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Adam Badeau's "The Story of the Merrimac and the Monitor"

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Naval Historical Center

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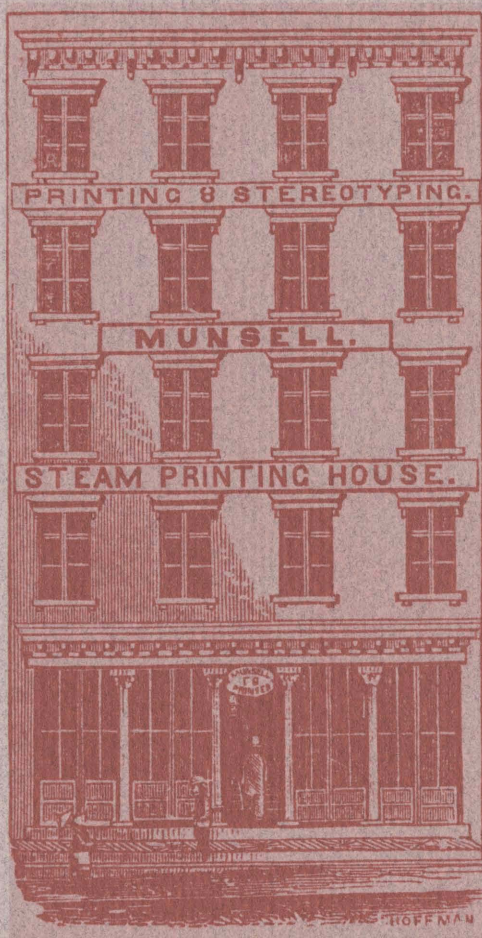
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Adam Badeau's "The Story of the Merrimac and the Monitor"

BY ROBERT J. SCHNELLER, JR.

"EVERY American schoolboy knows the story of the historic battle between the *Merrimac* and the *Monitor*", wrote historian Bernard Brodie in his 1941 classic *Sea Power in the Machine Age*. General Adam Badeau played a significant part in telling American children about the battle by means of his article "The Story of the Merrimac and the Monitor", published in the April 1887 issue of *St. Nicholas* magazine, the outstanding American juvenile periodical of its day. The original manuscript of this article, reprinted here, is preserved in the George Arents Research Library at Syracuse University.¹

St. Nicholas, a product of Scribner & Company (later The Century Company), publishers of *Scribner's Monthly* and *The Century*, was a well conceived, carefully edited, and lavishly produced monthly magazine with a circulation of approximately 70,000. It contained articles on travel, geography, biography, history, and science; historical fiction and fantasy; and stories about everyday life. Mary Mapes Dodge, who edited *St. Nicholas* from its founding in 1873 until her death in 1905, was the preeminent children's editor of her time. She exercised absolute control over the magazine, from its content to its makeup, and was thus able to put into practice her ideas about children's reading. Two of these ideas stand out. She thought that juvenile reading should be natural and entertaining. More significantly, she believed that a children's magazine should convey a definite system of ideals and values. Under her direction, *St. Nicholas* strove to teach its young readers open-

