

THE END OF WOODEN WALLS: A COMPARISON OF HMS *WARRIOR* (1861) TO THE USS *MONITOR* (1862)

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Abstract: In this article I will compare and contrast two warships, the British HMS *Warrior* and the American Union's USS *Monitor*. These ships were the early ironclads which brought an end to the wooden ship navies of the world. Although they never met in battle, both ships were available for military action during the first years of the American Civil War (1861-1865). From early November 1861 until the end of December of the same year Britain and the American Union almost came to war with each other over the HMS *Trent* Affair. This article will speculate whether the British ironclads would have bested the Union ironclads and broken the Union's blockade of the Confederate sea ports.

While Britain and France were allies during the Crimean War (1857-58), the French Navy had a wooden steam fleet which briefly achieved numerical equality to the British wooden steam fleet. "This fact, in combination with the laying down of *Gloire* [by the French] in March of 1858, sparked off the [British] invasion scare of 1858-59."¹ The *Gloire* was an armor-clad wooden ship. French Emperor Napoleon III ordered the construction of the *Gloire* as a direct challenge to the previous forty five year British command and control of the world's seas using wooden ships.

HMS *Warrior* was the British answer to *Gloire* and the policy that she represented. "*Warrior* was in every respect a more advanced ship than *Gloire*, indeed so advanced that she could not have been built in France."² The *Gloire* was 256 foot, 5,500 ton ironclad wooden ship whereas the *Warrior* was an iron-hulled ship. The word "ironclad" is used in this essay and by other authors to refer to both armor-over-wood and entirely iron ships. The *Gloire* was a seagoing harbor assault ship whereas the *Warrior* was a 420 foot long and fast 9,000 ton frigate which was not designed for harbor assault. The *Warrior* had four and one half inch thick wrought iron armor and forty 8 inch smooth bore and 7 inch rifled guns. Unlike the *Gloire*, these guns gave accuracy and armor piercing capability.

When she entered service in 1861 HMS *Warrior* instantly rendered every other warship afloat obsolete and her combination of size, speed and firepower helped to defeat Imperial France in a major naval arms race. She was the ultimate Victorian deterrent³.

The design deficiencies of the *Warrior* were significant. The screw propeller shaft was above the water line and a lucky shot could have disabled the vessel. The shaft should have been protected by armor. Since the knowledge of how to apply copper to iron did not exist at the time, the *Warrior's* iron hull was easily fouled by barnacles that greatly reduced her speed and maneuverability. The British and the French had previously attached copper to the bottom of wooden ships in order to discourage fouling. Because of her 420 foot length, only a few

¹ Andrew, Lambert, *HMS Warrior 1860 Victoria's Ironclad Deterrent*. (Conway Maritime Press, 2011), p.8.

² Ibid.p.8.

³ Ibid.p.7.

shipyards in England could dry dock her to remove the fouling. The ship's entire service was confined to the English Channel area so she could be close to English dry docks.⁴

The *Warrior* had both steam and sail so she could theoretically use both to travel to America. The ship was fitted out and ready for action June 1862.⁵ “Overseas service was out of the question, at least until new dry docks had been constructed [near the area of battle].”⁶ It wasn't until 1866 that a floating dry dock was invented and ordered. It was launched in 1868. Its purpose was to be taken to Bermuda where it could be used to remove the fouling from ironclads. Without the floating dry dock, the fouling prevented the ironclads from leaving the English Channel area.⁷ Bermuda was chosen so that British ironclads could challenge American ironclads if necessary.



HMS Warrior
Warrior Trust

“The [American] Civil War began on the [Atlantic] coast, with the firing on Fort Sumter in April 1861. President Lincoln immediately called up the troops and imposed the blockade of the Southern ports as part of the [1861] Anaconda Plan to strangle the South, the blockade's enforcement became the dominant naval activity of the war.”⁸ The American Civil War produced inventions like the submarine, torpedoes, reconnaissance balloons, ironclads (like the *Monitor*), the Dahlgren guns, repeating rifles and many more. When the war started, the Union

⁴ Ibid. p.15.

⁵ Ibid. p.40.

⁶ Ibid. p.40.

