navy Yard. *Plymouth* served mainly in the East Indies and the Far East. In 1857, she was used to test Commander John Dahlgren's theory that a few heavy guns (9- & 11-inch bore guns) would be more effective than numerous smaller guns. In 1861, she was burned at Norfolk to prevent her capture by the Confederate forces.
References: *NR* (1845): 66; *DANFS*, V: 331; *AS*: 278; *ASN*: 438-39; *HASS*: 120, 129.

Holdings:
1 plan (1843)
FI L90.43.152

Description: A tracing detailing the carriage for a 32-pound medium gun with the annotation, "Navy Yard/Boston/September 1843."



Plans for Germantown, *1843-46, reflect the increasing complexity of naval-architectural plans which were now more likely to include not only lines but also details such as the inboard profile (above) and framing diagram shown below. Lenthall Collection of FI at PMM (L90.43.162 and .168).*



Germantown

Sloop of War
Dimensions: lbp. 150′; b. 36′; dph. 16′
Tonnage: 939 gross
Launch: 22 August 1846
Owner: U.S. Navy
History: The 20-gun sloop of war was designed by John Lenthall and constructed at the Philadelphia Navy Yard. *Germantown* served under Commodore Perry during the Mexican War and after the war she was stationed in the Caribbean and the Far East to protect American shipping. *Germantown* was sunk when Union forces evacuated the Norfolk Navy Yard in 1861. She was raised in 1863 and sold for scrap.
References: *NR* (1850): 115; *DANFS*, III: 91; *AS*: 342; *ASN*: 440, 444; *MS*, V: 2761-62.

Holdings:
33 plans (1843-46) + 5 photostats of 1843 and 1846 original plans.
FI L90.43.153-190

Description: One of the larger sets of plans in the Lenthall collection, this series contains mainly ink-on-paper drawings for the arrangement of the decks, sail and spar plans, sheer, half breadth, and body plans, inboard profile designs, and plans for the cutter and launch boats. Also included are drawings for the armament of the warship. Several plans are signed by John Lenthall. An 1844 sail and spar drawing is signed Richard Powell, Draftsman. The file includes several photostats: an 1843 sheer, half breadth, and body plan signed by John Lenthall and Richard Powell, draftsman (.153); load line, c. 1843 (.154); deck layout, 1846 (.170); berth deck, 1846 (.171); sail and spar plan, 1844 (.175).*

Princeton

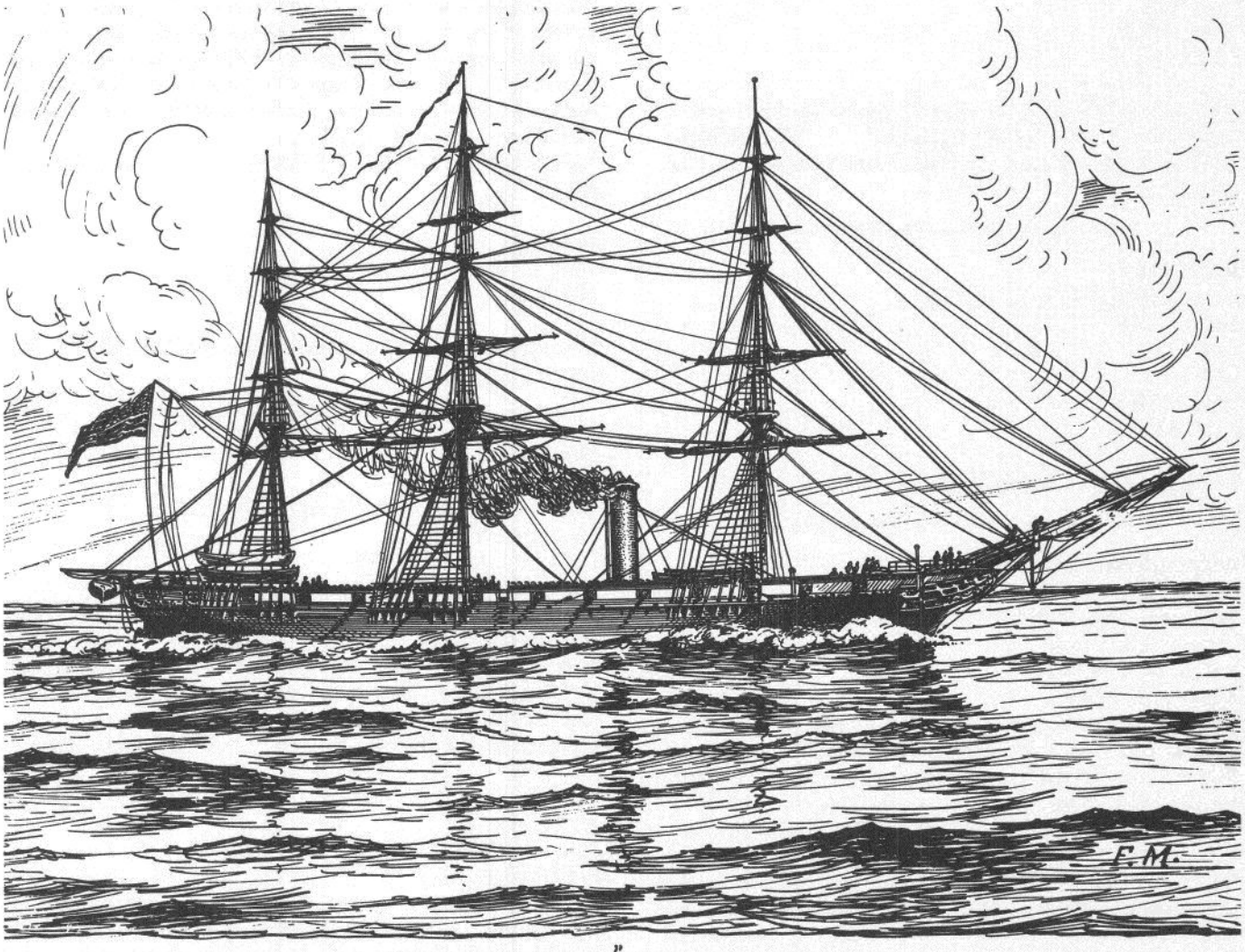
Frigate
Dimensions: l. 164′; b. 30′; dr. 17′
Tonnage: 954 displacement
Launch: 5 September 1843
Owner: U.S. Navy

History: During the 1840s, most of the Navy Department felt that wooden ships propelled by side-wheels were more maneuverable ships. Several American naval officers and engineers disagreed and felt that screw steamships were better because the vulnerable machinery was placed below the water line, out of danger. Captain R. F. Stockton managed to convince the United States government to construct a screw propeller-driven steamer as one of the three steamers authorized by Congress in 1839. Named *Princeton*, after Stockton's home town, her hull was designed by Captain Stockton and the machinery designed by John Ericsson. She was constructed under the direction of John Lenthall at the Philadelphia Navy Yard. Although England had screw steamers converted from sailing ships, *Princeton* was the world's first warship designed and built as a screw steamer. While attached to various squadrons around the world, she proved to be an excellent vessel and efficient cruiser. Unfortunately there was a great tragedy aboard the screw steamer. While test-firing an experimental 12-inch bore gun (nicknamed the "Peacemaker"), it exploded, killing the secretary of state and the secretary of the navy and four others as well as wounding twenty. However, despite this tragedy, *Princeton* remains a pioneer vessel in the evolution of steam propulsion.

References: *NR* (1845): 67; *DANFS*, V: 383; *AS*: 232-33; *MS*, II: 1376, V: 2761-63; *NUS*: 32-33; *OSN*: 21-25, 168; *SNUS*: 61-74.

Holdings:
16 plans (1842-46, 1848)
FI L90.43.191-206

Description: The plans for the frigate *Princeton* consist mainly of sail and mast plans, armament (8″ and 12″ guns) designs, deck arrangements, and a couple of inboard profiles. There is also a draft of the engine machinery which might be of interest to people studying the evolution of screw propulsion.



U. S. Steamer "Princeton". 1851.

Princeton, *one of three steam vessels of war built under an 1839 Congressional authorization. Constructed under Lenthall's direction, the ship incorporated a screw propeller designed by the Swedish engineer, John Ericsson. PMM Collection.*

Burrows
Brig
Dimensions: lbp. 126′; b. 30′; dph. 14′ (plan)
History: In 1845, the United States government proposed to construct a large clipper brig to be named *Burrows*. Samuel Humphreys had Richard Powell, an assistant of John Lenthall at Philadelphia, design the proposed brig. The ship never came into existence because the advent of steamships made the brig obsolete.
Reference: *ASN*: 458.

