Summary

The USS *Constellation*'s career in naval service spanned one hundred years: from commissioning on July 28, 1855 at Norfolk Navy Yard, Virginia to final decommissioning on February 4, 1955 at Boston, Massachusetts. (She was moved to Baltimore, Maryland in the summer of 1955.) During that century this sailing sloop-of-war, sometimes termed a "corvette," was nationally significant for its ante-bellum service, particularly for its role in the effort to end the foreign slave trade. It is also nationally significant as a major resource in the mid-19th century United States Navy representing a technological turning point in the history of U.S. naval architecture. In addition, the USS *Constellation* is significant for its Civil War activities, its late 19th century missions, and for its unique contribution to international relations both at the close of the 19th century and during World War II.

At one time it was believed that *Constellation* was a 1797 ship contemporary to the frigate *Constitution* moored in Boston. This led to a long-standing controversy over the actual identity of the *Constellation*. Maritime scholars long ago reached consensus that the vessel currently moored in Baltimore is the 1850s U.S. navy sloop-of-war, not the earlier 1797 frigate.

Describe Present and Historic Physical Appearance.

The USS *Constellation*, now preserved at Baltimore, Maryland, was built at the navy yard at Norfolk, Virginia. The ship was launched on August 26, 1854 and commissioned on July 28, 1855. Designed by the navy's chief constructor John Lenthall, the vessel was a sloop-of-war, sometimes called a corvette.[1] Both terms denote a square-rigged warship with its battery on a single deck. This is in contrast to a frigate which had the main battery divided: cannons on the main gun deck and on the raised forecastle and quarterdeck. Some later frigates had two complete gun decks.

The *Constellation* was originally armed with sixteen 8-inch, 64 pdr. shell guns and four additional 32-pdrs. on the gun deck. *Constellation* was built with a complete spar deck, protecting the main battery. Two 10-inch shell guns, one forward and one aft, were mounted on pivoting carriages on the spar deck. These mounts enabled firing each of these guns on either side, forward or aft.[2]

The ship was nearly as large as a frigate of the era. Lenthall's plan called for a hull 176 feet between perpendiculars and moulded beam under the planking of 41 feet; length (extreme) from knighthead to taffrail was 186 feet. For comparison sake, the frigate *Constitution* of 1797 measured 175 feet between perpendiculars and 43 feet 6 inches moulded beam; the original frigate *Constellation*, also of 1797, was 164 feet by 40 feet 6 inches. The latter carried 36 guns, 28 of which were on the gun deck; the rest on forecastle and quarterdeck.[3]

The confusion between the 1797 ship and the rebuilt 1855 *Constellation* stemmed from the work done at the Norfolk yard in 1853 and 1854. The old frigate was no longer serviceable, and would have to be replaced. As there was no congressional authorization to build a new vessel, funds authorized for "repair" would be used instead. The vessel would be "administratively rebuilt," and thus officially remain the old *Constellation*, when in fact a newly built vessel would replace the old *Constellation*.

[1] Williams, Glenn, *U.S.S. Constellation*, 12.
[2] Ibid.
[3] Canney, Donald L., *Sailing Warships of the U.S.Navy*, 41-2; Chapelle, Howard I., *The History of the American Sailing Navy*, 128.

This "administrative rebuilding" was not unusual and it was commonly done until the Navy adopted steam as auxiliary power for its warships in the 1850s. The structure of wooden naval ships was such that major portions of a ship could routinely be replaced. After a two to three year cruise, every vessel needed repairing and replacing due to rot in portions of the wood. It was not a great stretch from simply replacing planking to replacing of rotten structural pieces such as futtocks. Before the era of iron ship construction, the need for detailed, dimensioned plans was minimal. While the vessel was out of the water and portions were being replaced, the actual changes in the ship's hull design could be introduced with minimal effort and little more acknowledgement than verbal instructions from the naval constructor to the work supervisors.