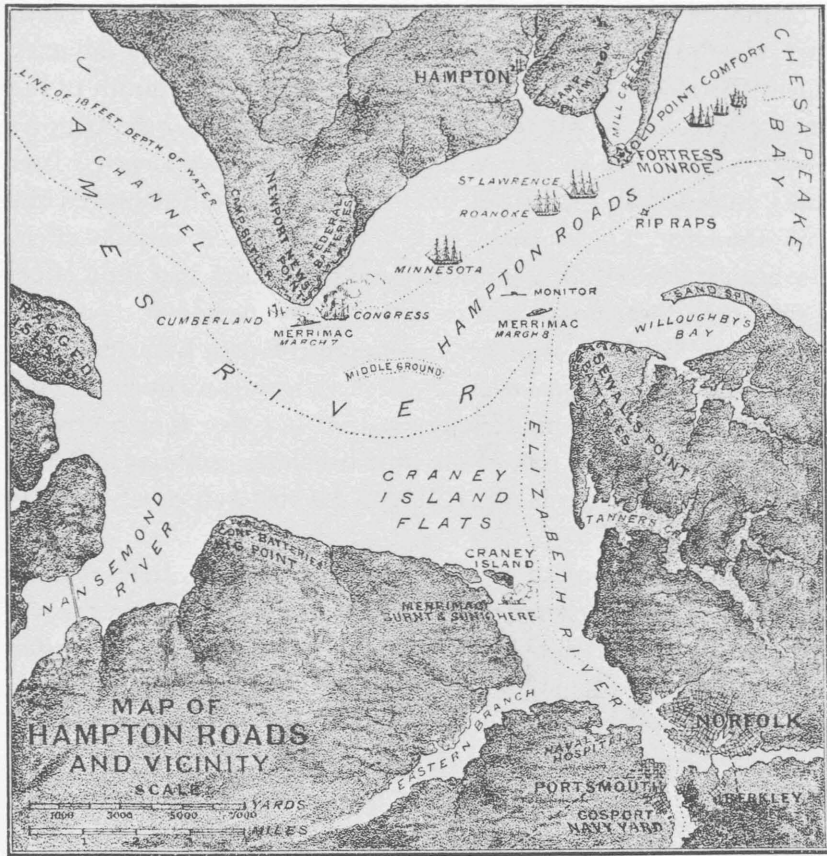
1. Adam Badeau, "The Story of the Merrimac and the Monitor", *St. Nicholas* 14 (April 1887): 435-44; Bernard Brodie, *Sea Power in the Machine Age* (Princeton: Princeton Univ. Press, 1941), 17. Although the proper spelling is "Merrimack", her name often appears in the historical literature and source material without the *k*.

mindedness, self-reliance, right from wrong, the value of industry, the benefits of fortitude, the importance of faith, and an appreciation for truth. *St. Nicholas* advanced a consistently genteel, conservative, upper-middle-class view of life, tacitly seeking to perpetuate the values and attitudes of this class in the next generation. Dodge attracted contributions from outstanding writers, including Laura E. Richards, Jack London, Theodore Roosevelt, Robert Louis Stevenson, Ring Lardner, Robert Benchley, and William Faulkner. Some of the best known serials in *St. Nicholas* were Frances Hodgson Burnett's *Little Lord Fauntleroy*, Mark Twain's *Tom Sawyer Abroad*, and Rudyard Kipling's *The Jungle Book*.²

Adam Badeau (1831–1895) was an author, soldier, and diplomat. Before the Civil War, he worked as a journalist and at the State Department as a clerk. During the war he served on the staffs of Generals William T. Sherman, Quincy A. Gillmore, and Ulysses S. Grant. Grant made Badeau his military secretary on 8 April 1864. Henceforth Badeau's fortunes rose and fell with those of Grant, on whose staff he served until May 1869, when he retired with the rank of brevet brigadier general. After Grant became president, Badeau received an appointment to the legation at London, where he rose to the position of consul general. In 1882 he accepted the position of consul general in Havana, but resigned two years later because of a disagreement over policy matters. Not long after his return to America, Badeau moved into Grant's home to help him write his memoirs. After Grant died in 1885, Badeau spent the remainder of his own life writing articles and books on military and other subjects. He was a competent writer, known for his grasp of detail and for being overly sympathetic toward Grant and the Union cause. One of his better known works, *Grant in Peace*, is still being cited today.³

2. *Dictionary of American Biography*, s.v. "Dodge, Mary Elizabeth Mapes"; R. Gordon Kelly, ed., *Children's Periodicals of the United States* (Westport, Conn.: Greenwood Press, 1984), x–xxviii, 377–88; Frank Luther Mott, *History of American Magazines, 1741–1930*, 5 vols. (Cambridge: Belknap Press of Harvard Univ. Press, 1938–68), 3:500–505.

