



Overview of USS *Constitution* Re-builds & Restorations

USS *Constitution* has undergone numerous “re-builds”, “re-fits”, “over hauls”, or “restorations” throughout her more than 218-year career. As early as 1801, she received repairs after her first sortie to the Caribbean during the Quasi-War with France. In 1803, six years after her launch, she was hove-down in Boston at May’s Wharf to have her underwater copper sheathing replaced prior to sailing to the Mediterranean as Commodore Edward Preble’s flagship in the Barbary War. In 1819, Isaac Hull, who had served aboard USS *Constitution* as a young lieutenant during the Quasi-War and then as her first War of 1812 captain, wrote to Stephen Decatur: “...[*Constitution* had received] a thorough repair...about eight years after she was built – every beam in her was new, and all the ceilings under the orlops were found rotten, and her plank outside from the water’s edge to the Gunwale were taken off and new put on.”¹

Storms, battle, and accidents all contributed to the general deterioration of the ship, alongside the natural decay of her wooden structure, hemp rigging, and flax sails. The damage that she received after her War of 1812 battles with HMS *Guerriere* and HMS *Java*, to her masts and yards, rigging and sails, and her hull was repaired in the Charlestown Navy Yard. Details of the repair work can be found in RG 217, “4th Auditor’s Settled Accounts, National Archives”. *Constitution*’s overhaul of 1820-1821, just prior to her return to the Mediterranean, saw the Charlestown Navy Yard carpenters digging shot out of her hull, remnants left over from her dramatic 1815 battle against HMS *Cyane* and HMS *Levant*.

Between 1828 and 1830, several surveys of the 30+ year-old ship determined that her frames and keel were sound, but planking inside and out needed to be replaced, including masts, rigging, decking, stem, head, knight-heads, channels, and quarter galleries.

¹ Isaac Hull to Stephen Decatur, October 23, 1819, National Archives, RG 45, “Letters Received, BNC”, as quoted in Edwin C. Bearss, ***Historic Resource Study, Volume I of II, Charlestown Navy Yard, 1800-1842, Boston National Historical Park, Massachusetts***. (U.S. Department of the Interior, National Park Service, 1984), 307

Information about the Constitution surveys leaked out and was misinterpreted by Bostonians. The September 14, 1830, Boston **Advertiser** published an article that erroneously reported that Constitution had been condemned. Part of the article stated:

Such a national object of interest, so endeared to our national pride as Old Ironsides is, should never by any act of our government cease to belong to the Navy, so long as our country is to be found upon the map of nations.

Two days later, the Harvard student, Oliver Wendell Holmes, published his poem “Old Ironsides” in the Boston **Advertiser** and it was picked up by other newspapers around the country and even appeared in broadside (poster) format. It became a rallying cry for those that did not want to see the old frigate broken up.

Old Ironsides

***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.***

***Her decks, once red with heroes’ blood,
Where knelt the vanquished foe,
When winds were hurrying o’er the flood,
And waves were white below,
No more shall feel the victor’s tread,
Or know the conquered knee; ---
The harpies of the shore shall pluck
The eagle of the sea!***

***Oh, better that her shattered hulk
Should sink beneath the wave;
Her thunder shook the mighty deep,
And there should be her grave;
Nail to the mast her holy flag,
Set every threadbare sail,
And give her to the god of storms,
The lightning and the gale!***

Oliver Wendell Holmes

The U.S. Navy never intended to destroy the ship and by late September, 1830, the report was passed to have *Constitution* repaired “with as little delay as possible.” However, the new dry dock of the Charlestown Navy Yard was not yet finished in 1830, and it was decided that *Constitution*’s re-building would be delayed until she could be hauled out in the dock.

On June 24, 1833, USS *Constitution* was the first vessel to enter the Charlestown Navy Yard dry dock, in full view of Vice President Martin Van Buren and Secretary of the Navy Levi Woodward. President Andrew Jackson, for whom the docking of the ship had been delayed until his arrival in Boston, was too ill to attend the 5 a.m. event. Isaac Hull was once again on *Constitution's* quarter deck, giving the commands for her dry docking.² The subsequent 1833-1834 re-building of *Constitution*, and her 10 months in the dry dock, is notable as the first significant work on the ship accomplished in a dry dock – it would not be the last time....

Nearly every year or every other year after the 1833 re-build saw *Constitution* receiving some repair or overhaul to her hull or her rig. The hull of the ship began to be altered between 1847 and 1858, with the upper bulwarks raised ~20"; the waist, which had been open alongside the main hatch from her launch through her World Cruise of 1844-1846, was lightly sheathed over to bring *Constitution* in line with the new designs of US Navy warships. The next noted yard period was in 1857-1860 and included being hauled at the Portsmouth Navy Yard in Kittery, Maine. The work of that period began *Constitution's* transition from an active warship to a sailing training ship for the Navy.

