CONSTITUTION
CLOSE UP:

Minutiae For The Modeler And Artist

By

Commander Tyrone G. Martin, U. S. Navy (Retired)

A Timonier Working Monograph

February 2003, TGM

TABLE OF CONTENTS

INTRODUCTION

USS *Constitution* ("Old Ironsides") has been a major icon of the American experience for over two hundred years now. For those living and working in Boston, her black and white hull and raked masts towering nearly two hundred feet combine as a familiar, constant and reassuring sight where the Mystic and Charles Rivers join the harbor. Most assume they are seeing a ship that always has looked that way.

Artists and model makers, however, tend to be more curious, to try and determine whether or not the ship had her current appearance at some point in the past, and if not, how she *did* look. What they soon discover is that, like most things in this world, the fabled frigate evolved over time, depending upon the use to which she was to be put and what the technology of the time offered. She began service bearing an allegorical figurehead above her cutwater, but it was lost in an accident a few years later. Her gun streak, over the years, went from yellow to white to yellow to white to *red* to white. Spars and rigging regularly were tinkered with. Oh yes, and then there was the very brief time when she had paddlewheels!

More than a quarter century of research have taught the present author that there is little hope of discovering every single change that occurred in the ship's appearance over the years, let alone acquiring all the detail of each such change to the degree beloved of modelers and artists. However, there is a considerable body of knowledge now available, and this work attempts to provide it in coherent form with a degree of brevity intended to make reading or studying it less of a task than gathering the information was.

Readers are cautioned that a statement of fact, backed by primary historical evidence for a specific moment in time, may not automatically be taken as proof that that statement is equally valid for some previous or subsequent moment. For example, we know that the ship always had fore and main courses; however, the dimensions of these sails at any particular time were subject to variation. Too, a total of four patterns of 24-pounder long gun were used to produce that battery for the ship, and two were quite markedly different from the others.

What follows is a compilation of data concerning the ship's appearance during her decades of front-line service (1798-1855). Following an overview of the ship's evolution during that time, the material has been divided into chapters dealing with major portions of the ship or important elements of her equipage to facilitate an understanding of the evolution of each component from original appearance through successive changes in chronological order. Each chapter must be read from the beginning in order to arrive at those elements of appearance present at the "chosen moment."

That the information contained herein would be prized by artists and modelers became apparent in the author's association, over the years, with American artists James Clary, Tom W. Freeman, William Gilkerson, Mort Kunstler, Dean Mosher, John Charles Roach, Richard Schecht, and Charles Waterhouse; British artists John Batchelor and Ken Grant; and American model makers Laurence Arnot and Olof A. Eriksen. It was Bill Gilkerson who specifically suggested that pen be put to paper in this effort.

OVERVIEW

Change in *Constitution* began almost immediately. The ship that began her first commission in July 1798 was not that depicted in the builder's draught, nor did she carry the projected gun batteries. By the time that commission ended, in 1802, boats had been added to her inventory and one sail dropped from her suit.

Preparations for her second commission in 1803 made further changes: her gun batteries were reduced, both in numbers of guns and numbers of calibers; most of her masts were replaced by new ones constructed in a different manner; and the transom was altered slightly. During its four-year run, when the ship first saw action off Tripoli, the bulwarks about the spar deck were extended; additional long guns were emplaced, only later to be removed and supplanted by her first carronades; and the bowhead area was reconfigured.

Complaints about the original 24-pounder long guns had begun almost as soon as the first ships of the new navy took them to sea, so when *Constitution* sailed at the start of her third commission in 1809, she was armed with a battery of all-new long guns and another of recently cast carronades in a combination that would vary only slightly over the coming three decades. Too, the bulwarks around her spar deck assumed the configuration they would have for the duration of the period. Bow and stern decorations were changed and simplified. As the commission proceeded through the War of 1812, the number of ports in the hull was increased, her masts were extended to accommodate skysails, a new auxiliary mast was installed, the dolphin striker was changed, the gun streak was altered in a case of tactical deception, and the spar deck gun battery experienced two minor changes during the period. In early 1816, she began five years in ordinary.

From 1821 to 1828, except for a five-month period in 1824, the ship was in the Mediterranean. Upon coming out of ordinary, experimental modifications were made to her rigging (which lasted about a year), the bow head area was completely enclosed on either bow, and the gun streak, once again white, was extended all the way around the cutwater. The gun battery was that carried at the close of the war. For the first three years, she was, officially, the test bed for the "propello marino," a set of strap-on, man-powered, paddle wheels. (They were actually tried out on only one occasion.) She began the latter half of the deployment with some entirely new elements in her sparring and rigging that remained in place for more than twenty-five years after she left front-line service.

The ship's next commission, a three-year stint in the Mediterranean, was prefaced by her first drydocking. Despite repeated directives from the Board of Naval Commissioners that she was to retain her original appearance, a number of changes were made. Most famous was the addition of a much-contested figurehead of Andrew Jackson, but other highly visible alterations included new stern decorations and the installation of her channels of different pattern in new locations. She also again received the experimental rig tried for a year at the beginning of her previous commission.

Constitution returned to the United States in the midsummer of 1838, not to be placed in ordinary but to be outfitted for another commission -- to be flagship of the Pacific Squadron. As such, she carried for the first time a separate squadron commander. His presence necessitated the construction of a poop cabin abaft the mizzen mast on the spar deck. This, in turn, caused the cutting of three

ABBREVIATIONS

DNA ----- National Archives
HSPa ---- Historical Society of Pennsylvania
M (no.) -- Microfilm series
MHS ----- Massachusetts Historical Society
ND1812 - The Naval War of 1812: A Documentary History
NDBW --- Naval Documents Relating to the Barbary War
NDQW --- Naval Documents Relating to the Quasi War
NEHGS -- New England Historical Genealogical Society
RG ------- Record Group
UNCL ---- University of North Carolina Library (Southern Historical Collection)
USSCM -- Samuel Eliot Morison Library, USS *Constitution* Museum

HULL

As built, *Constitution* was a flush-decked frigate with her quarterdeck enclosed by bulwarks ending with a single strake forming the upper sill of the spar deck gun ports. Her forecastle and waist were enclosed by netting of matching height supported on iron stanchions. She was fitted with a single pair of slightly curved wooden boat davits installed on and above the mizzen channels, and straight davit arms astern that were fastened to the inner larboard and starboard sides of the quarterdeck bulwarks and protruded aft through the transom below the cap rail. The taffrail had mounted upon it a "poop lantern," but no description has been found beyond the fact that isinglass was used as the translucent material. [Ltr, Secretary of War to Captain Samuel Nicholson, 7 Dec 1797, M739, DNA.] The quarterdeck bulwarks were pierced for seven guns on either side.

The hull was pierced, at the gun deck level and above the wales, for fifteen guns. A directive late in 1795 specified which of the ship's frames each would intercept, as follows:

1st port cuts off frames Y and Z

2nd port cuts off frames T, U, and V

3rd port cuts off frames O, P, and Q

4th port cuts off frames J, K, and L

5th port cuts off frames E, F., and G

6th port cuts off the main frame and frames A and B

7th port cuts off frames 4, 5, and 6

8th port cuts off frames 9, 10, and 11

9th port cuts off frames 14, 15, and 16

10th port cuts off frames 19, 20, and 21

11th port cuts off frames 24, 25, and 26

12th port cuts off frames 29, 30, and 31

13th port cuts off frames 34, 35, and 36

14th port cuts off frames 39, 40, and 41

15th port cuts off frames 44, 45, and 46

Note: From the way the data are laid out in the original document, it may have been intended to show that each gun port cut into rather than through the third frame listed in each case.
[Circular letter to Naval Constructors, 16 Nov 1796, M739, Roll 1, DNA.]

At the berth deck level, airports were pierced on either quarter in way of the wardroom staterooms

The hull was coppered, using English sheet copper, "as high as [the] light water mark." [Ltr, Secretary of War to Naval Constructor George Claghorne, 29 Jul 1797, M739, Roll 1, DNA.] Each full sheet was 14" x 40", and was held in place by 40 copper nails.

The gun streak originally began in a half-round with its apex in line with the after sides of the catheads on either bow and extended aft to the quarter galleries. Painted yellow ochre, in height it extended from the strake above the wales to the upper sills of the gun ports. Throughout most of the period under study, above the gun streak the hull was painted black; below it, it was "blackened" with a tarry mixture. Gun port lids were painted to match the gun streak on their outer surfaces (when shut) and whitewashed inside.

The principal decorations at the bow were conceived by William Rush of Philadelphia. He described the figurehead thusly: "As the Constitution of the Empire is the result of the Union of the States and united begets Strength it aught [sic] to be represented by an Herculean figure standing on the firm rock of Independence resting one hand on the fasces, which was bound by the Genius of America and the other hand presenting a scroll of paper, supposed to be the Constitution of America with proper appendages, the foundation of Legislation." [Ltr, Rush to Naval Constructor Joshua Humphreys, 30 Apr 1795, Humphreys Papers, HSPa.] That Rush's scheme was carried out is proven by this diary entry of the Reverend Dr. Bentley of Salem for 31 May 1797: "...saw the new Ship...the Head called Constitution, finished by Skillings. It is an Hercules with the fasces of the United States & the Constitution standing upon a Rock & his battoon lying beneath him." The Corne gouache clearly shows these elements, the whole apparently painted white. (The earliest known representation of the ship is a gouache attributed to Michel Felice Corne estimated to have been painted in the early summer of 1803. The property of the U. S. Navy, it is on loan to the USS *Constitution* Museum at Boston, MA. Careful analysis and comparison of its details with other primary sources indicate that it is an extremely accurate rendering.) The trail boards displayed simple garlands, highlighted in white.

Courtesy, Lloyd McCaffery

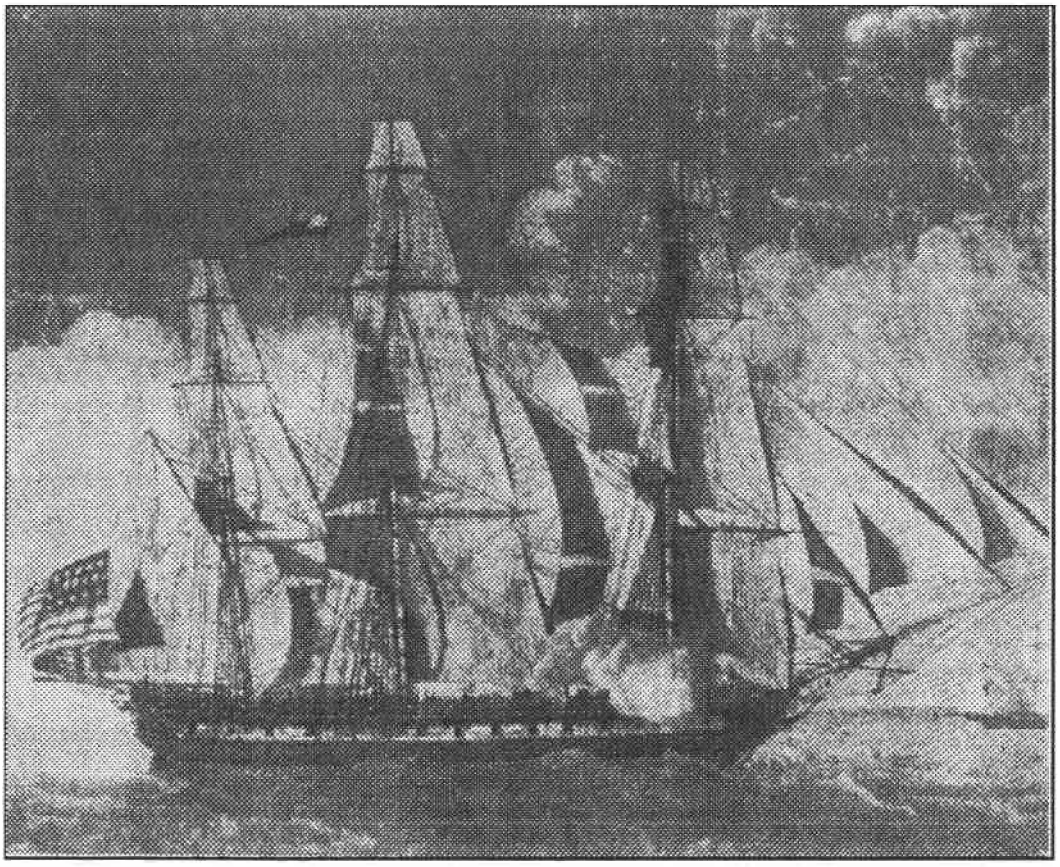
Miniature of the Hercules figurehead by Mr. Lloyd McCaffery based upon the foregoing descriptions and the microphotographic study of the 1803 Michel Felice Corne painting by Mr. William Bass.

The Secretary of War, James McHenry, proposed that the sterns of all six original frigates "should be all alike to shew they belong to one family and represented by an Eagle in the Center with the Constellations around him, suported on each Quarter by the figures of Liberty and Justice." [Brewington, M. V. *Shipcarvers of North America*. New York: Dover Publications, Inc., 1962.] Another painting by Corne, showing the ship off Tripoli in 1804, done on commission for Commodore Edward Preble, who supervised its creation, shows that the Secretary's basic themes were carried out: the spread eagle uppermost and centered on the transom above crossed cannon and cannon balls; two quarter figures, presumably representing Liberty and Justice, as well as two lesser females in reclining positions on either side of the eagle; and an assortment of stars, garlands, and rope "framing" around and between the six stern windows, with the ship's name in Roman letters about midway between the windows and the point where the rudder post entered the hull. All decorations are highlighted in white. (More than one copy of this painting exists. One is at the U. S. Naval Academy.)

Having established the baseline original configuration of the ship's hull, from this point on specific citations, largely from primary sources, set forth what is presently known of the changes occurring in subsequent years:

17 Jul 1799 -- Draft: 23' aft, 21'6" forward; "Supposed to be in her proper trim..." [Ship's log, USSCM.]

Jul 1802 -- The catheads were decorated with "cat faces." [Simeon Skillen's 1 Jul 1802 bill, Samuel Brown Papers, MHS.]



U. S. Navy

A gouache of the ship credited to Michel Felice Corne and thought to have been done in the Spring/Summer of 1803. It is the only contemporary image of the ship showing the original Hercules figurehead.

12 Aug 1803 -- "Carpenters on board...making a new set of deadlights (in the cabin)..." [*NDBW*, Vol. 2, p. 510.] *Whether or not there were any deadlights in the cabin prior to this is unknown.*

26 Aug 1803 -- "...the half ports over the guns..." [Ship's log, DNA.] *Whether the gun ports had had half ports instead of hinged lids prior to this is unknown.*

Aug 1803 -- Paint pigments in ship's stores included 305# black, 3 cwt white lead, 3 cwt yellow, 50# green ("verdigris"), and 28# red ("vermilion"). [Receipt for John Osborn, 1 Aug 1803, Samuel Brown Papers, MHS.]

11 Jan 1804 -- Received 15 kegs of yellow ochre, 2 of red paint, 7 small ones of black paint, and 50 gallons of black varnish. [Ship's log, DNA.]

Jan 1804 -- Painting the hammock cloths. [Ship's log, DNA.]

22 Feb 1804 -- "Carpenters planking up the ship's gangways, between the main mast and for rigging..." [*NDBW*, Vol. 3, p. 452.] *This was done to accommodate the long guns borrowed from the King of*

Two Sicilies.

10 May 1804 -- "Carpenters repairing the Bill boards..." [*NDBW*, Vol. 4, p. 91.] *Earliest mention of these items.*

12 Sep 1804 -- Collision with USS *President* off Tripoli destroys Hercules figurehead and trail boards. [*NDBW*, Vol. 5, p. 81.]

Oct 1804 -- "The black paint which is above the yellow [streak] on the larboard side..." [*NDBW*,Vol. 5, p. 73, 74, and 81.]

Oct 1804 -- Bow head damage repaired with installation of a plain billet head and trailboards, and the area between the two uppermost rails "boarded up." "Carpenters...taking off the Rail that goes Athwart the Stern..." [*NDBW*, Vol 5, pp. 76, 80, 82.]

11 Oct 1804 -- "...bolting on the Billet head..." [*NDBW*,Vol. 5, p. 81.] Completed on 18 Oct. [*NDBW*, Vol. 5, p. 93.]

17 Oct 1804 -- The rails have been taken off the stern. Blacking the bends. Painting gratings and capstan bars. [*NDBW*, Vol. 5, p. 92.]

18 Jul 1808 -- "Receiving a new billet head, trail board, quarter gallery and stern decorations. [Brewington. *Shipcarvers of North America.*] *These decorations, much simpler than the originals, apparently are those to be seen on the Hull model at the PeabodyEssex Museum, Salem, MA.*

Aug 1810 -- Received a quantity of green paint. [Ship's log, DNA.]

Sep 1810 -- Additional airports were cut at the berth deck level on either side extending all the way to the area below the catheads. [Ship's log, DNA.]

Apr 1811 -- Painting the "white streak." [Ship's log, DNA.]

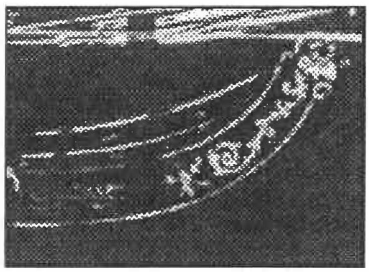
Nov 1811 -- "...leading the cutwater..." [Ship's log, DNA.]

17 Jul 1812 -- "...cut away the Taffrail" to make room for 2 stern chasers. [Journals of Surgeon Amos A. Evans and Midshipman Frederick Baury, the latter in MHS; ship's log, DNA.] *The guns placed there were the 18-pounder long gunfrom the forecastle and #1 larboard 24-pounder long gun from the gun deck.*

5-8 Aug 1812 -- Repairing the taffrail. [Ship's log, Henry E. Huntington Library.]

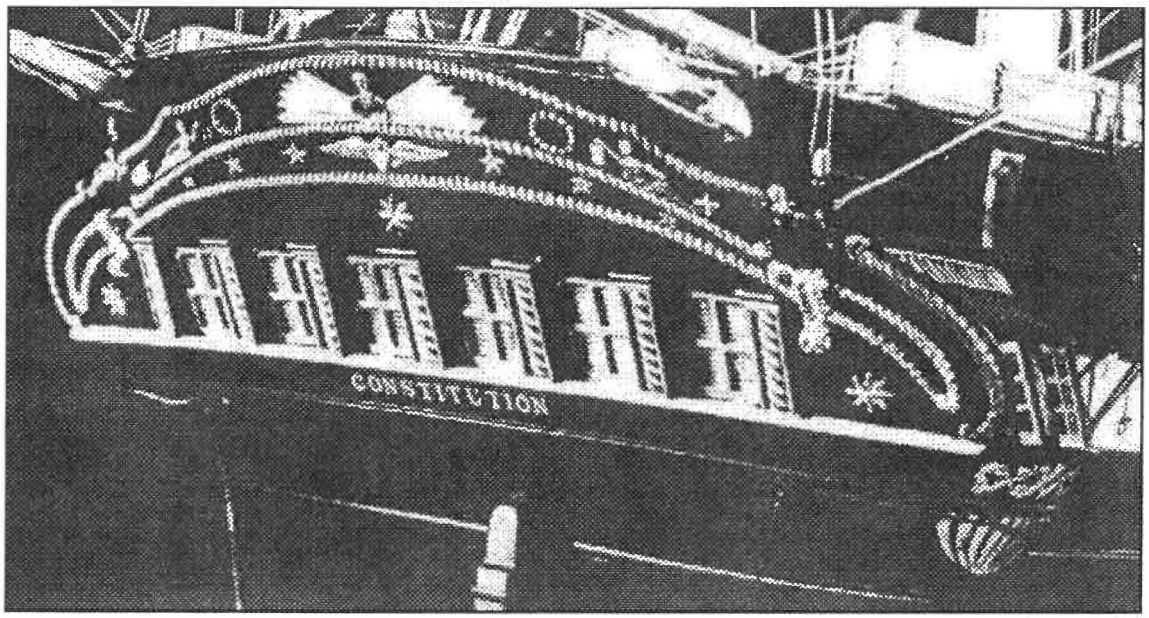
1-2 Sep 1812 -- Painting the ship and blacking the bends; blacking hammock cloths. [Midshipman Frederick Baury Journals, MHS.]

21 Sep 1812 -- "Carpenters empd. cutting two Bridle Ports." [Midshipman Frederick Baury Journals, MHS.] *From this time on, the ship appeared to have 16 ports on each side at the gun deck level.*



Courtesy, Olof A. Eriksen

The bow head area of *Constitution*, especially the trailboard, as shown on the "Isaac Hull model" of the ship. This model was created late in 1812 by one or more members of the crew and presented to that gentleman. It currently is housed in the Peabody Essex Museum of Salem, Massachusetts.



Courtesy, Olof A. Eriksen

Stern of *Constitution*, showing decorations and quarter gallery, as depicted on the "Isaac Hull model" of the ship

8 Oct 1812 -- Five "drops" (carvings) replaced between stern windows. [Navy Agent Amos Binney Summary Statement (with enclosures), 1-31 Oct 1812, RG217, 4th Auditor's Accounts, Alphabetical Series, Box 39, DNA.]

17 Sep 1813 -- Received 70 tons of "pebble ballast." [Navy Agent Amos Binney Summary Statement (with enclosures), 1-30 Sep 1813, RG217, 4th Auditor's Accounts, alphabetical Series, DNA.]

17 Oct 1813 -- A "Copper speaking pipe" fitted from "Deck to ward Room" and a copper "Cistern" installed "for the funnel from the Galley to pass through." [Navy Agent Amos Binney Summary Account (with enclosures), 1-31 Oct 1831, RG217, 4th Auditor's Accounts, Alphabetical Series, Box 39, DNA.]

25 Oct 1813 -- Installed a new "Cast Iron Stove" and "a Sheet Iron funnel." [Navy Agent Amos Binney Summary Statement (with enclosures), 1-31 Oct 1813, RG217, 4th Auditor's Accounts, Alphabetical Series, Box 39, DNA.]

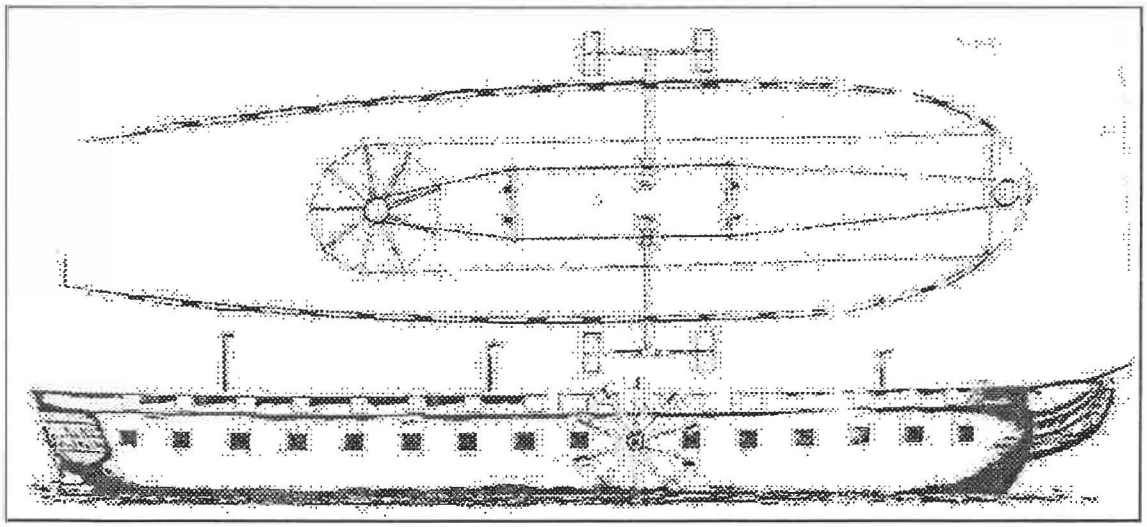
26 Dec 1813 -- The ship had a new 86 lb bell. [Navy Agent Amos Binney Summary Account (with enclosures), 1-31 Dec 1813, RG217, 4th Auditor's Accounts, Alphabetical Series, Box 39, DNA.]

11 Jan 1814 -- "...unrigged the Quarter Davits..." [Ship's log, DNA.] *Earliest textual reference to these davits. Visible in the 1803 gouache "portrait" of the ship attributed to Corne.*

11 Feb 1814 -- Painted the gun streak yellow. [Ship's log, DNA.]

1815 -- The Board of Naval Commissioners announced the policy that the use of figureheads would be restricted to ships of the line. [Constance Lathrop, "A Vanishing Tradition -- the Figurehead," U. S. Naval Institute Proceedings, Nov 1927, pp. 1166-68.]

Oct 1820 -- It was estimated that coppering a 44-gun frigate required 1750 sheets of 32-oz. copper, 1107 of 28-oz., and 572 of 14-oz., together with 328,555 copper sheathing nails. Each sheet measured 40" by 14". [Ltr, Board of Naval Commissioners to Captain Isaac Hull, RG45, Letters Sent, BNC, DNA.]



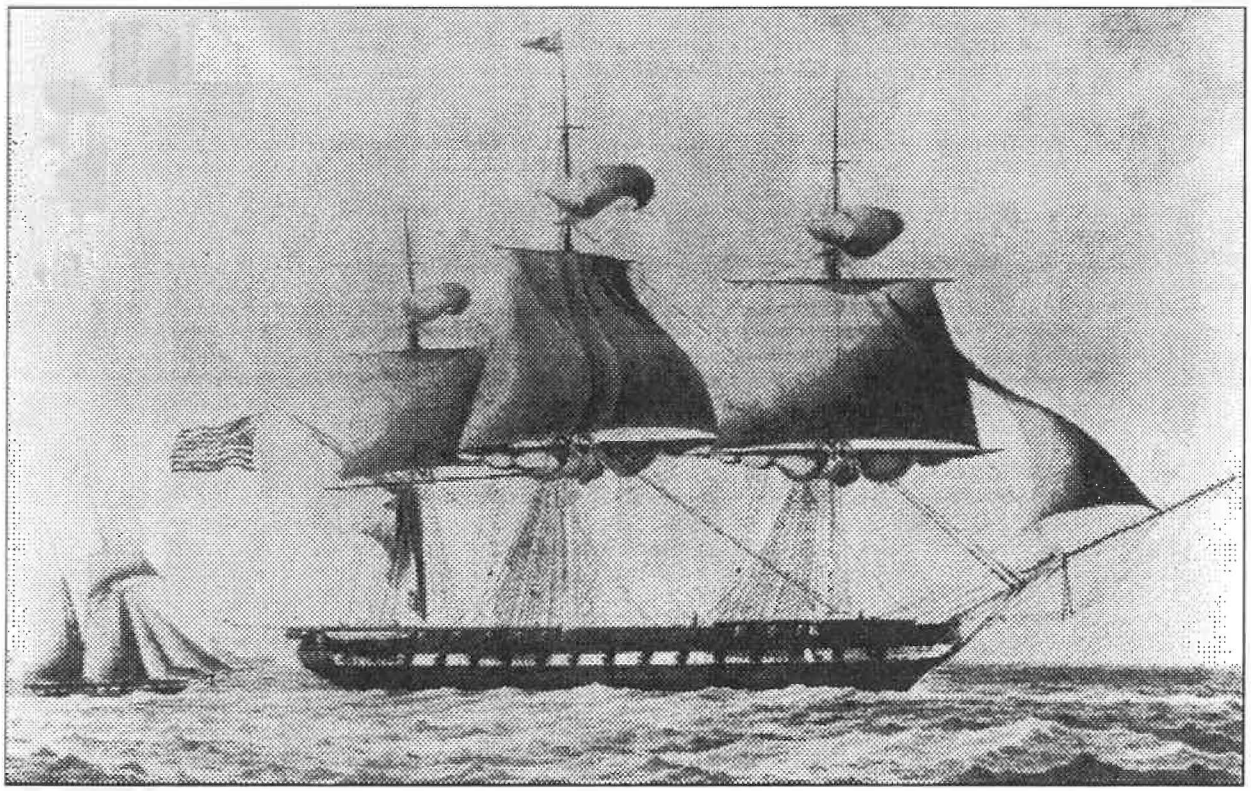
Inventor's sketches of the "propello marino" hand-cranked paddlewheel system tested in *Constitution* in the spring of 1821.

23 Apr 1821 -- Tested the "propello marino," a set of strap-on man-powered 23.5-foot diameter paddlewheels, in Boston Harbor, making good an estimated 3.5 knots against wind and tide. [Ltr, Sailing Master Briscoe Doxie to Captain John Rodgers, Board of Naval Commissioners, 1 Jun 1821, with encls. DNA; ship's log,

DNA.] *The device subsequently was ordered taken to Mediterranean for testing, but subsequently was off-loaded into a warehouse at Port Mahon, Minorca, in September and remained there until back-loaded in October 1823 preparatory to a return to the US.*

27 Jan 1823 -- "...painting & blacking the Bends..." [Ship's log, DNA.]

12 Mar 1824 -- Painting hammock cloths. [Ship's log, DNA.]



U. S. Navy NH54594

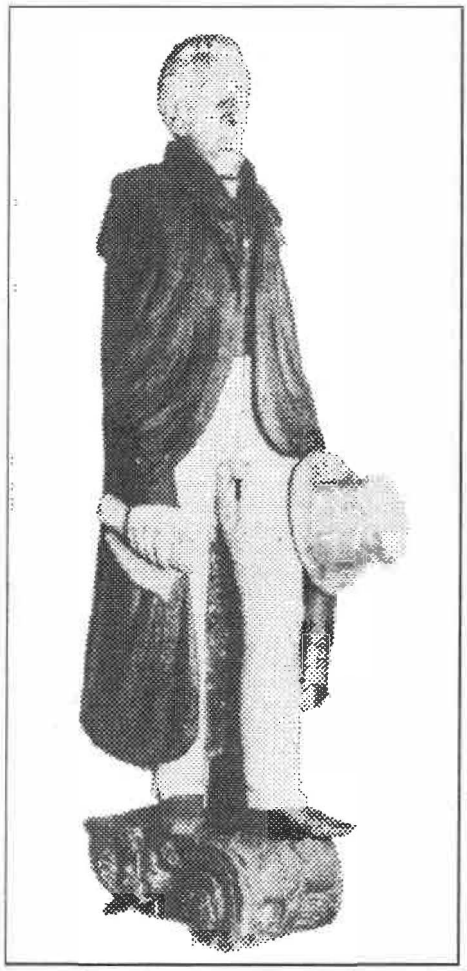
An 1824 black and white painting of the ship by a crew member. Note the continued presence of the double martingale, the fact that the bow head area is enclosed except overhead, the fact that the gun streak now extends around the cutwater, and the black-painted waist hammock nettings covers giving the ship the appearance of having solid bulwarks amidships. The absence of any evidence of the spencer gaffs first carried on this cruise casts doubt on the accuracy of spar and rigging details.