⁷ Ibid. 47,

⁸ David A. Mindell, *Iron Coffin, War, Technology, and Experience aboard the USS Monitor*, (Johns Hopkins University Press, 2012),p.25.

had 90 vessels and only 20 were steam powered. Between 1861 and 1865, the Union Navy would grow from 90 ships to 600.⁹

In March of 1861 the *Philadelphia Examiner* opined that “Before the end of the year, France will have eight and England six such vessels [ironclads]. How many are we to have?”¹⁰ An Ironclad Board was established by the Union Navy and it granted \$1.5 million dollars for these innovative state-of-the-art vessels. The Union Congress subsequently approved the \$1.5 million and the President signed the bill on 2 August 1861. On 4 October a contract was signed and \$275,000 was awarded to build the USS *Monitor*. Final payment for the ship was based on its performance in battle at war.

The *Monitor* was unique. It was 172 feet long, 41 feet wide and incorporated two separate iron hulls. One hull was a flat iron raft which formed the deck and the other was an iron cradle which hung under the craft below the waterline. There was no true keel. An armor belt of iron on the upper hull protected the lower hull from shot, shell and ramming. The upper hull overhung the lower by several feet. It protected the propeller and anchor well. There was a seal between the two hulls which plagued the *Monitors* throughout their operational lifetimes.¹¹ The *Monitor* was entirely steam propelled.

Only the turret and the pilothouse protruded above the raft, the former containing two eleven-inch Dahlgren guns and their crews, and the latter a pilot and captain for steering and command. The only significant target presented to the enemy, the twenty-one foot diameter [rotating] turret was protected by eight-inches of armor plate...and had a rounded shape to deflect any shot that would hit.¹²

In February 1862 the Union Navy was concerned that the Confederate Ironclad the CSS *Virginia* was headed to Hampton Roads, Virginia to break the Union blockade of wooden ships. The *Monitor* had been launched in January 1862 and was sent to Hampton Roads in March. The *Virginia* was an armor on wood rebuild of a captured Union wooden ship. The *Virginia* got to Hampton Roads first and sunk the Union ship *Cumberland*, and set the *Congress* on fire. The two Union wooden ships were no match for the ironclad. The *Monitor* arrived in Hampton Roads the next day and spent four hours battling the *Virginia*. Although the *Virginia* had most of her extremities shot away whilst the *Monitor* had twenty two hits sustaining only minor damage, the first battle of ironclads ended in a stalemate.

For the Union, the *Monitor* had saved the blockade fleet from the threat of the *Virginia* and achieved its tactical goal of protecting the USS *Minnesota* [a Union ship not damaged by the *Virginia*]. The Confederacy saw the *Virginia*'s destruction of the *Congress* and the *Cumberland* as evidence of its triumph...¹³

In May of 1862 the Union Army occupied Norfolk, Virginia forcing the Confederate Army to destroy the Norfolk docked *Virginia* as they retreated from the city. The *Monitor* sank at sea at the end of 1862 after having no further battles with ironclads. The *Monitor*'s poor hull design was the probable cause of its sinking.

⁹ Ibid.p.26.

¹⁰ Ibid.p.27.

¹¹ Ibid. p. 41.

¹² Ibid. p.41.

¹³ Ibid.p.75.

By the end of July 1862 four Monitor style ships were delivered. Two more were delivered in August of the same year. In all, eight ironclads were built by the Union during the war. Of the eighty four, sixty four were improved Monitor style, including the *Weehawken*.

“In June of 1863, the *Weehawken*,...defeated and captured the Confederate ironclad ram *Atlanta* in a close-in duel, the most notable success of a monitor after Hampton Roads.”¹⁴ In December of the same year a sudden rush of water into the hull whilst docked sank the *Weehawken*. This design flaw made the ship only useful for protecting the Union blockade from Confederate wooden and ironclad ships. The *Monitor* design made it and its sister ships unable to fight battles on the high seas. The shortcomings of the design were also a problem when tied to a dock as shown by the *Weehawken* example.

The Monitor design was also unable to protect against the new torpedoes. “In the battle of Mobile Bay [August 1864] “...the [Union] monitor *Tecumseh* sank in thirty seconds after striking a Confederate torpedo...”¹⁵ It is obvious that the invention and use of the torpedo during the Civil War was as much of a problem for the ironclads as it was for iron and steel clad ships in later wars.