The 1871-1877 re-build in Philadelphia, which was to have been concluded in time for the 1876 centennial celebrations of the United States, but was not, was eventually finished in time so that the ship could be used as one of two transport vessels of the U.S. exhibits intended for the 1878 Paris *Exposition Universelle*. Upon her return from Europe, *Constitution* once again became a Navy sail training ship and took her last cruise under her own power in the early autumn of 1881. *Constitution* was surveyed in the late fall of 1881 and found unfit for sea service. Before the end of the year she was stripped of all that was valuable and down-rigged in preparation to being towed to the Portsmouth Navy Yard, there to have a "house" installed over her spar deck, turning her into a receiving ship. From the installation of the house between late 1882 or early 1883, and the return of the ship to Boston for her 100th anniversary, *Constitution* was docked only once, in 1897, in a floating dry dock, where her hull seams were caulked as part of her preparation for being towed to Boston. She returned to Boston in September, 1897, and remained with her receiving ship house until the "cosmetic" work of 1906-1907 at the Charlestown Navy Yard.³

Naval Constructor Elliot Snow supervised the 1906 work which was conducted while the ship remained afloat; no work was accomplished below the waterline, including addressing the hogging (bending) of *Constitution's* keel. The receiving ship house was removed, new masts, yards, and rigging were installed, and surface hull work was accomplished, including the lowering of the upper bulwarks and the opening of the

² Tyrone G. Martin. *A Most Fortunate Ship, A Narrative History of Old Ironsides*, 2nd ed. Annapolis, MD: Naval Institute Press, 1997, 233-239.

³ Ibid, 336-338.

waist bulwarks that had been sheathed over by 1847. The 1812 “Isaac Hull” model at the East India Marine Society in Salem, Massachusetts (today the Peabody Essex Museum), was a principle piece of three dimensional documentation consulted for the work.⁴ Because the work accomplished had the express aim of “restoring” or “re-creating” *Constitution* per her War of 1812 configuration, the 1906-07 work should be recognized as the first true “restoration” of USS *Constitution*. It matters not that the work executed was cosmetic and superficial to the structure of the ship and not historically accurate. What sets the 1906 work apart from all previous work on the ship is that the intention was to restore her outward appearance to the 1812 era. At the conclusion of the 1906-1907, ~\$100,000 restoration, *Constitution* had the appearance (including 55 reproduction guns), of an 1812 warship, for the first time in nearly 70 years.

By 1925, *Constitution* had fallen into a seriously decayed state. The last significant structural work on the ship had been the 1871-77 re-build, nearly 50 years before. A survey found her hull rotten, including frames above the waterline, rotten masts and rigging, and a 14” hog in her keel threatening to break the ship in two (in fact, the keelson was broken in two just abaft the foremast step). The subsequent 1927-1931, nearly \$1 million, re-build would bring the ship back to a strong, sea-worthy state. LT John A. Lord was the supervisor of the work and he began his research into *Constitution*’s physical history as early as 1925. Lord concluded that the lowered bulwarks and open waist, re-created in the 1906 restoration were erroneous (Lord was completely incorrect on this point). Although Lord and staff professed their intention to restore *Constitution* to the ship’s 1812 era, plans and research from multiple periods in the ship’s 19th century history were used. It appears that Lord followed the bulwarks design, respecting height and sheathed waist, of the 1847, Samuel Pook plan of *Constitution* and did not consult, as Elliot Snow had done earlier, the 1812 - era model of *Constitution* at the East India Marine Society.⁵ In fact, Lord’s mistaken interpretation of Pook’s 1847 plan resulted in *Constitution* with an upper hull that had no relation to her actual configuration; this inaccurate depiction, in existence from 1929 until the changes made in September, 2010 was 81 years of a very inaccurate representation of the original structural configuration of the ship.

Subsequent to the nearly complete re-build of *Constitution*’s structure in the 1927 restoration, the ship was outfitted for her National Cruise, where she was towed on a three-year, three-coast voyage around the United States. Modern furniture and cabin installations in the then popular Colonial Revival style, water tanks for the hold, and cased displays were installed. From her return in 1934 to the beginning of the 1973-

⁴ The 1812 model of USS *Constitution* was made for Isaac Hull by members of his crew & repaired by British sailors who were prisoners of war in Salem. Purportedly, Hull expressed the sentiment that this model was an accurate representation of “Old Ironsides”.

⁵ Photo-static copy of Samuel Pook 1847 plan USS *Constitution* was found among John A. Lord’s papers at the USS Constitution Museum, Boston. See, **Register, John Abel Lord (1872-1945) Collection, 1781-1985, Bulk, 1925-1931**, www.ussconstitutionmuseum.org.

1976 restoration, the ship remained much as she looked from the 1927 restoration and the 1931-1934 National Cruise, even through each post-1927 restoration or repair period.