24 Oct 1825 -- "...painting the bends..." [Ship's log, DNA.] *This is the first record of painting rather than blacking the bends.*

Oct 1825 -- Paints on board included black, white lead, yellow ochre, and varnish. [Ship's log.]

9 Sep 1833 -- Gun deck gun port sills made a uniform two feet above the deck. Bridle ports moved forward ten inches; made to same dimensions as gun ports. [Ltr, Chief Naval Constructor Samuel Humphreys to Boston Navy Yard Commandant Jesse Duncan Elliott, 16 Sep 1833. RG45, Entry 224, DNA.]

24 Feb 1834 -- Bowhead area to be enclosed down to the cutwater; the stern to be finished with some "light carved work of the scroll or wreath character." [Ltr, Captain John Rodgers, Board of Naval Commissioners, to Commandant Jesse Duncan Elliott, RG45, DNA.] Elliott, however, already had caused to be carved bas relief busts of Captains Isaac Hull, William Bainbridge, and Charles Stewart -- the "victor captains" -- for installation across the transom above the cabin windows. [Ltr, Elliott to SecNav, 22 Feb 1834, M125, Roll 191, DNA.]



Brewington, *Shipcarvers of North America* (1962)

The 1834 figurehead of Andrew Jackson with the replacement head in place.

28 Apr 1834 -- Figurehead of President Andrew Jackson installed. [Preble, RADM George Henry. *History of the Boston Navy Yard*. Ms. MHS.]

3 Sep 1834 -- The channels are to be split into short sections and installed on "the lower part of the second strake above the spar deck port sill...so far from the seam only as will allow for caulking." The chain bolts were driven into the strake next above the top of the gun deck ports, about 1/3 the width of the strake from the lower edge. The preventer bolts went through the strake of

spirketting next above the gun deck waterways. [Ltr, Captain Charles Morris, Board of Naval Commissioners, to Elliott, 3 Sep 1834. RG45, M125, DNA.] *This new arrangement, much criticized when installed, very nearly caused the ship's loss on an 1835 voyage. It is presently unknown if or when to the "old style" was returned to the ship.*

15 Mar 1835 -- Decapitated portion of Jackson figurehead replaced at New York. [Ltrs, Captain Jesse Duncan Elliott to Secretary of the Navy Mahlon Dickerson, 15 Mar 1835, and Captain Charles G. Ridgely to SecNav, 16 Mar 1835, both RG45, M125, Roll 204, DNA.]

Mar 1835 -- The ship was fitted with iron sheathed billboards. [Ltr, Captain Charles G. Ridgely to Secretary of the Navy Mahlon Dickerson, 20 Mar 1835, RG45, M125, Roll 204, DNA.]

Aug 1839 -- "...painting the bends..." [Ship's log, DNA.]

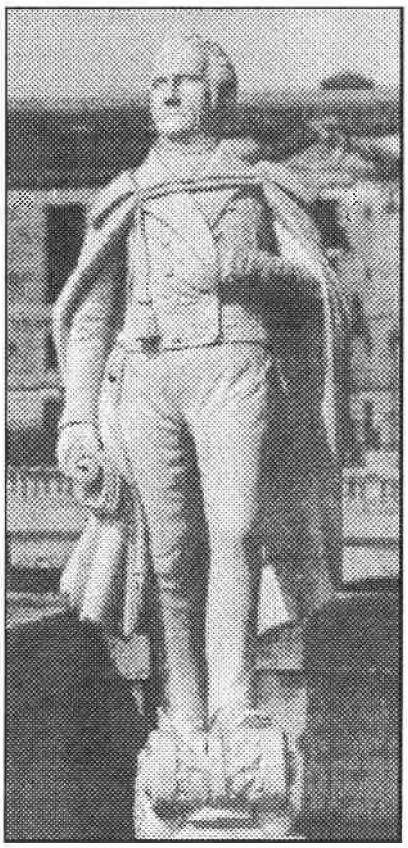
Jan 1842 -- Board of Naval Commissioners decreed that USN hulls were to be black with a white streak, and that inboard bulwarks were limited to white, straw, or green. Brass could be used for cabin and wardroom quarterdeck rails, and nothing else. [Circular ltr, Board of Naval Commissioners, 19 Jan 1842, RG45, Circular Letters, BNC, DNA.]

8 May 1844 -- The ship painted with white lead; the gun streak, red. [Lieutenant John B. Dale Journal, NEHGS.]

30 May 1845 -- "...painting the white streak..." [Ship's log, DNA; Midshipman Meriwether Patterson Jones Journal, DNA.] *This indicates the ship was returned to her conventional black and white paint scheme.*

Dec 1846 -- Original Jackson figurehead replaced by a new version. [Brewington, *Shipcarvers of North America*.]

Dec 1847 – Profile drawing by Naval Constructor Samuel M. Pook shows that the bulwarks have been extended completely around the spar deck, broken only by the 2'6" wide entry ports. Hammock nettings on either side extend from the vicinity of the catheads to the taffrail. [Plan 107-13-10F, RG19, DNA.]



Brewington, *Shipcarevers of North America* (1962)

The second Andrew Jackson figurehead, installed prior to the 1848 recommissioning. Now on display at the Naval Academy.

15 Mar 1849 -- "...carpenters shifting boat davits..." [Ship's log, DNA.]

Sep 1850 -- Mention made of "...white streak..." and black hammock cloths. [Ship's log, DNA.]

Jan 1851 -- Blacking the bends. [Ship's log, DNA.] *It would appear that the Navy had reverted to the old method of lower hull preservation (see Aug 1839 entry).*

May 1854 -- "...painting the white streak..." [Ship's log, DNA.]

Oct 1854 -- "...painting the white streak..." [Ship's log, DNA.]

28 Oct 1854 -- While at anchor, ship struck amidships by an American whaler that, among other things, carried away two half ports from gun ports. *This may indicate that, at this time, the ship now had hinged port lids.*

MASTS, SPARS, RIGGING, AND SAILS

As completed in the spring of 1798, *Constitution* was equipped with a bowsprit and three masts. Each was composed of several sections, each successive section of smaller diameter and length, and each section made from a single tree. The actual dimensions of these masts and their spars can only be approximated as those used by her outfitters have not been found, and such data as exist indicate that there was a range of views on what was "right." For example, here are the views of four knowledgeable men at the time:

	A	B	C	D
Total length of Main Mast	221.7	214.6	212.6	210.1
Total length of MnMast Yards	240.4	237.6	234.1	225.1
Total length of Fore Mast	197.1	199.8	198.0	197.4
Total length of FMast Yards	211.5	218.0	220.0	214.1
Total length of Mizzen Mast	177.1	161.8	175.8	156.0
Total length of MzMast Yards	158.2	172.6	176.0	137.1

"A" is David Steele, British author of *Steele's Elements of Mastmaking, Sailmaking and Rigging* (1794).
"B" is Captain John Barry, prospective commanding officer of USS *United States*.
"C" is Joshua Humphreys, designer of the 44s.
"D" is Captain Thoms Truxtun, prospective commanding officer of USS *Constellation*.
[From the Secretary of War to William Pennock, Norfolk, VA, 8 Oct 1795, M739, Roll1, DNA.]

Significantly, in January 1796, the Naval Constructors and Superintendents were told they were at liberty to determine mast and spar specifications for their respective ships. [Circular letter to Naval Constructors and Superintendents, 25 Jan 1795, M739, Roll 1, DNA.]

In July 1806, Naval Constructor Josiah Fox sent a letter to Commandant Thomas Tingey of the Washington Navy Yard providing dimensions for masts of several classes of ships. Whether these are his personal views -- he was the only Naval Constructor then -- or whether they can be considered officially decreed material is unknown. Given the informality of those times, it is probable that they are his personal views, but as the only officer of the Navy concerned with such things "full time," probably also may be take as official.

"Table of Dimensions of parts of Masts for the first...class...of frigates

"The different parts of a main mast for the 1st class of Frigates [Dimensions follow in order: length (in feet), breadth at heel, breadth "in between," breadth at head, thickness at heal, thickness "in between," and thickness at head (all in inches).

Lower spindle to line straight
29.11 x 20.5 x - 19 x 20.5 x - x 7

Second piece of spindle
77.4 x 20 x - x 9 x 20 x - x 14

Third piece of spindle
48 x 16 x - x 14 x 8.5 x - x 11

After lower fish
57.8 x 17.5 x - x 14 x 14 x - x 14

After upper fish
50.1 x 15.25 x - x 14 x 14 x - x 14

Fore lower fish
87.7 x 17.5 x - x 14 x 14 x - x 14

Fore upper fish
40.1 x 15.25 x - x 14 x 14 x - x 14

Larboard Side Tice [sic]
81.8 x 19 x - x 17 x 12 x - x 6

Larboard Cheek
62.8 x 18 x 30 x 21 x 6.25 x 17 x 9

Paunch
54 x 12 x - x 14 x 5 x - x 8.25

The parts of a fore mast...

Lower Spindle to the line Straight
27.5 x 19.5 x - x 18 x 19.5 x - x 6.5

Second piece of Spindle
73.4 x 19 x - x 13.5 x 19 x - x 8

Third piece of Spindle
44 x 15.5 x - x 13 x 7.5 x - x 10

Fore lower Fish
80 x 16.5 x - x 13 x 13 x - x 13

Fore upper Fish
36.4 x 13 x - x 12.5 x 13 x - x 13

After Lower Fish
70 x 16.5 x - x 13 x 13 x - x 13

After upper Fish
46.4 x 13 x - x 12 x 13 x - x 13

Larboard Side Tice [sic]
75 x 18 x - x 16 x 11 x - x 5

Larboard Cheek
57.2 x 17 x 29 x 20 x 8 x 16 x 9

Paunch
48.6 x 11 x 11 x - x 13 x 4 x - x 7.5

Mizen masts for the first...class of Frigates, each Mast to be of a solid stick

Length	94'	3d quarter	22.25"
Diam. Pam [?]	26"	Hounds	22.25"
1st quarter	25.5"	Heel	22.25"
2d quarter	24.25"	Head	16.25"

Bowsprit [Figures, in order, are: length (in feet), breadth of heel, "breadth between," breadth at head, thickness at heel, "thickness between," thickness at head, and number of pieces.]

Upper Tice [sic]
68 x 16.5 x 20 x 13.5 x 14 x 12.5 x 11.5 x 1

Lower Tice [sic]
68 x 16.5 x 20 x 13.5 x 16 x 19 x 13.5 x 1

Upper side of Larboard fish
68 x 8.5 x 11.5 x 7 x 25 x 29 x 21.5 x 2

Upper side of upper fish
68 x 27 x 29.5 x 21.25 x 7 x - x 6 x 1

[Ltr, Josiah Fox to Thomas Tingey, 19 Jul 1806, M124, Roll 11, DNA.]

This confirms the fact that the shift, noted in 1801 in *Constitution*'s case, had been made from all pole masts to only the mizzen being a pole mast. Whether or not these dimensions were faithfully followed for all ships is unknown.

A table of data relating to "Old Ironsides" during her frontline service is to be found in Appendix F. During her initial commission, she experienced repeated problems with her masting, apparently due in large measure to their insufficient size and strength.

American rigging practice is known generally to have employed rope of somewhat greater dimension that British practice in a given situation. Appendix E provides specific data regarding *Constitution*'s standing rigging as recorded by an officer present at her launching and may be used as a basis of comparison with the many British source books on the subject that are available.

Because detailed records do not seem to have been kept, precise information on sail dimensions also is lacking. The only such record presently known in *Constitution*'s case, from 1824, is reproduced in E.

Known changes in masting, rigging, and sails following commissioning follow:

Oct 1798 -- Fore, main and mizzen topgallant and royal masts mentioned. [NDQW; Journal of Midshipman James Pity, DNA.]

Oct 1798 -- Two mentions of a spritsail. [Midshipman James Pity Journal, DNA.] *These are the only references to the actual use of a spritsail in this ship's history.*

8/9 Jan 1799 -- Ship's company made splinter nettings. [Ship's logs.]

24 Jan 1799 -- "Carryed [sic] away the maintopmast crossbraces and main topmast stay..." [Ship's log.]

Jan 1799 -- Sailmakers making awnings. [Ship's log, USSCM.]

Jun 1799 -- Sailmakers making awnings. Tarred rigging. [Ship's log, USSCM.]

Jun 1799 -- The yards were blacked. [Ship's log, USSCM.]

Jul 1799 -- The masts were painted. [Ship's log, USSCM.]

Dec 1799 -- Main shrouds in the 44s are 10 1/2"; number of strands not mentioned. [Ltr, Secretary of the Navy Benjamin Stoddert to Joshua Humphreys, 25 Dec 1799, RG45, M209, Roll 1, DNA.]

14 Jul 1800 -- The new mainmast, a "made" mast, is to be 101' 6" tall, "which will be four feet shorter than the one she now has..." [Ltr, Captain Silas Talbot to Navy Agent Stephen Higginson, 14 Jul 1800. Mystic Seaport Library.]

Aug 1800 -- Painted the mainmast. [Ship's log, DNA.]

5 Nov 1800 -- The new main topsail is to be 50' at the head and 80' at the foot, the new fore topsail, 46' at the head and 72' at the foot. [Ltr, Captain Silas Talbot to Navy Agent Stephen Higginson, Boston, MA, 5 Nov 1800, Mystic (CT) Seaport Library.]

Aug 1801 -- Iron hoops were purchased for the fore and main masts and bowprit, showing they were to be "made masts." [Receipt for hoops from Ebenezer Leman, Samuel Brown Papers, MHS.]

Dec 1801 -- Masts for 44s: fore, 95' x 32"; main, 105' x 35"; mizzen, 92' x 24"; and bowsprit, 64' x 34". [Ltr, Secretary of the Navy Benjamin Stoddert to Navy Agent William Pennock, 5 Dec 1801, RG45, M209, Roll 2, DNA.]

11 Jun 1803 -- "The Main Mast...is a made Mast Consisting of 28 pieces..." [*NDBW*, vol 1, p. 450.]

3 Dec 1803 -- Painting bowsprit. [Ship's log, DNA.]

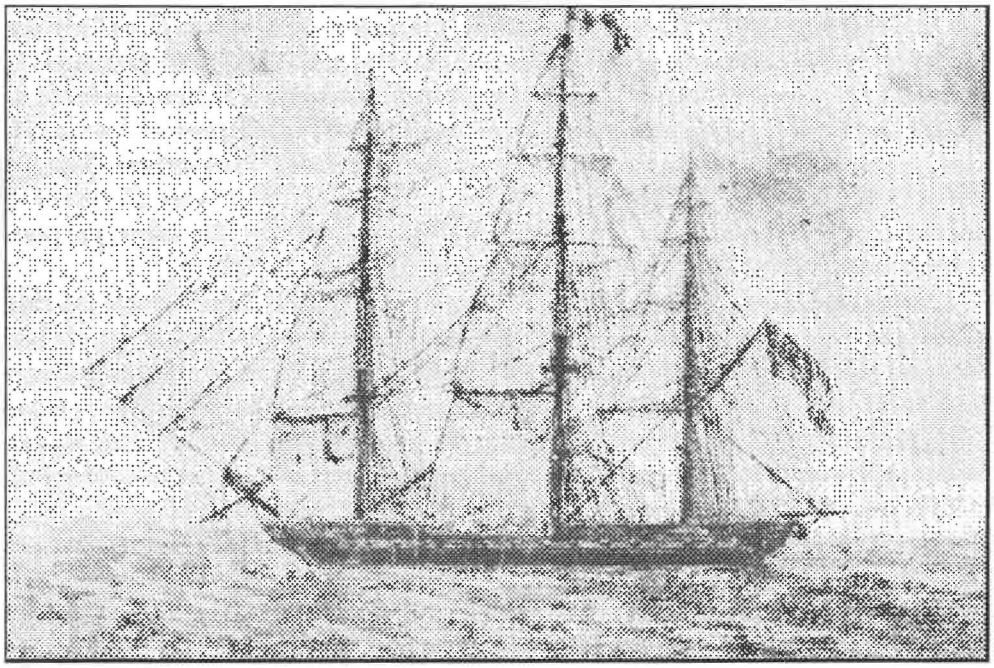
9 Jan 1804 -- Blackening lower and topsail yards. [Ship's log, DNA.]

15 Jan 1804 -- Used 36 fathoms of 9" and 46 of 6" to gammon and woold the bowsprit. [Ship's log, DNA.]

25 Jan 1804 -- Painting the masts. [Ship's log, DNA.]

Feb 1804 -- "...scraping the topmasts..." [Ship's log, DNA.]

Sep 1804 -- "...blacking the yards..." [*NDBW*, Vol. 5, p. 57.]



This sketch, believed to be from 1809, shows *Constitution* following her 1808 overhaul. Note the open waist and bulwarked forecastle. Commodore John Rodgers' broad command pennant (burgee) flies at the main.

Jun 1810 -- Mast hoops were 2.5", 3", or 3.5" wide and 3/8" thick. [Ltr, Secretary of the Navy Paul Hamilton to Navy Agent James Beatty, 2 Jun 1810, RG45, M209, Roll 4, DNA.]

Jul 1810 -- The rake of the foremast from the trestletrees is 3' 6 1/2"; that of the mainmast, 2' 7 1/4"; and the mizzen 4' 1 3/4". [Ship's log, DNA.]

Jul 1810 -- Blacking the yards. [Ship's log, DNA.]

Oct 1810 -- Blacking the yards. [Ship's log, DNA.]

Mar 1811 -- Varnished spars. [Ship's log, DNA.]

Apr 1811 -- Tarring rigging. [Ship's log, DNA.]

Oct 1811 -- "...blackening the yards..." [Midshipman Frederick Baury Journals, MHS.]

28 May 1812 -- Painted the main and fore tops. [Midshipman Frederick Baury Journals, MHS.]

1 Jun 1812 -- Trysail mast was swayed up abaft the mizzenmast. [Midshipman Frederick Baury Journals, MHS.] *It continues to this day.*

4 Jun 1812 -- Blacking the yards. [Midshipman Frederick Baury Journals, MHS.]

18 Jul 1812 -- First mention of use of skysails. [Ship's log, DNA.]

19 Aug 1812 -- Upon sighting *Guerriere*, royal yards sent down. At 1545, took in topgallants and staysails, and flying jib, hauled up the courses, and took a second reef in the topsails. At 1705, hoisted an ensign and a jack "at each Mast head." At 1745, set main topgallant. At 1805, hauled down jib and lay the main topsail shivering. At 1830, set fore and main courses, taking one reef in the topsails. Damage suffered: standing and running rigging "much cut" and sails "much cut through;" one shot each through the fore and main masts, and the heel of the foretopgallant mast; the larboard crossjack arm shot away, as well as a spare topsail yard in the main channels; "the Yard for the Slings of the Main Yard broken;" and the spanker gaff and boom broken. [Ship's log, Henry E. Huntington Library.]

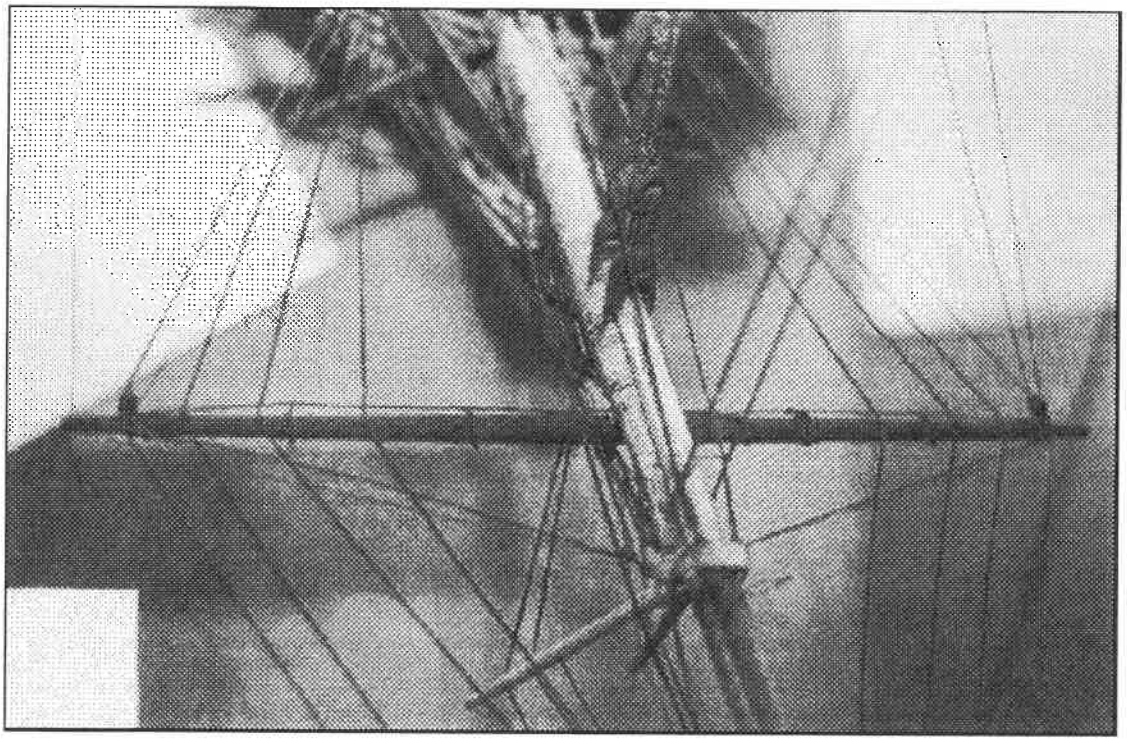
20 Aug 1812 -- Fitting fishes to the fore and main masts, replaced foretopgallant mast. [Ship's log, Henry E. Huntington Library.]

23 Aug 1812 -- Fitting a new spanker boom. [Ship's log, Henry E. Huntington Library.]

Oct 1812 -- Fluting the fore and main rigging. [Journal of Midshipman Frederick Baury, MHS.]

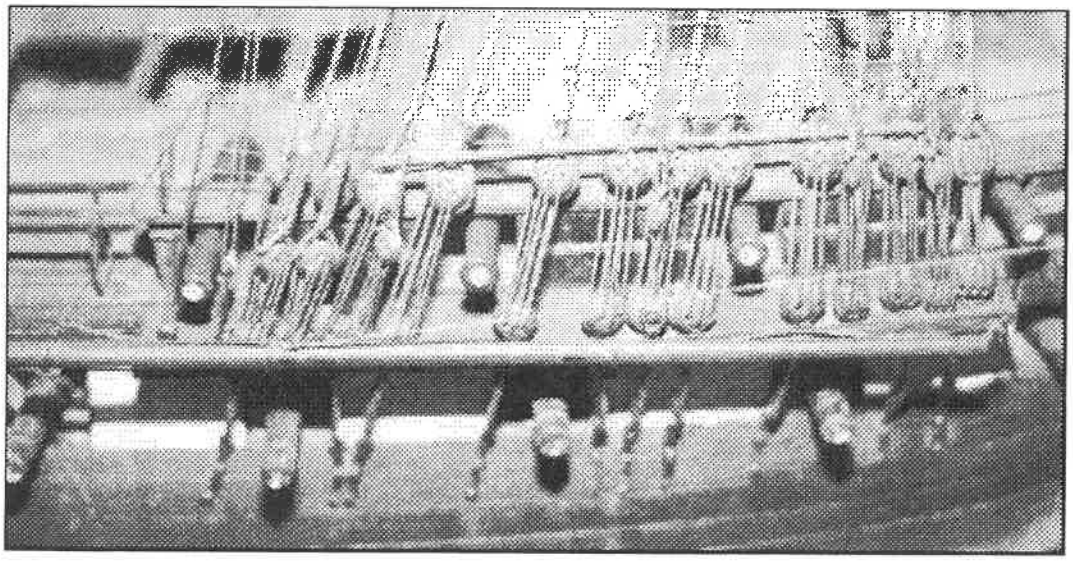
Oct 1812 -- The following new masts and yards were installed: fore and main lower masts, all 3 top masts (51'6", 55'0", and 43'0"), all 3 sky masts (36'0", 39'0", and 30'0"), trysail mast (46'0"), main yard (94'0" x 21 1/2"), crossjack (75'0"), all 3 topsail yards (59'6", 70'6", and 49'0"), fore and main topgallant yards (45'0" and 46'0"), all 3 royal yards (25'0", 30'0", and 20'0"), spanker gaff (44'0"), and spanker boom (66'0"), as well as the following studdingsail booms: 2 of 46'0", 2 of 43'0", 4 of 38'0", 4 of 37'0", 4 of 24'0", and 4 of 23'6". Masts were painted; yards varnished. [Navy Agent Amos Binney Summary Statement (with enclosures), 1-31 Oct 1812, RG217, 4th Auditor's Accounts, Alphabetical Series, Box 39, DNA.]

Late 1812 -- Crew members of *Constitution* created a model of the ship which they presented to their victorious commander, Captain Isaac Hull. Now preserved in the Peabody Essex Museum of Salem, Massachusetts, this "Hull model," while not to exact scale and obviously missing some parts (e.g., the wheel), has proven by comparison with contemporary documents to be quite accurate and therefore a reasonable source of information not available elsewhere. The photographs to follow illustrate come focal areas of the ship's rigging.



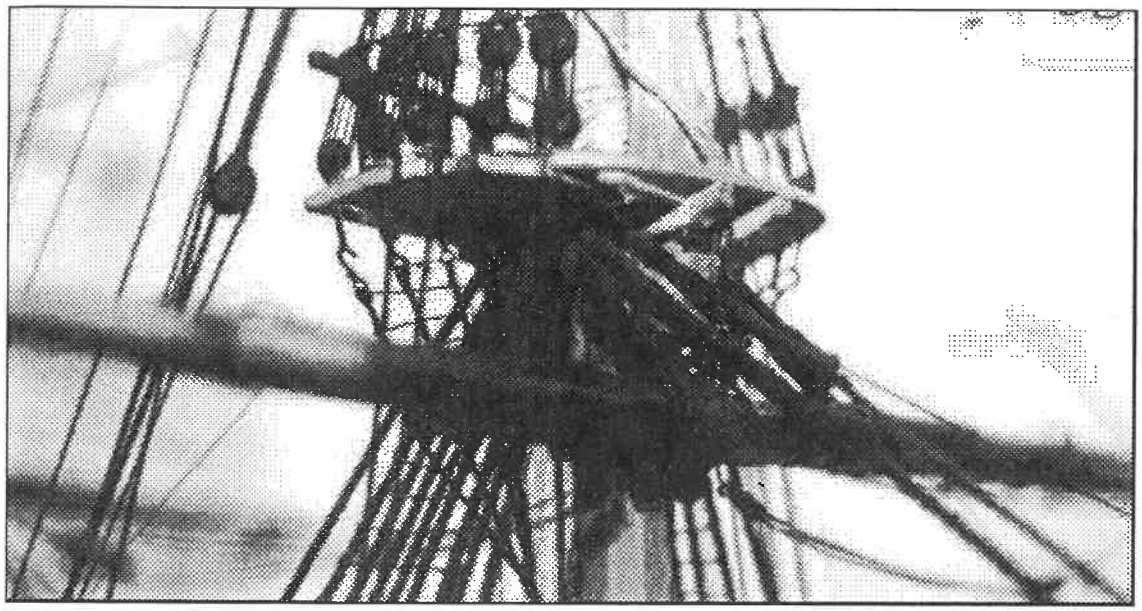
Courtesy Olof A. Eriksen

Looking down on bowsprit, spritsail yard and double martingale from a point above and slightly on the starboard bow.



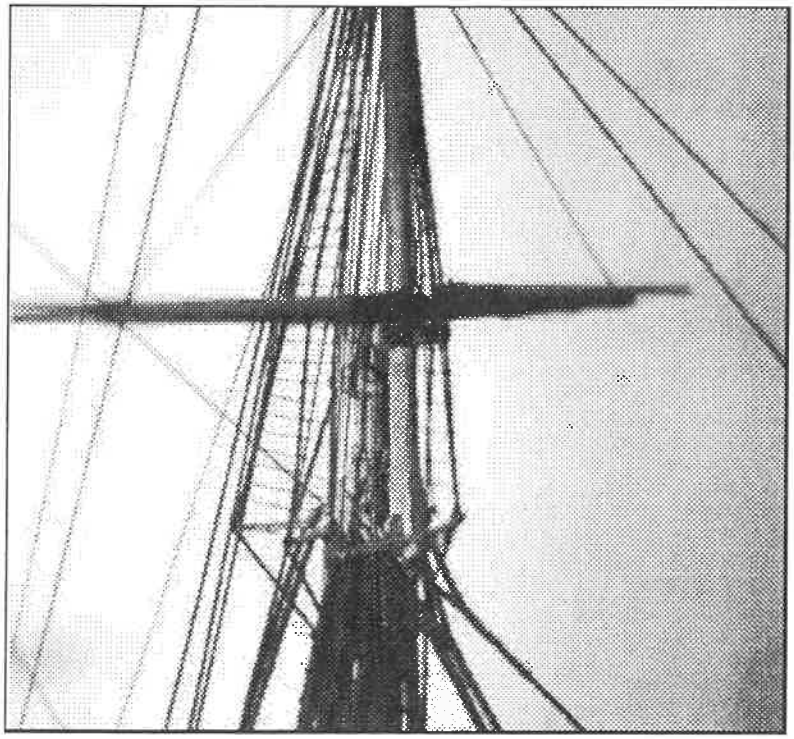
Courtesy Olof A. Eriksen

Detail of foremast shrouds and backstays. Note the lower fore stunsail boom stored parallel along the outer edge of the channel. Note, too, the U-shaped stanchion irons at the left center edge, topped by wooden rails: the waist hammock stowage, normally covered by a black-painted canvas cover.