3. *Dictionary of American Biography*, s.v. "Badeau, Adam"; Adam Badeau, *Grant*



The map of Hampton Roads as it appeared in the *St. Nicholas Magazine*, April 1887.

The subject of Badeau's piece in *St. Nicholas*, the battle of Hampton Roads, is of great historical interest. On 8 March 1862, the Confederate ironclad *Virginia*, converted from the wreck of the USS *Merrimack* and armed with a new type of gun that fired explosive shells instead of conventional solid shot, steamed from her base in Norfolk. Her mission was to disperse the Union blockading fleet

in Peace: From Appomattox to Mount McGregor, A Personal Memoir (Hartford, Conn.: S. S. Scranton and Co., 1887). Badeau's best-known work is *Military History of Ulysses S. Grant, from April 1861 to April 1865*, 3 vols. (New York: D. Appleton and Co., 1881).

at Hampton Roads, then to ascend the Potomac to Washington to affect the “public mind”, as the Confederate secretary of the navy put it.⁴ At 1:00 P.M., the *Virginia* emerged from the mouth of the Elizabeth River and proceeded to wreak havoc among the Union’s wooden fleet. She set the USS *Congress* afire (the *Congress* later sank), rammed and sank the USS *Cumberland*, and damaged the USS *Minnesota*. The *Virginia*’s shell-firing guns were brutally effective against the wooden ships. Federal return fire had little effect against the Confederate armor. The *Virginia* retired at 7:00. The Union ironclad *Monitor* arrived in Hampton Roads later that night. When the *Virginia* appeared the next morning to finish off the wooden blockaders, the *Monitor* engaged her. For four hours the two ironclads fought, part of the time touching, without inflicting serious damage on each other. It was the first battle between armored vessels in history.⁵

One bibliographer attempted “to list all that has been written about the battle [of Hampton Roads], with the exception of newspaper accounts and encyclopedia articles” and “privately printed volumes and articles in obscure periodicals”. The resulting bibliography, published in 1968, includes more than 250 books, chapters in books, pamphlets, articles, and government documents, and 23 unpublished sources on the battle. Interest in the subject has not since abated. Historians continue to write about the battle, underwater archaeologists have examined the wreck of the *Monitor* and retrieved her anchor and other artifacts, and TBS recently aired a made-for-television movie entitled “Ironclads”.⁶

4. U.S. Navy Department, Naval History Division, *Civil War Naval Chronology, 1861–1865* (Washington, D.C.: Government Printing Office, 1971), 11–26.

5. The ironclad converted from the USS *Merrimack* is properly known by her Confederate name, the *Virginia*.

6. David R. Smith, *The Monitor and the Merrimac: A Bibliography*, UCLA Library Occasional Papers Number 15 (Los Angeles: University of California Library, 1968), from the preface; Gordon R. Watts, Jr., *Investigating the Remains of the U.S.S. Monitor: A Final Report on 1979 Site Testing in the Monitor Marine Sanctuary*, Technical Report 42 (Fort Pierce, Fla.: Harbor Branch Foundation, Inc.); one of the best recent articles is Earl J. Hess, “Northern Response to the Ironclad: A Prospect for the Study of Military Technology”, *Civil War History* 31 (June 1985): 126–43.

Contemporary observers as well as historians have exaggerated the significance of the battle of Hampton Roads, raising it almost to the level of myth. John Taylor Wood, writing in *The Century* magazine in 1885, declared that the battle “revolutionized the navies of the world”. “The day was March 9,” wrote Bruce Catton in 1956, “memorable for the most momentous drawn battle in history—a battle that nobody won but that made the navies of the world obsolete”. Others claim variously that the battle of Hampton Roads brought about the introduction of ironclad warships to the English and French fleets; that the battle was a great turning point in naval warfare; that the Monitor was a “model for the warship of the future”.⁷

Historian James P. Baxter, writing almost sixty years ago, debunked many of these myths. “The legend that [the *Monitor* and *Virginia*] inaugurated the introduction of ironclads is preposterous,” he noted, “for in March, 1862, nearly one hundred armored vessels were built or building in Europe”.

