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**"I Will Rise Again":
The Life and Legacy of the U.S.S. *Monitor***

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The residents of Cape Hatteras, North Carolina saw something strange on the chilly morning of December 31st, 1862.¹ Just offshore, two side-wheel steamships were towing what looked like a barge. The object had a large mound protruding from the deck, and lay so low in the water that the waves nearly reached the deck. But this was no barge. The odd-looking vessel was the USS *Monitor*: the United States Navy's first "ironclad" warship. It was three months after the Battle of Hampton Roads, where the *Monitor* had defeated the Confederate rebel's C.S.S. *Virginia* (formerly U.S.S. *Merrimack*).² After that historic victory, the *Monitor* was being towed south, where it was to take a post running down pirates and smugglers who supplied the Confederate states during the war.³ The ship was due to arrive on January 1st, 1863, but never

¹ David A. Mindell, *War, Technology, and Experience Aboard the USS Monitor* (Baltimore: Johns Hopkins University Press., 2000), 112-3.

² The C.S.S. *Virginia* was a modified Union vessel known as the U.S.S. *Merrimack*. Contemporary literature is divided over whether to refer to the ship as the *Merrimack* or the *Virginia*. For the sake of clarity, I will follow the tradition established by noted historian Carl Park of the Naval Institute and refer to the vessel by its Confederate name: the *Virginia*. See: Carl D. Park, *Ironclad Down: the USS Merrimack-CSS Virginia from Construction to Destruction* (Annapolis, MD: Naval Institute Press, 2007), 17-21.

³ John V. Quarstein, *The Battle of the Ironclads* (Charleston, SC: Arcadia, 1999), 121.

called in port. A few days later, W. F. Keller, the highest ranking surviving officer of the *Monitor* wrote a letter to his wife: “The *Monitor*,” Keller penned, “is no more.”⁴

The ship, sunk that evening, was lost for over a century. In 1973, private citizens using fishing sonar found the wreck more than one thousand feet beneath the surface of Cape Hatteras (Figure 1).⁵ Calling the coast guard, the fishermen reported that the *Monitor* was lying upside down in a bed of sand. It was an undignified grave for a historic vessel—the first true iron warship with movable turrets. To the fishermen, though, the vessel was a nuisance.⁶ It disrupted fishing. To historians and archaeologists, however, the *Monitor* is a unique vessel because of its innovations and because of its place in history. The *Monitor* is among the first naval byproducts of the industrial revolution, and marks the first sign of an emerging military-industrial complex.

The *Monitor* is valuable as a record of industrial innovation. Peter Veth, a leading maritime archaeologist and a professor at the University of Western Australia, advocates in his “Theoretical Approaches to Maritime Archaeology” that maritime archaeology should be best vested to those shipwrecks with significant “statutory heritage,” meaning ancient vessels.⁷ Veth make this argument because he believes that preserving ancient ships allows for the scientific community to observe “theoretical innovation” in a way that present ships do not.⁸ The *Monitor* is itself an innovation as the vessel is unique. During the Civil War, the Confederate and Union

⁴ W.F. Keller to Anna Keller, January 6, 1863, in *Aboard the USS Monitor: 1862*, ed. Robert W. Daly (Annapolis: United States Naval Institute 1964), 253.

⁵ John D. Broadwater, *USS Monitor: a Historic Ship Completes its Final Voyage* (College Station: Texas A & M University Press, 2012), 33.

⁶ Traditional maritime scholars like Stanley Sandler often consider the *Monitor* to be the world’s first ironclad warship. It was not. Floating forts, known in literature as armored batteries, date back to the third century B.C. where they played roles in ancient battles. The *Monitor* is especially notable because it was an independently powered warship, and not simply a “floating fort.” See: Stanley Sandler, *The Emergence of the Modern Capital Ship* (Newark: University of Delaware Press, 1979). and David K. Brown, *Before the Ironclad: Development of Ship Design, Propulsion and Armament in the Royal Navy, 1815-60* (London: Conway Maritime, 1990), 189.

⁷ Peter Veth, *Theoretical Approaches*. In: Staniforth M., Nash M. (eds) *Maritime Archaeology*, The Springer Series in Underwater Archaeology (Boston: Springer Press, 2006), 13.