In this case, naval constructor John Lenthall designed a new sailing sloop-of-war, providing complete plans and specifications. The old frigate was then hauled out of the water at the yard's North Slip and dismantling was begun. Meanwhile, 600 yards away, in Shiphouse B, a new ship was laid down; it was begun literally from the keel up. There were briefly two *Constellation*s, or at least one being torn down while another was being built.[4] The fact that the two were in separate locations raises the question that if the old vessel was to simply be repaired, why was that work not done in place? Furthermore, if only a major "repair" was envisioned, there would have been no need for complete plans for the entire ship.

Other salient facts point to the creation of a new ship, rather than an old one being rebuilt. Though the difference in breadth between the two ships is small (about a foot), the length differs by twelve feet. The hull design (shape) is also distinctly different: the old vessel possessed curved rising floors, typical of late 18th century design. The new vessel had straight rising floors, that is a straight line could be traced from the point where the frames met the keel, upwards to the curve of the bilge.[5]

The most telling difference is in the "room and space," that is, the distance between the pairs of frames or the ribs of the vessels. The old frigate had 26 inch spacing; the new sloop had 32 inch spacing. The increase in frame spacing was possibly due in part to weight differentiations between the frigate and the sloop type vessels. The crew size changed from 340 for a 36-gun vessel to about 230 for a 22-gun sloop. A 36-gun battery weighed some 15 tons more than that of a 22-gun ship. Thus, for every given longitudinal dimension, fewer frames were necessary on the new sloop as opposed to the original frigate. Since the frames are the major lateral structural elements on a wooden ship, changing the "room and space" changed the entire hull structure.[6] The change in the gunports and the gunport spacing to accommodate the larger shell guns on the new ship were among the most visible changes.

The question of whether pieces of the old *Constellation*'s hull were incorporated into the new ship is still in dispute. A related point is how much of the new ship's hull was from the old vessel? Given the nature of wooden ship building, and the fact that the old was being cut up as the new was being built, some useful wood may have made it from the old ship to the new. However, given the reports of the time that a large percentage of the hull was rotten, the percentage reused may have been small.[7] Re-using some of the old vessel does not constitute carrying the old vessel's identity to a new ship being built from the keel up with a new design.

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[4] Wegner, Dana M., *Fouled Anchors: the Constellation Question Answered*, 90.

[5] Canney, *Sailing Warships of the U.S. Navy*, p. 161; Chapelle, Howard I., *The History of the American Sailing Navy*, 466-8.

[6] Wegner, *Fouled Anchors*, 38; Chapelle, *History*, p.466 & Plan 8; Gun weight calculations based on statistics from Tucker, Spencer, *Arming the Fleet*, 147 & 197 (weights used are for the tube only); Bauer, K. Jack, and Stephen S. Roberts, *Register of Ships of the U.S. Navy, 1775-1990*, 9 & 23.

[7] Dunne, W.M.P., "The Frigate *Constellation* Clearly Was No More" Or Was She?", *American Neptune*, 93. Dunne suggested about 1800 cubic feet of the old frigate's timbers were re-used in the new ship. Wegner noted that the total amount of wood used for the ship was over 16,000 cu. ft.

The status of the ship was not clarified by the Navy itself. In the Secretary of the Navy's 1855 report, the *Constellation* was listed as "rebuilt". However, the "built" date in the same document is "1855". The 1860 report also repeats "rebuilt," but uses the date "1854". These and other annual reports of the era consistently listed the vessel as being built at Norfolk ("Gosport") yard. The Navy's annual reports continued this identification through the turn of the century.[8]

In 1909 the Navy's annual report listed the vessel as being built in Baltimore in 1797. A few years later Assistant Secretary of the Navy, Franklin D. Roosevelt, and Secretary of the Navy, Josephus Daniels, testified in Congress, advocating funding for alterations to return the ship to its War of 1812 configuration. No mention was made of the 1850s rebuild. By 1921, the government-published *Official Records of the Union and Confederate Navies in the War of the Rebellion*, listed *Constellation* as the 1797 frigate.