Holdings:
1 plan [1845?]
FI L90.43.87

Description: Sail and spar plan, with the annotation, "Not Built JL."

Survey Boat
Dimensions: l. 22′; b. 5′; d. 2′ (plan)
Launch: [1844?]

Holdings:
1 plan (1844)
FI L90.43.207

Description: Sheer, half breadth, and body plan with a handwritten note, "Surveying Boat [. . . ?]/Lieut Blake 1844." Also on the plan are dimensions and construction notes.

Beach Boat
Dimensions: l. 40′; b. 12′; dph. 4′
Launch: 1846

Holdings:
1 plan (1846)
FI L90.43.208

Description: Sheer, half breadth, and body plan.

Independence (Razee)
Frigate
Dimensions: lbp. 188′; b. 51′; dph. 14′ (plan)
Tonnage: 2,257 gross
Launch: 22 June 1814
Owner: U.S. Navy
History: *Independence* was originally built as a 74-gun ship of the line, but when fully loaded, she only had a few feet of freeboard between the bottom of the gun ports and the waterline. In 1836, it was decided to have the upper deck removed, or razed into a 54-gun frigate. As a ship of the line, she was not a very successful fighting ship, but as a razee, she became one of the swiftest and most powerful frigates in the Navy. During her later years, she sailed in the Pacific and Mediterranean stations protecting American commerce. From 1857-1912, she served as a receiving ship until broken up in 1914. Altogether, *Independence* served the United States Navy for over 98 years.
References: *NR* (1840): 66; *DANFS*, III: 424-25; *ASN*: 315, 392-97; *HASS*: 111.

Holdings:
1 plan (1852) + 3 photostats of 1844, 1850, c. 1852 original plans.
FI L90.43.209-212

Description: The original is a sheer, half breadth, and body plan. One of the photostats is a sheer, half breadth, and body plan, the other two show the sail and spar plan.* These drawings were probably made when the ship was decommissioned or placed in ordinary.

Somers
Brig
Dimensions: lbp. 100′; b. 25′; dph. 11′
Tonnage: 259 gross
Launch: 16 April 1842
Owner: U.S. Navy
History: The 10-gun brig was designed by Samuel Humphreys and based on his 1834 successful design of the brigs *Dolphin* and *Porpoise*. Humphreys designed her to be an extremely fast brig. In 1843 a mutiny was attempted aboard the brig *Somers* by Midshipman Philip Spencer, son of the Secretary of War, which resulted in his hanging. *Somers* capsized a few years later during the Mexican War while chasing a blockade runner off Vera Cruz.
References: *NR* (1845): 67; *DANFS*, VI: 549; *ASN*: 430-33; *HASS*: 121, 128.

Holdings:
3 plans (1844)
FI L90.43.213-215

Description: Two sail and spar plans and a detail of a 32-pound gun carriage.

Southampton
Storeship
Dimensions: l. 156′; b. 27′; dph. 17′; dr. 13′
Tonnage: 567 gross
Launch: 22 January 1845
Owner: U.S. Navy
History: *Southampton* was originally a side-wheel steamer laid down at the Norfolk Navy Yard but was converted into a storeship when purchased by the Navy. She operated mainly in the Pacific supplying ships until decommissioned in 1855 and sold.
References: *NR* (1845): 66; *DANFS*, VI: 564; *ASN*: 458-59; *OSN*: 18.

Holdings:
2 plans (1845)
FI L90.43.216-217

Description: Pencil-on-paper drawings of the sheer, half breadth, and body plan and a hull section detailing the paddle wheel enclosure.

Perry
Brig
Dimensions: lbp. 105′; b. 25′; dph. 12′; dr. 13′
Tonnage: 280 gross
Launch: May 1843
Owner: U.S. Navy
History: The 10-gun brig was designed by Naval Constructor Francis Grice and laid down at the Norfolk Navy Yard. She was based on the Baltimore clipper and was considered by many to be the fastest sailing ship in the Navy. *Perry* served off the African coast to suppress the African slave trade and in the Pacific protecting American shipping. During the Civil War, she served with various blockading squadrons until decommissioned in 1865 and sold.
References: *NR* (1845): 67; *DANFS*, V: 268; *ASN*: 450-52; *HASS*: 121, 124; *SSS*: 318.

Holdings:
4 plans (1843?, 1846-47)
FI L90.43.218-221

Description: Sail, spar, and mast plans and a displacement table. Two are initialed "J Lenthall 1847"

Washington
Revenue Cutter
Dimensions: l. 91′; b. 22′
Launch: 1837
Owner: U.S. Navy
History: *Washington* was built as a schooner at Baltimore in 1837 but was too unstable, so she was rerigged as a brig. She operated with the Coast Survey from 1840 until 1852, then transferred to the revenue service until seized by the State of Louisiana at the beginning of the Civil War.
References: *DANFS*, VIII: 125; *ASN*: 378-81; *HASS*: 209; *USRC*: 2-9.10.

Holdings:
4 plans (1847)
FI L90.43.223-226

Description: Sheer, half breadth, and body plan of the quarter boats, fore and main mast section, sail and spar plan, and the main and berth deck arrangement with the stowage capacity of the hold. Two plans are signed by John Lenthall.

Tuscarora
Packet Ship
Dimensions: l. 176′; b. 38′; dph. 22′ (plan)
Launch: [1848?]
History: The packet ship *Tuscarora* operated between Philadelphia and Liverpool and was built by John Vaughan and Sons, Philadelphia.

Holdings:
1 plan [1848?]
FI L90.43.227

Description: Sheer and half breadth plan.

Water Witch
Side-wheel Steamer
Dimensions: l. 150′; b. 23′; dph. 11′; dr. 9′
Tonnage: 450 displacement
Launch: 1851
Owner: U.S. Navy
History: *Water Witch* was designed by John Lenthall and built at the Washington Navy Yard. Prior to the Civil War, she operated as part of a survey expedition to South America. But once the Civil War started, she was assigned to the East Gulf Blockading Squadron. She was captured by the Confederates in June 1864 and destroyed a year later to prevent her recapture by Union forces.
References: *DANFS*, VIII: 157-59; *NUS*: 30-31, 34-35; *OSN*: 41-42, 168.

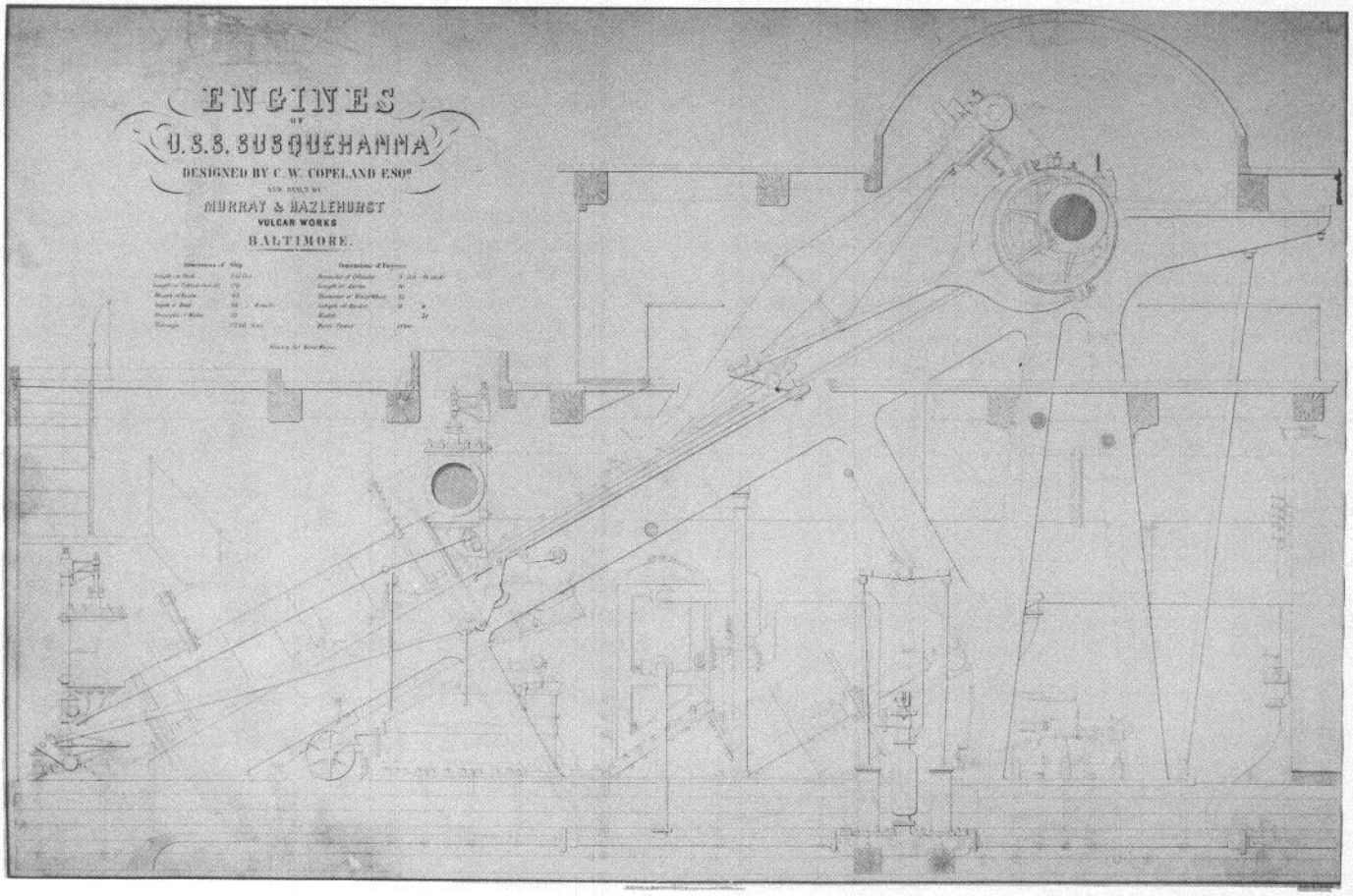
Holdings:
4 plans (1851-52)
FI L90.43.228-231