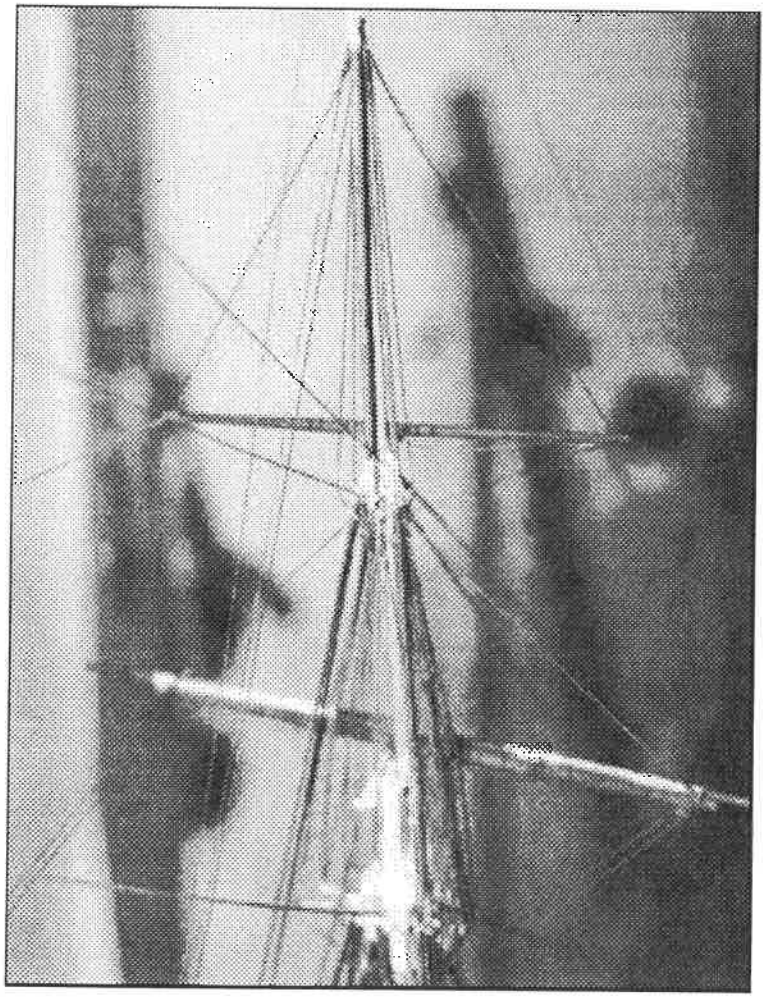
Courtesy Olof A. Eriksen

View of fore top from broad on starboard bow, slightly below level of fore yard.



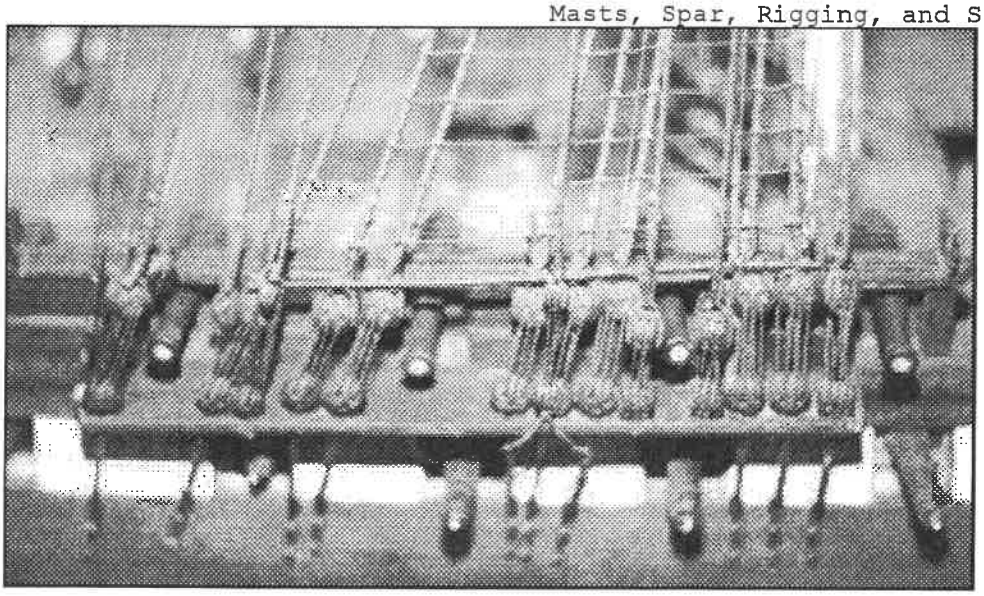
Courtesy Olof A. Eriksen

View of fore tressletrees and mating of fore topgallant and top masts.



Courtesy Olof A. Eriksen

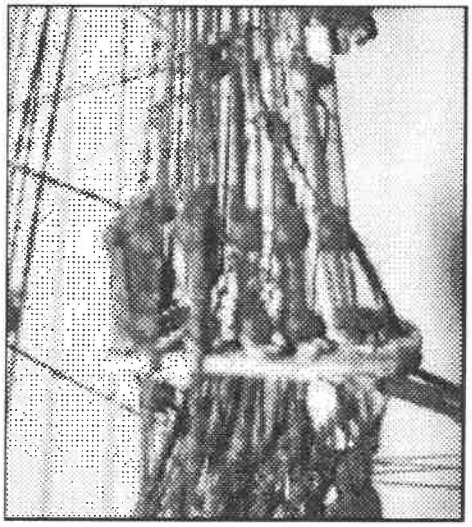
View of fore topgallant mast and sky pole from starboard quarter.



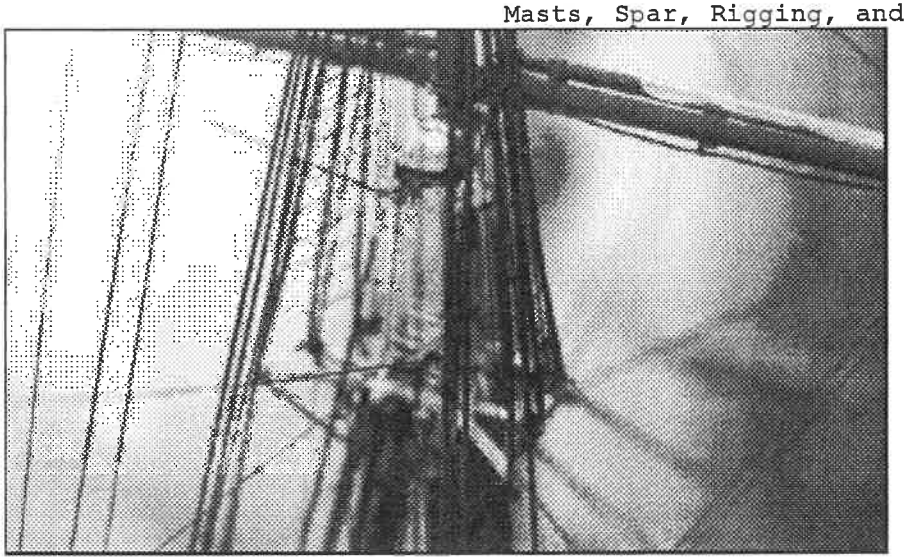
Courtesy Olof A. Eriksen

Detail of main shrouds. Just visible in the upper right are the three tiers of the main fife rail.

(Below.) Main fighting top from slightly forward of the beam.



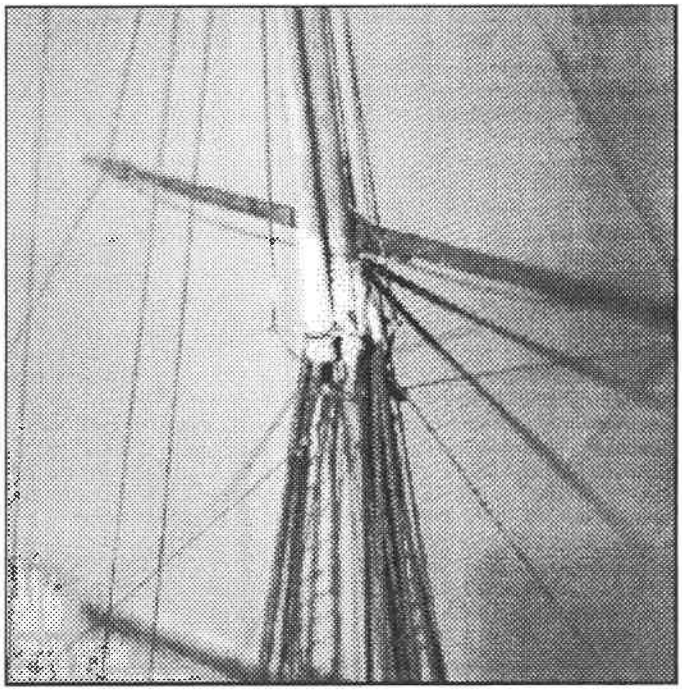
Courtesy Olof A. Eriksen



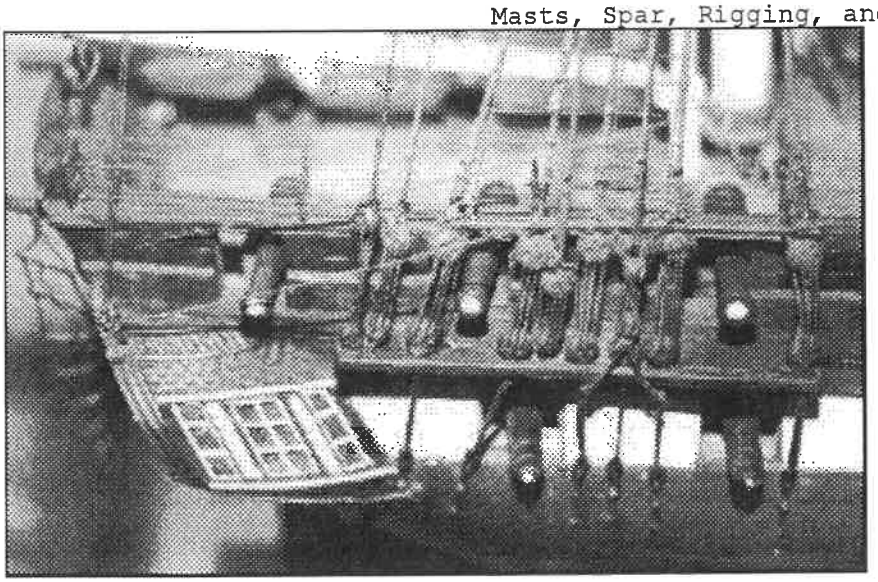
Courtesy Olaf A. Eriksen

Looking down on main tressletrees from starboard quarter.

(Below) Main skypole (left) and topgallant mast (right), and main royal yard.

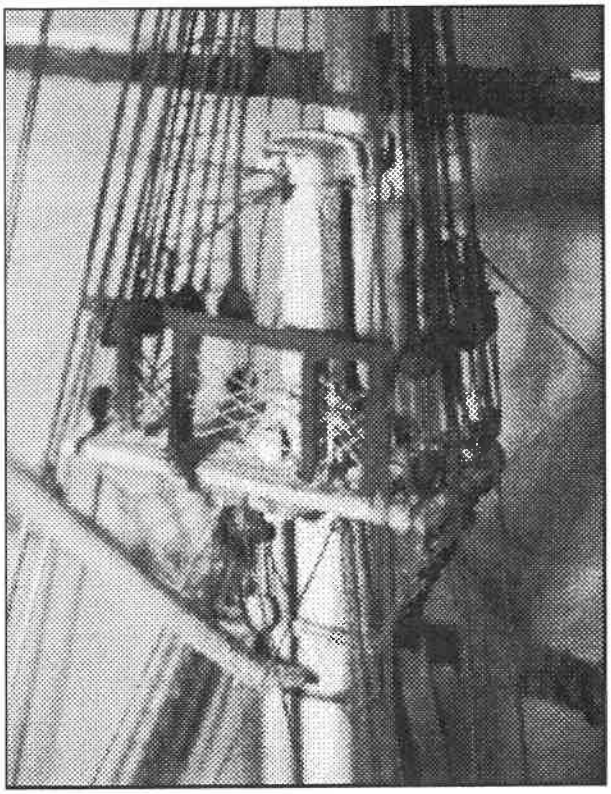


Courtesy Olaf A. Eriksen



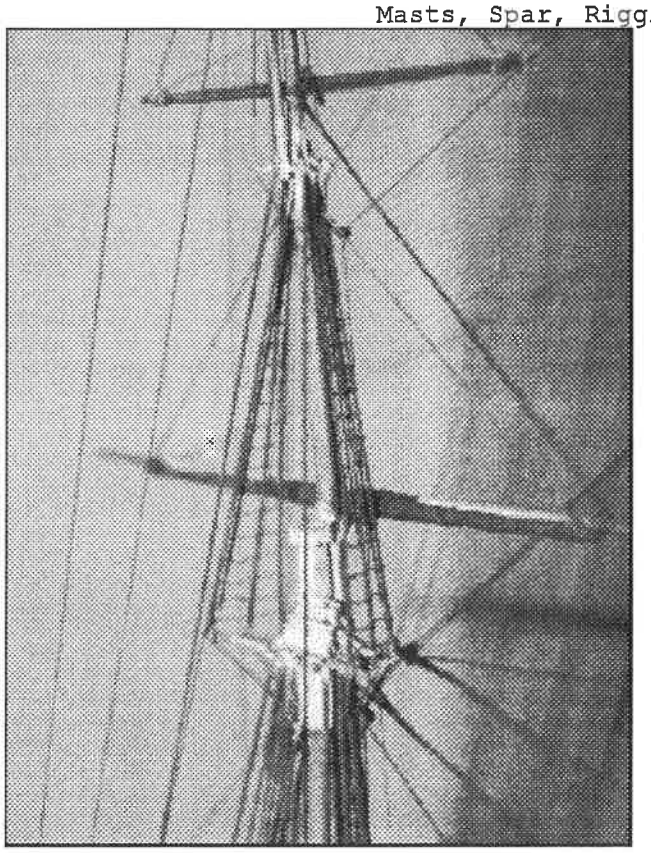
Courtesy Olof A. Eriksen

Depiction of the mizzen shrouds. Note that the stern boat davits extend through the transom below the taffrail. Note, too, the spider rail around the mizzen mast (upper right) in lieu of a fife rail.



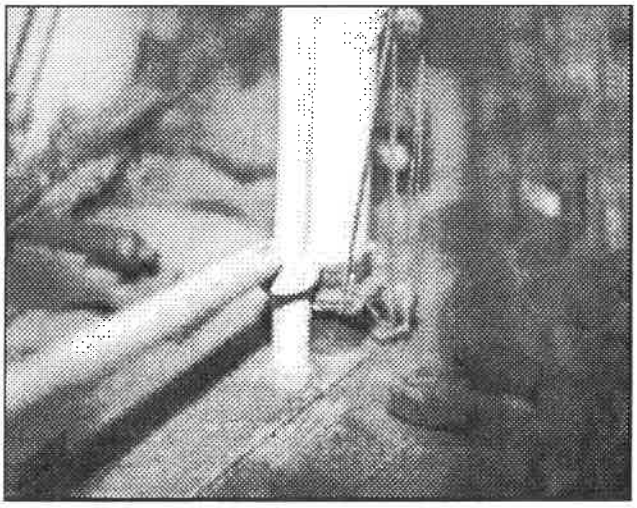
Courtesy Olof A. Eriksen

Looking down on mizzen top from well aft on starboard quarter. Note the railing and netting on aft side of top, common to all tops, as well as the spanker gaff riding on the trysail mast.



Courtesy Olof A. Reiksen

Starboard quarter view of mizzen tressletrees. Visible at top of picture is the mizzen sky pole.



Courtesy Olof A. Eriksen

Starboard quarter view of mizzen mast, showing the mounting of the spanker boom and the spider rail around the mast.

29 Dec 1812 -- "At 11 Tacked to the S & E hauled up the Main Sail & Took In the Royals... At ½ past 11 AM...Set the Main Sail & Royal... [At 12] hoisted our Ensign & Penant [sic]... At 1.26...Took in the

Main Sail & Royal Tacked Ship & Stood for the Enemy At 1.50 PM...[wore] [By 2]...Hoisted an American Jack Foreward [sic] & at the Main our Ensign, At the Miz T G Masthead & at the Gaff... At 2.40...Set the Fore Sail & Luffed up... At 2.50 The Enemies [sic] Ji Boom got foul of our Mizen rigging... At 4.05...Hauled on board the Course & Shott [sic] a head [sic] to Repair our Rigging which was badly cut... At 4.50 Wore Ship... After the Enemy had Struck Wore Ship & reefed our Top Sails... some of our Spars Injured..." [Midshipman Frederick Baury Journals, MHS.]

30 Dec 1812 -- Replaced the main sail. [Midshipman Frederick Baury Journals, MHS.]

31 Dec 1812 -- Replaced main top sail yard, main top sail, and jib. [Midshipman Frederick Baury Journals, MHS.]

4 Jan 1813 -- "...fishing Our Fore & Mizen Mast [sic]..." [Midshipman Frederick Baury Journals, MHS.]

11 Jan 1813 -- Replaced the main top mast "- the Old one having Suffered by a Shott [sic] In the Late Action.' [Midshipman Frederick Baury Journals, MHS.]

Dec 1813 -- Installed 4 iron stanchions weighing 25-30 lbs each, on each fighting top. [Navy Agent Amos Binney Summary Statement (with enclosures), 1-31 Dec 1813, RG217, 4th Auditor's Accounts, Alphabetical Series, Box 39, DNA.]

20 Feb 1815 -- 1500 in chase of HMS *Cyane* and HMS *Levant* with all sails, including studding sails, set to the royals. At around 1800, reduced to fighting sail. At about 1820, let fly all forward and backed the after yards. At 1835, filled the after sails. At about 2040, set courses, spanker, and flying jib in chase (in addition to fighting sail). Battle damage: torn sails and cut rigging. [Ship's log, DNA.] The fore topgallant yard destroyed. [Chaplain A. Y. Humphreys "Recapitulatory" Journal, Lilly Library, University of Indiana.]

12 Mar 1818 -- Notes that the lower rigging at war's end had been 10 1/2". [Ltr, Commandant Isaac Hull, Boston Navy Yard, to Captain John Rodgers, Board of Naval Commissioners, 12 Mar 1818. DNA.]

May 1820 -- The new bowsprit dimensions _____. Masts to be fitted with sliding gunters. [Ltrs, Captain John Rodgers, Board of Naval Commissioners to Commandant Isaac Hull, Boston Navy Yard, 9 and 10 May 1820. DNA.]

12 Mar 1821 -- "...fitted skysail stays..." [Ship's log, DNA.]

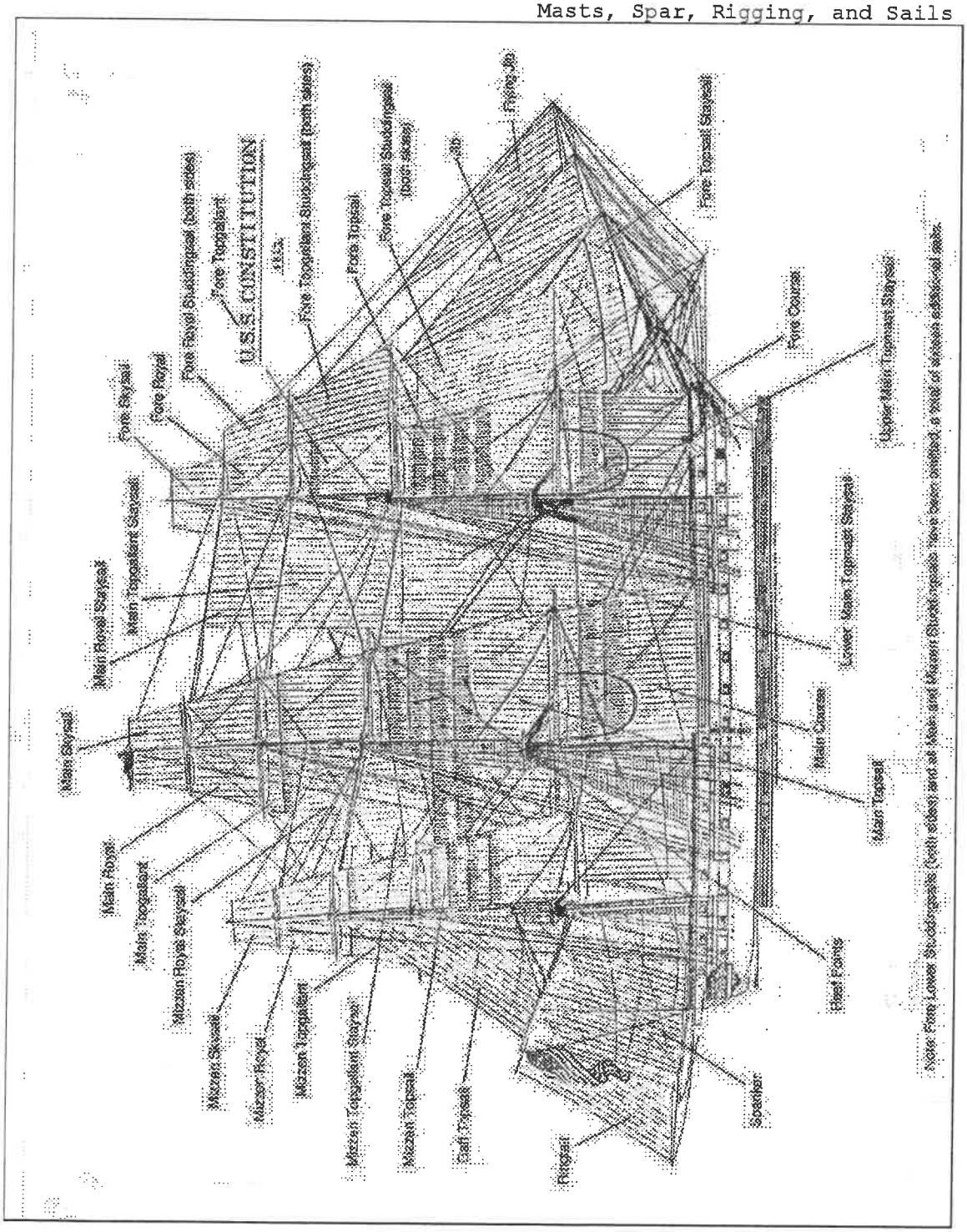
6 May 1822 -- "Carpenters scaffing [sic] skysail mast on to the royal mast..." [Ship's log, DNA.] *This was because the sliding gunters had not proven themselves.*

2 Oct 1823 -- Main skysail mast blown away by heavy squall; replaced on 5 Oct. [Ship's log, DNA.]

5 Oct 1823 -- Sent up new skypoles. [Ship's log, DNA.]

14 Jan 1825 -- "...painting the bowsprit..." [Midshipman Philip A. Stockton Journal, USSCM.]

20 Jan 1825 -- "...painted the main topgallant mast..." [Midshipman Philip A. Stockton Journal, USSCM.]



14 Sep 1825 -- Reference made to the main spencer. [Ship's log, DNA.]
Reference to the main spencer continues to be made up to 18 Apr 1853.

31 Jan 1826 -- Painting masts. [Ship's log, DNA.]

25 Apr 1827 -- "...painted the mast heads.." [Midshipman

Richard L. Page Journal, UNCL.]

19 Dec 1834 -- Lower foremast to be 95' x 31 1/2", with a 16' masthead. The lower mainmast to be 105' x 34", with an 18' masthead. The lower mizzen to be of a length to be level with the top on the mainmast, 23" in diameter, with an 18' masthead.[Ltr, Captain John Rodgers, Board of Naval Commissioners to Commandant Jesse Duncan Elliott, Boston Navy Yard, 19 Dec 1834. DNA.]

20 Mar 1835 -- Ship provided with a set of sliding gunter royal masts with hoops for the topgallant mastheads.

Captain Jacob Jones tried these in 1821-22 in the ship and found them unsatisfactory, replacing them with fixed sticks. Whether or not they ever were actually used on this later commission is unknown.

Sep 1837 -- Skysails mentioned; also "the water sail." [Ship's log, USSCM.]

Oct 1837 -- A bonnet for the jib mentioned. [Ship's log, USSCM.]

Jul 1838 -- A ringtail mentioned. [Ship's log, USSCM.]

7 Apr 1839 -- "...got on end the Main Try Sail Mast..." [Ship's log, DNA.]

Apr & Jun 1839 -- The fore spencer and its gaff mentioned. [Ship's log, DNA.]
The presence of the fore spencer appears periodically in the ship's log to 18 Apr 1853, when the use of chain slings for the gaffs is mentioned.

Sep & Nov 1839 -- Mentions erection and landing of "stump topgallant masts" on all three masts. [Ship's log, DNA.]

Dec 1839 -- Painting masts and spars. [Ship's log, DNA.]

Apr 1841 -- Painting lower masts. [Ship's log, DNA.]

21 Oct 1841 -- "Lowered the...Main Spencer gaff..." [Ship's log, DNA.]

6 Dec 1842 -- "...rigged out the Ring Tail boom..." [Ship's log, DNA.]

28 Mar 1844 -- "Received a spare jib boom secured it across the stern..." [Midshipman W. P. Buckner Journal, USSCM.]

3 May 1844 -- "Stowed the half main yard outside under the waist anchor & netting..." [Midshipman W. P. Buckner Journal, USSCM.]

9-11 Jun 1845 -- Painting spars and lower masts. [Midshipman Meriwether Patterson Jones Journal, DNA.]

1849-1851 ---- During this period, the ship had a sail inventory consisting of: 3 flying jibs, 2 standing jibs, 2 foretopmast studdingsails, 1 fore trysail, 1 fore storm staysail, 1 main topsail, 1 main storm

staysail, 2 mizzen topsails, 2 mizzen topgallant sails, 2 mizzen royals, 1 mizzen storm staysail, 2 main topmast studdingsails, 2 main topgallant studdingsails, 8 sets of boat sails, 2 foresails, 3 fore topsails, 2 foretopgallant sails, 3 fore royals, 2 main sails, 3 main topsails [sic], 2 main topgallant sails, 2 main royals, 2 spankers, 3 lower storm staysails, 2 foretopmast studdingsails, and 2 foretopgallant studding sails. [Midshipman Francis H. Baker Journal, Samuel Eliot Morison Library, USSCM.]

Apr 1853 -- "...got up Chain Slings for the Spencer Gaffs..." [Ship's log, DNA.]

27 Feb 1854 -- Rigging sizes: bowsprit shrouds, 5"; fore rigging, 3"; main rigging, 4"; mizzen rigging, 2"; main and main topmast stays, 6". [Ship's log, DNA.]

Apr 1854 -- Painting tops, trestletrees, and lower masts. [Ship's log, DNA.]

While the ship's logs, the journals of her officers, and correspondence has provided many details concerning her masting, etc., the actual details of rigging her have not been recorded. It has been general practice in the past to utilize the many books on the subject published in Great Britain to help fill the void. A four-year American study has been completed on the subject of how this fabulous frigate was rigged at the end of the War of 1812, and it was found that, where details could be correlated between documents specifically relating to the ship and the Navy as a whole, the rare first edition of Boatswain William Brady's work on seamanship, *The Naval Apprentice's Kedge Anchor* (1841), proved to be "right on." (Later editions, retitled simply *The Kedge Anchor*, must be used with caution when attempting to portray the ship at any earlier date for the Navy began using wire rope and chain in lieu of hemp for some rigging purposes.) A publisher has yet to be found for this seminal study. Until one is, and in the hope that it will be of assistance to the reader, Appendix F contains excerpts from a *Constitution* midshipman's work notes on how some of the rigging was set up.

SPAR DECK

The ship's bell was hung from a bracket on the mainmast. Cast by Paul Revere, it weighed 242 pounds. [Ltr, Revere to Navy Agent Henry Jackson, Boston, MA, 28 Oct 1797, Paul Revere Business Letters, MHS.] No dimensions have been found, but in 1810 USS *President* was reported as needing a bell 20" at its largest diameter and with 15" clear height exclusive of the crank ring. [Ltr, Secretary of the Navy Paul Hamilton to Navy Agent Francis Johonnot, 2 Jun 1810, RG45, M209, Roll 4, DNA.]

Jan 1799 -- The quarterdeck area was protected, in battle, by splinter netting. [Ship's log, USSCM.]

Feb 1799 -- Quarterdeck bulwarks painted, color not mentioned. [Ship's log, USSCM.]

Jul 1799 -- "Carpenters employed Cutting the After Hatchway..." [Ships' log, USSCM.]

Aug 1801 -- The fife rails were fitted with iron belaying pins. [Ebenezer Leman bill, 27 Aug 1801, Samuel Brown Papers, MHS.]

Jul 1803 -- Binnacles fitted with copper tops. [William C. Hunneman's bill, 6 Jul 1803, Samuel Brown Papers, MHS.]

Aug 1803 -- Armorer making more iron belaying pins. Reference made to half ports enclosing gun ports. [Ship's log, DNA.]