As the 20th century progressed, the 1963-64 restoration saw the beginning of subtle changes in materials used in the ship's restorations. For the first time in more than 160 years, hemp was no longer available for the rigging and polypropylene was substituted. The large-sized timbers for the hull framing and planking necessitated the use of laminated white oak and Douglas fir.

Beginning with the 1973 restoration, the decision was made that *Constitution* should once again be brought back to the look of an 1812 warship. Exhibit cases, display objects including mannequins with reproduction uniforms, were removed and placed on long-term loan at the newly created USS Constitution Museum. CDR Tyrone G. Martin, commanding officer of *Constitution* 1974-1978, started his decades of research on the ship and began promoting the notion that the ship should be returned to her War of 1812 configuration. By the time the 1973-76 restoration was concluded, a white oak grove in Crane, Indiana had been set aside as "*Constitution Grove*", from which individual trees are occasionally selected for use in maintenance and restoration work on the ship.

After the 1927-31 work, the 1992-96 restoration is considered the next most important 20th century work executed on *Constitution*. The ship was dry docked in September, 1992, and thus began a 4-year, 5-part initiative to restore the physical strength to the nearly 200-year-old warship. Using Joshua Humphreys' ***Dimensions and sizes of materials for building a Frigate of forty-four guns***, and contemporary documentation including plans, paintings, and battle damage records, the ship re-gained structural elements that had long ago been removed and whose removal contributed to the decline in physical strength, including the recurring 14" hog in the ship's keel. Thick strakes, standard knees, extra stanchions, berth deck knees, and diagonal riders in her lower hold all contributed to supporting the newly straightened keel, the weight of the replica 1927 guns on the spar and gun decks, and provided the structural strength needed to allow the ship to sail on 21 July 1997 as part of her 200th anniversary celebrations.

The 2007-2010 restoration brought the War of 1812 "look" back to *Constitution's* hull. The bulwarks that had been raised ~20" in the 1927-31 restoration per the 1847 Pook plan were lowered to the 1812 cap rail height just above the spar deck gun ports. In addition and, most significant, the waist bulwarks alongside the main hatch were cut open and replaced with custom-made, recreated hammock "cranes" (U-shaped irons), as seen in 3 dimension on the 1812 Isaac Hull model at the Peabody Essex Museum. Lowering the upper bulwarks and opening the waist bulwarks removed approximately 20 tons of white oak and live oak from the ship, thus eliminating excess weight from the 215+ year old keel.

Slowly, USS *Constitution* is being restored to her War of 1812 appearance, “as far as practicable”, as stated in the mission of the Naval History & Heritage Command Detachment Boston. Still, there are significant elements in the ship that have either not been changed because that work has yet to be scheduled, cannot be changed due to life safety strictures, or because the research conducted has not been able to satisfy questions raised for re-building. USS *Constitution*, having had such a long Navy career, will likely always be a combination of elements from different centuries and periods in her career – but, given the Detachment Boston’s mission, the ship should always reflect, as much as historical research can support, the War of 1812 iconic ship that she was in her prime.



USS Constitution Facts

USS *Constitution* was launched October 21, 1797 in Boston and first sailed on July 22, 1798 as one of the six frigates that began the new United States Navy. *Constitution* became “America’s Ship of State” in October, 2009 and is the oldest commissioned warship afloat in the world.

Constitution is remembered for her 33-0 engagement record including her three War of 1812 victories against the Royal Navy. Her first War of 1812 battle occurred on August 19th against HMS *Guerriere*. The defeat of *Guerriere* was the first frigate-to-frigate victory of the U.S. Navy over the Royal Navy (then the largest navy in the world). *Constitution* became “Old Ironsides” when an American sailor noticed that some of *Guerriere*’s shot failed to penetrate *Constitution*’s thick oak hull. “Huzza! Her sides are made of iron!”, the sailor purportedly exclaimed, and thus the nickname was born.

Statistics for USS Constitution:

Displacement: 1900+ tons

Length: 207’ (billethead to taffrail)

Beam: 43’ 6”

Draft: 22’ 6”

Mainmast Height: 210’ (bottom of keel to lightening rod, modern measurement)
172’ (spar deck to main mast truck)

Sail Area: 46-48 Sails = Over 1 acre of sails (44,000+ sq/ft) **Speed (top):** 13+ knots (~15 mph)

Armament (1812): Spar Deck: 24, 32-pound carronades, crew 4-8, range ~400 yards
1, 18-pound bow chaser

Gun Deck: 30, 24-pound long guns, crew 7-14, range ~1200 yards

Crew (1812): 450

Crew today: ~70 active-duty U.S. Navy women and men

For more information, please visit:

www.history.navy.mil/index/constitution.html

www.usconstitutionmuseum.org



USS *Constitution* vs. HMS *Guerriere*, August 19, 1812, by Michele Felice Corne

U.S. Naval Academy Museum Coll.

Written & researched by the Historian of the Naval History & Heritage Command Detachment Boston, 2014