Description: Ink-on-paper drawings showing the deck arrangements and inboard works, a sail plan, a tracing of the framing plan for the paddle wheel, a spar deck layout with the annotation, "Built in the Washington Navy Yard in 1852/ JL," and a midship section with note, "as altered by Loper."

Fairfield
Sloop of War
Dimensions: l. 127′; b. 33′; dph. 15′; dr. 16′
Tonnage: 700 gross
Launch: 28 June 1828
Owner: U.S. Navy
History: *Fairfield*, built at the New York Navy Yard on a design drafted by Samuel Humphreys, operated mainly in the Pacific and Mediterranean stations. The 18-gun sloop of war was laid up in ordinary at the Norfolk Navy Yard until 1852 when she was broken up.
References: *NR* (1831): 70; *DANFS*, II: 384; *ASN*: 349; *HASS*: 116.

Holdings:
2 plans (1852)
FI L90.43.232-233

Description: Fore and after body plans "as cut in 1825," taken before she was broken up in 1852.



Susquehanna

Sloop
Dimensions: l. 255′; b. 45′; dph. 26′; dr. 18′ (plan)
Tonnage: 3,600 displacement
Launch: 5 April 1850
Owner: U.S. Navy

History: At the end of the Mexican War in 1847, Congress appropriated funds to construct four steamships for the Navy, *Susquehanna*, *Saranac*, *San Jacinto*, and *Powhatan*. Three of the four ships are represented in the Lenthall collection at the Philadelphia Maritime Museum. The side-wheel steamer *Susquehanna* was designed and built by John Lenthall at the Philadelphia Navy Yard and modeled after the steamship *Mississippi*. She served as the flagship of the East India Squadron until 1855 when she became the flagship of the Mediterranean Squadron. During the Civil War, she was part of the Atlantic Blockading Squadron. *Susquehanna* was decommissioned in 1868 and sold for scrap in 1883.

References: *NR* (1850): 115; *DANFS*, VI: 685; *MS*, V: 2762; *NUS*: 30-31, 34-35; *OSN*: 31-35.

Holdings:
22 plans (1847-48, 1850, 1870)
FI L90.43.234-255

Description: This is one of the larger files in the Lenthall collection. Included in this series are ink-on-paper drawings of the body plan, various hull sections, sheer, half breadth, and body plans, inboard profiles. Most of the drawings are signed or initialed by John Lenthall. There is also a highly detailed engraving of the engines which were "Designed by C. W. Copeland Esq./and built by Murray & Hazlehurst/ Vulcan Works/Baltimore" (Lithograph by A. Kollner, Phila., c. 1847-48).

Constellation

Frigate
Dimensions: lbp. 176′; b. 42′; dph. 21′ (plan)
Tonnage: 1,265 displacement
Launch: 7 September 1797
Owner: U.S. Navy
History: *Constellation* was one of six frigates authorized by Congress in 1794. Designed by Joshua Humphreys and built in Baltimore, she was intended to deal with the Barbary pirates. The 36-gun frigate operated in the Mediterranean from 1802-05, blockading and protecting American merchant ships. She helped protect American interests and commerce, put down slave trading, and helped bolster American foreign policy worldwide.
References: *NR* (1824): 27; *DANFS*, II: 170-73; *ASN*: 129-30; Chapelle and Polland, *The* Constellation *Question*; Dunne, "An Inquiry into H. I. Chapelle's Research in Naval History; *FS*: 170, 185; *ROP*: 70.

Holdings:
5 plans (1853) + 3 copies of 1853 and 1904 plans.
FI L90.43.256-263

Description: The original pieces include sheer, half breadth, and body plans, arrangement of spar and gun deck, and an outboard profile. They were made when *Constellation* was surveyed in 1854. Several are signed by John Lenthall. The 1904 copy is an outboard profile.* Interestingly enough, these plans have received considerable attention from maritime scholars and preservationists in a debate over the service performed on the vessel in 1854. Chapelle has argued that the ship was broken up; others maintain she was substantially overhauled but kept much of her overall structure.

Cumberland

Frigate
Dimensions: l. 175′; b. 45′; dr. 21′
Tonnage: 1,726 gross
Launch: 24 May 1842
Owner: U.S. Navy
History: The 44-gun frigate was laid down at the Boston Navy Yard in 1825 and launched in 1842. She served as the flagship of the Mediterranean Squadron in 1843-45 and in 1852-55. She also cruised with the African Squadron putting down slave traders. At the beginning of the Civil war, she escaped the Norfolk Navy Yard just as the other ships were being set afire to prevent capture by the Confederates. She served in the North Atlantic Blockading Squadron until sunk by the Confederate ironclad *Virginia* on March 8, 1862.
References: *NR* (1845): 66; *DANFS*, II: 214-15; *ASN*: 350.

Holdings:
1 plan (1856)
FI L90.43.264

Description: Lines of area drawing, signed "John Lenthall."

San Jacinto

Sloop
Dimensions: l. 234′; b. 37′; dph. 23′; dr. 16′
Tonnage: 1,567 gross
Launch: 16 April 1850
Owner: U.S. Navy
History: The wooden screw steamer was authorized by Congress in 1847 and constructed at the New York Navy Yard. Prior to the outbreak of the Civil War, *San Jacinto* sailed in the Far East but was hampered by inefficient engines which were constantly breaking down. During the Civil War, she was employed in various blockades of the Confederate coastline until wrecked in 1865.
References: *NR* (1850): 115; *DANFS*, VI: 295-97; *NUS*: 32-35; *OSN*: 37-39, 168.

Holdings:
1 plan (1857)
FI L90.43.265

Description: Sheer, half breadth, and body plan, taken "from Mould Loft Dimensions."

Saranac

Sloop of War
Dimensions: l. 215′; b. 37′; dph. 26′; dr. 17′
Tonnage: 1,463 gross
Launch: 14 November 1848
Owner: U.S. Navy
History: The side-wheel steam sloop *Saranac* was a reliable and well constructed ship, with very few repairs unlike the sloop *San Jacinto*. *Saranac* cruised mainly with the Home Squadron and in South America protecting American commerce and interests. She was wrecked en route to Alaska in 1875.
References: *NR* (1850): 115; *DANFS*, VI: 332; *NUS*: 32-35; *OSN*: 35-37, 168.

Holdings:
1 plan (1857)
FI L90.43.265

Description: Sheer, half breadth, and body plan, taken "from Mould Loft Dimensions."

Powder Boat

Dimensions: lbp. 53′; b. 19′; dph. 6′ (plan)
Launch: 1857
History: The powder boat was constructed in New York.

Holdings:
1 plan (1857)
FI L90.43.266

Description: Sheer, half breadth, and body plan drawn with ink-on-linen.