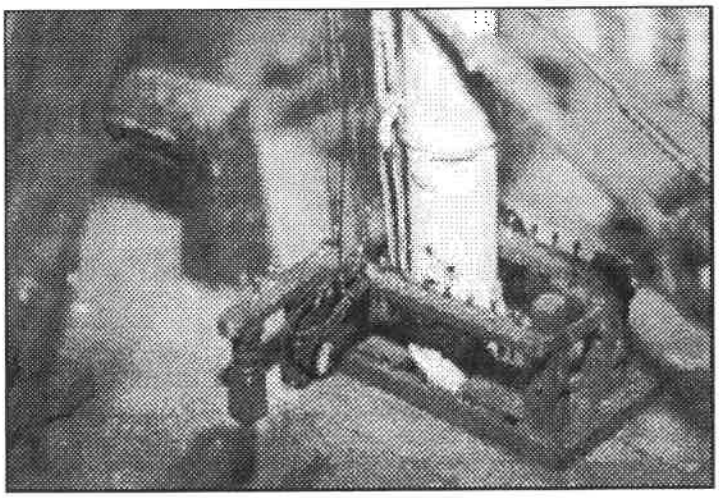
1804 – Ship fitted with single wheel. [Quarter Bill, American Antiquarian Society.] *Inferred from the fact that the bill provides for only two men on the wheel.*

Jan 1804 -- Hanging shot lockers served the guns on both this and the gun deck. [Ltr, Commodore Edward Preble to Lieutenant John Dent, 6 Jan 1804, John Dent Letterbook (1803-1810), Naval Historical Foundation Collection, DLC; also *NDBW*, Vol. 3, p. 317.]

Jan 1804 -- Painting the gratings. [Ship's log, DNA.]

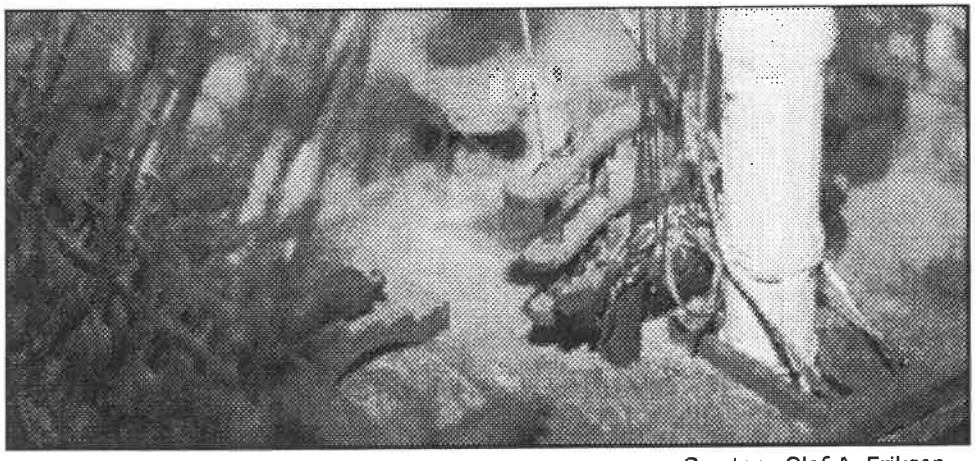
Oct 1804 -- Quarterdeck paintwork is "a light yellow." [*NDBW*, Vol. 5, p. 81.]

Feb 1809 – Ship fitted with double wheel. [Midshipman John M. Funck Quarter Bill, USSCM.] *Inferred from the fact that four men are provided for the wheel.*



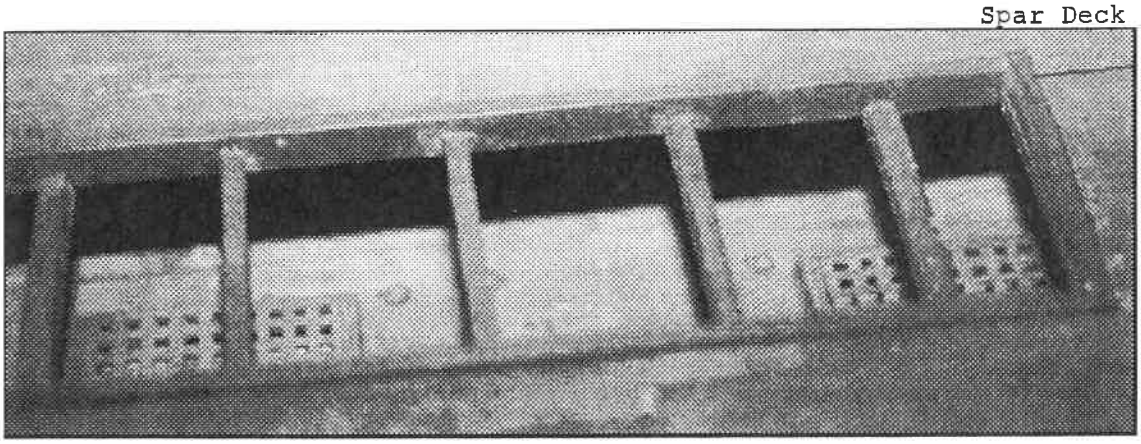
Courtesy Olof A. Eriksen

Detail of the forward fife rail as depicted in t he 1812 "Isaac Hull model." It, and the coaming, are painted green. Note the black "Charley Noble" galley smokestack to the left.



Courtesy Olof A. Eriksen

View of ship's main fife rail, on the "Isaac Hull" model of 1812. This pattern rail was in place at least as early as 1809, and remained through 1846. It consisted of three afterward-curving rails, and had a straight monkey bar installed between it and the mast. Notice also the mizzen brace descending above, then forking to pass either side of the mast to eyebolts in the common coaming between the main hatch and the mast opening. The fife rail, the monkey bar, and the coamings all are painted green.



Courtesy Olof A. Eriksen

Detail of the main hatch as depicted in the 1812 "Isaac Hull model," showing the boat skids. Note the presence of two hatches in the gun deck below. The after one (to the left) probably was used mainly for the handling of anchor cables, as the cable tiers are two decks below and aft of this point; the forward hatch served the main hold through another below it in the berth deck.

11 Dec 1810 -- Making new funnel for galley and stove pipe for wardroom. [Ship's log, DNA.]

3 Dec 1812 -- "...painting the Quarterdeck..." [i.e., quarterdeck bulwarks]. [Midshipman Frederick Baury Journals, MHS.]

29 Dec 1812 -- "At 2.30 Our wheel were Shott [sic] Entirely Away." [Midshipman Frederick Baury, MHS.]

Sep 1813 -- Received a new ship's wheel. [Navy Agent Amos Binney Summary Statement (with enclosures), 1-30 Sep 1812, RG217, 4th Auditor's Accounts, Alphabetical Series, Box 39, DNA.]

Oct 1813 -- Received a new 86 lb bell. [Navy Agent Amos Binney Summary Statement (with enclosures), 1-31 Oct 1813, RG217, 4th Auditor's Accounts, Alphabetical Series, Box 39, DNA.]

Jan 1839 -- Spar deck cabin erected abaft the mizzen mast. [Ltr, Captain Alexander Claxton to SecNav, 15 Jan 1839, RG45, M125, Roll 249, DNA.]

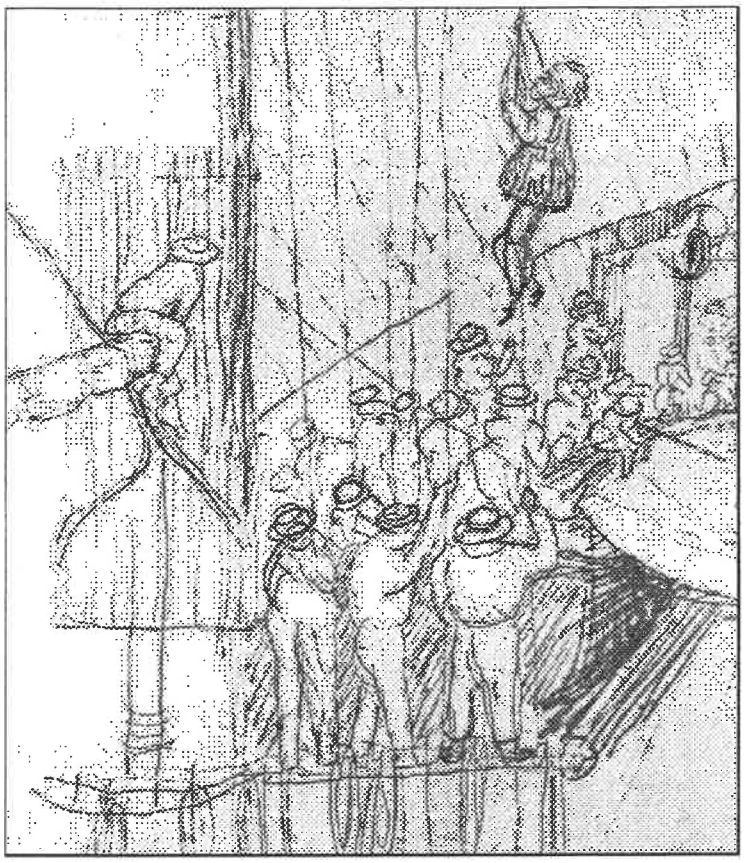
Mar 1839 -- Notes a "...hood for the quarterdeck hatch..." [Ship's log, DNA.]

4 May 1839 -- Received a new wheel. [Ship's log, DNA.]

12 Dec 1839 -- "Painters at work on upper cabin." [Ship's log, DNA.]

25 Jul 1842 -- "Carpenters employed in taking down poop Deck...". [Ship's log, DNA.] *This refers to the upper cabin erected abaft the mizzen mast early in 1839.*

4 Aug 1842 -- Hammock rails extended all the way aft to include area once included in poop deck. [Ship's log, DNA.]



Courtesy J. Wells Henderson

Detail from a sketch of "crossing the line" festivities by Fifth Lieutenant John B. Dale in July 1844. Of particular interest is the lightly noted presence of boarding pikes racked on the mainmast and the configuration of the "Charley Noble" galley smokestack.

23 Apr 1845 -- "...scraping black paint off the combings [sic] of the hatches..." [Midshipman W. P. Buckner Journal, USSCM.]

Dec 1847 -- Profile drawing by Naval Constructor Samuel M. Pook shows 3 gunports in the forecastle bulwarks and eight in the quarterdeck bulwarks. The forward ones are a uniform 6' apart; each is 2'6" high and 3' wide. About 2'1" forward of the forwardmost port is another, 2'6" by 5', giving access to any anchor at the cathead. The quarterdeck ports also are 2'6" by 3', but their spacing varies from 6'6" to 9'4" to avoid standing rigging. [Plan 107-13-10F, RG19, DNA.]

Feb-Apr 1854 -- "...the mercurial barometer that hangs in the spar deck cabin..." "...painting the spar deck cabin..." [Ship's log, DNA.] *These entries show that the poop cabin had been re-erected, probably late in 1852, prior to the ship's departure from the U.S.*

3 May 1855 -- Bulkheads in the spar deck cabin were removed in preparation for possible combat. [Ship's log.] *This indicates that the guns had not been removed from the ports encompassed by that*

cabin.

GUN DECK

The camboose is known to have both a hearth and "coppers." [*NDBW*, Vol. 1, p. 124.] As built the ship had chain pumps installed "fore and aft of the Main Mast." [Ltr, Secretary of War James McHenry to Naval Constructor George Claghorne, 8 Jan 1796, RG45, M739, Roll 1, DNA.]

Jul 1798 -- The captain's cabin was provided with an unknown number of dining tables and Windsor chairs, 1 "accommodation chair," 1 globe lamp, and 2 copper stoves. *[NDQW*, Vol. 1, p. 38.]

Nov 1798 -- A request for a skylight in the wardroom is denied, but a scuttle is allowed. [*NDQW*, Vol. 2, p. 51.] The scuttle was not fitted at least until late May 1799. [*NDQW*, Vol. 3, p. 232.]

16 Jan 1799 -- "...housed in the lee guns & down ports..." [Midshipman James Pity Journal, DNA.] *"Down ports" could be interpreted to mean lids hinged at the top. Documentation on this is lacking.*

Jul 1799 -- Bulkheads were whitewashed. [Ship's log, USSCM.] *This was done every 2-3 months.*

Jun 1802 -- Camboose sat on a platform of 48' of flagstone. [Edward Bell's bill, 4 Jun 1802, Samuel Brown Papers, MHS.]

Jul 1803 -- Furnishings in the Captain's Cabin included: 2 small tables, 24 chairs, 1 looking glass, 1 set stern curtains, 1 globe lamp, 4 patent lamps, 1 small carpet, and 2 green table cloths. [Ltr, Secretary of the Navy Robert Smith to Captain Edward Preble, 5 Jul 1803, RG45, M149, Roll 6, DNA.]

Aug 1803 -- "One Iron Camboose 27 Inches with Furniture complete delivered on board...$100." [John Bryant's bill, 11 Aug 1803, Samuel Brown Papers, MHS.]

Sep 1803 -- The scuttlebutt is lashed "near the mainmast." [*NDBW*, Vol. 3, p. 32.] Battle lanterns are hung on centerline and a fire bucket provided each gun. [*NDBW*, Vol. 3, p. 38.]

Jan 1804 -- Hanging shot lockers were provided on both this and the spar deck. [Ltr, Commodore Edward Preble to Lieutenant John Dent, 6 Jan 1804, John Dent Letterbook (1803-1810), Naval Historical Foundation Collection, DLC; also *NDBW*, Vol. 3, p. 317.]

Dec 1810 -- Overhauling chain pumps. [Ship's log, DNA.]

May 1811 -- Painting the gun deck. [Ship's log, DNA.] *This is the first instance of this area being painted rather than whitewashed. Actually*

refers to the gun deck bulwarks. See the 17 Dec 1812 entry below.

10 Dec 1812 -- Scraped the gun carriages. [Midshipman Frederick Baury Journals, MHS.]

17 Dec 1812 -- "...white washing & painting the Gun Deck.." [Midshipman Frederick Baury Journals, MHS.] *Bulkheads were whitewashed and coamings, spirketting, etc., was painted.*

Dec 1813 -- Captain Charles Stewart had made for the ship a furnace for heating shot. It was 3 feet square and 18 inches deep, with an upper grate to hold the shot and a lower one for the fire. A pan was provided to catch ashes and embers beneath it, and it was fitted with a chimney to improve the draft. [*ND1812*, Vol. 2, p. 292.]

Feb 1815 -- The officers' "necessaries," sometimes called "spice boxes," had been removed from their positions all the way forward on this deck. [Chaplain A. Y. Humphreys "Recapitulatory" Journal, Lilly Library, University of Indiana.]

1820 -- The captain's cabin was furnished with 1 sideboard, 1 secretary, 2 sofas, 1 set of curtains, 1 clerk's desk, 1 set of tables, 18 chairs, and cooking utensils. [Ltr, Board of Naval Commissioners to Captain Isaac Hull, 24 Nov 1820, RG45, Letters Sent, BNC, DNA.]

Apr 1821 -- For test purposes, the ship briefly was fitted with a "propello marino," a set of transportable, dismountable, man-cranked paddle wheels designed by Sailing Master Briscoe S. Doxey. The wheels, 23'6" in diameter, were fitted to axles protruding through the #6 gun ports and turned by a cable system powered by the gun deck capstan. During its one test, the ship made good about 3.5 knots against wind and water. [Tyrone G. Martin, "Paddle Wheels For 'Old Ironsides'," U. S. Naval Institute ~~Proceedings~~, Aug 1982.]

6 Feb 1826 -- Began painting "inside." [Ship's log, DNA.] *This is first instance of the use of the term "painting" concerning the interior of the ship as a whole. The ship is known to have had whitewashing brushes on board at this time; this may be an imprecise use of the word.*

28 Mar 1839 -- Received "...a cooking Galley for the Commodore 7 set [sic] the old one to the Navy Yard..." [Ship's log, DNA.]

Jul 1842 -- "...painting cabin..." [Ship's log, DNA.]

10 May 1844 -- "Took down the galley...on account of it smoking so badly. We now have a new one [on the "Espy plan"] which is not a great deal better." [Midshipman W. P. Buckner Journal, USSC; Carpenter Henry Thomas Journal, private collection.]

Dec 1847 -- Profile drawing by Naval Constructor Samuel M. Pook shows the 15 gun deck gunports each are 2'6" high by 3'4" wide, and are uniformly separated by 7'3". His gun deck drawing shows the manger beam installed immediately forward of the bridle ports. [Plan 107-13-10F, RG19, DNA.]

-- Gun deck drawing by Naval Constructor Samuel M. Pook shows the Captain's cabin divided into a forward dining and reception area occupying about 2/3 of the former space and a private cabin, the rest. The latter has small sleeping cabins to port and starboard, and a settee installed in an alcove in the forward bulkhead on centerline. A pantry is just forward of the dining cabin, abutting its forward bulkhead and the port side of the ship. This drawing also shows that the chain bilge pumps have been replaced by suction pumps. [Plan 107-13-10F, RG19, DNA.]

14 Oct 1860 -- As a school ship at Annapolis the ship had a series of study rooms built along either side of her gun deck. These were numbered from forward aft, odd numbers to starboard and even to port. [Letter, Midshipman Philip Henry Cooper to his parents, 14 Oct 1860, published in *Letters from Annapolis* (Naval Institute Press, 1998), p. 53.]

BERTH DECK

The berth deck was the living area for all hands other than the captain. The area forward of the foremast was given over to the ship's sickbay. Aft of that, to a point about midway between the mainmast and the mizzen was where the enlisted hands and Marines slung their 18"-wide hammocks 23" apart, the Marines occupying the aftermost area. The men's sea bags were arranged along either side, their securing lanyards stopped off on a rail to keep them in place. It was here, too, that the hands took their meals, eating in small groups called messes, each sitting on deck around its own square of canvas, picnic fashion. In the after corners of this berthing area, two on either side, were small staterooms for the ship's warrant officers, immediately adjacent to the bulkhead forming the forward boundary of the area known as "steerage," the home of the midshipmen. Each warrant officer stateroom contained his hammock, sea chest, and a folding camp stool. Any other furnishings were a matter of personal choice and provision.

Steerage had a large stateroom on either side, and the Midshipmen were divided equally between them, sleeping in hammocks like the crew but having lockers for their personal belongings. Their meals were taken in these spaces, the mess chests employed as tables and having camp stools to sit on.

Abaft the bulkhead marking the aft limit of steerage was the wardroom, home to the "sea officers" -- lieutenants -- and senior "civil officers," as well as the senior Marine. A series of staterooms lined either side, the lieutenants occupying those to starboard in order of seniority, forward aft. The Sailing Master occupied the forwardmost space to larboard and was followed by the Purser, Surgeon, senior Marine, and Chaplain. [Ltr, Captain Charles Morris to the Secretary of the Navy, 30 Aug 1840, RG45, (M124, Roll 174, Volume 308), DNA; ltr, Captain Silas Stringham to Secretary of the Navy, 31 July 1840, RG45 (M124, Roll 174, Volume 308), DNA.] Labels were provided outside each stateroom indicating the rank of its occupant. [Letter, Captain Francis Gregory to Secretary of the Navy, 25 July 1840, RG45 (M124, Roll 174, Volume 308), DNA.] This arrangement continued throughout *Constitution*'s term of regular service. Each stateroom was outfitted with a hanging cot especially made for its occupant, and a chair. Any more furnishings were the responsibility and choice of the occupant. His sea chest was secured under the hanging cot. A table and chairs occupied the centerline area, where meals were taken and paperwork done. Across the stern, and enclosing the rudder tiller, was a pantry space from which meals could be served.

During the early part of the period covered, the bulkheads and bulwarks of the crew's area of the berth deck were whitewashed regularly (every 2-3 months). The Wardroom and Steerage areas, and the warrant officers' staterooms were painted white.

Sep 1803 -- Six to a mess; 1 chest per mess. [Ship's log, DNA.]

Oct 1803 -- Bushel-basket- shaped grate stoves of Commodore Preble's design used to circulate air and dry out belowdecks. Each weighed

40-45 lbs and stood in a "receiver" to catch ashes and coals. How many used not specified. [Ship's log, DNA.]

Jun 1804 -- "...opened scuttles in the Gun room & those of the Warrant Officers store rooms forward-- They are all well lined with thick cloth..." [*NDBW*, Vol. 4, p. 175.] *"Gun room" is another term for "wardroom."*

17 Sep 1810 -- Began cutting air ports for the berth deck. Whitewashed berth deck and steerage. [Ship's log, DNA.]

Nov 1820 -- Furnishings provided the wardroom: 1 dining table, 1 small table per stateroom, 24 chairs, 1 walnut sideboard, 1 green table cover, and cooking utensils. Furnishings for midshipmen and warrant officers: 1 mess chest, 3 camp stools, 1 frying pan, 1 iron teakettle, 1 tin coffee pot, 1 coffee mill, and 2 tin pitchers per 6-man mess.

Furnishings for sailors and Marines: 1 mess chest, 2 kids, and 2 cans per 6-man mess.
[Ltr, Board of Naval Commissioners to Captain Isaac Hull, 24 Nov 1820, RG%, Letters Sent, BNC, DNA.]

6 Feb 1826 -- Began painting "inside." [Ship's log, DNA.] *This is the first instance of the use of the term "painting" concerning the ship's interior. The ship is known to have had whitewashing brushes aboard at this time; it may be an imprecise use of the word.*

28 Feb 1828 -- Painting wardroom and steerage. [Midshipman Richard L. Page Journal, UNCL.]

May 1839 -- Making bag racks on the berth deck. [Ship's log, DNA.]

May 1839 -- Reference made to the galley on the berth deck, termed "the boiling galley." [Ship's log, DNA.]

Jan 1840 -- "Sent a number of men...to paint [clothes] bags..." [Ship's log, DNA.] Also painted mess chests.

Jun 1844 -- Reference made to completion of the installation of "patent airports." [Carpenter Henry Thomas Journal, private collection.]

1847 -- Berth deck plan by Naval Constructor Samuel M. Pook shows the sickbay occupying virtually all the area forward of the foremast. It also shows four warrant officer staterooms, with those for the Boatswain and Sailmaker forward of Steerage in that order, and those for the Gunner and Carpenter likewise to starboard. A storeroom of equal size is located forward of the forwardmost WO stateroom on either side. It also shows the Wardroom to be fitted with 6 staterooms and a storeroom on either side. The pantry, on centerline aft, is but 5' deep, with the scuttle to the bread room below 2' forward of it on centerline. [Plan 107-13-10F, RG19, DNA.]

ORLOP DECK, HOLD, MAGAZINE(S), STOREROOMS

As built, the ship had but one magazine, located under the bread room abaft the cockpit.

Jul 1798 -- "...we are now covering the lead in the bread room with thin boards..." [*NDQW*, Vol. 1, p. 171.]

Jun 1802 -- Hold and storerooms are whitewashed. [Edward Bell's bill, 4 Jun 1802, Samuel Brown Papers, MHS.]

Jun 1802 -- The sail room is lined with tin. [Receipt for box of tin, 13 Jun 1802, Samuel Brown Papers, MHS.]

May 1803 -- Reference is made to the "hanging magazine forward," and the boatswain's, gunner's, and carpenter's storerooms. [*NDBW*, Vol. 2, p. 414.]

Jun 1803 -- The powder magazine and filling room were lined with copper. [*NDBW*, Vol. 2, pp. 446, 491.]

Jul 1803 -- The presence is noted of both kentledge and shingle ballast, with 10 tons of the latter in the spirit locker. [*NDBW*, Vol 2, pp. 486, 498, 501.]

1803 -- Both the sail room and bread rooms noted as being lined with tin. [*NDBW*, Vol. 2, p. 491.]

1803 -- Water stowage consisted of 90 leaguers, 76 butts, and 56 gang casks containing 41, 385 gallons of water. [*NDBW*, Vol. 3, p. 220.]

1803 -- The magazine is lined with 16 oz. copper. [Ltr, Secretary of the Navy Robert Smith to Captain Edward Preble, 8 Jun 1803, RG45, RolII 6, DNA; ltr, Captain Edward Preble to Navy Agent Samuel Brown, 18 Jun 1803, Samuel Brown Papers, MHS.]

Feb 1804 -- Cable tier whitewashed. [Ship's log, DNA.]

Sep 1810 -- Shingle ballast in both spirit room and main hold. Whitewashed storerooms. [Ship's log, DNA.]

Feb 1812 -- Whitewashed the hold. [Ship's log, DNA.]

30 Mar 1812 -- Shingle and kentledge in spirit room and hold. [Ship's log, DNA.]

Aug 1812 -- Reference made to a forward magazine. [Ship's log, DNA.] Reference made to "magazines." [Ship's log, Henry E. Huntington Library.]

Oct 1812 -- Whitewashed cockpit. [Ship's log, DNA.]

1820 -- The standard allowance of water casks for a 44-gun frigate was said to be 10 of 250-gal. capacity, 10 of 200-gal., 130 of 100-gal., 10 of 75-gal., 40 of 50-gal., 30 of 15-gal., and 70 of 8-gal., a total of 33,860 gallons. [Ltr, Board of Naval Commissioners to Captain Isaac Hull, 11 Jul 1820, RG45, Letters Sent, BNC, DNA.]

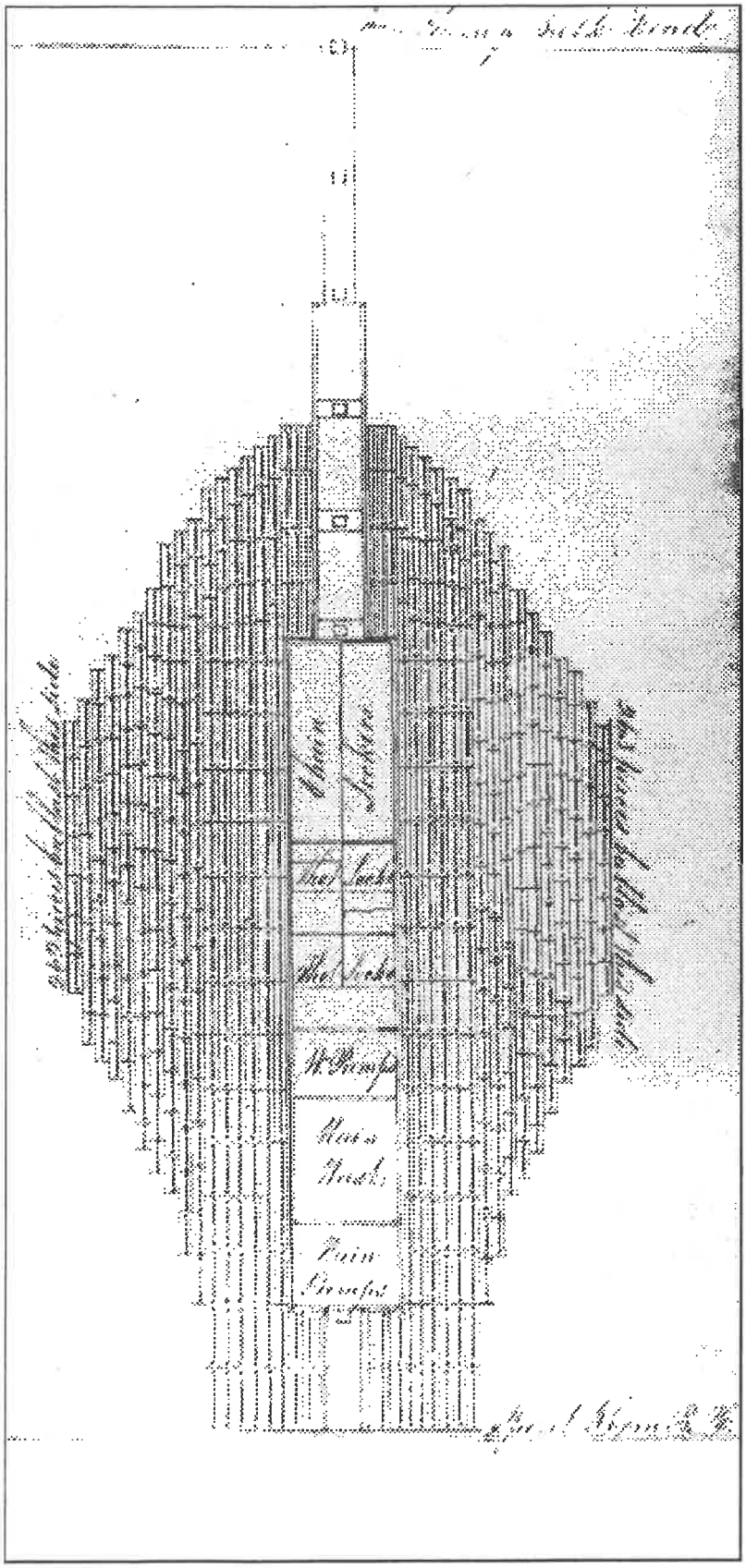
10 Jul 1832 -- Iron water tanks are introduced in the USN. [*Nautical Research Journal*, Vol. V., #3, p. 46; "An Act to provide iron tanks for the use of the United States," approved 10 Jul 1832.] A drawing of the 1844 layout in *Constitution*, marked only "From the Records of the Bureau of Naval Personnel, is in the author's collection. *The tanks presumably first were installed during the ship's 1833-35 restoration.*

1841 -- The stowage pattern long in use in the USN was that beef was stowed on the larboard side of the hold and pork to starboard; flour, rice, and pease/beans in the wings. Stowage, as was the case with the water casks beneath them, proceed from aft forward in the hold. Casks in the spirit room were stowed from forward aft. In all cases, the largest containers went closest to the keelson, with sizes diminishing as they were laid outboard. All are laid bung up. [Brady, William, Boatswain, USN, *The Naval Apprentice's Kedge Anchor* (New York: Taylor and Clement), 1841.] SEE FOLLOWING PAGES.

14 Feb 1845 -- Whitewashing the spirit room. [Midshipman Meriwether Patterson Jones Journal, DNA.]

1847 – Berth and orlop deck drawing by Naval Constructor Samuel M. Pook shows a paint locker all the way forward on the forward platform, its bulkhead 6' aft of the stem at deck level. The bulkhead of the general store room was 24'9" aft of it, the space shared by the Master, the Gunner, and the Carpenter. Sailrooms 12' fore-and-aft occupied positions against either side of the ship abaft the storeroom, with a 7'9" wide passage between them. A series of four 6'-wide lockers saddled the keelson forward of the break pump pipes, the two forward ones, 6' and 5' long, respectively, were chain lockers; the after two, 5' and 4.5' long respectively, were shot lockers. The first chain locker rose to the underside of the berth deck; the second chain locker and both shot lockers, only to the height of the cable tier. The orlop deck extended into what is today called the "powder filling room," accessed by the still-existing hatch/scuttle in the Wardroom. This deck, in turn, had a hatch/scuttle 2' square providing access down to the magazine, which ran forward under the orlop deck. The space between the berth and orlop decks was 7' square with double bulkheads on either side and aft. It was divided by a single transverse bulkhead 4' aft of its forward bulkhead, this after

space providing access to the light room below. [Plan 107-13-10F, RG19, DNA.]