It is noteworthy that the *Constellation* was one of the surviving historical vessels included in a more general effort to preserve and glorify the nation's naval and maritime heritage. In 1935, legislation was introduced to allow federal funds for preserving *Constellation, Constitution,* steam sloop *Hartford*, *Olympia*, and the first America's Cup winner, yacht *America*. President Franklin D. Roosevelt supported having all these vessels preserved and on display together on the Potomac in Washington, D.C. The legislation eventually failed due to disagreements over location of the proposed site. In any event, this failure, and others, led to the eventual loss of two of the ships: *Hartford* and *America*.[9]

The ship's authenticity was first questioned in the 1940s, and, in 1949, historian and naval architect Howard I. Chapelle published *The History of the American Sailing Navy*, in which he unequivocally stated that the existing ship was built at Norfolk in 1853-4.

Through the next four decades the controversy over the ship continued, involving naval architects, historians, local and state historical groups, Congress, and the press. Supporters of the Baltimore-built argument produced documents, allegedly "original," addressing the major differences between the old and new ships. Using these documents the Baltimore-built supporters claimed that the major changes in the ship occurred before the 1850s rebuild, supporting a continuous timeline for the ship from 1797 to the present.

At some point the authenticity of these supporting documents came under question. It was soon proven, through modern investigative techniques, and the participation of the FBI, that all the documents purporting to show the vessel was still the 1797 ship were the work of a modern hand. A faked National Archives rubber stamp and a modern typewriter were used in the creation of these documents. The perpetrator, or perpetrators, of this work even invented entire archival collections which did not exist, as the source of many of these questionable documents. The "originals" for many of these documents were allegedly destroyed in a fire in the facility.

In 1991 the Navy's David Taylor Research Center published *Fouled Anchors: The Constellation Question Answered* which detailed the investigation and finally laid to rest many of the questions. The center concluded that the ship was built in Norfolk in 1853-5. One of the major authorities, who had argued for the 1797 date for the vessel, finally agreed with *Fouled Anchors'* identification of the ship. Supporters of the 1797 date still contend, however, that the relic's "spiritual provenance" - supported by the potential re-use of some of the frigate's timbers – dated to 1797.[10] While this viewpoint is questionable, it does not detract from the

[8] *Annual Report* of the Secretary of the Navy, 1855, 134; *Annual Report* of the Secretary of the Navy, 1860, 235; Wegner, *Fouled Anchors*, 6.

[9] Wegner, *Fouled Anchors*, USS *Constitution* was designated a NHL in 1960; USS *Constellation* was designated a NHL in 1963; and USS *Olympia* designated a NHL in 1964.

[10] Dunne, "The Frigate *Constellation*," 95.

significance of the ship as it is preserved today.

Historical Changes to the Vessel

The various uses of the *Constellation* have determined the changes made in it over the years. In its active duty years, few changes were made, or necessary. During the training ship years, there were modifications in its battery and some in its accommodations. When it was a "historical relic" and displayed for War of 1812 anniversary celebrations, cosmetic changes to approximate its appearance during that earlier era were done. Variations on these changes occurred up through the years at Baltimore until the controversy was settled. Most recently, a major effort was made in the late 1990s to thoroughly repair and refit it to match its appearance as it was before and during the Civil War.