Flying Fish
Schooner
Dimensions: l. 74′; b. 21′; dph. 6′ (plan)
Tonnage: 74 gross
Launch: 1857
History: *Flying Fish* was built in Essex, Massachusetts, by Jeremiah Burnham for a mackerel fisherman who sailed out of Gloucester, Massachusetts. *Flying Fish* was later sold to a seal fisherman who sailed in the Antarctic and operated out of New London, Connecticut.
References: *MVUS* (1869): 84; *AFS*: 94-95.

Holdings:
2 plans (1860)
FI L90.43.267-268

Description: Two blueprints of a sheer, half breadth, and body plan along with a deck arrangement and sail plan.

Nile
Side-wheel Steamer

Holdings:
1 plan [1860-70?]
FI L90.43.269

Description: Sheer, half breadth, and body plan.

Great Eastern
Passenger Steamer
Dimensions: l. 679′; br. 82′; d. 48′
Tonnage: 18,915 gross
Launch: January 1858
Owner: Great Eastern Steamship Company
History: The side-wheel steamer was laid down as *Leviathan* and renamed *Great Eastern* prior to launch. She was an extremely large ship for her time and made numerous voyages between Liverpool and New York. During the years 1886-87, she became an exhibition ship at Liverpool, Dublin, and Greenock. *Great Eastern* was sold for scrap in 1888.
References: *ABS* (1881): 500; *NAS*, v. 2: 579-85.

Holdings:
1 plan (1861)
FI L90.43.270

Description: An engraving of the "Temporary steering gear used on board the *Great Eastern* after the breaking of the rudder shaft in the gale of the 12th September 1861 by Hamilton E. Towle, C. E., Boston."

City of Peking
Passenger Steamer
Dimensions: l. 408′; br. 47′; d. ?
Tonnage: 5,080 gross
Launch: 18 March 1874
Owner: Pacific Mail Steamship Company
City of Peking and her sister ship, *City of Tokio*, were built at John Roach and Sons, Chester, Pennsylvania, because it was the only shipyard in the United States that could handle constructing ships over 5,000 tons.
History: *City of Peking* was chartered by the Army during the Spanish-American War to serve as a troop transport. She was laid up in 1908 and broken up for scrap two years later.
References: *ABS* (1874-75): 185; *APS*: 49-51.

Holdings:
1 plan [1874?]
FI L90.43.271

Description: Ink-on-linen drawing of the launch with figures on displacement at launch.

City of Tokio
Passenger Steamer
Dimensions: l. 408′; br. 47′; d. ?
Tonnage: 5,080 gross
Launch: 13 May 1874
Owner: Pacific Mail Steamship Company
History: *City of Tokio* was wrecked off the coast of Japan in 1885.
References: *ABS* (1874-75): 186; *APS*: 49-51.

Holdings:
1 plan [1874?]
FI L90.43.271

Description: Ink-on-linen drawing of the launch with figures on displacement at launch.

Unidentified Vessels:

Belle Poole [Poule?]
History: No information on this vessel could be located. Possibly the drawing bears some connection to the double-deck frigate, *La Belle Poule*, built by the French in 1834.
Reference: Hough: 200.

Holdings:
1 plan [1830-50?]
FI L90.43.273

Description: Plan of the chain cable nipper.

Sloop of War

Holdings:
1 plan [1830-40?]
FI L90.43.274

Description: Body plan.

Merchant Ship
Dimensions: lbp. 107′; b. 30′; dph. 12′ (plan)

Holdings:
1 photostat of an undated original plan.
FI L90.43.275

Description: Photostat showing the sheer, half breadth, and body plan.*

Brig
Dimensions: lbp. 78′; b. 22′; dph. 12′
Owner: Otto Strawbridge
History: A merchant brig built for Otto Strawbridge.

Holdings:
1 photostat of an undated original plan.
FI L90.43.276

Description: Photostat of a sheer, half breadth, and body plan.*

Detail Plans

Holdings:
7 plans (1827, 1830, 1846, 1848, 1864-65)
FI L90.43.277-283

Description: Assorted drawings, ink on paper, of the spacing of the gun ports on a Turkish ship, various plans of the masts and yards, a bow profile, and a drawing of the after bearings main shaft.

Anchor Hoy
Dimensions: lbp. 44′; b. 19′; d. 4′
Launch: 1848
Owner: Philadelphia Navy Yard
An anchor hoy was a boat used to lay down and pick up moorings. She could also be fitted with water tanks to supply ships.
Reference: *ASN*: 412, 415.

Holdings:
1 plan (1848)
FI L90.43.284

Description: Framing diagram with the note, "Anchor Hoy built at Phila in the spring of 1848."

Ordnance Plans

Holdings:
12 plans (1827, 1830, 1839, [1840-50?], 1846, 1864)
FI L90.43.285-293, .295-297

Description: Several ink-on-paper drawings, mainly of guns and carriages. Three lithographs of the "Spaces required for working different classes of guns on truck/pivot carriages (with muzzle 18 inches inside of centre of port)/Bureau of Ordnance, June 1864." Two plans showing gun carriages, one labeled in French "*Canon á bombe de 8 pounce de 8* [. . . ?]." One detailed drawing, ink on paper, of a 10-inch gun.

Group 3: Civil War Era

204 plans (1862-68)
L90.43.301-504

Group 3 consists of materials pertaining to Civil War naval ships. Included are large project files for light-draught monitors.

Unidentified Plans

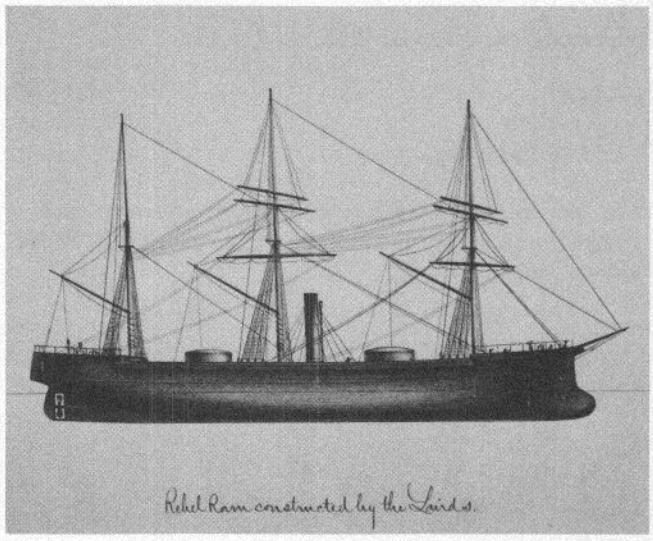
Holdings:
2 plans [1862?-63]
FI L90.43.299-300

Description: Two tracing paper designs of a framing system and a cylinder head.

Confederate Ram (Laird)
History: The Confederates needed to obtain armored warships which were stronger and more seaworthy than the Union monitors. They turned to John Laird and Sons, Birkenhead, England, to build them two ironclads. These ships carried 7-foot underwater rams and were heavily armored.
References: *CN*: 158-59.

Holdings:
1 plan [1862-65?]
FI L90.43.301

Description: An outboard profile engraving of the ram, inscribed, "Rebel Ram constructed by the Lairds."



Laird ram, one of the ironclads built for the Confederate navy by British shipbuilders. Lenthall Collection of FI at PMM (L90.43.301).

Tippecanoe
Monitor
Dimensions: l. 224′; b. 43′; dr. 11′
Tonnage: 2,100 displacement
Launch: 22 December 1864
Owner: U.S. Navy
History: *Tippecanoe*, a single-turreted monitor, was constructed in Ohio. She was renamed *Vesuvius* in June 1869 and *Wyandotte* a couple of months later. She cruised with the North Atlantic Squadron until placed in ordinary in 1885. Reactivated for the Spanish-American War, *Wyandotte* helped protect the waters off Boston, Massachusetts. She was decommissioned and sold for scrap in 1899.
Reference: *DANFS*, VII: 208, VIII: 488-89.

Holdings:
2 plans (1862-63)
FI L90.43.302-303

Description: Detailed colored ink-on-linen drawings of the boilers and smoke pipe. The latter has a stamp "Harbor & River Monitors/General Inspectors Office/Sheet No. 5."

Yazoo
Monitor
Dimensions: l. 225′; b. 45′; dr. 6′
Tonnage: 1,175 displacement
Launch: 8 May 1865
Owner: U.S. Navy
History: The hull for *Yazoo* was built by William Cramp & Sons at Philadelphia, Pennsylvania, with engines by Merrick and Sons. She was built to cruise in shallow water and rivers but due to a design flaw, she spent most of her time laid up at the Philadelphia Navy Yard. The single-turreted monitor was renamed *Tartar* in June 1869 and *Yazoo* again in August 1869.
Reference: *DANFS*, VIII: 523.