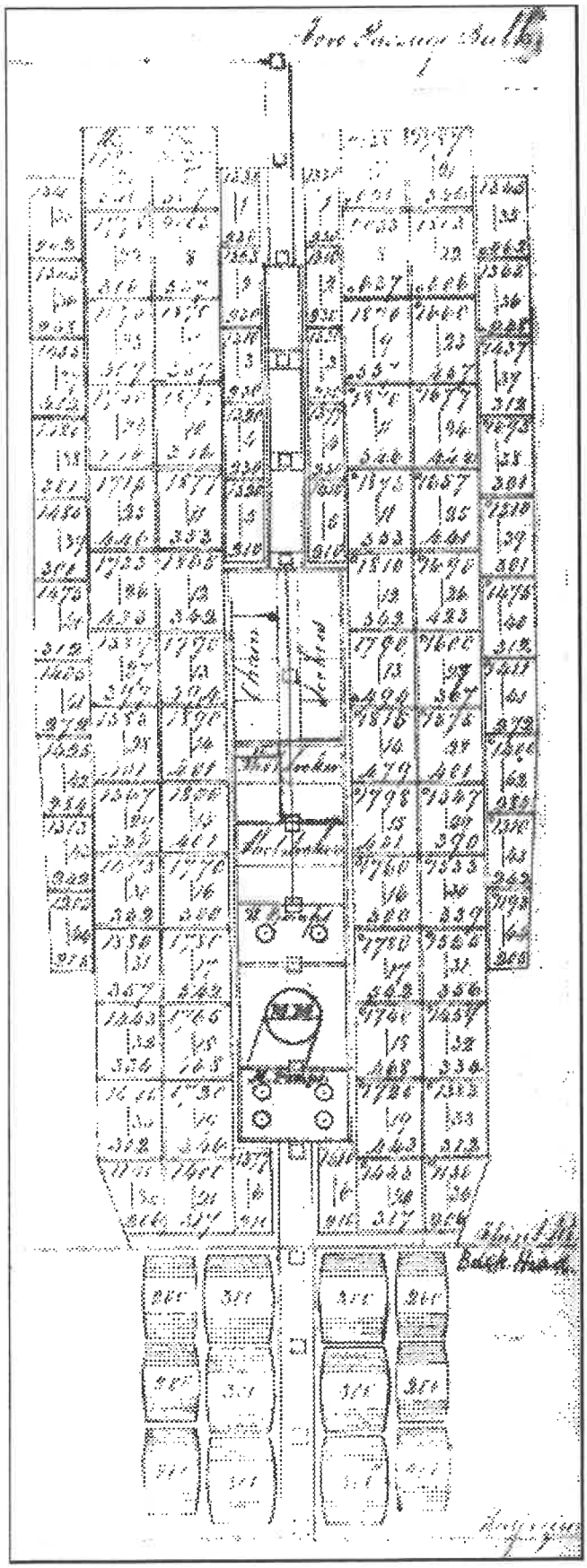


***CONSTITUTION*'s**
Kentledge, 1844

The upper and lower horizontal lines represent the forward passage and spirit room bulkheads, respectively.

There are 262 pieces to larboard and 263 to starboard, amounting to 59 long tons and 500 pounds of cast iron blocks.

The centerline spaces, from top to Bottom, are chain lockers, then 2 shot lockers, the waist pumps trunk, space for the main mast. And the main bilge pumps trunk.



CONSTITUTION's
Ground Tier, 1844

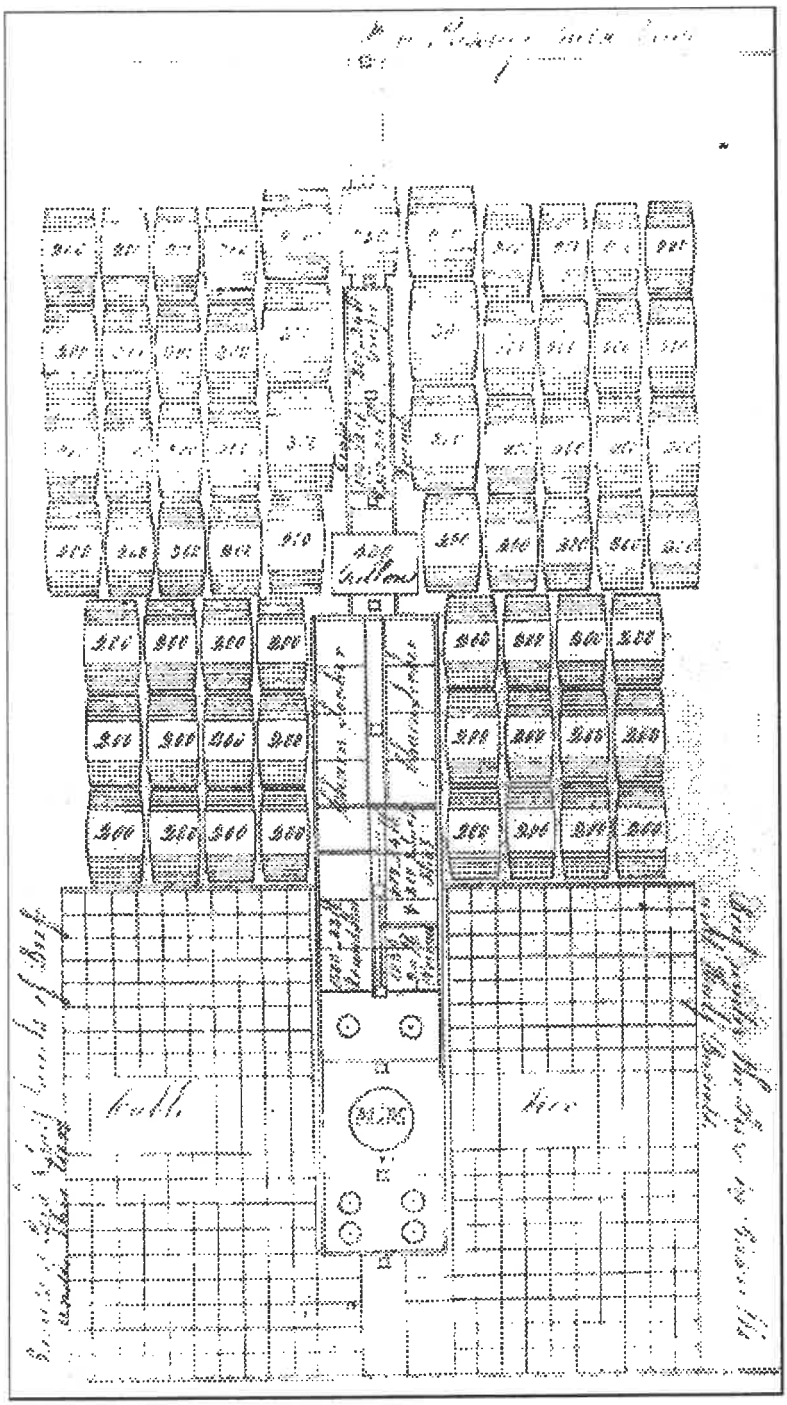
Installed immediately above the kentledge were the ship's water iron tanks, first carried in 1821. The 58 tanks weighed about 139,000 pounds and held 36,011 gallons of water.

At the upper part of the sketch in the fore passage bulkhead.

Each tank bears 3 figures: its weight, its serial number, and its volume.

Note that abaft the spirit room bulkhead (near bottom), a dozen water casks, containing 6000 gallons, have been stowed adjacent to the keelson in the spirit locker.

As in the kentledge sketch, identified along the ship's centerline are the chain lockers, 2 shot lockers, the waist pumps trunk, the opening for the mainmast, and the bilge pumps trunk.



CONSTITUTION's Riding Tier, 1844

The forewardmost barrel on centerline contains 250 gallons. The barrel immediately outboard on either side and the 2 immediately aft these two contain 300 gallons. All the others contain 200 gallons. All told, an additional 13,650 gallons.

Along the ship's centerline from forward aft are: a shot locker with 200 24-pdr grape, a second with 100 32-pdr grape to larboard and 300 24-pdr round shot to starboard, a 400 gallon well from which fresh water was pumped to upper decks. Abaft these are the chain lockers, a shot locker with 600 24-pdr and 200 8-inch shot, another with 1500 32-pdr (larboard) and 1050 24-pdr (starboard) round shot, the waist pumps trunk, the mainmast, and the bilge pumps trunk.

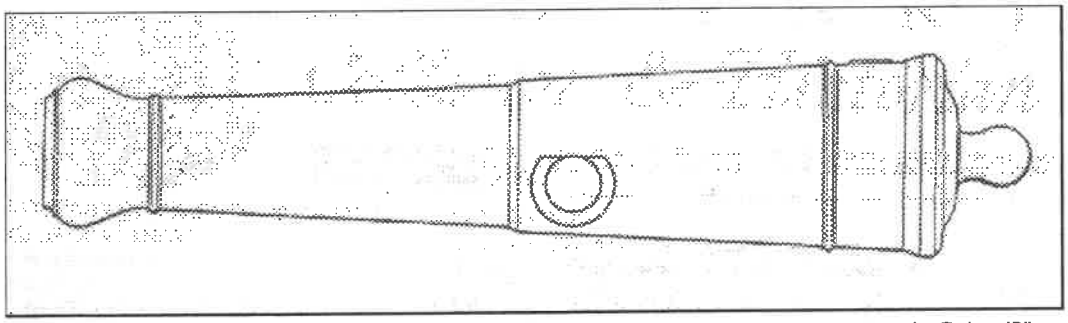
Barrels and half barrels of beef are stowed under the starboard cable tier; barrels of pork and half barrels of beef under the larboard tier.

Nov 1848 -- Ammunition load-out consisted of 203 25 lb. bags of powder, 1340 spar deck 32-pdr 4 lb. cylinders, 224 main deck 32-pdr 7 lb. cylinders, 340 main deck 32-pdr 6 lb. cylinders, 672 main deck 32-pdr 4 lb. cylinders, 52 8" 8 lb. cylinders, 192 8" 7 lb. cylinders, 96 8" 6 lb. cylinders, 1200 lb. of priming powder, 50 filled powder flasks, 96 empty and unfused 8" shells, 32 loaded and fused 8" shells, 138 empty and unfused 6" shells, 46 loaded and fused 6" shells, 11,000 lb of pistol (ball) cartridges (@ 32/lb.), 4500 lb of musket (ball) cartridges (@ 15/lb.), 3000 blank musket cartridges, 30 rockets, 56 false fires, 56 blue lights, and 56 port fires. [Ship's log, 9 Oct 1848 -31 Aug 1849, USSCM.]

Oct 1850 -- Mention made of "Forepassage," where prisoners were confined. Probably reefers to the passage between the sail rooms on the forward platform. [Ship's log, DNA.]

GUNS

The sixty long guns with which *Constitution* first sailed was the largest number she ever would carry. [McKee, Christopher. "*Constitution* in the Quasi-War with France: The Letters of John Roche, Jr., 1798-1801." The American Neptune, Apr 1967.] On the gun deck were thirty 24-pounders cast by Furnace Hope in Rhode Island. Each had its weight stamped into the left trunnion. [*NDBW*, Vol. 1, p. 173.] None had sights or sighting notches. [Ltr, Captain Silas Talbot to Navy Agent Stephen Higginson, Boston, MA, 1799, Mystic (CT) Seaport Library.] The spar deck carried sixteen 18-pounders borrowed from the Commonwealth of Massachusetts and fourteen 12-pounders of uncertain origin, but possibly further products of Furnace Hope. (In planning the armaments of these ships, it was conceived that the 44-gun frigates would be given ten 8-inch howitzers each, and contracts were let for their production in the Boston and Springfield areas. Paul Revere's company cast those intended for *Constitution*, delivering them in 1795. But because the ship, as built, had bulwarks around the quarterdeck, something not provided for in the Joshua Humphreys draughts, the guns could not be mounted. They were carried in the hold during the first commissions, then landed permanently.) In addition, the ship carried six 3-pounder swivel carronades, two in each fighting top.

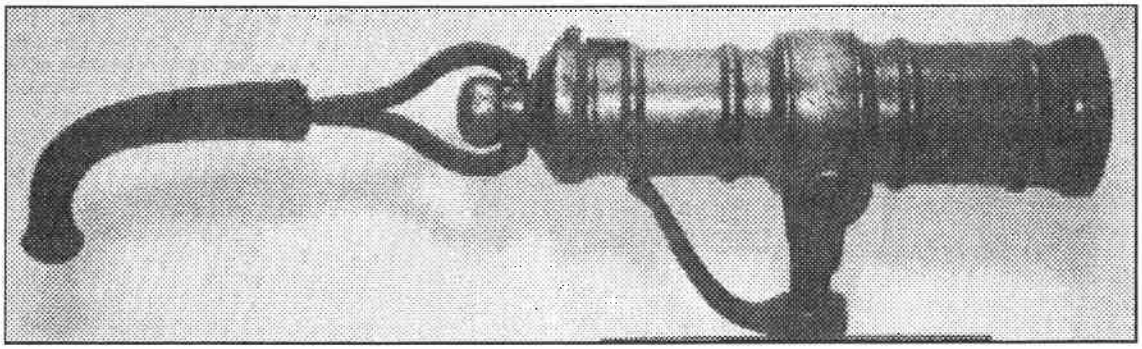


E. R. Lewis & E. Olmstead, "The Savannah 24-Pounders: A Puzzle Solved?" Military Collector & Historian (Spring 1989)

Model 1794 Naval 24-pounder long gun.

For reasons unrecorded, the original 24-pounders designed for naval use -- the Cecil Iron Works of Havre de Grace, Maryland, cast an even greater number than Furnace Hope -- were made about a foot shorter than usual for that caliber. (Specifications in Appendix C.) The result was guns unsuited for their intended use, and most of the production runs never were employed in the frigates. Many are thought to have ended up arming the subsequent multitude of Jeffersonian gunboats. Several dozen were used to arm the large units built on Lake Ontario during the War of 1812. Two are known to be extant, employed as decorations on either side of an art school entrance in Savannah, Georgia.

Documentary information:



A 75-pound brass swivel carronade or howitzer employed in the fighting tops. The tube is 19" long; the bore, 3". The mounting yoke pictured is a reconstruction.

6 Jul 1798 -- "...our carpenters are mounting the carronades in the Tops..." [*NDQW*, Vol. 1, p. 171.] *See Tyrone G. Martin and William Gilkerson, "Top Guns In The Early Sailing Navy," Man at Arms, Vol. 9, #4 (Jul/Aug 1987, pp. 12-20), for a detailed description.*

12 Jun 1799 -- It is noted that the 24-pounders lack sighting notches. [Ltr, Captain Silas Talbot to Navy Agent Stephen Higginson, 12 Jun 1799. Mystic Seaport Library.]

13 Oct 1799 -- Blacking the guns. [Ship's log, USSCM.]

14 Aug 1801 -- The ship was equipped with both wooden and rope-handled rammer/sponges. [Samuel Brown Papers, MHS.]

Jun 1802 -- Gun carriage trucks had iron rims. [Receipt to John Tapley, 13 Jun 1802, Samuel Brown Papers, MHS.]

Jun 1803 -- Ship had 12 swivel guns. Receipt by Midshipman Charles Morris, Jr., 18 Jun 1803, Samuel Brown Papers, MHS.]

Jan 1804 -- Painting gun carriage ring bolts and leading blocks. [Ship's log, DNA.]

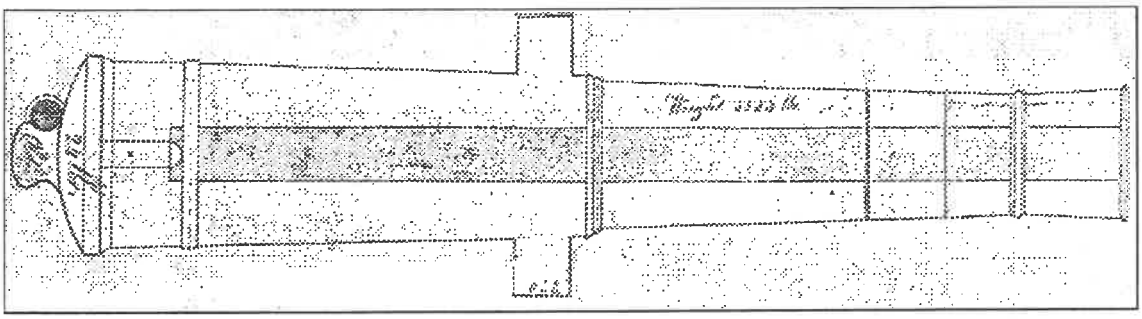
16 May 1804 -- Received on board six 24-pounders on loan from the King of Two Sicilies that were mounted on the spar deck. [*NDBW*, Vol. 4, pp. 105, 130.]

19 Sep 1804 -- The six borrowed guns were returned. [*NDBW*, Vol. 5, p. 41.]

Oct 1804 -- "...repainting Quarterdeck Guns, they are now painted a light yellow in order to correspond with the paintwork of the quarterdeck..." [*NDBW*, Vol. 5, p. 81.]

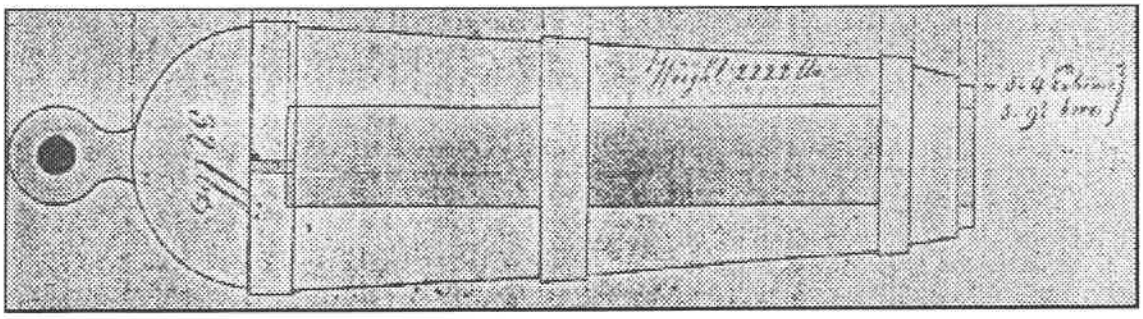
Nov 1804 -- "...we mount 30 - 24 pounders on the Gun Deck 14 - 12 pounders on the Quarter Deck & Forecastle & 8 - 32 pound Carronades on the Gunwales [i.e., in the waist] in all 52..." [Ltr, Midshipman William H. Allen to his father, 14 Nov 1804, Huntington Library; also *NDBW*, Vol. 5, p. 141.]

3 Sep 1807 -- Four 32-pounder carronades were transferred to USS Hornet in August. Two of the remaining four mounted on forecastle; the other pair, in the aftermost ports on the quarterdeck. [Ltr, Captain Hugh G. Campbell to SecNav, 3 Sep 1807, M125, Roll 9, DNA.]



The Model 1807 24-pounder cast at the Cecil iron Works. Its weight is marked as being 5554 pounds. The trunnion is marked as being 6 inches in diameter. Noted that the breeching rope ring has been rotated 90 degrees to the left to show its presence; it actually was in line with the touch hole.

18 Sep 1807 -- The new 24-pounders are to be 18 calibers long. [Ltr, Secretary of the Navy Robert Smith to Colonel Samuel Hughes, Cecil Iron Works, 18 Sep 1807. DNA.]



The Model 1808 32-pdr carronade by Henry Foxall. The ball (left) shows it has been bored (and threaded) for an elevating screw. Barely visible to the left of the mid-bore reinforce ring is the dotted position of the bottom mounting lug. Above the right half of the bore is "Weight 2222lbs." To the right of the mizzle, it read "5.4 Extreme 3-9 !/2 bore."

21 Mar 1808 -- Henry Foxall directed to make 20 32-pdr carronades for the ship; 30 24-pdr long also have been ordered delivered from Baltimore. They are fitted with flint lock triggers. [Ltrs, Secretary of the Navy Robert Smith to Commodore John Rodgers, and to Navy Agent John Bullus, both 21 Mar 1808, RG45, M149, Roll 8, and M209, Roll 3, DNA.]

31 May 1811 -- Armorers repairing the elevating screws for the carronades.

[Ship's log, DNA.]

May 1812 -- Shingle in the spirit room and hold; kentledge also in both. [Ship's log, DNA.]

22 Jun 1812 -- 18-pdr long gun mentioned. [Ship's log, DNA.]

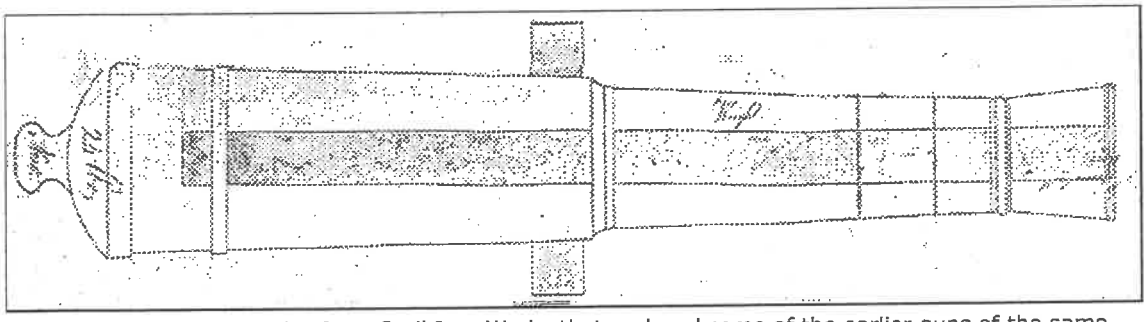
Jul 1812 -- When chased by a British squadron off New Jersey, two 24 pdrs were run out through the cabin windows, and a portion of the transom was cut away so that the forecastle 18 pdr and another 24 could be run out aft on the spar deck. [Ltr, Captain Isaac Hull to Secretary of the Navy Paul Hamilton, 21 Jul 1812, RG45, DNA.] *The cabin 24s probably were the #15 guns; the 24 run out above was the #1 larboard gun moved up and aft.*

25 Oct 1814 -- The ship's batteries consist of 22 32-pounder carronades and 30 24-pounder long guns. [Ltr, Captain Charles Stewart to SecNav, 25 Oct 1814, M125, Roll 40, DNA.]

Before sailing in December, Captain Stewart would land two carronades and substitute therefore two 24-pounder Congreve "shifting gunades," which became the forwardmost and after most guns on the spar deck, each gun serving a gunport on either side of the ship, "shifting" as necessary to be on the engaged side.

Jul 1815 -- Some 24-pounders removed for use in USS *Independence*. [Ltr, Captain John Rodgers, Board of Naval Commissioners, to Commandant Isaac Hull, Boston Navy Yard, 25 Jul 1815. DNA.]

Nov 1820 -- Commanding officer of USS *Independence* ordered to return the guns borrowed from *Constitution*. [Ltr, Secretary of the Navy Smith Thompson to Captain John Shaw, 29 Nov 1820, RG45, M149, Roll 14, DNA.] *In fact, the guns returned from the ship of the line were a mix of the frigate's 1808 production guns and some produced in 1816.*



The Model 1816 24 pounder from Cecil Iron Works that replaced some of the earlier guns of the same caliber when the ship was recommissioned in 1821. It appears to have slightly more flare to the muzzle, and the trunnions appear to be positioned slightly forward of those on the 1807 guns.

24 Jun 1825 -- "...blacking...main deck guns..." [Ship's log, DNA.]

Jun 1825 -- References to "main" and "forward" magazines. [Ship's log, DNA.]

20 Feb 1827 -- "...blacking the Carronades..." [Midshipman Richard L. Page Journal, UNCL.]

20 Apr 1827 -- "...blacking [long] guns..." [Midshipman Richard L. Page Journal, UNCL.]

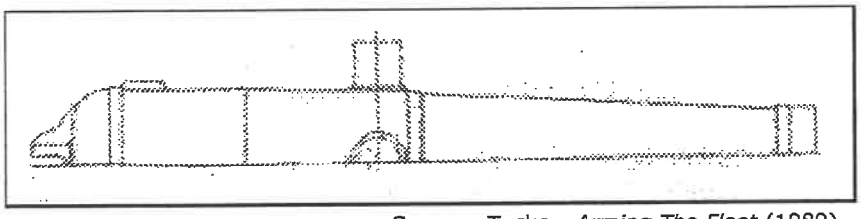
26 Dec 1834 -- Armament consists of twenty-five 24-pounder long guns, twenty 32-pounder carronades, and two Congreve 24-pounder shifting gunades. [Ltr, Captain John Rodgers, Board of Naval Commissioners, to Commandant Jesse Duncan Elliott, Boston Navy Yard, 26 Dec 1834. DNA.]

15 Mar 1839 -- Took on twenty-six carronades. [Ship's log, DNA.] *Some must have been spares intended for other ships in the squadron.*

2 Dec 1839 -- "got up and mounted the two forecastle carronades..." [Ship's log, DNA.]

Jan 1840 -- "...putting a second coat of black on the guns..." [Ship's log, DNA.]

14 Jul 1842 -- "...received [four] Paixhan guns..." [Ship's log, DNA.]

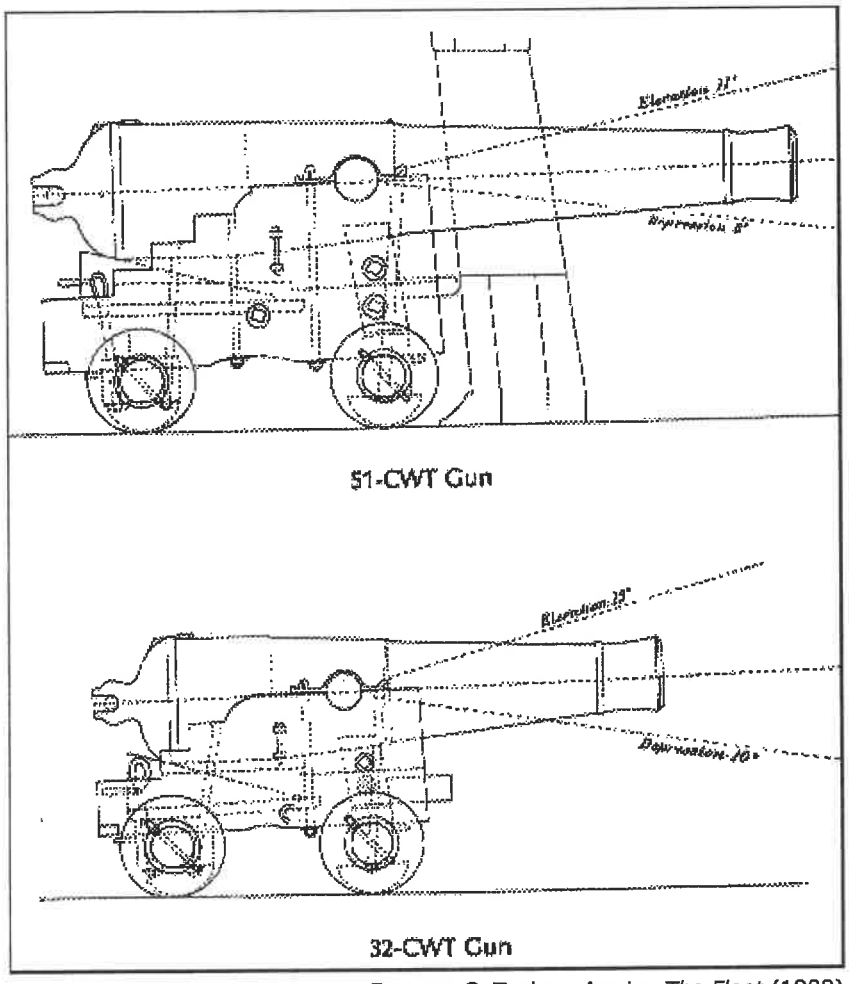


Spencer Tucker, *Arming The Fleet* (1989)

A half-drawing of a Paixhans 8-inch gun, showing the upper right quadrant. The gun, cast by Cyrus Alger in South Boston, was 8' 10" long and fired a 68-pound projectile. Note the slot aft t o accommodate the breeching tackle.

5 Aug 1842 -- "...shifted the two quarterdeck carronades to the after ports..." [Ship's log, DNA.]

19 Aug 1842 -- "...fixing sights on Paixhans guns..." [Ship's log, DNA.] *These guns were mounted in lieu of a like number of 24-pounders amidships on the gun deck.*



Spencer C. Tucker, *Arming The Fleet* (1989)

The two models of 32-pounders embarked in *Constitution* when she recommissioned in 1848. The 32 CWT model was on the spar deck; the 51 CWT, below. The latter was 9' long and was produced from 1846 onwards. The former was just 7' 4" long and had been cast in 1843-4.

2 Nov 1848 -- Reference made to "8-inch shells." [Ship's log, DNA.]

30 Nov 1848 -- Reference made to "main deck 32s." [Ship's log, DNA.]

1 Jan 1850 -- Batteries consisted of 4 8" shell-firing guns (Paixhans) and 46 32-pdr long guns. [George F. Emmons, *The Navy of the United States from the Commencement, 1775 to 1853*, Washington: Gidden & Co., 1853.] *Of the 32-pdrs, 26 were "heavy" (ca. 51 cwt each, on the gun deck) and 20 "light" (ca. 32 cwt each, on the spar deck).*

Apr 1853 -- Blacking the guns. [Ship's log, DNA.]