⁸ Ibid.

armies had thought that “the possession of an iron-armored ship” was a “first necessity,” and were leaders in the construction of such vessels.⁹ American maritime experts wanted a vessel that could fight in coastal waters and on the high seas. No other nation was invested in the creation of an ironclad.¹⁰ European and Asian powers stuck to traditional vessels and thus archaeological sites from across the Atlantic lack similar artifacts. Most plans for the *Monitor* were lost, and those of the *Virginia* were burned.¹¹ By Veth’s calculus, the *Monitor*’s status as the first ironclad makes it valuable because it was one-of-a-kind.

The Monitor was a byproduct of the industrial revolution. Characterized by increases in manufacturing, iron construction, and the creation of steel, the industrial revolution is generally considered to have lasted from 1800-1840 in the United States.¹² Despite the revolution, the United States Navy had neglected to build new ships after the War of 1812; the *Monitor* was among the first in the modern Navy.¹³ Designed by John Ericsson in 1861, the steam-driven 124-foot vessel was the prototype of a new class of industrial age armored warships with rotating turrets.¹⁴ On the *Monitor*, sailors could work mechanical cranks to move a gun turret in the direction of their enemy and open fire without changing heading (Figure 2). This development—made possible by gears and iron plating—was a novel break from days when ships with immovable cannon had to “tack” diagonally across the water in order to fire on an opponent.¹⁵

⁹ Rawson and Woods (1898, 67–69); ORN (Official Records of the Union and Union and Confederate Navies in the War of the Rebellion), US Navy Department, Series II, vol. 2: 67–69.

¹⁰ Park, *Ironclad Down*, 213-215.

¹¹ Michael Howard, *War in European History* (London: Oxford University Press, 2009), 94-95.

¹² While the European Industrial Revolution is generally considered to run from 1790-1840, in the United States, the dates are generally considered to be 1800-1840. See: William Rosen, *The most Powerful idea in the World: a Story of Steam, Industry, and Invention* (Chicago, IL: University of Chicago Press, 2012), 54. American Economic historians Naomi Lamoreaux and John Joseph Wallis provide a convincing analysis of these dates. See: Naomi R. Lamoreaux and John Joseph Wallis, eds., *Organizations, Civil Society, and the Roots of Development* (Chicago: University of Chicago Press, December 2017).

¹³ Robert W. Love, *History of the U.S. Navy: 1775-1941* (Mechanicsburg, PA: Stackpole Book, 1992), 253.

¹⁴ S. B. Besse, *U.S. Ironclad Monitor with Data and References for a Scale Model* (Richmond, VA: The Dietz Press, 1936), 9.

¹⁵ *Ibid*, 17.

Further, industrial welding allowed the *Monitor* to be built in two segments. While earlier ships were built from the ground up, with each wooden plank connecting to the next, the *Monitor* had a preassembled trapezoidal hull that coupled with a pre-built cylindrical turret (Figure 3).¹⁶ The deck, a large iron platform, was welded on at the end of construction.¹⁷ Even more unusual was that when sailing, the deck and hull were almost completely submerged, with only the pilothouse and turret above the waterline (Figure 4).¹⁸ The vessel's low profile made the *Monitor* difficult to hit, and allowed it to be move through the coastal waters of the United States with stealth.¹⁹

From an examination of the wreck, it becomes even more clear that *Monitor* was a product of the concerns of the industrial revolution. In the 1850s, the height of the industrial revolution in the United States, tactician James H. Ward lamented that heavy industry "limit[ed]" naval operations to the point where maritime battles could not "go on."²⁰ Ward feared that the implementation of large caliber cannon made existing ships obsolete.²¹ He was right. By the 1860s, shipwrights were forced to choose between firepower or mobility, and often arrived at an unsatisfactory equilibrium.²² Many contemporary shipwrights saw the *Monitor* as a failed attempt at solving that equation. Pundits thought that the low-lying ship would be unable to stay afloat in the open seas, and ultimately blamed the design for its sinking. Labeled an "iron coffin" and a "cheesebox on a raft" by the press, the *Monitor*'s odd shape reflects an attempt to strike a balance between weight and mobility.²³ Examining Ericsson's notes from the design of the ship

¹⁶ Ibid, 12.

¹⁷ Ibid, 11.

¹⁸ Ibid, 12.

¹⁹ Ibid, 19-21.

²⁰ James Ward, *Elementary Instruction in Naval Ordnance and Gunnery*. (New York, NY: D. Van Nostrand, 1861), 72.

²¹ Ward, *Elementary Instruction*, 73. and Broadwater, *USS Monitor*, 33.