Holdings:
1 plan (1863)
FI L90.43.304

Description: A detailed engraving of the motive engines. It has a general inspectors stamp and was engraved by J. Schedler, New York.

Iron Warship
Monitor

Holdings:
5 plans (1863)
FI L90.43.305-309

Description: Ink-on-linen drawings of the side profile and hull section. Ink-on-tracing paper plans of the hatches, boilers, and midship cross section.

Wampanoag
Frigate
Dimensions: l. 355′; b. 45′; dr. 19′
Tonnage: 4,215 displacement
Launch: 15 December 1864
Owner: U.S. Navy
History: *Wampanoag* was a screw frigate constructed at the New York Navy Yard. Designed to be a fast (18 knots) and maneuverable vessel, her mission was to inflict swift damage and escape quickly. Her hull was built like a clipper ship and employed a steam engine built on a highly controversial design. *Wampanoag* cruised in the North Atlantic fleet until decommissioned and renamed *Florida* in 1869. She never saw action again because she was condemned by a naval committee and sold in 1885.
Reference: *DANFS*, VIII: 86-87; *OSN*: 171.

Holdings:
1 plan (1868)
FI L90.43.310

Description: Ink-on-linen drawing of the "Arrangement for Hoisting 'Wampanoag's' Steam Launch."

Manayunk
Monitor
Dimensions: l. 225′; b. 43′; dr. 13′
Tonnage: 2,100 gross
Launch: 18 December 1864
Owner: U.S. Navy
History: *Manayunk*, a monitor built in Pittsburgh, Pennsylvania, was laid up in New Orleans from 1864-71. She was renamed *Ajax* in 1869. *Ajax* cruised for a couple of years with the North Atlantic Squadron but most of her time was spent being moored in Virginia. She was sold in 1899.
References: *DANFS*, IV: 211, I: 17.

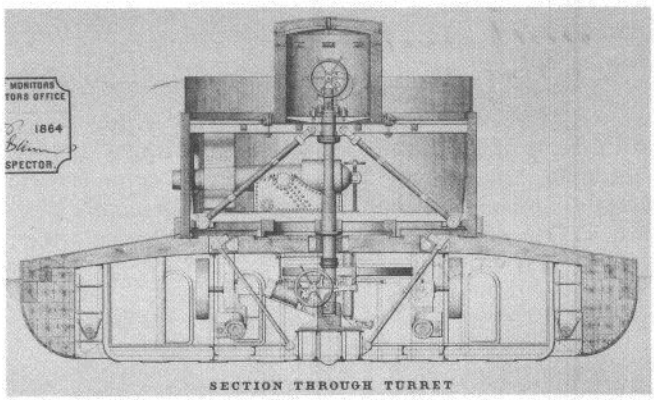
Holdings:
85 plans (1862-64)
FI L90.43.312-396

Description: This series of plans is the second largest in the Lenthall collection. They are divided into 9 folders according to their original drawing number. Almost all drawings are stamped "Harbor & River Monitors/General Inspectors Office" with a sheet number and date. Item (.336), dated December 9, 1862, is signed by Alban Stimers with signature erased. There are a number of details of the turret, including cross sections and positions of portholes. The plans are strong in detailing the machinery for the monitor, including the turret machinery and engines. There are also plans for the water closet and shot lifter for the guns.

Shiloh
Monitor
Dimensions: l. 225′; b. 45′; dph. 9′; dr. 6′
Tonnage: 1,175 displacement
Launch: 14 July 1865
Owner: U.S. Navy
History: *Shiloh* was laid down in St. Louis, Missouri, for the Civil War, but due to an mistake in the design of this monitor class, *Shiloh* had to be modified. Work was suspended at the end of the Civil War but eventually it was decided to launch her. She was put in ordinary most of her career. She was renamed *Iris* in 1869 and sold for scrap in 1874.
Reference: *DANFS*, VI: 487.

Holdings:
109 plans (1863-64)
FI L90.43.397-504, .311

Description: *Shiloh* is the largest plan file in the collection. They are housed in 10 folders and sorted according to their original drawing numbers. Many have printed letters, "Shiloh/Light Draught Monitor" and are stamped "Light Draught Monitors/General Inspectors Office/Sheet No. [with handwritten number and date]" and signed Alban C. Stimers, General Inspector. The types of plans are similar to the monitor *Manayunk*, showing turret plans and details, armor plating, engravings of engine details, steering gears, a plan for the carriage of an 11-inch Dahlgren gun, and joinery work in the wardrooms. Plans for the smoke pipe (.401) note areas "put down with thick white lead and canvas so as to be watertight" and "perfectly watertight joints." Colored ink-on-linen plan of standing berths, metal framing structure, with diagrams showing construction of parts from "composition metal" and wrought iron. There are two copies of a fine engraving showing the general plan, longitudinal section, deck plan, and 4 cross sections (frame 107, 103, through turret, and coal bunker), engraved by J. Schedler, New York.



The monitor Shiloh, *detail of the general plan showing a cross-section through the turret. The turret was designed to be rotated on gears operated by a mechanical crank. Inside were two 11-inch Dahlgren guns. Lenthall Collection of FI at PMM (L90.43.473).*

Group 4: Specification Books

14 vols. (1798-c. 1855)
L90.43.505-518

These pocket-sized, leather-bound manuscript volumes are a form of specification book with text, tables, diagrams, and cover-page inscriptions in John Lenthall's hand. Several of the booklets contain Lenthall's signature or initials. Most of them also have numbers written on the cover.

As far as could be determined, the manuscripts contain no handwritten notations indicating where they were written. However, labels on the inside front cover, identifying some of the books as "Sold by Clark & Raser, 60 Dock Street," provide strong evidence that Lenthall wrote several of the documents in Philadelphia. Clark & Raser was listed as a printer in Philadelphia city directories throughout the late 1820s and the Dock Street address was in the vicinity of the Philadelphia Navy Yard.

The authors have not conclusively determined whether Lenthall wrote the specification books in the year given on the cover or whether he compiled the information and labeled the books at some later time. Close examination suggests that the documents were probably created in or soon after the year given on the covers and were then perhaps labeled by Lenthall later on.

Some of the volumes detail a part of the construction process, such as instructions for cutting timber. Others give dimensions of particular structural elements such as masts. Almost all of the volumes concern framing with the exception of an 1852 document recording capacities for stowing ordnance in each vessel of the U.S. fleet. Although a few of the books were made up for a particular vessel, they could be used as specifications for every ship in the class.

The documentation for the "Sea Steamer"—believed to be the *Mississippi* (built in Philadelphia in 1841), or possibly the *Missouri* (built at the New York Navy Yard in 1841) is especially good because the text includes not only framing but also deck beams, deck planking, and hatch framing. From information such as this, a skilled modelbuilder can construct the inside of a ship as well as outside.

Most of volumes are unpaginated; the number of pages is approximate.

Masts and Spars
Ms., 20 pages. 1798.
"Rate Book/Masts & Spars for the Year 1798 as Agreed upon by the different mastmakers in the Port of Philadelphia/Regulated Prices/1798." The provenance of this item is unclear. Possibly it was given to Lenthall by Samuel Humphreys. (L90.43.505)

Pennsylvania
Ship of the Line
Ms., 57 pages. [Philadelphia, 1827].
The inscription on the cover reads: "Directions for Cutting Timber for a Ship of the Line/1827"; the numbers 8 and 74 are written on the cover in pencil. Although the labeling is vague, the date and wording suggest that Lenthall prepared these specifications in Philadelphia after going to work as assistant to Samuel Humphreys, constructor at the Philadelphia Navy Yard, where the *Pennsylvania* was built from 1821-37. (L90.43.506)

Sloop of War
Ms., 40 pages. [Philadelphia, 1827].
Labeled "Directions for Cutting Timber for a Sloop of War/1827" in Lenthall's hand; number "4" written in pencil. Label, "Sold by Clark & Raser." The specifications may have been drawn up for the *Vandalia* launched at Philadelphia in 1828. (L90.43.507)

Frigate
Ms., 30 pages. [Philadelphia, 1828; 1839].
This document appears to contain specifications for two ships. The cover is labeled, "Directions for Cutting Timber for a 44 Gun Frigate—1828" with the number "7" written in pencil. Label, "Sold by Clark & Raser. . . ." Except for the first few pages, the volume is filled with instructions for "Neat moulding size of square timbers (Frigate 'Congress')," with the further identification, "one set of rough moulds for a frigate/Oct. 1839." It is speculated that Lenthall began with entries for the frigate *Raritan* laid down at Philadelphia in 1820 but not launched until 1843. Meanwhile, in the mid-1830s, the Navy received authorization to replace the first frigate *Congress* (built 1799), with a new ship of the same name built at Portsmouth, New Hampshire, and Lenthall was consulted on that project. Included are sketches of breasthooks and stemson. (L90.43.508)