During her pre-Civil War and Civil War years, there was one major change, and that was in its battery. Captain Charles H. Bell, the commander during its first cruise in the Mediterranean, had the two 10 inch shell guns removed, as inimical to its sailing qualities. This was done despite ample evidence of its speed during this cruise.[11] During the Civil War, the two upper deck guns were much lighter Parrott rifles, one forward (30 pdr.) and one aft (20 pdr.) These two guns were also on pivot rails.[12]

When the ship began its training role in the post-Civil War years, some obvious changes were made in its interior arrangements to accommodate the midshipmen. These included cabin spaces, washrooms, and waterclosets. To ease in conning the vessel, a navigating bridge was built across its upper deck. Its main battery was reduced to eight 9-inch Dahlgren smoothbores plus two larger guns. In the winter of 1871-2, two large gun ports were made, one on each side of the gun deck, amidships. Each was ten feet long, to provide a good field of fire for one 100-pdr. Parrott rifle and one 11-inch Dahlgren. Both guns were mounted on pivot rails for ease in training the guns to either side.[13]

With the centennial of the War of 1812 and Star Spangled Banner Centennial celebration, *Constellation* underwent a restoration to the 1812 period. This entailed fabricating guns of the earlier era, removing the navigating bridge, and replacing the iron capstans with wooden ones.[14]

In World War II, modifications, particularly in the heating of the ship to accommodate the admiral of the Atlantic fleet in relative comfort, were made. The changes may also have included two small houses on the fore part of its spar deck, seen in photos of the ship during the war and afterward.

The last major changes in the ship, before its major reconstruction in the 1990s, were made after it was moved to Baltimore in the 1950s. Working on the assumption that the vessel was the 1797 frigate, the new owners of the ship worked to restore the vessel to the era when the frigate *Constellation* made its reputation. The most obvious modification was re-constructing the head. The enclosed head characteristic of the conservative 1850s style was replaced by turn-of the 19th century style open rails. Other minor changes included replacing the two-piece (upper and lower) gunports with single hinged units, removing modern door knobs, and replacing them with iron latches. A large carved eagle was also mounted on its stern.[15]

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[11] Interview by author with Paul Powichrowski, *Constellation* Ship's Manager, June 16, 2009; Williams, *U.S.S. Constellation*, p. 14.

[12] *Official Records of the Union and Confederate Navy in the War of the Rebellion*… Series II, Vol. 1, 66.

[13] Williams, *U.S.S. Constellation*, 57.

[14] Ibid., 62-3.

[15] Interview, Powichrowski.

In November 1998 the *Constellation* underwent its most recent rebuilding. It was towed to a dry dock near Fort McHenry in Baltimore and taken out of the water. The goal was to restore the ship to its original appearance as a mid-19th century sloop-of-war. In the process, the ravages of the years would also be addressed. A total of $9 million was raised for the project which lasted about 19 months.[16]

The first and most critical part of the process was removal of the "hog" in its hull. "Hog" is the term for the "drooping" or sagging of the ends of a vessel. *Constellation*'s "hog" measured 38 inches; in other words, at its center the keel was 38 inches higher than at each end. This problem, with its obvious dangers, had to be addressed first. The process began by setting the hull on pre-set keel blocks of heights graduated to match the curve of the keel. This prevented a sudden redistribution of weight which would occur if the hull was placed on a flat surface. The keel blocks were systematically reduced in height to gradually return the keel to straightness. It took about six months to bring the keel down and straighten it. Along with it the entire interconnected framework of the ship came down.[17]

Then demolition of the hull was begun, top to bottom. All rotten planks and frame timbers were removed in preparation for their replacement with new material. The use of live oak, which had been used originally for its frames, was not practical as it was now a protected species and very expensive. The restoration used purple heart, tatabu, and mora, South American hard woods which were equal in density, if not weight, to live oak.[18] As the planking was removed it became obvious that the top timbers and third futtocks would all have to be replaced. The planking itself was removed at least to the turn of the bilge. The lower twelve strakes of planking were still viable and could be retained, as well as the lower part of the hull structure. Copper fastenings found in the hull that were stamped "GNY" testified to the complete construction of the hull at Gosport Navy Yard, not Baltimore. Additionally, the entire stem was found to be in poor condition and was removed. Hull timbers were always replaced one-for-one. If rot was found in a futtock, for instance, rather than having the rotten portion removed and replaced the piece was entirely replaced.[19]