In comparing and contrasting the *Monitor* and the *Warrior* it seems evident that each had serious deficiencies. The *Warrior*'s unprotected propeller shaft could be disabled by one shot. The ship could not operate in the waters off the American coast since it could not dry dock in Bermuda until 1868. The fouling of the hull would disable the ship once it had crossed the Atlantic Ocean.

The *Monitor* was not able to travel or to fight on the high seas. The poor seal between the hull and the deck and its flat bottom made it unseaworthy in rough seas. At least the ship was small enough to be dry docked for hull cleaning in most Union dry docks and its propeller was below the waterline so it was protected from gun fire. The Union ship was only 141 feet long whereas the British ship was 420 feet long. This difference in length made the dry docking a critical deficiency for the *Warrior*. Both the *Monitor* and the *Warrior* had poor maneuverability. During this period, conventional naval tactics would have both wooden ships and ironclads battling each other at close range. Hence the poor maneuverability of both vessels would probably not have been as important disadvantage in a one on one battle like the battle between the *Virginia* and the *Monitor*.

¹⁴ Ibid.p.114.

¹⁵ Ibid.p.114.

Photo # NH 59543 USS Monitor. Watercolor by Oscar Parkes



The USS Monitor 1862
Monitor Trust

A battle between the first ironclads, *Warrior* and *Monitor*, might have occurred during the American Civil War. On 12 April 1861 Fort Sumter surrendered to the Confederate Army and the American Civil War began. Less than a month later, Jefferson Davis, the President of the Confederate States, declared an official state of war.¹⁶ At about the same time, President Lincoln orders a blockade of all southern ports to stop the import of weapons and munitions and the export of cotton. By October 1861 the Union had trained and equipped 100,000 soldiers and had lost the war's first major encounter which was referred to by the Union as the First Battle of Bull Run and by the Confederate forces as the First Manassas.¹⁷

Without a fleet of its own, the Confederacy was not capable of breaking the blockade. Confederate President Davis needed Britain to help reopen the southern ports to obtain southern cotton and to export to Confederate ports much needed guns and munitions. The Confederate cabinet also felt the blockade was illegal under the [1856] Declaration of Paris [Respecting Maritime Law].¹⁸ President Davis appointed two experienced politicians, Senators James Mason and John Slidell to be the Confederate Commissioners in Europe. Slidell was to go to Paris to plead the Confederate cause to Emperor Louis Napoleon III and Mason was to plead the cause to British Prime Minister Lord Palmerston.

On 1 November 1861 Mason and Slidell were on their way to England aboard the British mail packet R.M.S. *Trent* when they were captured off the coast of Cuba by the Union vessel *San Jacinto*. In May of the same year Queen Victoria had issued a British Declaration of Neutrality which forbade the use of British ports to transport military equipment or arms but allowed both the Union and the Confederacy the right to obtain fuel and supplies in British ports. France, Spain, the Netherlands and Brazil all followed the British lead.

¹⁶ Amanda Foreman, *A World on Fire, Britain's Crucial Role in the American Civil War*, (Random House, 2010), p.82.

¹⁷ Ibid. p.150.

¹⁸ Ibid. p.155.

About the middle of November, Slidell and Mason were transported to a prison in Boston. The Union Media celebrated the event and called it the “Trent Affair.” On 27 November news of this event reached Britain. The British press and public opinion were incensed by this news. The British media called it the “Trent Outrage.”¹⁹

While in prison Mason wrote his wife a letter that some believe indicates that Mason and Slidell provoked the entire event to pressure Britain to recognize the Confederacy.²⁰ Previously the Confederacy had stopped the export of cotton [the “King Cotton Plan”] to pressure Britain to support the Confederacy.²¹

It is not clear if the Confederacy provoked the event but it is clear that the Union ship violated international law and “outraged” the British media, public opinion and Parliament.²² Most members of parliament were not supportive of siding with the Confederacy. Britain had abolished slavery in its empire by 1833 and public opinion would not support recognizing the southern slaveholders of the Confederacy. This did not mean that the British would go to any lengths to avoid a war with the Union. No doubt this was a watershed in Anglo-American relations.²³

Prime Minister Palmerston prepared Britain for war. He sent troops to Canada and ordered the British Atlantic Fleet to prepare to face the Union Navy.²⁴ In fact, after the Trent Affair was over, it was reported that the British spent £2,000,000 to send British troops to protect Canada.²⁵ This was a considerable sum in 1861.