Schooner
Ms., 37 pages. [Philadelphia?, c. 1828-38].
The cover is labeled: "Directions for Cutting the Frame of a Schooner" and "#1" with note, "Ex'd rec'[?] . . .". Contains sketches. (L90.43.509)

Relief
Storeship
Ms., 42 pages. [Philadelphia, 1835].
Labeled "Timber Book/Store Ship/1835" and Number "#3." (L90.43.512)

Mississippi
"Sea Steamer" (Frigate)
Ms., 58 pages. [Philadelphia, c. 1839].
The book contains estimates of displacements, weights upon which the plan was based, timbers, iron bracing, framing of decks, gun deck plank. (L90.43.516)

Sea Steamer (Frigate)
Ms., 30 pages. [Philadelphia?, c. 1830-40].
The cover is labeled: "Directions for Cutting the Frame of a Steam Vessel" and number "11," with a faint pencil note, "Inspector [or Inspected] at Phila." Contains sketches. Possibly prepared for the frigate *Mississippi* (built at the Philadelphia Navy Yard) or *Missouri* (built in New York). (L90.43.510)

Sea Steamer (Frigate)
Ms., 65 pages. [Philadelphia, 1837].
Labeled "Dimensions for Cutting the Frame of a Sea Steamer/1837"; "#14" written in pencil on inside front cover. Label, "Sold by Clark & Raser. . . ." (L90.43.511)

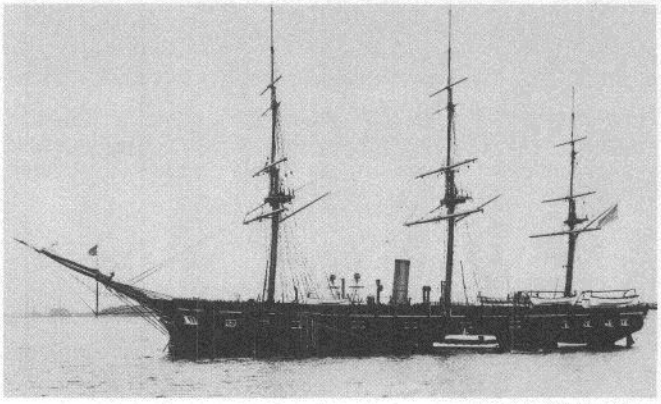
Sea Steamer (Frigate)
Ms., 60 pages. [Philadelphia, 1841-47].
Labeled "Directions for Cutting the Frame of a Sea Steamer [*Mississippi*?], 1841"; "#13" written on cover. Label, "Sold by Clark & Raser. . . ." With note on cover, "Sent a copy to the Navy Board for Samuel Grice, December 28, 1840"; also, a penciled note, "Sent a copy of this for S. Grice to the Navy Commissioners, December 28, 1840." Includes diagrams of breasthooks, sternhooks. (L90.43.513)

Dale/Preble
Sloops of War
Ms., 83 pages. [Philadelphia, 1837].
Labeled "Directions for Cutting the Frame of a Sloop of War/2d Class/*Dale* and *Preble*/in the mould Loft/Philadelphia/24 May 1837." "#10" written on cover in pencil. (L90.43.514)

Dale
Sloop of War
Ms., 35 pages. [Philadelphia, c. 1839-40].
Labeled "Specification Book for *Dale*, Launched at Philadelphia, Oct. 8, 1839." The book includes a list of what was put on board after the launch—masts, rigging, gunners department, carpenter's stores—and a description of the *Dale*'s voyage from Norfolk to Rio de Janeiro, December 13, 1839-January 23, 1840. (L90.43.515)

Ordnance
Ms, 54 pages. [Washington?, 1852].
Labeled: "Statement from Bureau of Ordnance, December 29, 1852." With note, "By accurate stowage it is found that the tanks for cartridges will stow conveniently as follows . . . ." The book lists the stowage capacity for armament, magazine, and shell room in U.S. Navy ships, 1852. By this time Lenthall had been appointed Chief Naval Constructor. The document reflects his interest in promoting uniformity in ship construction which he would continue to pursue in his appointment as chief of the Navy bureau of construction beginning in 1853. (L90.43.517)

Lancaster
Sloop of War
Ms., 50 pages. [Washington?, c. 1855]
Labeled: "Directions for Cutting the Frame of a Steam Sloop of War/Sept. 1855." Title page autographed by John Lenthall with note, "Steamer 'Lancaster' built per one of these plans." *Lancaster* was laid down at the Philadelphia Navy Yard in December 1857 and launched in October 1858. (L90.43.518)



The wooden screw sloop Lancaster, *launched 1858, had a strikingly modern appearance. This class of ships disappeared with the introduction of iron hulls. PMM Collection.*

Bibliography of Works on Shipbuilding Printed in Great Britain, France, and the United States, 1707-1882

John Lenthall's interest in naval architecture led him to collect a large number of works on the subject. Influenced no doubt by several years of study in Europe, he acquired many French and British titles. Lenthall pursued his scientific and technical interests as a member of The Franklin Institute which he joined in 1836; in 1850 he became a life member. Due to the nature of his book collection, Lenthall determined to give it to The Franklin Institute in 1874. When The Franklin Institute determined to dismantle and sell its Library in 1986, the Philadelphia Maritime Museum acquired the collection with funds that had been donated particularly for this purpose. Five items have subsequently been added as gifts. The entire Lenthall book collection is presently housed in the PMM Library.

Contained in the Lenthall Collection are 362 books and pamphlets published during the period from 1707 to 1882. Most of the items are autographed and some are inscribed with dates indicating when Lenthall acquired the works.

With the support of a grant from The Pew Charitable Trusts, PMM has been able to conserve and catalog the entire collection. Hal Tarr, an experienced cataloger, worked diligently to catalog the collection during 1989-1990. This proved to be a difficult and complicated task due to the large number of titles needing original cataloging, foreign titles, and bound volumes containing more than one work. The titles have been entered in OCLC (Online Computer Library Center).

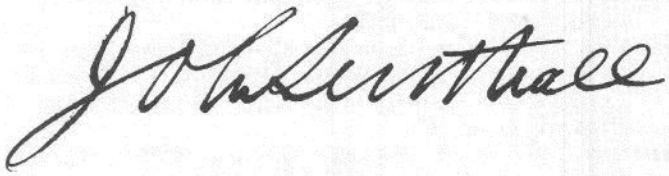
Conservation of the books and pamphlets was completed by the Conservation Center for Art and Historic Artifacts. Books and pamphlets which were unusable to researchers at the time of their acquisition by PMM have been restored and housed in individual boxes or pamphlet covers to provide protection.

In addition to card catalog access, a guide to the book collection was compiled by Adam Wilson and is found in the PMM Library. The guide enables researchers to access the collection by author, title, subject, and date.

Examples of the subject matter included in the collection are anchors, armored vessels, ballistics, British defenses and the Royal Navy, calculus, carpentry, civil engineering, displacement, dry-docks, dry-rot, equilibrium, French marine supplies, fuel, geometry, gulf stream, hydrographic surveying, keels, life-boats, lighthouses, lightning conductors, magnetism, marine engineering, masts and rigging, mechanics, medicine (naval), merchant seamen, merchant ships, naval architecture, navigation, ordnance, propellers, range-finding, river engineering, rope, sails, salvage, ship propulsion, ship resistance, shipbuilding, ships, ships measurement, stability of ships, steam-boilers, steam-navigation, stowage, submarine warfare, torpedoes, turret ships, U.S. Navy, warships, wave-motion, wood-preservation, and yachts.

We have not attempted to include annotations in the listing of Lenthall's books which follows. Instead we would urge researchers to explore not only individual items but entire topical areas because of the numerous marginal notes, clippings, and illustrations to be found in what was evidently a much-used working library.

E. Ann Wilcox
Librarian



An avid collector of works concerning naval architecture, John Lenthall signed each work in his collection, usually at the top of the title page. In addition, he often placed his bookplate on the inside front cover. In order to keep Lenthall's works together as a single collection, the PMM Library has added the collection symbols "Sp. Col/Lenthall" to the beginning of the call number. Signature and bookplate: PMM Collection.

