Re-building & Restoring USS Constitution for her 2nd, 3rd, and 4th Centuries of Service - 1833-2010

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Repairing a Ship’s Hull Before Dry Docks

1803 “Careening” USS Constitution to replace copper sheathing (20th century image)
“Let us keep ‘Old Iron Sides’ at home. She has, literally, become a Nation’s ship, and should be preserved...in honorable pomp, as a glorious monument of her own, and our other naval victories.”

*National Intelligencer, 1815*

*Constitution* was repaired & re-built at the Charlestown Navy Yard after the *Guerriere & Java* battles; after the *Cyane & Levant* battle, *Constitution* again returned to Boston, but wasn’t repaired until 1820-21, prior to sailing to the Mediterranean.
Inscription, John Quincy Adams Dry Dock
(Head of dock)

COMMENCED 10TH. JULY, 1827.
JOHN Q. ADAMS, PRESIDENT OF THE UNITED STATES.
SAMUEL L. SOUTHARD SECRETARY OF THE NAVY.
AUTHORISED BY THE 19TH CONGRESS.

OPENED 24TH. JUNE, 1833.
ANDREW JACKSON PRESIDENT OF THE UNITED STATES.
LEVI WOODBURY SECRETARY OF THE NAVY.
LOAMMI BALDWIN ENGINEER.

USS Constitution first vessel to enter Dry Dock #1 on 24 June 1833. First caisson (floating gate) constructed of wood; used until 1902; 2nd caisson (the one in place today) was the first steel-hulled “vessel” built in the Charlestown Navy Yard. The 3rd caisson, built for the USN, will be in place for the 2015-2017/8 Constitution restoration.

Original 1833 wooden caisson, photographed in 1903. (BNHP photo)
Operation of Dry Dock #1

1. After its 1858 launching, U.S.S. Hartford is docked for installation of its steam engine. To empty the dock, workers opened the discharge gates (A), releasing water to flow (↓) down discharge culverts (B) (on both sides of dock) to fill the reservoir (C).

2. The pump house (D), its steam engine driving two pumps in underground wells (E), pumped the water from the dock via the reservoir and sent it through an underground culvert back to the harbor.

3. To fill the dock, the discharge gates were closed and the filling gates (F) were opened. Water flowed (↑) first to wells (G), then into the dock through the same culverts used to empty it.
USS Constitution &
the Jackson Figurehead Controversy

Ay, tear her tattered ensign down!
  Long has it waved on high,
And many an eye has danced to see
  That banner in the sky;
Beneath it rung the battle shout,
  And burst the cannon’s roar;
The meteor of the ocean air
  Shall sweep the clouds no more...

Oliver Wendell Holmes, 1830

Laban Beecher, carver; by the time the Jackson figurehead was made, Pres. Jackson was hated in Boston because of the closure of the 2nd Bank of the United States, causing financial hardships in Boston & New England.
1857-1858 Re-build, Portsmouth Naval Shipyard
First time *Constitution* is photographed

*Constitution* re-built, 1857-58, Portsmouth Naval Shipyard where cabins/offices added to spar deck; altered stern with 3 windows at spar deck & 3 windows at Captain’s cabin; transition of *Constitution* to training ship for USN/Naval Academy.

1834 Andrew Jackson figurehead replaced 1847, removed 1871

1834 Jackson figurehead

1847 Jackson figurehead
**USS Constitution**
Sail Training Ship for the U.S. Naval Academy

1858-1861 – Sail training cruises
1861-1865 – Non-sailing training vessel for U. S. Naval Academy – Annapolis, MD & Newport, RI

Classroom spaces on gun deck & “school house” on spar deck
1872-1877 Philadelphia Navy Yard Re-build

Lengthy, on-again, off-again re-building

At the conclusion, Constitution sailed to Le Havre, France – one of two vessels which carried the United States exhibits to the Exposition Universelle, Paris.
1881 Last Sail
Receiving Ship, Portsmouth Navy Yard, 1882-1897
Returned to Charlestown Navy Yard, September, 1897 for 100th Anniversary
1906-07 Restoration of USS Constitution – for her 3\textsuperscript{rd} Century of Service

The 1906-07 work on Constitution was to counter the suggestion by Secretary of the Navy Charles Joseph Bonaparte to use “Old Ironsides” for target practice in the Atlantic Ocean! Pres. Theodore Roosevelt disagreed & Bonaparte was removed as Sec. of the Navy & became Attorney General where he helped to create the FBI!

The 1906 work is considered the first real “restoration” of Constitution as the USN deliberately attempted to recreate the ship of the W/1812 era. A new rig was installed; upper hull planking & some framing above the waterline was replaced; otherwise the ship remained the same – this was a $100,000 “cosmetic” restoration. The 1812 Constitution model at Peabody Essex Museum was used as documentary evidence of the 1812 look to the ship.
1927-1930 Re-building and Purported 1812 Restoration of USS Constitution

1925 – a structural survey revealed Constitution was in dire condition; fund-raising began through the sale of images of the ship and the “pennies” campaign with school children nationwide.

16 June 1927 – Constitution entered dry dock #1 to begin a 4-year restoration.
Total cost of the restoration: $921,108.49 – of this amount, $154,000 was raised by American school children in their “Pennies Campaign” and $216,429.98 was raised through the sale of Constitution souvenirs.