Once the deteriorated frame pieces were replaced with bronze fastenings, a new process to replace the planking began. Consideration of cost, economy, and longevity led to a change in the form of planking for the area above the lower nine strakes. This saved more than ten to twenty million dollars and allowed the project to be completed within a reasonable budget. The "cold mold" method involved layers of wood and epoxy glue. The inner layer was of Douglas fir, two inches thick by six inches, attached by bronze lag bolts to the frames and running longitudinally. This was planed and faired, then topped by a ¾ inch fir layer, laid diagonally. A second diagonal layer followed this, crossing the first layer. Finally, another 1 ½ inch layer was laid on fore-and-aft, for a total of 5 inches. This was equal to the thickness of the original planking. The whole new structure formed an impervious, solid mass which actually added significantly to the ship's strength, and the longitudinal stability and integrity of the hull in particular. In addition, the process was designed to be reversible, in the event a more traditional rebuild is possible in the future. The entire process made it possible for about 50 percent of the ship's hull structure to be preserved.[20] Every bit of the material removed and replaced was photo documented to a high standard and the work was approved by the Maryland State Historic Preservation Office, the U.S. Navy, and the National Park Service before proceeding.[21]

[16] Ibid.
[17] Ibid.; Williams, *U.S.S. Constellation*, 68.
[18] Powichrowski interview.
[19] Ibid.
[20] Ibid.; Williams, *U.S.S. Constellation*, 68.
[21] National Park Service Maritime Heritage Program Files, Washington, D.C.

The major exterior change made during this work was the replacement of the head, cutwater, stem etc. Using original plans, the entire structure was built to conform to the enclosed head of 1854. At the stern, the carved eagle was removed. By July, 1999, the ship was out of drydock and back in Baltimore's Inner Harbor.[22]

As of 2009, the ship closely conforms to its configuration during the Civil War. On the spar deck, a reproduction Parrott rifle is used for demonstrations. Near the stern is a double steering wheel, an exact reproduction of one taken from the old ship. The original is now on display in the museum area of the main building. On the gun deck are reproductions of its 8-inch guns, all made to specifications from its original gun plans. Also on the gun deck is the iron galley and the captain's cabin, the latter done with excellent joiner work and finish. The next deck below is the berth deck, which includes the crew's quarters, officers' ward room, and cabins. Much of the original woodwork was still useable with repairs and refinishing. Forward is the cockpit (sick bay). Cabinetwork in this area has been refinished and modified with glass windows for exhibits. The orlop deck, aft, has storage areas for the sailmaker and the dispensary. Along with ballast, the hold and some of its original frames can be seen. Throughout the ship, modern additions, such as electrical wiring are carefully hidden or disguised to be as inconspicuous as possible. A portable escalator has been installed for the handicapped as required by the Americans with Disabilities Act and the Maryland State office in charge of compliance.[23]

There is more work to be done, but none of it is critical to the fabric of the vessel and its historic integrity. The ship is very high in the water. It is estimated that another 250 tons is needed to bring the ship down to its designed 18 foot draft. This shortfall stems from the lighter timber used in the new construction, as well as the lighter weight of the reproduction guns. There also is no longer a 200-plus crew on board. Replacing the original water tanks will add much of the needed weight. The water tanks were of iron and, when funds are available, they will be reproduced. When filled, the tanks and water will weigh about 150 tons.[24]

There are no gunport lids on the ship as of October 2009. These were originally two-part structures, opening half upward and half downward. Plans are ready to reproduce these when funds are available. At present the hull is not coppered but this will be very expensive and the cost is not within the budget. Currently the ship is scheduled to be back out of the water by January, 2010. This will be the ship's first time out of the water since 1998-99.[25]

[22] Ibid., Williams, *U.S.S. Constellation*, 68.
[23] Powichrowski interview; visit and tour of ship by writer, June 16, 2009.
[24] Ibid.
[25] Ibid.