23 Aug 1853 -- "Got up and mounted the Howitzers [in the boats]..." [Ship's logs, DNA.]

BOATS

Ship's boats, so necessary to her operation, were so ubiquitous that little effort was expended in recording their characteristics or appearance details. *Constitution* appears to have outfitted with eight boats: one in each quarter davit, often the Captain's gig in the stern davits, and an assortment of five launches, pinnaces, and/or cutters usually nested on the boat skids in the waist. Occasionally, a dinghy or two would be included. Common practice was to paint the hulls a single color over all, leaving the gunwales and interior "bright," i.e., natural. Where more than one craft of the same model was carried, it was not unusual to paint each a different color so that they could be individually identified when all were in the water and at distance from the ship. Most were fitted with simple masts and sails, and, in time of combat, with boat guns (usually a howitzer in the bow). After the War of 1812, it was not uncommon for some or all of the ship's boats to be named. It isn't known if these names appeared anywhere on the boats themselves.

Aug 1798 -- "...hoisted out the pinnace and yawl..." [*NDQW*, vol. 1, p. 331.]

Dec 1798 -- Reference made to "the launch" [*NDQW*, Vol. 2, p. 128.] and "the pinnace" [Ship's log, USSCM].

Mar-Apr 1799 -- Ship's carpenters employed building an 8-oared cutter while underway. [Ship's log, USSCM.]

12 Apr 1799 -- Reference made to "the blue cutter." [Ship's log, USSCM.]

16 Apr 1799 -- Reference made to the "small cutter." [*NDQW*, Vol. 3, p. 59; ship's log, USSCM.]

20 Apr 1799 -- The sailmaker's gang making sails for the "large cutter." [Ship's log, USSCM.]

Jul 1799 -- Reference made to "the launch and Pinnace..." [Ship's log, USSCM.]

Aug 1799 -- Reference made to "small cutter" and "large cutter." [*NDQW*, Vol. 4, p. 87; ship's log, USSCM.]

1801 -- Ship's boats include a barge. [Annual recapitulation of Ebenezer Leman's bills, 1801, Samuel Brown Papers, MHS.]

Feb 1802 -- Ship had a 27' cutter. [7 Feb 1802 bill, Samuel Brown Papers, MHS.]

May 1803 -- To be constructed for ship: 1 30' x 7' x 2.5' lapstraked barge, 1 lapstraked cutter 30' x 8.5' x 3', and 1 lapstraked 22' x 5.66' x 2.25' jolly boat. [Ltr, Captain Edward Preble to Navy Agent Samuel Brown,

and ltr, Sailing Master Nathaniel Haraden to Captain Edward Preble, 7 Jul 1803, both in Samuel Brown Papers, MHS.]

Jan 1804 -- Reference to the small cutter. [Ship's log, DNA.]

Jul 1804 -- The cutter mounts an iron 4-pdr carronade and a brass 4-pdr long gun; the barge carries a brass 4-pdr; the pinnace, a brass 1 1/2-pdr; the same for the "small cutter;" and an iron 4-pdr carronade for the jolly boat. [*NDBW*, Vol. 4, p. 289.]

20 Feb 1805 -- "...the gig washed off the Quarter & was lost." [Ship's log, DNA; also *NDBW*, Vol. 5, p. 364.]

Sep 1805 -- Reference made to "the 4th cutter." [*NDBW*, Vol. 6, p. 275.]

Jun 1809 -- Ship's complement of boats: "Commo Gigg [sic], 2nd Gigg, 1st thru 5th Cutters, Barge." [Watch, Quarter, and Station Book of Midshipman John Funk, USSCM.]

16 Sep 1810 -- Complement of boats: 5 cutter and a gig. [Ship's log, DNA.]

14 Oct 1811 -- Overhauling the green boat. [Ship's log, DNA.]

30 Jan 1812 -- 6th cutter washed away from larboard quarter. [Ship's log, DNA.]

Jul 1812 -- Reference made to 5 cutters, including a green one, and a gig. [Ship's log, DNA.]

10 Aug 1812 -- 5th and green cutters in stern and quarter davits. [Ship's log, Henry E. Huntington Library.]

19 Aug 1812 -- Port quarter and stern boats lost in battle. [Midshipman Frederick Baury Journals, MHS.]

2 Oct 1812 -- Received a new 26' cutter. [Navy Agent Amos Binney Summary Statement (with enclosures), 1-31 Oct 1812, RG217, 4th Auditor's Accounts, Alphabetical Series, Box 39, DNA.]

21 Oct 1812 -- 28' cutter built; 1st cutter and the gig repaired. [Navy Agent Amos Binney Summary Statement (with enclosures), 1-31 Oct 1812, RG217, 4th Auditor's Accounts, Alphabetical Series, Box 39, DNA.]

29 Dec 1812 -- Seven of eight ship's boats lost in battle. [Journal of Surgeon Amos A. Evans, private collection; Midshipman Frederick Baury Journals, MHS.]

29 Oct 1813 -- 1 26' cutter built; 1st, 2nd, and 4th cutters repaired. [Navy Agent Amos Binney Summary Statement (with enclosures), 1-31 Oct 1813, RG217, 4th Auditor's Accounts, Alphabetical Series, Box 39, DNA.]

16 May 1821 -- "...lower'd larbd whale boat..." [Ship's log, DNA.]

28 Sep 1821 -- Mention of a jolly boat. [Ship's log, DNA.]

28 Dec 1821 -- Mention of 4th cutter and launch. [Ship's log, DNA.]

6 May 1824 -- "starboard whale boat..." [Ship's log, DNA.]

20 Jul 1825 -- "...our stern boat..." [Journal of Midshipman Philip A. Stockton. USSCM.]

14 Jul 1827 -- Ship has 4 cutters, a barge, a launch, a whaleboat. Reference also made to quarter and stern boats. The quarter boats apparently were named *Sparrow* and *Pelican*. [Midshipman Richard L. Page Journal, UNCL.]

Jul 1837 -- Whaleboat and "quarter boats" mentioned. [Ship's log, USSCM.]

Sep 1837 -- "2nd gig" mentioned. [Ship's log, USSCM.]

Jan 1838 -- "Dinghy" mentioned. [Ship's log, USSCM.]

Mar 1839 -- Mention of "4th cutter" and "launch." [Ship's log, DNA.]

Jul 1839 -- "Gig" and "whale boat" mentioned. [Ship's log, DNA.]

Aug 1839 -- "2nd gig" mentioned, at stern davits. [Ship's log, DNA.]

Dec 1839 -- "Heaving in the Curricle [sic] to paint..." [Ship's log, DNA.]

23 Aug 1841 -- Painting the stern and quarter boats. [Ship's log, DNA.]

Summer 1842 -- References to 5 cutters, 2 gigs, a launch, and a dinghy. [Ship's log, DNA.]

Sep 1846 -- A boat hung in the stern davits was named *Sparrow*. [Ship's log, DNA.]

1849-1851 -- During this final cruise in the Mediterranean, the ship carried the following boats, characteristics as indicated:

Launch	30'0"	9'6"	4'2"	20 oars
Barge	28'0"	6' 0"	2'4"	12 oars
Gig	29'0"	5'0"	1'11"	6 oars
1st Cutter	32'0"	8'3"	3'0"	16 oars
2nd Cutter	28'0"	7'5"	2'10"	14 oars
3rd Cutter	27'0"	6'8"	2'9"	12 oars
4th Cutter	28'0"	6'8"	2'9"	12 oars
5th Cutter	27'6"	6'8"	2'9"	12 oars

[Midshipman Francis H. Baker Journal, Samuel Eliot Morison Library, USSCM.]

Apr 1853 -- Ship's boats identified as *Water Witch*, *Petrel*, *Scorpion*, launch,

Ariel, barge, gig, 1st and 2nd cutters, and dinghy. [Ship's log, DNA.] *From elsewhere in the log (Apr 1853), it is apparent that at least three of the named units were cutters.*

5 Sep 1854 -- The launch was fitted with a 12-pdr howitzer. [Commander's Clerk Edward Cobb Journal, USSCM.] *The gun was a Dahlgren design; this was its first operational use.*

14 Mar 1854 -- "...painting the stern boats..." *Note plural.* [Ship's log, DNA.]

24 Jul 1854 -- Boat *Ariel* now stowed in the 1st cutter. [Ship's log, DNA.]

8 Aug 1854 -- "...both dinghys..." [Ship's log, DNA.]

29 Sep 1854 -- "The *Ariel* broke from her davits..." [Ship's log, DNA.]

23 Mar 1855 -- *Ariel* is the name of the port quarter boat. [Ship's log, DNA.]

LUCKY BAG

In this section are gathered the references to an assortment of appearance items that only irregularly occur in historic documents: material on anchors, flags, command and commissioning pennants, signal flags, and other minutiae. For ease of reference, information on each particular item is assembled as a unit.

Anchors and Cables

24 Dec 1798 -- "Got the sheet anchor on the Gunwail [sic] and stowed it..." [Ship's log, USSCM.]

Dec 1798 -- "...main anchor weighing 59.2.21 lbs..." [Ship's log, USSCM.]

Feb 1799 -- Reference made to sheet and waist anchors. [Ship's log, DNA.]

May 1799 -- Reference made to "...the Larboard waist anchor..." [Ship's log, DNA.]

Oct 1803 -- Upon sailing, ship had 2 120-fathom 22" cables; now has 2 120-fathom 21" cables for the best bower. [Ship's log, DNA.]

Nov 1803 -- New stream anchor cable is 125 fathoms of 12 3/4". [Ship's log, DNA.]

12 Jan 1806 -- "...cable...size 22 inches..." [*NDBW*, Vol. 6, p. 342.]

2 Aug 1810 -- "...stream anchor stowed in the larboard fore chains..." [Ship's log, DNA.]

8 Jul 1811 -- Sheet anchor stowed in the waist. [Midshipman Frederick Baury Journals, MHS.]

8 Aug 1811 -- Larboard anchor stowed "on the Gunwales." [Midshipman Frederick Baury Journals, MHS.]

21 Aug 1811 -- Starboard anchor "stocked and stowed" on the gunwales, [Midshipman Frederick Baury Journals, MHS.]

19 Aug 1812 -- The stream anchor, which had been stowed in the fore chains, was taken out, unstocked, and stowed in the main hold. [Ship's log, Henry E. Huntington Library.]

8 Sep 1812 -- Received a 1671 lb stream anchor. [Navy Agent Amos Binney Summary Account (with enclosures), 1-30 Sep 1812, RG217, 4th Auditor's Accounts, alphabetical Series, Box 39, DNA.]

12 Oct 1812 -- Received a 468 lb kedge anchor. [Navy Agent Amos Binney Summary Statement (with enclosures), 1-31 Oct 1812, RG217,

4th Auditor's Accounts, Alphabetical Series, Box 39, DNA.]

14 Nov 1812 -- Stowing "starb. bower" on the "Gunwales." [Midshipman Frederick Baury Journals, MHS.]

17&19 Jan 1814 -- Stowed the larboard bower anchor, unstocked, on the gun deck; the starboard bower anchor in the fore channel. [Ship's log, DNA.]

15 Jan 1821 -- Ship to have 21" hemp cables and one "chain cable." [Ltr, Captain John Rodgers, Board of Naval Commissioners, to Commandant Isaac Hull, Boston Navy Yard, 15 Jan 1821, RG45, DNA; ship's log, DNA.] *This marks the advent of anchor chain in the ship.*

14 Apr 1822 -- Mention of both bowers and larboard and starboard waist anchors. [Ship's log, DNA.]

9 May 1825 -- Received an anchor weighing 77 cwt, 2 qtr, 13 lbs. [Midshipman Philip A. Stockton Journal, USSCM.]

11 Oct 1825 -- Stream anchor stowed on berth deck. [Ship's log, DNA.]

25 Feb 1826 -- A 120-fathom 22" anchor cable mentioned. [Ship's log, DNA.] (Also reported as 117 fathoms.) [Midshipman Richard L. Page Journal, UNCL.]

10 Aug 1826 -- Stowed the kedge anchor in the main chains. [Midshipman Richard L. Page Journal, UNCL.]

10 Apr 1827 -- "...the Larboard waist anchor..." [Midshipman Richard L. Page Journal, UNCL.]

9 Dec 1834 -- Ship to carry three 22 1/2" hemp cables. [Ltr, Captain John Rodgers, Board of Naval Commissioners, to Commandant Jesse Duncan Elliott, Boston Navy Yard, 9 Dec 1834. RG45, DNA.]

Mar 1835 -- The ship received 1 120-fathom 22" hemp cable and a 150-fathom 2" "chain cable" at New York. [Ltr, Captain Charles G. Ridgely to Secretary of the Navy Mahlon Dickerson, 20 Mar 1835, RG45, M125, Roll 204, DNA.]

Feb 1844 -- Ship carried a 6000 lb. starboard bower anchor, a 5500 lb. larboard bower anchor, a 6500 lb. starboard waist anchor, a 6320 lb. larboard waist anchor, a 6914 spar anchor "in Main Hatch," a 1500 lb. stream anchor "in Fore Hatch," and kedge anchors weighing 1050, 537, 512, and 400 lbs. [Ship's log, DNA.]

3 May 1844 -- Reference made to "the waist anchor." [Midshipman W. P. Buckner Journal, USSCM.]

30 May 1844 -- "...the anchors...hoisted upon the gunwale, the chain cables unbent and paid below..." [Lieutenant John B. Dale Journal, NEHGS.]

1849-51 ------- During her final cruise in the Mediterranean, the ship carried the following anchors, stowed as indicated:

Starboard bower anchor	7094 lbs.
Port bower anchor	7134 "
Starboard sheet anchor	6914 "
Port sheet anchor	6914 "
Anchor in Port Main chains	731 "
Anchor in stbd mizzen chains	625 "
Anchor in Port mizzen chains	754 "
Anchor in Main Hold	7158 "
Anchor in Fore Hold	1928 "
Anchor in Port fore chains	410 "

[Midshipman Francis H. Baker Journal, Samuel Eliot Morison Library, USSCM.]

Mar 1854 -- Kedge anchor stowed in the port main channel. [Ship's log.]

With one exception in 1821, the ship's anchor cables invariably measured between 21" and 22.5".

Broad Command Pennants

Broad command pennants, indicating the presence of a squadron commander in a particular ship, were in use for many years before the Department standardized patterns. Commodore Edward Preble, in *Constitution* 1803-04, flew a triangular blue pennant with 15 white stars on it in vertical rows of 5 - 4 -3 - 2 - 1 beginning at the hoist.

In 1818, the Secretary of the Navy decreed that "There shall be three distinct orders of broad Pendants. The broad pendent [sic] of the first order shall be blue with white stars. That of the second order shall be red with white stars. That of the third order shall be white with blue stars." Note that how many stars and in what arrangement is no specified. [Ltr, Paul Hamilton to the Secretary of the Navy, 10 Jun 1818.] (Hamilton had been SecNav from 1809 until late 1812, so it may be supposed that the system of which he wrote was in effect during that period. In any event, the system he noted was incorporated into the revised Navy Regulations promulgated 17 September 1817.)

A 10 April 1845 regulation stated that a squadron commander should fly a blue broad command pennant. When two or more squadron commanders were in company, the second senior should fly a red one, and all others junior to them, white ones.

In 1854, a broad command pennant for a frigate should be 11 1/2 feet on the hoist and 22 feet on the fly.

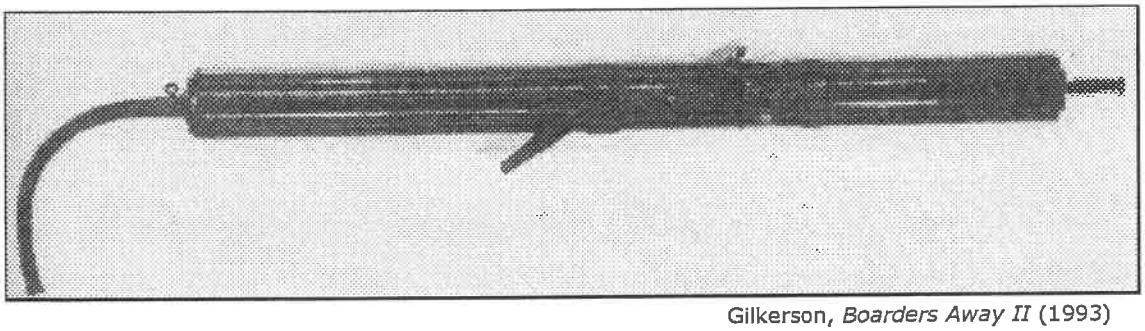
15 Sep 1812 -- Commodore William Bainbridge hoisted his broad command pennant in the ship. [Midshipman Frederick Baury Journals, MHS.]

12 Mar 1839 -- Commodore Alexander Claxton hoisted his broad command

pennant in the ship. [Ltr, Claxton to SecNav, 12 Mar 1839, RG45, M125, Roll 251, DNA.]

23 Dec 1852 -- Commodore Isaac Mayo hoisted his broad command pennant in the ship. [Ship's log, DNA.]

Chambers Swivel Guns



Gilkerson, *Boarders Away II* (1993)

A model 1814 Chambers seven-barrel swivel gun. The barrels are 48" long. A ramrod is inserted in the central barrel. The top of the firing lock is visible above the weapon; its mounting yoke below.

During the War of 1812, Joseph Chambers invented several multi-barreled, multi-shot small arms, the largest of which was a seven-barreled swivel that could be loaded with 217 rounds. In August 1814, Captain Charles Stewart requested "three or four" of these guns for *Constitution*. Two months later, Commodore William Bainbridge, senior naval officer at Boston, requested "ten of them...for the Independence and Constitution." The record is silent, but it is possible that the frigate had a number of these curious weapons aboard when she sailed in December 1814 on her last war cruise. [Ltrs, Stewart to Secretary of the Navy William Jones, 10 Aug 1814, and Bainbridge to Jones, 11 Oct 1814, RG45, M125, Rolls 38 and 40, DNA.]

The ship definitely had one or more of the Chambers swivels aboard as of March 1835. [Letter, Captain Charles G. Ridgely to Secretary of the Navy Mahlon Dickerson, 20 Mar 1835, RG45, M125, Roll 204, DNA.]

Fire Engines

The ship originally was outfitted with two "fire engines." [*NDQW*, Vol. 1, p. 10.] These appear to have been man-portable devices equipped with a lever-action pump similar to those in early houses.

Flags

The official national ensign when *Constitution* was commissioned in 1798 was that of 1795. It consisted of fifteen alternating red and white stripes, and had fifteen stars in a blue canton in the upper hoist corner. Neither the arrangement of the stars nor their pattern was specified. The early portrait of the ship, ascribed to Michel Felice Corne and believed to date from 1803, shows a flag bearing nineteen stars varying in their individual design from six to eight points, so it is evident there was no strictly enforced regulation, even within the

government itself. The next official change to the ensign was enacted in 1818, when it reverted to thirteen alternating red and white stripes and the number of stars increased to twenty. Five-pointed stars were not specified until 1912.

~~Grape Shot~~

A stand of grape shot consisted of an iron "stand" and 12 shot in 4 tiers of 3 each. Grape for 24-pdrs used 2.3" balls; that for 32-pdrs, 2.45" balls. [Marshal, George, Gunner, USN, *Marshall's Practical Marine Gunnery* (Norfolk: Thomas G. Broughton), 1822.]

~~Gunner's Tools~~

Gunner's tools were made proportional to the guns they were to serve, per the following guidelines:

~~Long Guns~~

Handspike -- Same length as gun's carriage
Crow Bar -- Same length as gun's carriage
Rammer -- Same length as from breech ring to muzzle face
Rammer Head -- Length equal to 1.25 bore diameters
Sponger -- 13" longer than Rammer
Sponger Head -- Length equal to 1.5 bore diameters
Worm -- Same length as Sponger
Ladle -- Same length as Rammer
Tompion -- Length same as bore diameter

~~Carronades~~

Rammer -- Same length as from breech ring to muzzle face
Rammer Head -- Length equal to 1.25 bore diameters
Sponger -- 12" longer than Rammer
Sponger Head -- Length equal to 1.35 bore diameters
Worm -- Same as Sponger
Ladle -- Same as Rammer
Tompion -- Length 1.25 bore diameters

[Marshal, George, Gunner, USN, *Marshall's Practical Marine Gunnery* (Norfolk: Thomas G. Broughton), 1822.]

~~Kentledge~~

"Kentledge" was the iron pigs used for ballast, along with "shingle," rounded stones such as are found on the rocky beaches of Maine. *Constitution* originally was ballasted with 140 tons of kentledge of foreign manufacture purchased at Boston. No description of it has appeared. Joshua Humphreys described a piece of kentledge as follows:

"Two feet six inches on one side & five & a half inches wide.
"Two feet five & 3/4 on the other do. & five & one quarter inches do.
"Deep four inches & three eights of an inch.

"One hole at each end on the flat and at opposite sides."
[Ltr, Humphreys to the Secretary of War, 18 Apr 1795, M739, Roll 1, DNA.]

The four holes were intended to hold staples, large iron brothers of today's office stalwart, used to hold the body of kentledge together as a unit once laid in a ship's bottom.

In 1809, specifications for kentledge were given as 24" x 6" x 5", weighing about 180 lbs. "The form to be an oblong cube." An oblique hole 1.5" in diameter was to be drilled through at each end. [Ltrs, Secretary of the Navy Robert Smith to Samuel Hughes, Cecil Iron Works, 17 Jan 1809, RG45, M209, Roll 3, DNA.] *See* "Constitution *Kentledge, 1844" in "Orlop" section.*

~~Mess Gear~~

25 Oct 1812 -- Received 35 new mess chests. [Navy Agent Amos Binney Summary Account (with enclosures), 1-31 Oct 1812, RG217, 4th Auditor's Accounts, Alphabetical Series, Box 39, DNA.]

~~Paints~~

In Aug 1803, the following paint pigments were in the ship's stores: 305# black, 3 cwt fine white lead, 3 cwt fine yellow, 50# fine verdigris, and 28# vermilion. [John Osborn's receipt, 1 Aug 1803, Samuel Brown Papers, Massachusetts Historical Society.]

~~Pennants~~

The commissioning pennant is the long, tapering, snake-like, forked pennant most commonly flown from the main truck. A blue field nearest the hoist has been represented with either seven or thirteen stars, the latter being the number finally settled upon. With *Constitution*'s towering masts, such pennants typically ran thirty to thirty-five feet long.

When the ship was acting as flagship of a squadron, a "broad command pennant" was substituted for the commissioning pennant. See "Broad Command Pennant."

~~Powder Charges~~

During her 1849-51 tour in the Mediterranean, the ship carried 8-, 7-, and 6-pound powder charges for her 8" Paixhans guns, color coded white, blue, and red, respectively. Likewise, she carried 7-, 6-, and 4-pound charges for her heavy 32-pounder long guns, similarly color coded, but only 4-pound powder charges for her light 32-pounder long guns (coded white). [Midshipman Francis H. Baker Journal, Samuel Eliot Morison Library, USSCM.]

~~Signal Flags~~

Commodore Edward Preble, when off Tripoli in 1804, used square numeral flags to communicate any of 102 prearranged commands to his "small boys." They were distinguished as follows;

1 All blue
2 All red
3 All white
4 All yellow
5 Half and half, white over red
6 Half and half, white over blue
7 Half and half, yellow over blue
8 Half and half, red over yellow
9 Half and half, red over blue
0 Half and half, blue over yellow

[Preble's "Signals for Gun & Bomb Vessels," American Antiquarian Society.]

~~Small Arms~~

The ship's original allowance of small arms included muskets, 100 pairs of pistols, blunderbusses, and 200 cutlasses. [*NDQW*, Vol. 1, p. 53.]

In 1803, the ship received twelve swivels, sometimes referred to as "cannonades" or carronades." [Receipt by Midshipman Charles Morris, 18 Jun 1803, Samuel Brown Papers, MHS.]

In 1822, the allowance of small arms was:

1 swivel for every 20 guns
1 repeating swivel for every 10 guns
2 rifles for every 10 guns
3 muskets for every 2 guns
1 blunderbuss for every 10 guns
1 repeating pistol for every 5 guns
3 pair of pistols for every 2 guns
2 boarding pikes for every gun
3 cutlasses for every 2 guns
1 tomahawk (boarding ax) for every gun

[Marshall, George, Gunner, USN, *Marshall's Practical Marine Gunnery* (Norfolk: Thomas G. Broughton), 1822.]

APPENDIX A

CONSTITUTION'S MASTS, YARDS, AND TOPS

There is filed among the Joshua Humphreys papers in the Franklin D. Roosevelt Library at Hyde Park, New York, a three-page undated and unsigned document entitled "Principles for finding the Length & Size of Masts Yards &c for Ships of War." As with any generalist document, there is always the possibility -- even likelihood, in the contentious area of rigging and masting -- that in the "real world" its prescriptions were not followed precisely. Nonetheless, in the absence of specific information, it is a guide. It is transcribed below:

Double the Beam added to 1/9 of the Keel for the Main Mast--
Foremast 10/11 of the Main Mast--
Mizen Mast of the same Length
Main top mast 7/12 of the Beam
Fore topmast 19/20 of the Main topmast
Mizen do. 3/4 of.....do.--
Main top Gallant mast 11/10 of the Beam
Fore top ...do...--19/20 of the Main topgallant mast
Mizen top gallant.....3/4 of.....do.....do.

All main & Foremasts, & topmasts to be one Inch diameter in the Partners or Caps to every three feet in Length. The Top gallant Masts the same after deducting the length of the Pole; Mizen [sic] masts being of the same length as the foremast, allowing the heel on a line, (out of which length should be deducted, the raise of the deadwood, more than what it is at the Mainmast), but not carrying the same quantity of sail, its size may be with propriety reduced nearly to one Inch in every four feet.

All mast heads, one fourth of their respective mast heads [sic: lengths], except where they have poles, & where they have, deduct the length of the pole, & take the one fourth of the remainder for the mast heads.

Lower masts & topmasts one fifth less in the neck than the Partners or Cap.

Main Yard 16/31 of the Length of the gun deck--
Fore yard 16/17 of the main Yard--
Cross Jack yard 3/4 of...do.....
Main topsl do...14/36 of the length of the Gun deck
Fore topsl do...16/17 of the Main top gallant yard
Mizen tops do...3/4 of the.....do.---
Main top Gallant yard 1/4 of the Length of the gun deck
Fore top...do.....16/17 of the Main top gallant yard
Mizen top gallant do. 3/4 of the.....do.----
Royal yards 3/4 of their respective Top gallant yards
Spreatsail [sic] & spreatsail topsail yards, the same as the fore topsail & foretop Galt sail yards--
Length of the Bowspreat [sic] out board, the length of the Beam, 3/4 of that length, is the diameter in inches in the bed-
Gaff the same length as the Mizen topsl yard

Spanker Boom the length of the gaff & 1/7 added together, made 2 inches to 11 feet
Insign [sic] Staff 1/3 of the Mizen Mast taken without any
Jack staff 1/6 of the Fore Mast--deduction for deadwood----
Tops 3/8 of the length of their respective topmasts-
do...fore & aft 9/13 of their length--
Fore the diameter of all yards in the slings allow two Inches to every nine feet,
For lower & top gallant yard arms take 1/21 of their extream [sic] length--
For topsl yard arms take the one fourth of the difference between the topsl & Lower yards

In the tables to follow, the figures listed as the "1797 std" were developed using the foregoing formulae. Those termed "1801 std" were found among the Naval Agent Samuel Brown Papers in the Massachusetts Historical Society, while the "1847 std" was taken from *The Kedge Anchor*, by Sailing Master William Brady, published in that year. All other data relate specifically to CONSTITUTION and were found in a variety of documents, such as the ship's logs, correspondence, and papers relating to repairs.