85 % of Constitution was “renewed” (i.e. replaced) in this restoration; without this work, the ship might not have survived into the 20th century
USSC entered dry dock 16 June 1927; the first re-building of significance in over 50 years...

If *Constitution* had not been so completely re-built in the 1927 restoration, it is unlikely she would have survived to the end of the 20th century.

Oct. 28, 1929:
New bowsprit – the Stock Market would crash on Oct. 29th, ushering in the Great Depression
Research behind the 1927-30 restoration of USS Constitution

LT John Lord, supervisor of construction, conducted extensive restoration research – the claim was that Constitution was restored to her appearance in the War of 1812 – this was not so. Mis-interpreting plans from 1847/49, Lord thought the waist was solid in 1812 – it was, in fact, open, yet the inaccurate filled –in waist was kept for the rest of the 20th century, until re-opened in 2010. LT Lord’s Constitution, after the 1927-31 restoration was well crafted, but did not at all represent the ship in the W/1812 era – Lord’s look to the ship was a mash-up of many eras; slowly the ship is being brought to her 1812 look. Constitution, 1930
New guns were cast for Constitution in the Charlestown Navy Yard. The 1927 long guns were based on mid-18th British guns – an inaccurate pattern for “Old Ironsides” for the War of 1812 era – these are the guns still aboard today.
Total cost of restoration: $921,108.49

*Constitution* outfitted with sails & rigging, although she was towed by the minesweeper USS *Grebe* for the National Cruise.

*Constitution’s* National Cruise took in the Atlantic, Gulf, & Pacific coasts of the U.S. & visited 76 ports for 90 stops; 4.6 million guests visited the ship.
Constitution returned to Boston after the National Cruise, May, 1934

During World War II, Constitution was used for officers awaiting court martial and had a shallow house built over the spar deck to protect the ship & possibly to create office space...
Post-WWII to the 1980s: Restorations & Business as usual

Queen Elizabeth visited, July, 1976

1947 USPS Stamp, USSC 150th anniversary

1947 Legislation

1949 – New bowsprit

Crane, Indiana, 1976
1992 & 2007 Restorations
Preparing the ship for her 4\textsuperscript{th} Century of Service

*Constitution* was dry-docked for nearly 4 years, 1992-1996. For the restoration, structural elements that had long-ago been removed were re-created and installed on board.

*Constitution* entered dry dock in September, 1992; the ship was floated out of dock April, 1996.
5 structural elements were identified as having been called for by Joshua Humphreys in his “Dimensions and sizes of materials for building a Frigate of forty-four guns”, 1794:

1. **THICK STRAKES** – on the Gun & Berth Decks
2. Bow & transom knees – are placed over the thick strakes & strengthen the bow & stern, by supporting the bow & stern

3. Knees – twelve on each side of the berth deck. Today the knees are laminated white oak, creating a solid structure that looks like a “C”, replacing what would have been one hanging knee & one standing knee, bolted together.
4. “Pillars or stanchions” – three rows were to be installed on the berth deck, supporting the great weight of the gun deck guns and the gun deck structure.

5. “Diagonal Riders” – help to displace the weight & stresses from the upper decks & bring that stress down to the keelson.

Modern diagonal riders are solid laminated white oak – would have been multiple pieces of white & live oak scarfed together in 1797.
Restoring USS Constitution for her 4th Century of Service

Removing the 14” hog in Constitution’s 150-foot keel was paramount
New copper sheathing, 3,400 sheets, was installed; new lower masts were made...

Six Oceanus sails were made for Constitution; the first sails on the ship since the National Cruise of 1931-34.
July 21, 1997

200th anniversary sail – 1st sail in 116 years!
Restoration 2007-2010:
Replace main hatch coaming; replace spar deck planking & re-establish camber (curve) in the deck; open waist bulwarks & re-create waist hammock irons & netting

Camber re-created by installing shims on each deck beam & ledge (above)

Solid fir decking (left) & laminated white oak (right)
“...repair and restore USS Constitution...as far as practicable...to its 1812 configuration...”

Mission, Naval History & Heritage Command Detachment Boston

Research/documentation is an implicit, important element of the mission of the NHHC Detachment Boston.

Restoring the spar deck open waist of USS Constitution & lowering upper bulwarks as per her War of 1812 look was a goal of 2007-2010 re-building.

c. 1875, USSC, Philadelphia

1906-07 re-building, open waist re-created, using 1812 USSC model

Peabody Essex Museum

NavSea presentation on Open Waist
Lowering the upper bulwarks to 1812 height

The upper bulwarks that had been inaccurately raised in the 1927 restoration were cut away and lowered to the proper height as found in 1812.
“...sail on, O Ship of State...”

‘Designation of USS Constitution as America’s Ship of State’

Henry W. Longfellow
Nahant, 1850

“It is the sense of Congress that the President, Vice President, executive branch officials, and members of Congress should utilize the U.S.S. Constitution for the conducting of pertinent matters of state, signing legislation relating to the Armed Forces, and signing maritime related treaties.”  National Defense Authorization Act, FY 2010:
Detailing how Constitution could be used as ‘America’s Ship of State’