²² Gordon P. Watts, "The Location and Identification of the Ironclad USS Monitor," *International Journal of Nautical Archaeology* 4, no. 2 (1975): 302, doi:10.1111/j.1095-9270.1975.tb00920.x.

²³ Ibid, 302.

reveals that the shipwright directly grappled with this challenge, and saw the *Monitor* as “a diagrammatic and theoretical exposition” that attempted to solve a contemporary maritime issue.²⁴ This quote, noted in Ericsson’s private journal, notes that the shipwright himself saw that the *Monitor* was novel. This hybrid vessel allows scholars to better understand the dichotomy of firepower and mobility that existed before the Civil War.²⁵

The *Monitor* was emblematic of the industrial revolution’s new military-industrial complex. This close partnership between heavy industry and government has lasted until today, but its first creation was the *Monitor*. While contract arbitration is now standard government practice, before the time of construction of the *Monitor*, government contracts were generally assigned and ordered from one vendor.²⁶ Breaking from that tradition during the construction of the *Monitor*, Ericsson and his team awarded “contracts wherever suitable iron and components could be secured.”²⁷ The wreck also reveals this change in practice. Instead of being constructed from wood and iron native to the shipyards, the *Monitor*’s iron plating features stamps from a variety of vendors. The hull fragments show marks from New York’s Continental Ironworks, the turret is engraved with the insignia of New Jersey’s Novelty Ironworks, and all major machinery show patent numbers registered to Delamater & Co, of Connecticut. The turret for the vessels was built at the ironworks, then disassembled and shipped to the shipyards at Greenpoint, where it was reassembled.²⁸ The engines were constructed in Manhattan, and were also shipped cross-country and installed.²⁹ While the contractual process is remarkable in and of itself, the

²⁴ Mindell, *War, Technology and Experience*, 44.

²⁵ Watts, “The Location and Identification of the Ironclad USS Monitor,” 303.

²⁶ P. W. Singer, *Corporate Warriors: the Rise of the Privatized Military Industry* (Ithaca, NY: Cornell University Press, 2008), 151.

²⁷ Ibid.

²⁸ Stephen C. Thompson, “The Design and Construction of USS Monitor,” *Warship International* 27 (1990): 223.

²⁹ James L. Nelson, *Reign of Iron: the Story of the First Battling Ironclads, the Monitor and the Merrimack* (New York: Perennial, 2005), 467.

geographical distance between the suppliers indicates not only that America was industrialized and able to ship materials, but of the emergence of a relationship between war and private industry.

Beyond stamps on hull-plating, the *Monitor* embodies the military-industrial complex because it was the first mass-produced warship. In modern naval practices, large corporate ship designs are often built and sold in “classes,” meaning groups of ships that are of a similar design.³⁰ Sold in bulk, classes are traditionally used for twenty to forty years before the navy retires the vessels and orders a new class of ships.³¹ The construction of the *Monitor* was the beginning of this practice. Many more *Monitor* style vessels were built.³² These including so-called river monitors, which fought in the Battle of Mobile Bay and in the Mississippi River Campaigns of the late Civil War.³³ Abroad, Europeans copied the *Monitor* design. In 1864, only a year after the *Monitor* sank, Sir Edward Reed, the Chief Constructor of the Royal Navy, designed a “breastwork monitor” class of ships, attempting to improve on the *Monitor* design.³⁴ Reed added additional armor, and funnels, and upper deck gun turrets to what he believed was the original *Monitor* design (Figure 5).³⁵ An examination of the *Monitor* wreck, however, demonstrates that the *Monitor* and the subsequent breastwork monitor vessels were even more alike than previously realized (Figure 6, 7). Surviving plans indicate that less armor was on the

³⁰ The United States Navy has used classes ever since the construction of the U.S.S. *Monitor*. See: Robert W. Love, Jr., *History of the U.S. Navy, 1775-1941* (Mechanicsburg, PA: Stackpole Books, 1992) and: Robert W. Love, Jr., *History of the U.S. Navy, 1942-1991* (Mechanicsburg, PA: Stackpole Books, 1992).

³¹ Love, *History of the U.S. Navy, 1775-1941*, 250.

³² Oscar Parkes, *British Battleships; Warrior to Vanguard* (London, UK: Seeley Service & Co, 1970), 166.

³³ Norman Friedman, *U.S. Small Combatants: Including PT-boats, Subchasers, and the Brown-Water Navy: an Illustrated Design History* (Annapolis: Naval Institute Press, 1987), 55.