Mast/Spar	Year	Length	Diam.	Head/Arm
Bowsprit	1797std			
	1801std	64' 0"	2'10"	
	1803	64' 0"	2' 8"	
	1815	65' 4"		
	1820	66' 9"		
	1847std	66" 0"		
	1976	64' 8 3/4"		
Jibboom	1797std	46' 0"	15 3/8"	
	1803	51' 0"	15 1/2"	
	1815	49' 0"	14"	
	1820	50' 1"	12 3/4"	
	1824	53' 0"		
	1847std	50' 0"	14 3/4"	
	1976	47' 6"	14 3/8"	
Flying Jibboom	1803	60' 0"		
	1815	52' 0"	12"	
	1820	50' 1"	9 1/4"	
	1847std	54' 0"	10 3/4"	
	1976	59' 0"		
Spritsail Yard	1797std	64' 0"	14 1/4"	
	1803	52' 0"		
	1820	63' 4"	12 1/2"	8' 4"
	1847std	None listed		
	1976	60' 0'	13 1/2"	
Fore Mast	1797std	93' 8"	34 3/8"	15' 4 3/4"
	1801std	95' 0"	32"	
	1803	96' 0"		
	1815	94' 0"		
	1820	94' 8"	31 1/4"	16' 5"
	1824	94' 0"		16' 0"
	1834	95' 0"	31 1/2"	16' 0"

	1847std	95' 0"	30 3/4"	16' 0"
	1976	93' 8"	29 1/2"	
Fore Topmast	1797std	58' 6"	19 1/2"	7' 7"
	1803	52' 6"	19 1/4"	
	1809	54' 0"	22"	
	1812	51' 6"		
	1815	56' 0"	18 1/2"	
	1820	56' 2"	18"	9' 6"
	1847std	56' 0"	19 3/4"	9' 6"
	1976	57' 2"	18 3/8"	
Fore Topgallant Mast	1797std	45'10"	10 1/8"	15' 3"
	1803	32' 9"		
	1815	31' 0"	11"	
	1820	28' 5"	10 3/4"	
	1847std	29' 0"	11"	
	1976	Combined with royal; see below		
Fore Royal Mast	1803	17' 0"		
	1815	20' 0"		
	1820	21'10"	8 1/8"	
	1847std	19' 4"	4"	
	1976	58' 0"		
Fore Sky Mast	1812	36' 0"		
	1815	36' 0"		
	1824	36' 0"		
Fore Sliding Gunter	1820	36' 5"	5 1/2"	
Fore Yard	1797std	85' 0"	19"	
	1803	84' 0"		
	1815	81' 0"	18"	
	1820	84' 5"	18"	4' 3"
	1824	81' 0"		4' 0"
	1847std	84' 0"	20 1/4"	
	1976	82' 0"	19 1/2"	
Fore Topsail Yard	1797std	64' 0"	14 1/4"	
	1803	60' 0"		
	1812	59' 6"		
	1815	61' 2"	13 1/2"	
	1820	63' 4"	14 1/8"	5' 3"
	1824	62' 2"		6' 3"
	1847std	62' 0"	15 1/2"	
	1976	62' 0"		
Fore Topgallant Yard	1797std	43' 9"	9"	
	1803	41' 6"		
	1812	45' 0"		
	1815	45' 0"	9"	
	1820	40' 5"	9"	2' 0"
	1824	45' 0"		2' 3"
	1847std	41' 0"	9 1/4"	
	1976	42' 0"	9"	
Fore Royal	1797std	30'10"	6 3/4"	

Yard	1803	29' 0"		
	1812	25' 0"		
	1815	28' 0"	7"	
	1820	27' 0"	6"	1' 5"
	1824	28' 0"		
	1847std	27' 0"	5 3/8"	
	1976	27' 0"	6"	
Fore Skysail	1803	None		
Yard	1820	18' 0"	4"	11"
	1976	None		
Fore Lower	1803	19' 0"		
Studding				
Sail Boom				
Fore	1820	56' 0"	9 3/8"	
Studding	1847std	51' 3"	10 1/4"	
Sail Boom				
Fore Top	1803	46' 0"		
Studding	1820	44' 6"	9"	
Sail Boom	1847std	42' 0"	8 3/4"	
Fore	1803	30' 0"		
Topgallant	1820	33' 4"	5 5/8"	
Studding	1847std	31' 0"	6 1/2"	
Sail Boom				
Fore Royal	1820	21' 4"	3 5/8"	
Studding				
Sail Boom				
Main Mast	1797std	103' 1"	34 3/8"	15' 4 3/4"
	1798	105' 6"		
	1800	101' 6"		
	1801std	105' 0"	35"	
	1803	105' 6"		
	1815	104' 0"	32"	
	1820	105' 2"	34 5/8"	18' 0"
	1824	104' 0"		18' 6"
	1834	105' 0"	34"	18' 0"
	1847std	105' 0"	34"	18' 0"
	1976	104' 3 1/2"	32"	
Main Topmast	1797std	61' 7"	20 1/2"	7'11"
	1803	61' 6"	19 1/2"	
	1809	58'0"	24"	
	1812	55' 0"		
	1815	62'10"	18 1/2"	
	1820	63' 2"	19 7/8"	10' 7"
	1824	62' 0"		10' 4"
	1847std	63' 0"	19 3/4"	9' 7"
	1976	64'10"	20 1/8"	
Main	1797std	47'10"	10 1/2"	15'11"
Topgallant	1803	34' 6"		
Mast	1815	32' 0"	12"	

	1820	31' 7"	12"	
	1824	33' 0"		
	1847std	32' 0"	11"	
	1976	Combined with royal; see below		
Main Royal Mast	1803	18' 6"		
	1815	21' 0"		
	1820	34' 4"	9"	
	1824	22' 0"		
	1847std	21' 8"		
	1976	65' 0"	12 1/8"	
Main Skypole	1812	39' 0"		
	1815	39' 0"		
	1820	20' 2"	4 1/2"	
	1824	39' 0"		
Main Sliding Gunter	1820	44' 0"	8"	
Main Yard	1797std	90' 4"	20"	
	1803	91' 0"		
	1812	94' 0"	21 1/2"	
	1815	95' 0"	22 1/2"	
	1820	94'11"	18 7/8"	4' 9"
	1824	95' 0"		
	1847std	95' 0"	22 5/8"	
	1976	94' 0"	22 1/2"	
Main Topsail Yard	1797std	68' 0"	15 1/2"	
	1803	64' 0"		
	1812	70' 6"		
	1815	70' 6"	15 1/2"	
	1820	71' 3"	16"	5'11"
	1824	70' 6"		6' 6"
	1847std	71' 6"	17 3/4"	
	1976	71' 0"	17"	
Main Topgallant Yard	1797std	43' 9"	9 1/2"	
	1803	44' 0"		
	1812	46' 0"		
	1815	46' 0"	9 3/4"	
	1820	45' 4"	10 1/8"	2' 0"
	1824	46' 0"		2' 3"
	1847std	44' 0"	10 1/4"	
	1976	46' 0"	10"	
Main Royal Yard	1797std	32' 9"	7"	
	1803	31' 0"		
	1812	30' 0"		
	1815	30' 0"	8"	
	1820	30' 3"	6 3/4"	1' 6"
	1824	30' 0"		
	1847std	30' 0"	6"	
	1976	30' 0"	6 1/2"	
Main Skysail Yard	1820	20' 4"	4 1/2"	1' 0"
	1976	None		

Main Lower Studding Sail Boom				
Main Studding Sail Boom				
Main Top	1803	49' 0"		
Studding	1820	50' 0"	8 1/2"	
Sail Boom	1847std	47' 6"	9 7/8"	
Main	1803	32' 0"		
Topgallant	1820	37' 6"	6 1/4"	
Studding	1847std	35' 9"	7 3/8"	
Sail Boom				
Main Royal	1820	23'11"	4"	
Studding Sail Boom				
Mizzen Mast	1797std	93' 8"	34 3/8"	15' 4 3/4"
	1801std	92' 0"	24"	
	1803	90' 0"		
	1815	81' 0"	21 1/2"	
	1820	84' 2"	33 1/8"	14' 7"
	1824	81' 0"	21 1/2"	
	1834	**	23"	18' 0"
	1847std	87' 0"	24 3/4"	12' 4"
	1976	70' 0"	21"	

** "..the cap to be level with the main top.."

Mizzen	1797std	46' 2"	15 1/2"	5' 11"
Topmast	1803	50'10"	14 1/4"	
	1812	43' 0"		
	1815	48' 0"	14 1/2"	
	1820	50' 6"	14"	8' 5"
	1847std	46' 4"	13 1/4"	6' 8"
	1976	48' 0"	15 5/8"	
Mizzen	1797std	35'10"	8"	11'11"
Topgallant	1803	26' 0"		
Mast	1815	23' 6"	9"	
	1820	26' 0"		
	1847std	24' 6"	8"	
	1976	Combined with royal; see below		
Mizzen	1803	12' 0"		
Royal Mast	1812	20' 0"		
	1815	20' 0"		
	1820	19' 5"	6 1/4"	
	1824	17' 0"		
	1847std	16' 4"		
	1976	48' 6"	9 5/8"	
Mizzen Sky	1812	20' 0"		
Mast	1815	30' 0"		

	1820	14' 5"	3 1/4"	8"
	1824	30' 0"		
Mizzen Sliding Gunter	1820	32' 4"	4 1/4"	
Crossjack	1797std	67' 9"	11 1/4"	
	1803	64' 0"		
	1812	75' 0"		
	1815	75' 0"	14"	
	1820	71' 3"	14"	7' 2"
	1824	75' 0"		6' 6"
	1847std	66' 0"	13 1/4"	
	1976	70' 0"	14"	
Mizzen Topsail Yard	1797std	51' 0"	11 1/4"	
	1803	46' 0"		
	1812	46' 0"		
	1815	49' 0"	9 1/2"	
	1820	60'11"	11 1/4"	4' 3"
	1824	49' 0"		5' 0"
	1847std	46' 0"	9 1/2"	
	1976	46' 0"	10"	
Mizzen Topgallant Yard	1797std	35'10"	4"	5'11"
	1803	30' 0"		
	1815	32' 0"	7 1/2"	
	1820	32' 4"	7 1/4"	1' 8"
	1847std	30' 0"	6"	
	1976	31' 0"	6"	
Mizzen Royal Yard	1797std	24' 6"	5 3/8"	
	1803	21' 0"		
	1815	20' 6"	6"	
	1820	21' 7"	4 3/4"	1' 2"
	1824	20' 0"		
	1847std	19' 0"	3 3/4"	
	1976	19' 0"	4 1/2"	
Mizzen Top Studding Sail Boom				
Mizzen Topgallant Studding Sail Boom	1820	26'10"	4 1/2"	
Mizzen Royal Studding Sail Boom	1820	17' 1"	2 7/8"	
Trysail Mast	1812	46' 0"		
Gaff	1797std	47' 9"	12"	
	1803	44' 6"		
	1812	44' 0"		

	1815	40' 0"	14"
	1820	42' 3"	9 3/8"
	1824	40' 0"	
	1847std	32' 0"	7 3/4"
	1976	40' 0"	11 1/8"
Spanker Boom	1797std	54' 3"	9 7/8"
	1803	50' 0"	
	1812	66' 0"	
	1815	55' 0"	15"
	1820	63' 4"	12 1/2"
	1824	62' 0"	
	1847std	50' 0"	10 1/2"
	1976	56' 0"	11 1/8"
Ringtail Boom	1803	30' 0"	
	1820	31' 8"	6 1/4"
	1847std	32' 0"	7 3/4"

~~Fighting Tops (1797std)~~

	~~Fore and Aft~~	~~Athwartships~~
Fore	15' 1"	21' 10"
Main	16' 0"	23' 1"
Mizzen	11' 11"	17' 3"

APPENDIX B

Memorandum Frigate Constitution
Standing Rigging 1797

Fore Stay	16	Inches	15	fathoms
Preventer Stay	10.5	"	15	Do.
Shrouds	10	"	215	Do.
Sheets	5	"	83	Do.
Takles [sic]	8	"	45	Do.
Top mast Shrouds	6	"	100	Do.
Standing back Stays	6.5	"	111	Do.
Shifting back Stays	5	"	55	Do.
Top mast Stays	9	"	25	Do.
Preventer Stay	7.5	"	25	Do.
Main Stay	17.5	"	23	fathoms
Preventer Do	13	"	20	Do.
Collar for main Stay	12.5	"	10	Do.
Shrouds	10	"	234	Do.
Sheets	5	"	88	Do.
Tacks	8.5	"	45	Do.
Top mast Shrouds	6	"	110	Do.
Back Stays	6.5	"	125	Do.
Shiftg. back-Stays	5	"	62	Do.
Top mast Stay	9	"	26	Do.
Preventer Stay	7.5	"	26	Do.
Mizen [sic] Stay	9	"	16	fathoms
Shrouds	7	"	115	Do.
Top Mast Shrouds	4	"	56	Do.
Top Mast Stay	5.5	"	7	Do.

[Reverse side of memo bears the legend:

Dimensions of Rigging
for Constitution
Frigate -]

Source: James Sever Papers, Library of Congress.

APPENDIX C

CONSTITUTION'S SAILS, Ca. 1824

The following table of sail dimensions is to be found in a letterbook kept by Commodore Thomas Macdonough, who commanded the ship 1824-25. Presently in the Library of Congress, it represents the earliest set of such dimensions yet found.

	Head	Foot	Hoist	Leach	Stay	Tack
Jib	77' 0"	47' 0"	94' 0"			
Flying Jib	70' 0"	35' 0"	84' 0"			
Fore Top Staysail	117' 6"	28' 6"	53' 6"			
Fore Storm Staysail		29' 0"		36' 0"	40' 0"	
Fore Course	59' 0"	59' 0"	40' 0"			
Fore Topsail	45' 0"	71' 0"	45' 0"			
Fore Topgallant Sail	32' 6"	46' 0"	29' 0"			
Fore Royal Sail	26' 6"	34' 0"	15' 4"			
Fore Skysail		[blank]				
Lower Studding Sail	45' 0"	45' 0"		42' 0"		
Fore Top Studding Sail	21' 0"	51' 6"		46' 6"		
Fore Topgallant Studding Sail	17' 0"	25' 9"		26' 0"		
Fore Royal Studding Sail	10' 0"	16' 0"		21' 0"		
Main Storm Staysail		51' 0"		45' 0"	55' 0"	

	Head	Foot	Hoist	Leach	Stay	Tack
Main Topmast Staysail	54' 0"			71' 0"	50' 0"	30' 0"
Main Topgallant Staysail	40' 6"			36' 0"	44' 6"	11' 6"
Main Royal Staysail	41' 6"			26' 6"	42' 0"	9' 6"
Main Course	78' 6"	84' 6"	47' 6"			
Main Topsail	55' 6"	82' 6"	53' 0"			
Main Topgallant Sail	38' 0"	54' 0"	29' 5"			
Main Royal Sail	29' 6"	30' 9"	17' 0"			
Main Skysail			[blank]			
Main Top Studding Sail	23' 6"	35' 0'		52' 6"		
Main Topgallant Studding Sail	18' 6"	29' 4"		28' 0"		
Main Royal Studding Sail	10' 0"	16' 4"		21' 4"		
Mizzen Staysail	26' 0"			22' 0"	27' 0'	12' 0"
Mizzen Topgallant Staysail	27' 0"			22' 6'	27' 0"	12' 0'
Mizzen Topsail	36' 4"	56' 4"	42' 0"			
Mizzen Topgallant Sail	24' 6"	37' 6"	22' 4"			
Mizzen Royal Sail	16' 6"	25' 0"	15' 0"			
Mizzen Skysail			[blank]			
Spanker	58' 0"	34' 0'	52' 0'	42' 0"		

	Head	Foot	Hoist	Leach	Stay	Tack
Gaff Topsail		30' 6"	64' 0"	56' 0"		
Upper Gaff Topsail		10' 6"	25' 9"	21' 3"		

The canvas needed to make a full suit of sails, plus necessary awnings, wind scoops, etc., for CONSTITUTION consisted of the following weights and quantities:

#1	100	bolts	#5	82.5	bolts
#2	5	"	#6	20	"
#3	7.5	"	#7	10	"
#4	32.5	"			

APPENDIX D

PROCEDURAL INSTRUCTIONS FOR VARIOUS RIGGING EVOLUTIONS

In the process of rigging a model of any sailing ship, questions invariably arise concerning the sequence in which successive elements of rigging were installed and how they inter-related with other elements. The following excerpts from the notebook of a *Constitution* Midshipman of the mid-1830s offers some insights:

Get in Sheers and Masts

Get on board sufficient quantity of ballast to steady the ship under the operation of masting. Shore the decks fore and aft from the skin up. Have skids from the channels to the water's edge to prevent the Sheer legs from catching under them, from the channels to the gunwale, and from the gunwale to the deck to ease the sheer leg down on. Have a spar rounded off on top lashed on the gunwale to prevent the parbuckles from chafing them, and mats on the quarter galleries. Now reeve the first parbuckles from ~~out~~ in through two ports on the quarter, having five or six intervenings. Throw the ends over the gunwale down between the ship's side and the sheer leg (which should be towed alongside head aft), up over the gunwale and reeve them through blocks in the opposite waterways, and clap luff tackles on them. The counter parbuckle is rove from ~~in~~ out through the Gun ports, the ends taken down outside the sheer leg then under it and up through the main deck ports, having hands to attend them. Now man the parbuckles, rouse the sheer leg up to the gunwale, ease it into the counter parbuckle and down on the deck, letting the head rest on a spar placed athwart the taffrail for that purpose. Launch the sheer leg aft to clear the capstan and place the heel on the other side of the deck. Get the other sheer leg on board in the same manner, unserve the parbuckles, cross their heads, square their heels two thirds the breadth of beam for a loose throat lashing which should be passed on the bight with a well stretched rope. Whip on board the shoes which should be stout pieces of oak plank long enough to cross them over four beams with sockets in them for the heels of the sheers, and an eye bolt to lash them to. Spread the heels and place them in the shoes lashing them temporarily. Middle and clew hitch two stout hawsers one on each sheer head for forward and after guys, also one on each leg, one that from the sheer head lashing down for quarter guys. Clap off tackles on the guys, have four good tackles, two leading forward and two aft from the heels of the sheers. Now lash the upper block of the main purchase (a large three fold block) close in the crotch so as to hang plumb, the upper block of the small purchase on the after part of the sheer head looking just far enough above the main to hang clear. Carry forward the lower block of the main purchase and toggle it in the bowsprit bed. Bend and reeve the fall making the standing part fast to the sheer head. Lash two girtline blocks with girtlines rove through them to the after part of the sheer heads for canting girtlines, also a sheer head tackle for getting over the tressle [sic] trees. Now launch the sheers aft as far as possible without canting and haul taut the after heel tackles. Lash the heels to the bulwarks to prevent slipping. Man the forward guys and attend the after ones. Lead the fall of the main purchase to the capstan. Man the bars and heave

round, rowsing the sheers up and catching them as they rise with the spar across the stern. When up, cast off the bulwark lashing and pass the lashing of the sheers afresh. Wet the deck and transport the sheers one leg at a time to forward of the partners of the mizen [sic] mast. Rake them aft so that their heels may be plumb with the step of the mast, haul taut the guys and heel tackles, lash the heels to the bulwarks and clap on an athwartship tackle to relieve the strain on the waterways. Now come up the main purchase forward, bring it aft and overhaul it down abaft the sheers over the ship's side and toggle it to the garland on the mizen mast which is lashed on the forward part about 3/4 from the heels. Previous to launching lead the fall to the capstan. Heave round. As the head of the mast comes above the gunwale avast heaving, overhaul down the sheer head tackles for the tressle trees, hook on and sway up. Place them, observing beforehand to wipe the mast dry and give it a good coat of white lead. Beat them well down in their places. Place the bolsters which should be covered with tarred canvas and secure them to the tressle trees. Put over the lower pendants with the long legs aft (they are fitted with an eye formed by two servings connecting the forward and after legs, the mizen has generally but two legs which go with a cut splice). Lash two girtline blocks with girtlines rove thru them to the after part of the tressle trees, one on each side, also two small blocks fitted with a span over the tennon [sic] of the mast for eye girtlines. Fit a stirrup and man rope to the mast head, clove hitch a back rope and make fast the canting girtlines and the bibbs of the mast. Heave round and as the heel of the mast comes up to the gunwale, clap on a rope and ease it in. Sway on the canting girtlines and place the mast in a vertical position over the partners. Give the mortice & tennon a good coat of white lead. Have carpenters below to attend the stepping. Slew the mast fair with a slue rope, lower away and step the mast. Send up and hook the pendant tackles. Set them up to steady the mast. Come up the main purchase. Cast off the canting girtlines. Take the garland off the mast. Overhaul down the purchases & sway on board the mizen top. Place it abaft the mast with the right side up. Come up the athwartship tackle. Cast off the bulwark lashing to the heels. Wet the deck, and transport the sheers as before with the guys and heel tackles to forward of the partners of the mainmast. Get in the fore and mainmasts in the same manner as the mizen mast. Transport the sheers as far forward as the curve of the bows will allow. Lash them to the bulwarks. Middle and clovehitch a stout hawser around the foremast head and set it up well aft on the quarter deck. Lash a large Cringle block on each side of the foremast head, through which reeve the forward sheer head guys. Take the forward quarter guys to the catheads. Carry foreward [sic] the after heel tackles. Shift the smaller purchase from the after part of the sheer head lashing to the forward part to prevent it from crossing the main purchase as it is taken farther out on the bowsprit. Now rake the sheer heads over the bows so that the main purchase may hang almost 4 feet clear of the cutwater. See that all the guys bear an equal strain (before launching lash the garland on the bowsprit so that it will hang head heavy. Nail cleats and saddle for jib boom. Bring the bowsprit under the bows head forward, toggle the main purchase to the garland, and the smaller purchase to a strap round the bowsprit between the bees and the cap. Overhaul a tackle from the gun deck between the night heads [sic] and hook it to a strap round the heel of the bowsprit. Have guys from the cap to the bridle ports to keep the bowsprit in its proper position while swaying. Lead the fall of the main purchase to the capstan. Man the bars & smaller purchase. Heave. When high enough, cant it to its proper position with the smaller purchase. Wipe dry and white lead the heel and mortice. Rouse in on the heel tackles and guys. Lower away and

step the bowsprit. Untoggle the purchases. Cast off the sheet tackles and guys. Take the garland off the bowsprit. Overhaul down the smaller purchase for jib boom. Sway it on board. Point it through the cap and lash it. Sway on board the lower caps and place them by their respective masts. Take off the after heel tackles. Cast off the heel lashings and those from the bulwarks. Cast off the athwartship tackle, tend the forward heel tackles and after guys. Wet the deck in the wake of the shoes. Rouse the heels aft, lower away upon the guys and land the sheers on the bowsprit. Unrig and launch them overboard.

Remarks upon Sheers If the sheers (as in large vessels will be frequently the case) be wanting a foot or two in length, the difficulty may be obviated by lashing the lower block of the main purchase to the mast in the place of the garland. By this means the diameter and stretch of the garland may be avoided. If also either or both of the sheer legs be so slender as to excite apprehension for their safety, they may be much strengthened by placing a shoulder between the sheer legs about half way up after the sheers have been secured as usual. This shoulder should be constructed with jaws to fit the sheer legs and should be rounded out gradually from jaw to jaw, so that after it is placed a lashing may be passed around it and the sheer legs as taut as it will bear and frapped on amidships, the rounding out of the shoulder permitting. By this means, when the strain of the mast comes upon the sheers, they will be prevented buckling in toward each other by the shoulder, and the lashing round them and the shoulder will prevent them from buckling out. The forward and aft guys will prevent them from buckling forward or aft.

Rig the Bowsprit.....Rig a stage under the bowsprit for the men to stand upon. Two thirds from the night [sic] heads out, seize on strap and hart [sic] for fore stay. The strap is doubled and lashes underneath the bowsprit with the heart on top. Outside of this, the heart and strap for inner bobstays, which is as the other a double strap and lashes on top while the heart stands underneath. Outside of this is another strap which lashes either on top or underneath with two dead eyes in it, one standing on each side of the bowsprit for inner bowsprit shrouds. Once the diameter of the bowsprit farther out a heart and strap for fore spring stay, which is fitted like that for fore stay. Outards [sic] of this, heart and strap for middle bobstay, which is fitted like that for inner bobstay. Outside of this a strap and deadeyes for the outer bowsprit shrouds, fitted like that for inner ones. And just inside the cap, a strap & thimble for outer cap bobstay. In sloops of war the topmast stays often go from the bees through thimbles in a span round the bowsprit, then to the catheads, where they supply the place of outer bowsprit shrouds. Parcel serve and leather the bobstays in the wake of the cutwater and scuttles. Serve and short splice them and turn in their hearts in the splice. Middle the laniard [sic] and put its bight through one of the hearts, serve its end through the bight and jamb it down. Take two turns of the laniard through the heart on the bowsprit and in the bobstay and clap luff upon luff on them. Hook the bowsprit shrouds. Reeve their laniards, clap luff upon luff on them and stand by to set up. [**] Hook a tackle to a strap round the bowsprit end and to this hook a boat, an anchor, or any thing as will hang heavy. Nail on cleats and saddle for jib boom. Bring the bowsprit under the bows head forward, toggle the main purchase to the garland, and the smaller purchase to a strap round the bowsprit between the bees and the cap. Overhaul a tackle from the gun deck between the night heads [sic] & hook it to a strap round the heel of the bowsprit. Have guys from the cap to the bridle ports to keep the bowsprit in its proper position while

swaying. Lead the fall of the main purchase to the capstan, man the bars & smaller purchase & heave. When high enough cant it to its proper position with the smaller purchase. Wipe dry and white lead the heel and mortise. Rouse in on the heel tackles and guys. Lower away and step the bowsprit. Untoggle the purchases. Cast of the heel tackles and guys. Take the garland off the bowsprit. Overhaul down the small purchase for jib boom, sway it on board, point it through the cap and lash it. Sway on board the lower caps and place them by their respective masts. Take aft the after heel tackles. Cast off the heel lashings and those from the bulwarks, cast off the athwartship tackle. Tend the forward heel tackles and after guys. Wet the deck in the wake of the shoes. Rouse the heels aft. Lower away upon the guys and land the sheers on the bowsprit. Unrig and launch them overboard.

[At this point in the original document, Midshipman Anderson repeated verbatim the paragraph concerned with "Remarks upon Sheers." He then repeated the section on "Rig the Bowsprit" verbatim down the point marked "**" above, at which point the text changes as follows. It appears that, in the first instance, he began writing about rigging the bowsprit, then realized he hadn't described the procedure to get it stepped first. Without deleting what he had just written, he proceeded to outline the stepping process, then repeated the business about the shears and then rigging the bowsprit.]

Hook a tackle to strap round the bowsprit end and to this hook a boat, an anchor, or any heavy weight. Man the fall and suspend the weight to the bowsprit end, at the same time setting up on the bobstays and bowsprit shrouds. When the bowsprit is thus brought well down in its bed, rack the laniards and proceed to pass the gammoning. Leather the bowsprit in the wake of the gammoning and let the leather be so large that after all the turns are passed, it will haul back and cover them all and tack down to the bowsprit. The gammoning should be hawser laid rope well stretched, with an eye spliced in one end. Tar the bowsprit and gammoning scuttles. Pass the 1st turn of the gammoning round the bowsprit through the eye in its end and haul it well taut, square with the after part of the gammoning scuttle & take it down through the scuttle, up over the bowsprit & hitch its end to a pendant with a hook in one end and an eye at the other, rove through a block secured to one of the head knees with the eye leading into the hawse hole. Hook a purchase to the eye, bowse the turn well taut and rack it. In this manner clinch all the turns, observing to rack each turn and keep it close aft on the scuttle. When all the turns are passed, bring up the end between the gammoning and the bowsprit. Hook the fore pennant tackle to it and jamb the end and secure it. Take a piece of stuff half the size of the gammoning and frap all parts together under the bowsprit, bowsing each turn taut with a jigger from the bumpkin. Secure the ends, tar the leather and gammonings in the wake of each other. Haul the leather back and tack it down to the bowsprit. Cast off the block from the head knee. Lower the weight from the bowsprit end. Set up the bobstays and bowsprit shrouds for a full due with a tackle from the bowsprit end. Sway aft and ship the dolphin striker. Clove hitch the goblines [sic] round its heel and set the end up at the bumpkins. Cast off the tackles from the bowsprit end. Hook the man ropes to the bowsprit cap and set them up. They reeve through iron stanchions and set aft to bolts in the deck. Fit to the heart strap of the fore stay the fore, and to staples in the bowsprit cap the foretopbowline blocks. Fit the fairleads and unrig the stays.

Rig the Foremast.....Overhaul down the mast head girtlines & sway up as many men as can conveniently work. Cast off the masthead girtline and overhaul down those from the tressle trees. Middle the girtline and turn a toggle into it, using one end to overhaul down by. Seize the two legs of the starboard forward shrouds together about the length of the mast head from the throat seizing, toggle the girtlines below the seizing and stop it to the crown of the eye of the shroud. Man the girtline and sway away. When the eye comes up to the tressle trees, reeve the break rope. Make fast the eye girtline below the eye seizing. Cut the stop from the crown of the eye. Sway away & when high enough break the shroud over. Observe to dip the eye girtline. Lower away. Let the men in the tressle trees place it in its proper slue and maul it down in its place. Overhaul down the larboard girtlines for the larboard forward pair which send up and place over in the same manner. (It will give the rigging a snugger fit if as fast as a pair of shrouds are got over you take two reeve with the laniards & set them up temporarily.) Then shift the girtlines to the foremast head & overhaul down from the fore stay, which is fitted with lashing eyes. Bend them on at the splice and stop one girtline to each leg. Sway up and pass the legs round the mast. Lash them temporarily and cleat the collar up above the eyes of the lower rigging. Overhaul down fore the spring stay which is bent on and sent up in the same manner. Now reeve the laniards of the stays on their bights. Set them well up to stay the mast forward for setting up the lower rigging. Reeve two turns of the laniards of the lower rigging to bring the strain on the standing part. Set them well up, using luff upon luff, one pair on each side at the same time, the forward ones first. Come up the fore and aft stays. Knock off cleats and drop the collars over the eyes of the lower rigging. Lash and set them up for a full due. Reeve the laniards of the rigging in full and set them up as before. Have two stout girtlines from the mast head for the crosstrees, bend on, sway up and bolt them to the tressle trees, observing to white lead them in the wake of each other. Overhaul the girtlines down abaft the mast for the top. Take the ends underneath the top up through the girtline holes in the side or after rim of the top & hitch them to their own part. Stop them to the pigeon hole. Have a girtline from the mainmast head bent to a span from the after corner of the top. Stop the span to the pigeon hole. Man the girtlines & sway away using the guy from the mainmast head to clear aft of the tressle trees. When clear cut the stop from the span & sway until the top is up to the girtline blocks. Cut the stop from the girtline at the pigeon hole. Sway again and cant the top over with the guy. Lower away. White lead it in the wake of the crosstrees. Bolt and key it. The mizen top is got over forward of the mast. Sway up and ship the top stanchion and top rail. Reeve the fancy lines. Send up the futtock plates with dead eyes in them for topmast rigging. Ship them in the mortices. Take one half the breadth of the after part of the top, which distance set off from the lower part of the tressle trees down the mast opposite to which on the rigging goes the plate for the futtocks staff, which should be seized on outside athwart the rigging leaving out the forward and after shrouds. Lash a capstan bar a few feet below the futtock staff to which a tail block corresponding to each shroud should be lashed. Middle a fall and commence reeving through the tail blocks, one end going forward and the other aft. Snatch them in the opposite waterways. Clap hands on them and swifter on the rigging sufficiently for seizing on the catharpin legs, which are wormed, parcelled and leathered with an eye in each end and a laniard spliced in the eye ready for seizing on. Send them up and serve them to each shroud & the futtock staff, leaving out the forward and after swifters. Come up an unreeve the fall. Take off the tail blocks. Send down the capstan bars. Seize on the sheer poles. Spar and

rattle down the rigging. Send up and hook the futtock shrouds and set them to the futtock staves with a Spanish windlas [sic]. Hook a large single block over the eyes of the lower rigging for the main topmast stay to serve through (a bull's eye is better), also one for the main topsail spring stay to set up to. The main and mizen masts are rigged in the same manner, except that the mizen mast has no spring stay. After the masts are rigged and stayed in their proper positions, let them be wedged for a full due and nail on the mast coat. Overhaul down girtlines for lower cap, cap sure [i. e., cap shore] and topmast fid. Bend on & sway up and place the round hole in the cap over the mast hole in the tressle trees. Take the girtline block from off the tennon [sic] of the mast.