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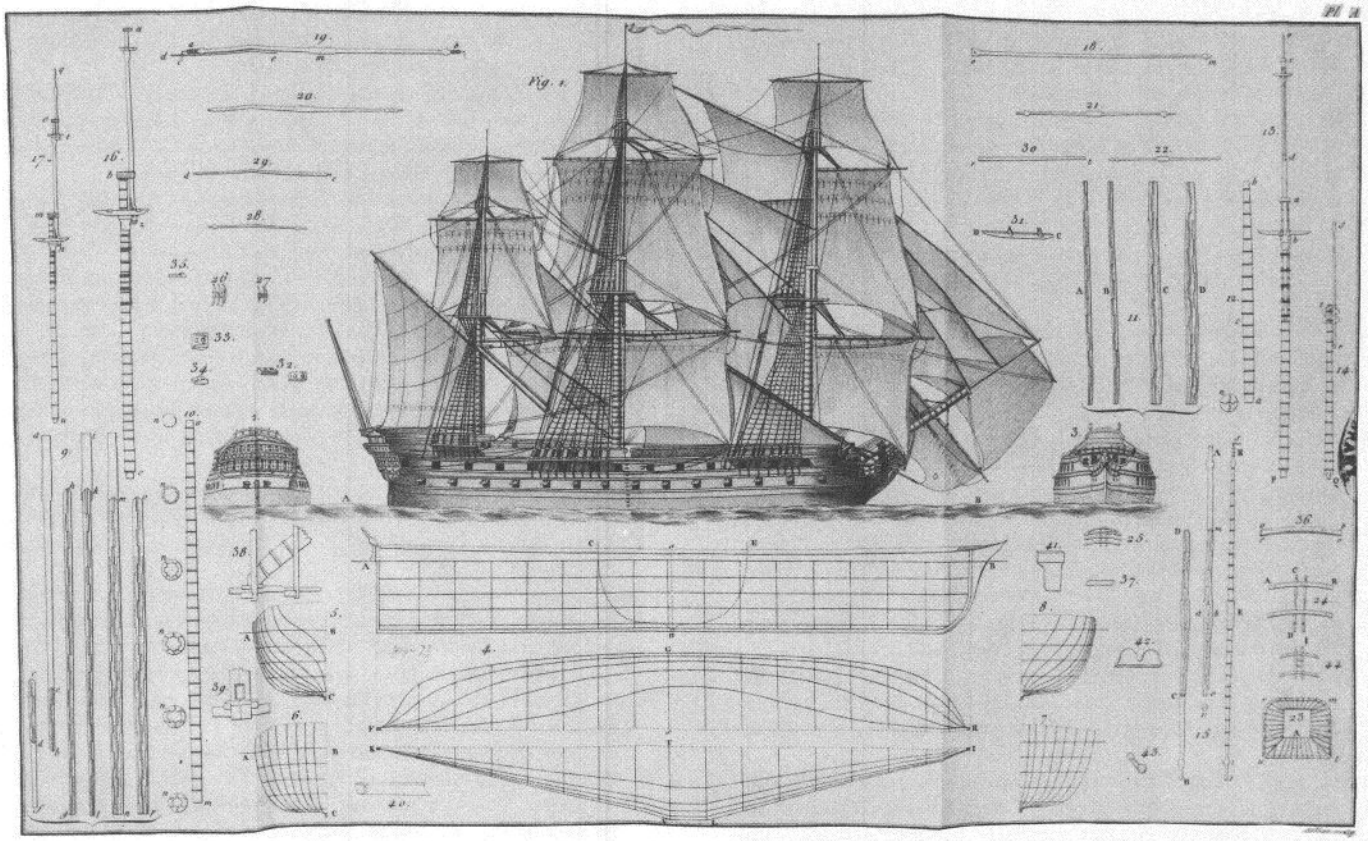
*__s.n.__, *sine nomine* (Latin—without name) is the library cataloguing term for indicating that the probable publisher, printer, or distributor, is not known.



Many of the books in the Lenthall Collection contain illustrations. This plate showing plans and details of an eighteenth-century warship appeared in Charles Romme, l'Art de la Marine, ou, Principes et Precéptes-Généraux de l'Art de Construire, d'Armer, de Manoeuvrer et de Conduire des Vaisseaux *(1787). PMM Collection.*

Other Locations of Primary Sources

National Archives and Records Administration
Washington, DC 20408

The National Archives and Records Administration (NARA) maintains records of the U.S. Navy, among which are materials relating to John Lenthall's work as chief of the Bureau of Construction, Equipment, and Repairs (BCER) from 1853-63 and its successor, the Bureau of Construction and Repair (BCR), from 1863-71. The **Military Reference Branch** provides access to naval textual records of the Bureau of Ships (Record Group 19) which succeeded the BCR. Holdings include letters and reports which Lenthall sent to the secretary of the navy during his term as bureau chief (Entries 49-50); "Letters Received from Superintendents Outside of Navy Yards," 1862-65 (Entries 64-65) describing the performance of monitors and other vessels constructed for use in the Civil War; and "Miscellaneous Letters Received," 1870-1877 (Entry 72) documenting the relationship between the bureau and private contractors. See Elizabeth Bethel et al., comps., *Records of the Bureau of Ships. Record Group 19* (Washington DC, 1961) for descriptions of these and other listings.

The **Cartographic and Architectural Branch** has custody of approximately 50,000 original U.S. Navy plans for virtually all of the historical Navy ships in use from the earliest years of the nation to the 1920s. For those ships that are fully documented, there may be exterior and interior profiles, deck plans, body plans, and numerous detail sheets. The authors of this publication located plans for the following vessels which are represented in the Lenthall collection: *Franklin* (ship of the line), *Porpoise* and *Dolphin* (brigs, 1836), *Pennsylvania* (ship of the line), *Perry* (brig), *Saranac* (sloop of war), *Southampton* (storeship), *San Jacinto* (sloop) and *Mississippi* (frigate).

Unfortunately there is no easy way to retrieve individual drawings other than by reading a card index made by the Navy many years ago, which is primarily arranged by name of ship or type of small boat. The index cards lead to scattered file numbers indicating the arrangement of the plans. Each vessel must be researched individually, and there is no guarantee that any drawings for a given ship still exist. If a researcher cannot visit in person, NARA will initiate, on request, a search to determine whether particular plans are in the files, but because it receives hundreds of requests each month, the reply may take a number of weeks. The reply will be a list of possible drawings of interest and prices for ordering reproductions. It is recommended that the potential researcher visit the National Archives, where each drawing may be viewed and selected for reproduction according to the researcher's needs.

In the **Still Pictures Branch** are early Navy photographs, including photographs of many of the ships. Again, documentation of each ship must be researched individually.

National Archives—Mid Atlantic Region
9th and Market Streets, Room 1350
Philadelphia, PA 19107

Those researching John Lenthall's early career as a naval constructor may wish to consult the holdings concerning the Philadelphia Navy Yard (1794-1939) in the records of Naval Districts and Shore Establishments (Record Group 181) at this NARA regional archives. The record group includes approximately 1,900 cubic feet of records pertaining to the Philadelphia Navy Yard since its founding; about 30 cubic feet pertain to the period before 1860. Although Lenthall's name seldom appears in correspondence between secretaries of the navy and yard officers during the years in which Lenthall served as constructor at the Philadelphia yard (1838-49), there are numerous references to the construction and performance of ships in the fleet. Of particular interest are yard logs (1819-72) containing information on the number of workers employed and in what capacities, the building of *Mississippi* and *Raritan*, the installation of gun carriages, the arrival of raw materials from Delaware and regions to the south, and other topics which illuminate work processes and methods.

Naval Historical Center
Building 57
Washington Navy Yard
Washington, DC 20374

The library holdings include two volumes of work records of the moulding loft at the Washington Navy Yard (1834-35) with log entries by John Lenthall dated 22 October 1834 through 24 February 1835.

Princeton University Libraries
Department of Rare Books and Special Collections
One Washington Road
Princeton, NJ 08544-2098

An incomplete file of the letters received by the Commanders of the Philadelphia Navy Yard between 1831 and 1863 is located here. The collection numbers about 500 letters and orders written by the personnel of the United States Navy Department, several departmental bureaus, and the board of naval commissioners. Many of the letters deal with the application of steam to navy vessels. References to John Lenthall appear in correspondence between respective commanders of the navy yard and secretaries of the navy. Also included are sixty letters written by John Lenthall as chief of the Bureau of Construction, Equipment, and Repairs to Philadelphia yard commanders in the early 1850s. The letters consist mainly of requests concerning routine business. Some of them concern repairs and surveys of Navy steamers.