³⁴ Lincoln P. Paine, *Warships of the world to 1900* (Boston: Houghton Mifflin, 2000), 33. For more information on the “breastwork monitor” class of ships and European naval practices, see: Paul M. Kennedy, *The Rise and Fall of British Naval Mastery* (London: Penguin Books, 2017).

³⁵ David K. Brown, *Warrior to Dreadnought: Warship Development 1860-1905* (Barnsley: Seaforth Publishing, 2010), 23.

Monitor than there actually was: Reed's vessels were almost identical to the American *Monitor*.³⁶ Similarly, the 2001 recovery of the *Monitor*'s turret led experts to realize that the *Monitor* was able to fire in a 270 degree arc, more than the 230 degree range that was previously calculated.³⁷ It was precisely this feature of the breastwork monitors that led Admiral George Alexander Ballard to call the *Monitor* class vessels "full-armored knights riding on donkeys": they were not "easy to avoid" and were deadly "to [come] close to."³⁸ Like medieval knights, the *Monitor* class ship roamed far: covering the American continent and spreading throughout Europe.

Perhaps most importantly, though, conservation efforts on the *Monitor* wreck provide additional insight into the crew's relationship to the military-industrial complex. Using a custom hydraulic claw known as "the spider," archaeologists carefully lifted the *Monitor*'s turret from the ocean floor (Figure 8, 9).³⁹ While cleaning the turret, conservationists found the bones of two sailors, crushed under the cannon (Figure 10, 11).⁴⁰ Entrapped in a cement-like mix of iron corrosion product and sediment, the remains lay near tools used to replace the caulking and rubber seals that allowed vessels to stay afloat.⁴¹ These tools, used for fixing leaks, were not U.S. standard issues navy tools, but rather were from private companies (Figure 12).⁴² Similarly, clothing buttons found on uniforms inside the turret were marked "U. S. N.," for United States Navy, but were also made by private companies (Figure 13).⁴³ That these items were made by

³⁶ Besse, *U.S. Ironclad Monitor with Data and References for a Scale Model* (Richmond, VA: The Dietz Press, 1936), 15.

³⁷ John D. Broadwater, *USS Monitor: a Historic Ship Completes its Final Voyage* (College Station: Texas A & M University Press, 2012), 44.

³⁸ Admiral George Alexander Ballard to Edward Reed, 1860. in Roger Chesneau and Eugene M. Kolesnik, *Conway's All the World's Fighting Ships 1860-1905* (Greenwich, UK: Conway Maritime Press, 1979), 23.

³⁹ Broadwater, *USS Monitor*, 170.

⁴⁰ *Ibid*, 178.

⁴¹ *Ibid*, 198.

⁴² *Ibid*.

⁴³ *Ibid*, 199.

commercial firms is significant because it is a marked change from previous military affairs, where weapons and tools were either provided by the sailor, or built from scratch by the navy. While earlier wrecks show a mixture of both methods of outfitting a ship, the *Monitor* is the first wreck to document the Navy's transition to purchasing private civilian goods for use on ships.

The industrial revolution allowed for new innovations in shipbuilding and a rebirth of the craft. Even more, the *Monitor* marked a new era in military and industrial affairs, one characterized by a close relationship between private corporations and government funds. This relationship can now be seen by all. The *Monitor*'s turret sits as part of a 162,000 square foot *Monitor* center at the Mariners' Museum in Newport News, Virginia (Figure 14). There, visitors can learn about the vessel and watch firsthand as conservators preserve, and learn about, parts of the vessel in order to ensure their long-term preservation (Figure 15). The museum is a place where children and adults are inspired, and ensures that the world will never forget the funny-looking boat that changed history.

In 2007, at the end of the turret's conservation process, Mariners' Museum conservator David Krop noticed seven clear glass fragments cemented to the turret's inverted room.⁴⁴ They were stained, but when cleaned and fitted together revealed an image of a Phoenix and the word RESURGAM, Latin for "I will rise again."⁴⁵ (Figure 16). Indeed.

About the author

Declan Riley Kunkel is an award winning writer, author, and consultant. Originally from Fort Worth, Texas, Declan writes about history, politics, and philosophy. He is pursuing a degree in history at Yale.

⁴⁴ Kristina Fiore, "The USS Monitor- To Rise Again," *The Civil War Times*, February 2010.

⁴⁵ Ibid.

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