Note. The shrouds are distinguished by knots tied in their eyes, the starboard ones being numbered with odd knots lashed 5 inches from the fore and open aft. The larboard ones with the even knots at 2 inches. Should the knots be knocked off they may be told starbd and larboard by the way the eyes are turned in by the nip around the dead eye and the forward pair which are the shortest beneath forward leg & served, then the next shortest, &c, &c.

Send up Topmasts. Hook a large single block over the eyes of the lower rigging, having the lashing long enough to allow it to hang clear of the top. Reeve a hawser through it. Overhaul it down over the ship's sides. The topmast is towed alongside head forward. Reeve the hawser through the upper sheave hole. Bring the end up and hitch it round its own part and the head of the topmast. Snatch the hawser and take it to the capstan. Heave round. As the heel comes up, clap on a heel rope and ease it onboard. Point the heel thru the mast scuttle in the deck. Sway up until the mast enters the mast hole in a lower cap. Avast heaving. Lash the lower cap to the topmast head. Hook the pennant tackles to a selvagee strap through the fid hole. Haul them taut. Unhitch & unreeve the hawser. Place a heaver in the fid hole with a rope hitched to it leading to the opposite side of the deck. Sway away. When high enough, slew the mast fair with the hawser. Place the capsure. Lower away and ship the cap. Maul it down in its place (observing beforehand to white lead the tennon of the mast). Tack sheet lead over to keep the water out. Hook the top blocks to the after bolts in the cap. Reeve the top pennants through them and the upper and lower sheave holes and clench them to the forward bolts in the opposite side of the cap. Take one fall to the capstan. Man the other. Bowse them well taut and unhook the pennant tackles, cutting off the straps in the fid hole. Have two girtlines from the topmast head and overhaul them down abaft for the crosstrees. Sway the topmast up a few feet for getting over the crosstrees. Take them under. Bend them to the after & stop them to the forward part. Bend and stop on like manner a guy from the mainmast head. Sway away. Guy the crostrees [sic] clear of the top. When high enough, let the after horns rest upon the lower cap & lash them to it. Cast off the girtline blocks & hitch them to the after horns of the crostrees [sic]. Lower away the topmast and let the hole in the crostrees [sic] fall over the topmast head. White lead the mast head & crosstrees in the wake of each other. Cast off the lashing. Sway up the top mast a few feet & beat them down in their place. Place the bolsters and secure them to the tressle trees. Tar the mast head in the wake of the rigging. Put over the gin straps, then the burton pennants which are fitted with a cut splice. Clove hitch a break rope round the mast. Hook the burtons. Sway up and fid the topmast. Steady the mast by the burtons. Overhaul down the girtlines for the shrouds, which send up & put over in the same manner as the lower with the exception of using the eye girtline, which is not

necessary. Then put on the breast backstays, which are put over first to avoid chafe, then the standing backstays, then the topmast spring stay, then the topmast stay, then the jib stay, which sometimes goes with an eye lashed to the collar of the topmast stay. Cleat the collars above the eyes of the rigging. Reeve the topmast & spring stays through the bees and set them well up. (For setting up rigging, reeve the laniards of the rigging & set it up with a runner and burton.) Haul taut the breast & set up the standing backstays. Come up the fore and aft stays. Knock off cleats & drop the collars over the eyes of the rigging. Set them up for a full due. Seize on the futtock staff inside the rigging and catharpin in the rigging in the same manner as the lower sides on the sheer poles. Spar & rattle down. Send up the topmast cap, capsure & top gallt fid. Place the round hole in the cap over the mast hole in the crostrees [sic].

Jibboom. Whilst rigging the topmasts, some hands may be employed rigging the jib boom. Reeve a heel rope through a block on one side of the bowsprit cap, thence through the sheave hole in the heel of the jib boom & hitch it to a bolt on the other side of the cap. Sway and run out far enough for rigging. Tar the boom end & put over the traveller, through which and the inner sheave hole reeve the jib stay. Turn a double block in the end & connect it by a fall with another block on the head. Put a gromet [sic] with two single blocks for top gallt bowlines, one on each side of the boom. Put over the foot ropes & set them up at the cap. Put over the standing guys, then the martingale stay block, through which reeve the stay, then thro [sic] the dolphin striker to the fair leader on the bowsprit & carry it to the head. Ship the wythe for flying jib boom. Seize to the traveller the jib downhaul & brail blocks & travelling guys. Sway on the heel rope. Light out the rigging. Run out & pass the heel & belly lashing.

Spritsail Yard. Get it on board, tar & leather the guard in the slings, fit the tye, which goes with a running eye round the yard & a hook & thimble in the end, which hooks to a bolt in the cap or bowsprit. Then fit the parrel, which goes with two straps round the yard with running eyes & lash together on top of the bowsprit. About half way out from the slings to the yard arm, fit a strap & thimble for flying jib sheet & nail on stirrup for foot rope, with a round turn around the yard to hang abaft between this & the yard arm strap & thimble for travelling guys. One third from the strap & thimble for jib guys. One half out from this strap is thimble for flying jib guys. All thimbles stand on top of the yard. Over the yard arm put first the foot ropes which reeve through straps, set up to each other and tries [sic] up at the slings. Then put over lower boom guy block brace to left block. Reeve a yard rope from the topmast stay plumb with the berth of the yard, which is just inside the bees. Overhaul it and bind it to the labd quarter & stop it to the starbd. Hook a tackle from the fore stay to the labd quarter. Sway the yard on the gunnel [sic] to reeve the lifts & braces, passing the starbd ones underneath the bowsprit. Sway on the yard rope and tackle, cutting the necessary stops. Top on the larbd lift & starbd brace. When in its berth hook the tye. Seize the parrels & square the yard.

Top Gallant Masts. Tow the masts alongside head forward. Lash a jack block to the topmast head. Reeve the mastrope & overhaul it down the mast through the mast hole in the crosstrees. Reeve it through the sheave hole in the topgallt mast and clinch it around the topgallt mast head above the hounds and its own part, leaving end enough to clinch round the topmast head. Rack the parts together in several places & stop it to the royal mast head. Sway away the mast rope. Point

the skysail mast thru the mast hole in the crosstrees and cap. Sway away until the royal mast enters the cap, cutting the stops as necessary. Stop the cap to the royal mast head and fit it as the lower. Nail lead over to keep the weather out. Unclinch the mast rope from about the topgallant mast head, leaving the mast to hang by the racking stops. Pass the end up through the mast hole in the crostrees [sic] & clinch it to an eye bolt in the topmast cap. Lower the mast and let the strain come upon the standing part and the same stops as before. Come up the lashing of the jack block from the top mast head & hook it to an eye bolt in the cap. Set taut & cut the stops from the mastrope. Lower the mast to within a few feet of the skysail mast head above the cap. With a girtline from the cap, sway up the jack and funnel. Tar the funnel inside & out & put it over the mast head. Put over first gromet [sic] and thimble for main royal stay, next topgallt and flying jib stays, then the starbd & larboard shrouds alternately, then the breast & standing backstays, then the royal stay shrouds & backstays & lastly truck with signal halliards rove & spindle shipped. Sway aloft the topgallant mast. White lead the mast head & ship the truck. Sway again. Tar the mast head & fit the royal rigging. Sway. Tar the top gallant mast head. Place the funnel and beat it down. Reeve Tp Glt stay through the outer sheave hole in the jib boom, the shrouds through holes in the ends of the crostrees [sic] & the fairleaders on the inside of the topmast futtock staffs. Turn thimbles into their ends. Reeve the flying jib stay through the inner sheave of flying jib boom, the royal stay through the outer. Reeve the royal shrouds through the jacks horn. Turn double blocks into their ends and connect them with falls to other double blocks in the corners of the top. Sway up and fid the topgallant mast. Stay the mast by the head stays and set up the rigging. Haul taut the breast and set up the standing backstays.

~~Flying~~ ~~Jib~~ ~~Boom~~. Lash a block to the jib boom end through which reeve a heel rope. Bend it to the heel of the flying jib boom and stop it to the end of the jib boom. Man the heel rope. Sway & light out until the jib of the jib boom end is far enough on the wythe for rigging. Tar the book end and put over a gromet [sic] with royal bowline blocks served in, then flying jib foot ropes, guys & martingale. Run out until the flying jib boom end comes through the wythe. Tar it & place the rigging, reeve the stays and martingales. Take the guys through their thimbles on the spritsail yard into the head. Set up the flying jib foot ropes to the jib boom end. The martingales reeve through the dolphin striker, the fairleader on the bowsprit & set up in the head. Rig out & step the heel of the boom against the bowsprit cap. Pass the heel and belly lashing.

~~Topsail~~ ~~Yards~~. Should be towed on the larboard side of the ship with the starbd yardarm forward. Reeve a hawser through a block at the topmast head and bend it on to the slings. Stop it to the forward yard arm. Sway away. Ease the yard on over the gunnel [sic] & land it on chocks the labd side of the deck with the starbd yard arm forward. Unbend the hawser. Tar the yard in the slings & leather it. Lash on the tye blocks with lashing eyes round the yard. Heave each turn well taut with a Spanish windlas [sic] outside the tye blocks. Seize on the parrel. It is tarred, parcelled & leathered and has an eye in each end. Seize it round the yard, leaving a long & short leg. The long leg is then taken abaft the mast, seized round the yard & the eyes are lashed together abaft, outside of this seize on the quarter blocks. They are double, one sheave for the topsail clewline, the other for the T. G. sheet. Then strap & thimble for standing part of topsail clewline. One third out from the slings, strap & thimble for rolling tackle. Two thirds out, strap & thimble for Burtons. Outside of this, strap & thimble for heel lashing of Tp Glt

stunsail booms. Tar the yard arms, put over the jackstays, drive staples in the yards. Reeve the jackstays through them & set them up to each other in the slings of the yard, then put over the head earing [sic] strap & thimble, then the foot ropes. Nail the straps on the yard through which reeve the foot ropes & set them up to the opposite quarters of the yard. Next the brace blocks then the lifts, which go single with an eye over the yard arm. Coil them away and stop them on the slings of the yard. Seize on the flemish horses to the boom irons & set them up inside the shoulders of the yard. Bend on the hawser to the slings and stop it to the starboard quarter. Send the braces & tyes onto the tops. Send up & hook the gin blocks which go with an iron strap over the cap & hook to an iron strap over the tressle trees & hang under the eyes of the topmast rigging. Man the yard rope & sway aloft. When high enough reeve the lifts & braces & hook the top burtons to selvagees on the quarter of the yard. Sway again until the center of the yard is above the lower cap. Bowse taut upon the lifts & burtons & hang the yard by them. Ease down the yard rope & cut the stops. Haul taut again. Bowse upon the lower lift & burton, ease away the upper one & cross the yard. Pass the parrel lashing. Square the yard by the lifts and braces. Reeve the ties through the tie & gin block & clench their ends round the topmast head. Hook the fly blocks. Reeve & haul taut the topsail halliards. Take off burtons & selvagees. Cast off the hawser & send down the block from the masthead. Ship the boom irons.

Lower ~~yards~~. Tow them on the larboard side with the starbd yardarm forward. Use the same block & hawser employd [sic] in getting on the topmasts. Overhaul down forward. Bend it to the slings of the yard & stop it to the forward yard arm. Sway the yard up & down. As the starbd quarter comes up, hook the starbd pennant tackle to a selvagee strap. Pound it & do the same with the larboard quarter. Sway high enough to clear the gunnel [sic]. Haul taut & let the strain come on upon both pennant tackles. Ease away the yard rope & cut the stops. Haul it taut again. Bowse upon the lower pennant tackle. Ease away the upper one. Land the yard on chocks on the gunwale fair for any guns. Cast off & unreeve hawser, take the block off the mast head, tar & leather the yards in the slings & place the chock for the D thimble. Let the leather be long enough to haul back & cover the D thimble & its lashing. Tar & parcel the D thimble. Lash it on with a strand of well stretched rope passed on the bight, heaving each turn as taut as it will bear with a spanish windlass & flare them well out on the yard so that they will not ride each other. Secure and jamb the end. Frap all parts together between the thimble & the yard. Secure the end of the frappery. Cover the whole with leather. On each side of this seize on the quarter blocks & connect them with a span under the yard to prevent slipping. Outside of this seize on the truss straps & pennants, seize on the starboard pennant, next the quarter blocks & the strap outside the larboard ones the reverse. By this means they will reeve without a cross. The pennants go with running eyes, the straps with lashing tyes. They are both leathered. Next to this seize the clew garnet blocks, then the straps & thimbles for standing part of clue garnets. One third out from the slings strap & thimble for rolling tackles. Two thirds out strap & thimble for burton. Outside of this strap & thimble for heel lashing of topmst stunsl boom. Tar the yard arm. Put over the jackstays. Drive staples in the yard. Reeve the jackstays through them & set them up to each other in the slings. Put over strap & thimble for head earing [sic], then the foot ropes. Nail the stirrups on the yard. Reeve the foot rope through them. Set them up to each other & trice them up to the D thimble. Next put over strap & thimble for yard tackles, then braces & lift blocks. Reeve

the lifts & braces. Lash the blocks for geer pennants over the eyes of the lower rigging so that they will hang under the tops. (The geer pennants have a thimble at one end & are tailed at the other.) Reeve them from aft forward & round up till the thimble in the end comes up to the geer blocks. Hitch the tailed ends round the quarter of the yard. Hook the upper blocks of the geer tackles to the thimbles & the lower blocks on deck. Snatch & man the falls. Hook a stout tackle from forward to a strap round the slings of the yard. Send into the top the lower slings with a laniard spliced in to the bight. They are leathered & go with lashing eyes over the cap & a back lashing round the lower mast head about 5/8 down from the cap to the tressle trees. Shove the bight & laniard down through the pigeon hole. Man the lifts. Take through the slack of the forward tackle. Come up the pennant tackle & take the selvagee off the yard. Sway aloft by the geers and the lifts. Keeping that yard clear of the mast by the forward tackle & geers by the lifts & braces. When the lower part of the yard is square with the futtock staff, avast swaying. The yard is swayed that high because when the strain is taken off the geers & comes on the slings it will sag down until the center of the yard is square with the futtock staff. Expend the laniard of the slings through the D thimble. Secure the end & cover the whole with canvass [sic]. Take the tree pennants round abaft the mast end & reeve them through the straps on the opposite side of the yard. Turn single blocks into the ends & reeve the truss falls through the single & double blocks at the mast head. Haul taut the trusses. Come up & send down the geers & forward tackles. Take the straps off the yards & square them. Reeve a line thru a tub block on the left just inside the shoulders of the yard. Overhaul it and the burton down forward of the yard. Bend on to the steeringsail boom. Sway aloft, point it through the boom iron past the heel lashing. Clamp the boom & send down the purchase.

~~Spanker boom~~ & ~~Gaffs~~. Bend a hawser from the mast head to the boom about one third from the heel & stop it to the head. Sway away. Ease the boom in with a guy & point the end over the toprail. Tar and leather the boom in the wake of the crotch and sheet blocks. Tar the boom end and put over the foot ropes & guys. Seize on the sheet blocks. Set the foot ropes up inside the tafrail [sic]. Reeve the guys through single blocks on the quarter. Splice the toppinglifts into the bolts on the band round the boom. Reeve them through cheek blocks on the cheeks of the mast. Turn double blocks in their ends & connect them with falls to single blocks in the chains. Cut the stops on the hawser, sway & ship the gooseneck. Cast off the hawser from the boom, top on the lifts & catch it. Reeve the sheets and haul them and the guys taut. Bend the hawser to the gaff. Sway it on board. Unbend & unreeve the hawser. Leather the jaws of the gaff. Reeve the jaw rope through the trucks & secure it round the trysail mast to the opposite jaw. Toggle a double block to an eye on top of the gaff & another to the lower part of the top. Thru these reeve the throat halliards. Put a gromet [sic] over the gaffend & cleat it about the center of the gaff with a single block for peak halliards. Reeve them through it & a double block in the cap. Hook at the cap and secure the end with an eye over the gaff end and cleat it about 1/4 of the way in. Clove the vangs round the end of the gaff and fit gun tackle purchases to them. Seize the signal halliard block to the staple in the gaff end and reeve the halliards through a cheek block each side of the gaff one third of the way out & 2/3 of the way for inner & outer peak brails. Toggle a single block under the jaws on each side for throat brails & two others on the hoops for foot brails. Sway aloft the rings & hook the tie to an eyebolt under the top & another in the jaws.

Topgallant Yards. Reeve Tp Glt tyes & halliards. Lift & sleeve. Hook the tie to the jack block with the long mast rope rove through it. Trice up the jack block to the masthead. Overhaul down the yard rope & bend on to & sway the yard on board. Land it on chocks in the larboard gangway. Unbend the yard rope. Tar & leather the yard in the slings. Lash on thimble for Tp Gt tie & splice the snorter into staples at the ends of the yard. Otherwise rig the as the topsail yard with the exception of the straps & thimbles for burtons, rolling tackles & heel lashings for the sail booms. Put a strap & thimble for lizard. Reeve the yard rope through the gromet [sic] & lizard & bend it to the thimble in the slings of the yard. Put the gromet [sic] over the yard and pass the lizard. Sway aloft. When high enough, let a man in the topmast crosstrees & another in the topmast rigging. Take off the gromet [sic] & put over the lifts & braces. Sway higher. Attend the lifts & braces and laniards. Sway across & pass the parrel lashing. Square the yard & let go the halliards. Lower down the jack block. Unhook it from the top & hook the tie to the thimble on the yard. Haul taut the halliards. Send the jack block into the top. Haul up the yard rope & coil it down there. The royal yards are rigged & crossed in the same manner, except that the jack block is not used and the halliards answer for the yard rope. Then rig & step the quarter davits, reeve the wheel ropes, &c.

.....

Bend sails. Get up the topsail courses, jib & spanker. Overhaul them. See that every thing is properly fitted. Make up the topsails and place them abaft their respective masts, taking care in making them up to leave out head and foot ropes, clues, leeches, and bowline bridles. Bight the sails on a pair of slings. Unhook and unclamp the topsail hallds [halyards]. Round up on the lie until the upper block is above the topsail far enough to take the sails into the top[s]. Rack the tie that is forward of the mast to the cap. Hook the halliards [sic] to the slings round the sail. Dip the main over the crossjack braces. Reeve the fall through a block lash'd to the slings & take it aft to act a guy. Sway the topsail into the top. Take the clues round forward of the mast & range the sail for bending. Have jiggers from the palisade irons & hooked to the first reef cringle & stop the head earing [sic] to the standing part of the jigger toggle the bowline. Reeve the cluelines and reef tackles. Clinch the buntlines & stop them to the head of the sail. Stretch the courses athwart the deck. Reeve & clinch the buntlines & leechlines. Stop them to the heads of the sails. Reeve the clue garnets. Hook the bunt jiggers & have yard jiggers as for the topsails. Haul taut the lifts, trusses, and braces. Unreeve the jibstay. Reeve it through the hanks & inner sheavehole. Reeve the jib sheets and halliards. Make the downhaul fast round the body of the sail. Lower the gaffs. Clutch the head of the spanker along it. Pass the throat and peak earings [sic] & the lacing. Stand by the hoops as the sail goes up & seize them on. Man the yard jiggers, buntlines, leechlines, clewlines & clue garnets, also the reef tackles, jib halliards & downhaul, throat & peak halliards. Haul taut, haul out, bring the sails to the yards. Square the heads. Pass the earings [sic] (if new sails, ride them down), then the robands. Sway on the jib halliards, rouse out on the downhaul & set up the stay. Seize down the tack. Reeve the brails. Hoist up the spanker. Seize on the hoops.

Note. Topsails now a days [sic] are more commonly sent aloft with either the top burtons or topgallant yard ropes. They are swayed up & down the mast & the yard jiggers hooked in readiness to haul out by. After being bent the sails should always be sheeted home and mastheaded, so that all defects may

be remedied before going to sea.

.....

Source: The foregoing excerpts are from a notebook kept by Midshipman Edward Clifford Anderson while he was attached to USS *Constitution* (1835-38) and later in USS *Lexington*. It is to be found among his papers in the Southern Historical Collection of the University of North Carolina Library.

APPENDIX E

SPECIFICATIONS FOR *CONSTITUTION*'S ORIGINAL 24-POUNDER LONG GUNS

Overall length	8'	0.00"
Diameter of the caliber		5.83"
External diameter of the breech at the vent	1'	7.35"
At the extremity of the second reinforce before the trunnions	1'	4.12"
Behind and before the muzzle ring and at the extremity of the muzzle mouldings	1'	0.12"
At the extremity of the second reinforce, 2 inches before the trunnions		5.15"
Thickness of the metal, in the direction of the vent, and also from the rear of the caliber, and in the direction of the bore ring		6.66"
Behind and before the muzzle rings, and at the extremity of the muzzle mouldings		3.35"
Total weight		45 cwt

Note: Specified thicknesses were considered the heaviest in the world at the time (1794).

Each cannon was to be cast solid and then "bored with machinery."

Proofing required:

First proof: 13.5 pounds powder, 2 wads, 2 shot.
Second proof: 15.75 pounds powder,2 wads, 2 shot.
Third proof: 18.5 pounds powder, 2 wads, 2 shot.

Source: American State Papers, Naval Papers, Vol. I, Paper No. 12.

GLOSSARY

BARGE ---------- the personal boat of a flag officer, commonly with 12 oarsmen.

BILLET HEAD ------- bow ornamentation other than a figurehead; usually a scroll.

BITTS ---------- strong wooden uprights used for securing heavy ropes, such as anchor cables.

BOBSTAY ---------- a rope used to confine the bowsprit of a ship downward to the cutwater.

BOGGIN LINES ----- rudder chains.

BOOMKIN ---------- a short boom at either side of the bow or stern used to take either a foresail tack or a main brace.

BOWER ANCHOR --- an anchor employed from the bow of a ship; that on the starboard bow termed the "best bower."

BOWLINE ---------- the line attached to the leach rope of a square sail, and leading forward; used to hold the weather side of a close-hauled sail forward and steady, enabling the ship to sail as close to the wind as possible.

BOWSE---------- ("bouse") to haul downward on a particular rope.

BRACE---------- rope attached to a yard; used to adjust the yard in the horizontal plane.

BREASTHOOK ------- a thick, curved timber fastened across the inside of the stem holding the bows and sides together.

BREECHING TACKLE -- a rope used to secure a cannon, and to prevent it from recoiling too much when fired.

BULKHEAD ---------- a vertical partition between two decks; a wall.

CABOOSE (CAMBOOSE) - the galley; the cook's stove.

CARLINGS ---------- short, fore-and-aft timbers placed for reinforcement between deck beams.

CATHARPINS -------- ropes under the fighting tops bracing the lower end of the futtock shrouds.

CATHEAD ---------- a short, strong boom on either bow used to suspend an anchor clear of the hull for letting go, or upon weighing.

CEILING ---------- the inner, horizontally laid layer of timber in a ship's hull.

CHANNEL ---------- (or "chain wales") broad and thick planks projecting horizontally from the ship's side, abreast of, and somewhat behind, the masts; provide a greater span for the supporting mast shrouds.

CHARLIE NOBLE -- nickname for the galley smokestack.

CLAMP ---------- thick inner planks in a ship's side on which rested the deck beams.

CLINKER ---------- the mode of hull planking where each succeeding strake up the side partially overlaps the one below.

COAMING ---------- the raised "frame" around the perimeter of a hatch.

CUTTER ---------- a square-sterned ship's boat, typically with 14-16 oarsmen.

CUTWATER --------- the foremost part of the stem, forming a curved leading edge which parts the water as the ship advances.

DEADEYE ---------- a round or pear-shaped block pierced with three holes, used mainly in standing rigging to set up shrouds.

DEADLIGHTS ------ wooden covers made to exactly fit the frames of the cabin windows from the inside, installed to fit tightly and keep water out.

DINGHY ---------- a small square-sterned work boat, usually propelled by one man.

DOUBLINGS ------- those areas where two sections of mast overlap.

FISH ---------- a long, convex piece of wood designed to reinforce a damaged mast or spar; a splint.

FISH HOOP --------- the iron band used to bind together the segments of a "made up" mast.

FUTTOCK ---------- one of the sections making up a frame, or ship's "rib."

FUTTOCK SHROUDS --- those short shrouds running downward and inward from the fighting tops.

GALLEY ---------- the caboose; the cook's stove; also, a long, low craft powered by a single bank of oars and a sail.

GAMMONING ------ rope or chain lashing staying the bowsprit to the knee of the head to hold the bowsprit down against the upward pull of the forestay.

GIG ---------- the ship's boat particularly reserved for the Captain's use, typically with 6 oarsmen.

GUDGEON ---------- metal clamp bolted to the sternpost. *Pintles* on the rudder fit into corresponding holes in the gudgeons, thus hinging the rudder to the sternpost.

HUNDREDWEIGHT --- 112 pounds.

JEARS ---------- (also "jeers" or "geers") an assemblage of tackles by which the lower yards are hoisted into position.

JOGGLING-------- Shaping the surfaces of two adjacent, irregularly shaped timbers so that that fit closely together.

KEELSON --------- a timber bolted to the keel above, or on either side of that timber (a "sister keelson"), to strengthen it.

KENTLEDGE ------ pig iron ballast.

KNEE ---------- a large angled piece of timber with one arm bolted horizontally to a beam and the other to the ship's side, for the purpose of strengthening the sides against sudden shock. Specifically:

Diagonal (or "dagger") knee: a knee affixed diagonally, with one arm against the ship's side and the other fitted against the side of a deck beam and the underside of a deck.

Hanging knee: a vertically affixed knee with one arm against the ship's side and the other against the underside of a deck beam.

Lodging knee: a horizontally affixed knee immediately under deck planking with one arm against the ship'sside and the other against a beam.

Standard (or "standing") knee: a vertically affixed knee with one arm on deck and the other up the ship's side.

KNIGHTHEAD --- the heavy baulks of timber on either side of the stem which support the bowsprit laterally.

LARBOARD ------- the left-hand side of a ship as one stands on deck facing the bow.

LATEEN YARD --- a long spar hoisted obliquely to a mast, usually with the shorter, lower end forward of the mast.

LAUNCH ---------- usually the largest of a ship's boats, square sterned, and typically with 20 oarsmen.

LEDGE ---------- a piece of timber placed athwartships between beams to provide additional support.

LEECH ---------- the edge of a sail.

LOG ---------- the ship's "diary," its official operating record; also, a device used to measure a ship's speed through the water.

LUFF ---------- to come closer to the wind; also, a tackle comprised of line, a single block, and a double block.

MOULD ---------- a pattern made of thin, flexible wood.

OAKUM ---------- a substance made by unravelling old rope and used principally for caulking seams.

ORLOP ---------- lowest deck in a warship; usually, a partial, or platform, deck.

PARTNERS ------- timber framework strengthening the deck where it is pierced by a mast or other structure.

PINNACE --------- usually the second largest of a ship's boats, square-sterned, and with 16-18 oarsmen.

PLANK SHEER --- the uppermost plank running along the top timbers of a ship's frame.

PORT ---------- word officially substituted for "larboard" (q. v.) in the U. S. Navy in February 1846 to end confusion with "starboard."

PURCHASE ------- the mechanism by which mechanical advantage is gained.

QUARTER BOAT - a boat, usually a cutter (q. v.) or whaleboat (q.v.), carried on davits on either ship's quarter.

RABBET ---------- a deep groove cut longitudinally in a piece of timber to receive the edge of a plank.

REEF ---------- to reduce sail area by gathering up a portion of the sail and securing it by means of reef points (short tie lines) fitted in two or three rows across the face of a sail.

SCANTLING ------ any piece of timber of a particular standard square-section.

SCARPH (**SCARF**)-- a method of joining the ends of two pieces of timber in a line by tapering an overlapping joint so that there is no increased thickness in that area. A scarph may be "locked" by cutting the pieces to fit together like pieces of a jigsaw puzzle.

SHEER ---------- the longitudinal curve of the ship's decks or sides.

SHEET ---------- a rope fastened to one or both of the lower corners of a sail.

SHOE ---------- a false keel installed on the underside of the keel as an expendable shield in the event of grounding.

SKY POLES ------- short, light masts affixed to the after sides of the topgallant masts to accommodate the skysails (those carried above the royals).

SPIRKETTING --- the line of planks which lies between the waterways and the lower gun port sills.

STARBOARD ----- the right-hand side of a ship as one stands on deck facing the bow.

STAYSAIL -------- any triangular sail hoisted on a stay abaft the foremast or mainmast.

STEERAGE ------- that area of the ship containing the Midshipmen's berthing.

STEPPED --------- installed a mast in its seat ("step").

STRAKE ---------- a line of planking running along a ship's side.

STUNSAIL ------- contraction of "studdingsail:" light sail extended, in light or moderate breezes, beyond the skirts of the principal fore and main mast sails.

TACK ---------- to work a ship to windward by alternately taking the wind from one side and then the other; also, a rope used to confine the foremost lower corners of the courses (fore and main sails) in a fixed position.

TAFFRAIL ------- an ornamental rail along the upper edge of the stern.

TOMPION ------- a plug used to stop the mouth of a cannon when not in use.

TRANSOM ------- the vertical face of a ship's stern.

TRIM ---------- the difference in draft readings at the bow and stern; the attitude of a ship as she rests in the water.

TRUCK ---------- the circular wooden cap on the uppermost masthead.

TUMBLEHOME -- the inward slope of a ship's side above its widest breadth.

WAIST ---------- that part of a ship between the forecastle and quarterdeck; roughly, the middle.

WALES ---------- heavy fore and aft timbers in the side planking of a ship, particularly beneath the gun ports.

WARDROOM --- the common room for commissioned officers, both lounge and dining room.

WEAR ---------- to put a ship on the other tack by turning her *away* from the wind.

WHALEBOAT -- a double-ended ship's boat of which at least two were carried. With 6-8 oarsmen.

WOULDING ---- to reinforce a mast or spar by tightly winding a rope around it. A FISH is often woulded to a damaged mast.