By 1861 the Union had a population of 20,000,000 and in 1776, during the American War for Independence; the British had fought a war with an American population of 3,000,000. Palmerston was aware that Britain had been unable to win a war in America thousands of miles away before. He was also aware that a British war with the Union would give Napoleon III a free hand in Europe. Finally he knew that saber-rattling about the Trent Outrage within Britain was not widespread.²⁶ The one major exception in Palmerston’s Cabinet seemed to be William Gladstone, his Chancellor of the Exchequer (1859-1866), who spoke in favor of support of the Confederacy.²⁷

After the capture of Mason and Slidell the Union media celebrated the action and the Union Congress awarded a medal to the Captain of the *San Jacinto*. President Lincoln was pleased with some good news after losing The First Battle of Bull Run, but he knew that a war with the British would divert his effort to bring the southern states back into the Union. His Secretary of State Seward had previously said he wanted to annex Canada so Seward was somewhat conflicted by this situation where a war with Britain might have resulted in such an annexation.

In the end, Prime Minister Palmerston sent the Union a demand for release of the Mason and Slidell, the text of which was changed by Albert, the Prince Consort, to allow the Union to save face. This would be Prince Albert’s last act before his death. Lincoln’s cabinet decided on 26 December to release the Confederate Commissioners.²⁸ They sailed for England aboard a

¹⁹ Duncan Andrew Campbell, *English Public Opinion And The American Civil War*, (Boydell Press, 2003). P.65.

²⁰ Ibid. p.63.

²¹ Ibid.p.15.

²² Ibid.p.65.

²³ Ibid.p.14.

²⁴ Ibid. p.76.

²⁵ Foreman p.200.

²⁶ Ibid.p.85.

²⁷ K.Theodore Hoppen, *The Mid-Victorian Generation 1846-1886*. (Clarendon Press, 1998).p.230.

²⁸ Ibid. p.87.

British ship on 1 January 1862, shortly after the Prince Consort died of typhoid on 16 December 1861.

If the Confederate Commissioners had not been released and if war between Britain and the Union commenced in 1862, it is likely that the British Navy could not have broken the Union's blockade of the Confederacy. By 1862 the Union had six Monitor class ironclads and two iron-on-wood ships. By June of 1863 a Monitor class vessel had beaten and captured a Confederate ironclad. Although the Monitor class vessels were not very seaworthy (due to their double hull design), their role was to maintain the blockade of the confederate ports in calm harbors and river delta waters, not to fight battles on the turbulent high seas. The *Warrior* had no experience in fighting another ironclad and would have been unable to sustain a battle action on the Atlantic seacoast of America and unable to penetrate shallow waters near rivers and ports. The lack of a dry dock facilities on or near the Atlantic seacoast, needed to remove iron hull fouling, would greatly inhibit the use of the vessel (or any other British ironclad) in breaking the blockade. If a battle with a Monitor class vessel and the *Warrior* had taken place it is also likely that the *Warrior* would have been more easily disabled and captured due to the destruction of her unprotected propeller. Therefore, it is unlikely that the British Navy of wooden ships (without the *Warrior* lass of ironclads) could have broken the Union blockade of the Confederate ports which was enforced by Monitor class vessels.

The Union's rapid buildup of ironclad vessels and its fighting force of hundreds of thousands of men would have prevented Britain from having any conclusive impact on the American Civil War. A British attack and a Union defense might have prolonged American the Civil War but would not have changed its outcome. Even though they were more maneuverable, wooden ships could not best the ironclads. Only ironclads could fight ironclads. The inventions of American Civil War brought the end of the wooden hulled ships used by the British as well as the rest of the world. The 1862 battle of the ironclads *Virginia* and *Monitor* at Hampton Roads changed naval warfare forever.

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