Hagley Museum and Library
P.O. Box 3630
Wilmington, DE 19807

The Lenthall materials at Hagley are primarily located in the papers of Admiral Samuel Francis Du Pont (1803-1865). The papers date from 1812-65. There are about 150 letters to and from Lenthall as well as a list in which Du Pont names Lenthall among his "true friends" after his removal in 1863 following the failure of the expedition against Charleston. Hagley also has two microfilms from the National Archives Record Group 19, Bureau of Ships, relating to Lenthall. The first is a group of 815 letters from the Office of the Chief of the Bureau of Engineering, Reports of Inspectors of Ironclads (1861-64), many of which are addressed to Lenthall. The second is a group of 20 letters of the Office of the Chief of the Bureau of Construction and Repair (1862), or Entries 64-65 listed above.

The Free Library of Philadelphia
Logan Square
Philadelphia, PA 19103

The **Government Publications Department** maintains the largest collection of printed materials issued by the United States government in the area and is consequently an excellent source of information on naval matters such as the operation of the navy shipyards, lists of officers, and reports detailing political struggles between executive and legislative branches, navy officials, professional staffs of the bureaus, and contractors involved in the design and construction of ships and engines. Published and card-file indexes provide access to this material. The Department's holdings of the United States Navy *Register* (1836-37, 1843-50) include several years not available at PMM. City directories, newspapers, and printed works on shipbuilding are available in other departments of the library.

Historical Society of Pennsylvania
1300 Locust Street
Philadelphia, PA 19107

Papers of naval architect Joshua Humphreys, designer of the first frigates in the United States Navy, are housed at the Historical Society of Pennsylvania (HSP). The collection consists of 20 volumes of correspondence, ledgers, account books (1638-1835), and dimensions and drawings of the nation's earliest fighting ships including the frigate *United States* built at Philadelphia in 1797. Of potentially greater interest to those investigating the period directly preceding the transition from sail to steam are the papers of Joshua Humphreys's son, Samuel Humphreys, also located here. The latter worked in association with his father at the Philadelphia Navy Yard where the junior Humphreys was constructor from 1813-26; from 1826-46, Samuel served as chief naval constructor for the United States Navy, during which time he was stationed at the Washington Navy Yard. The materials located at HSP consist of two volumes kept by Samuel Humphreys catalogued as ship journals. The earliest is a diary detailing the building of the 74-gun *North Carolina* from the initial planning stage to its launch at Philadelphia (1818-20). The other, labeled "Survey of Ships" (1834-45) is made up of letters written to Samuel Humphreys by ship captains concerning the performance of the ships on their voyages. Occasional references to John Lenthall appear in these two documents.

Temple University Urban Archives
Paley Library
Philadelphia, PA 19122

References to shipyards, merchantmen, and naval vessels built in Philadelphia during Lenthall's term as constructor at the Navy Yard may be found under ship names in the indexed files of the *Philadelphia Bulletin*.

Sources in Microfiche

Portions of The Franklin Institute's Lenthall collection are available in a microfiche edition distributed by CIS Academic Publications, Congressional Information Service, Inc., 4520 East-West Highway, Bethesda, MD 20814. They are described in Stephanie Morris, ed., *The Franklin Institute and The Making of Industrial America* (CIS, 1987).

Reference Sources

There is at present no full-length biography of John Lenthall. Information in this guide has been drawn from the sources described in the preceding pages and in the following printed materials. Originals or photocopies of many of these items are available in the PMM Library.

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Alphabetical List of Ships in the Lenthall Collection of Plans and Drawings

The number given in italics after the ship type refers to the Group Number(s) in which the plans for the vessel are located.

Ship Name	Ship Type *(Group No.)*	Launch
—	Anchor Hoy *(2)*	1848
—	Beach Boat *(2)*	1846
Belle Poole [Poule?]	? *(2)*	[1830-50?]
—	Brig, Merchant *(2)*	1823
—	Brig *(2)*	1832
—	Brig, Merchant *(2)*	n.d.
—	Brig *(2)*	1842
—	British Navy Ships *(1)*	—
Burrows	Brig *(2)*	not built
Caledonia, HMS	120-gun ship *(1)*	1808
—	Camel *(2)*	[1830-34?]
City Ice Boat	Iceboat *(2)*	1837
City of Peking	Passenger Steamer *(2)*	1874
City of Tokio	Passenger Steamer *(2)*	1874
Clarion	Bark *(2)*	1838
*Columbus**	Ship of the Line *(2)*	1819
*Congress**	Frigate *(2)*	1841
*Constellation**	Frigate *(1)*	1797
—	Corvette *(1)*	not built
*Cumberland**	Frigate *(2)*	1842
*Cyane**	Sloop of War *(2)*	1837
*Dale**	Sloop of War *(2,4)*	1839
*Dolphin**	Schooner *(2)*	1821
*Dolphin**	Brig *(2)*	1836
Draft Plan	Ship of the Line *(1)*	1815
*Fairfield**	Sloop of War *(2)*	1828
Flora	Frigate *(2)*	1837
Flying Fish	Schooner *(2)*	1857
*Franklin**	Ship of the Line *(2)*	1815
—	Frigate *(2)*	1826
*Frolic**	Sloop of War *(1)*	1813
Georgiana	Sailing Ship *(2)*	1836
*Germantown**	Sloop of War *(2)*	1846
Great Eastern	Side-wheel Steamer *(2)*	1858
*Guerriere**	Frigate *(1)*	1814
—	Gunboat *(1)*	1804
Hassan Brashaw	Brig *(1)*	1798
Independence (Razee)*	Frigate *(2)*	1814
—	Iron Warship *(2)*	n.d.
Isabella	Schooner *(2)*	1832
*John Adams**	Frigate *(2)*	1799
John C. Stocker	Merchant Ship *(1)*	1807
John Marshall	? *(2)*	1834
La Pique	Frigate *(2)*	1837
*Lancaster**	Sloop of War *(4)*	1858
*Lawrence**	Brig *(2)*	1843
*Levant**	Sloop of War *(2)*	1837
*Manayunk**	Monitor *(3)*	1864
Medea	Side-wheel Steamer *(2)*	1833
—	Merchant Ship *(2)*	n.d.
*Mississippi**	Frigate *(2,4)*	1841
*Missouri**	Frigate *(2)*	1841
Mount Vernon	Steamboat *(2)*	1824
Nile	Side-wheel Steamer *(2)*	[1860-70?]
Norfolk Boat	? *(2)*	1830
*North Carolina**	Ship of the Line *(1)*	1820
—	152-Gun Ship *(1)*	[1810-20?]
*Peacock**	Sloop of War *(1)*	1813
*Peacock**	Sloop of War *(2)*	1828
*Pennsylvania**	Ship of the Line *(1,4)*	1837
*Perry**	Brig *(2)*	1843
—	Plan for Forge, French *(2)*	1842
*Plymouth**	Sloop of War *(2)*	1843
—	Powder Boat *(2)*	1857
*Preble**	Sloop of War *(2,4)*	1839
*Princeton**	Frigate *(2)*	1843
—	Confederate Ram *(3)*	[1861-65?]
*Raritan**	Frigate *(2)*	1843
*Relief**	Storeship *(2,4)*	1836
—	Row Galley *(1)*	1814
*San Jacinto**	Sloop *(2)*	1850
*Saranac**	Sloop of War *(2)*	1848
*Saratoga**	Sloop of War *(2)*	1842
Shenandoah	Packet Ship *(2)*	1840
*Shiloh**	Monitor *(3)*	1865
Silas Richards	Packet Ship *(2)*	1840
—	Sloop of War, French *(1)*	1812
—	Sloop of War *(2)*	[1830-40?]
*Somers**	Brig *(2)*	1842
*Southampton**	Storeship *(2)*	1845
Spark	Brig *(1)*	1813
—	Survey Boat *(2)*	1844
*Susquehanna**	Sloop *(2)*	1850
*Tippecanoe**	Monitor *(3)*	1864
Transfer	Schooner *(1)*	[1812-14?]
*Truxtun**	Brig *(2)*	1842
Tuscarora	Packet Ship *(2)*	[1848?]
*United States**	Frigate *(1)*	1797
*Wampanoag**	Frigate *(3)*	1864
*Washington**	Ship of the Line *(2)*	1814
*Washington**	Revenue Cutter *(2)*	1837
*Wasp**	Sloop of War *(1)*	1813
*Water Witch**	Side-wheel Steamer *(2)*	1851
*Yazoo**	Monitor *(3)*	1865

*U.S. Navy vessel.

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