Though the influence of the battles of Hampton Roads on the policy of European governments has been greatly exaggerated, few naval actions in history have made so profound an impression on the popular imagination. The combats of March 8 and 9 symbolized the passing of the old fleets and the coming of the new. Symbols they were, and not the cause, for they did not initiate the great revolution in naval architecture, they crowned it. They taught the man in the street what the naval constructors already knew: that shell guns had sounded the doom of the wooden navies of the world. On the chief problem confronting the naval constructors of Europe—the best design for *seagoing* ironclads—these battles threw little light. Nevertheless fate had

7. Bruce Catton, *This Hallowed Ground: The Story of the Union Side of the Civil War* (Garden City, N.Y.: Doubleday & Co., 1956), 131; John Taylor Wood, “The First Fight of Iron-Clads”, *The Century* 29 (March 1885): 738; William N. Still, “The Historical Importance of the USS *Monitor*”, in *Naval History: The Seventh Symposium of the U.S. Naval Academy*, ed. William B. Cogar (Wilmington, Del.: Scholarly Resources, Inc., 1988), 76.

provided for the first fight of ironclads so incomparable a setting that the *Merrimack* and *Monitor* have monopolized public attention in the United States, to the exclusion of the scores of ironclads then already built or building in Europe.

His revisionist views notwithstanding, Baxter agreed that the battle was significant.⁸

Where does Badeau's article fit into the literature? Is it closer to myth, or to reality? A comparison of Badeau's account with the historical record provides the answer.

One telling theme is Badeau's portrayal of shipboard armor. He characterized the armored warship as an "enchanted vessel" which "could do infinite harm to others without receiving any damage in return". He made armor seem sinister. In describing the *Virginia's* attack on the wooden *Cumberland*, Badeau said that the men on the wooden vessel "stood up like targets, fighting against foes who were themselves unseen and completely shielded". Against the iron sides of the *Monitor*, the *Virginia's* gunfire "seemed to have no more effect than so many pebbles thrown by a child". The *Virginia* withstood a "broadside that would have blown out of water any wooden ship in the world; but [she] was unharmed. It seemed like magic, and in other days would doubtless have been considered the effect of wicked enchantment."

Eyewitness accounts verify this image. An officer on board the unarmored USS *Congress* described the effects of the *Virginia's* gunfire:

One of her shells dismounted an eight-inch gun and either killed or wounded every one of the gun's crew, while the slaughter at the other guns was fearful. There were comparatively few wounded, the fragments of the huge shells she threw killing outright as a general thing. Our clean and handsome gun deck was in an instant changed into a

8. James P. Baxter III, *The Introduction of the Ironclad Warship* (Cambridge: Harvard Univ. Press, 1933), 285. Baxter's work, along with Brodie's *Sea Power in the Machine Age*, which offers a similar interpretation, are still regarded as the standard works on the subject. Catton seems to have read neither.

slaughter-pen, with lopped off legs and arms and bleeding, blackened bodies scattered about by the shells. . . . One poor fellow had his chest transfixed by a splinter of oak as thick as the wrist, but the shell wounds were even worse.

The *Virginia's* guns were brutally effective against the wooden ships. Of the 810 officers and men on board the *Congress* and *Cumberland*, 241 died.⁹

During the duel between the two ironclads, the concussion of projectiles striking the *Virginia's* sides proved distressing to her crew, causing bleeding from their noses and ears. Three men inside the turret of the *Monitor* who were leaning against the wall were stunned when a Confederate projectile struck the outside, but no one in the turret was seriously injured. No one on board either ironclad died during the duel, in stark contrast to the carnage on the *Congress* and the *Cumberland*. The duel vividly demonstrated that America's most powerful naval cannon, the 9-inch Dahlgren guns on the *Virginia* and the 11-inch Dahlgren guns on the *Monitor*, were virtually useless against armor. John A. Dahlgren, inventor of these guns, perceived the battle as a watershed. "Now comes the reign of iron", he observed.¹⁰ Bernard Brodie wrote:

The engagement in Hampton Roads on March 9, 1862 would never have gained so much renown had either the *Merrimac* or the *Monitor* sunk the other. It was the uselessness of their long and furious cannonade, contrasted with the signal victories of the *Merrimac* over unarmored ships on the previous day, that made the affair a landmark on the story of the warship.¹¹

9. Adolph A. Hoehling, *Thunder at Hampton Roads* (Englewood Cliffs, N.J.: Prentice-Hall, 1976), 100–119; Baxter, *The Introduction of the Ironclad Warship*, 287–93.

10. John A. Dahlgren, description of the Battle of Hampton Roads, Box 5, John A. Dahlgren Papers, Library of Congress; Robert J. Schneller, Jr., "The Contentious Innovator: A Biography of Rear Admiral John A. Dahlgren U.S.N. (1809–1870): Generational Conflict, Ordnance Technology, and Command Afloat in the Nineteenth-Century Navy" (Ph.D. dissertation, Duke University, 1991), chapter 9.

11. Brodie, *Sea Power in the Machine Age*, 171.

The battle of Hampton Roads was a victory of armor over the gun, as Badeau's "enchanted warship" image suggests.

His picture of living conditions on board the *Monitor* also hits the mark: duty on the ship was "especially hazardous, the service difficult in the extreme; [and] the men must live in low, cramped quarters". In fact, the *Monitor* was not very seaworthy and had nearly foundered in a storm on her voyage to Hampton Roads. Nevertheless, the battle between the *Monitor* and *Virginia* produced such an intense enthusiasm in the North that for the rest of the Civil War, the Union navy focused on building improved monitors.¹² These vessels, like the original, were damp, smelly, dirty, cramped, dark, and poorly ventilated. Temperatures in the engine room rose as high as 130° F. The air in the living quarters resembled a thick fog. It was almost unbreathable. Everything was wet, both from condensation and from innumerable leaks. A monitor's deck was awash while the ship was underway in anything but a flat calm, forcing the crew to remain below with hatches battened down. The only place where the men could find relief was atop the turret, and then only when out of range of Confederate weapons. Because of these conditions, monitor crews suffered excessively from illness.¹³

But Badeau's picture is not without flaws. "In the first year of the civil war," he wrote, in reference to the *Virginia* and the *Monitor* in the opening paragraph of the *St. Nicholas* version: "there were two ships building unlike any that had ever been seen in this world". Badeau ignored the scores of European ironclads in existence at that time. He also said that no ironclad vessel "had ever been used in actual battle". If he meant ship versus ship, he was correct, but French-built ironclads had already seen combat in the Crimean War. On 16 October 1855, three French steam-powered armored vessels bombarded Kinburn, at the mouth of the Bug River, de-

12. "Monitor" became the generic word for turreted vessels with a low freeboard.

13. Robert B. Ely, "This Filthy Ironpot; Ironclads in the Battle of Mobile Bay", *American Heritage* 19 (February 1968): 46-47; William Still, "The Common Sailor, Part I: Yankee Blue Jackets", *Civil War Times Illustrated* 23 (February 1985): 39.

molishing heavy masonry works, while Russian round shot and shells bounced harmlessly off their iron plates at ranges of 1000 yards or less. Badeau might be forgiven for the first error on the basis of artistic license, but the second error suggests a pattern of misrepresentation. Whether he meant it to or not, his distortion of facts misleads his readers.

He misleads them in other ways as well. He wrote: "If the *Merrimac* proved a success, she could destroy any ship in the world, enter any harbor at the North, passing the forts, and fire directly into the heart of New York or Boston from the Bay". Other of his statements also portended dire consequences for the Union, accurately reflecting the flood of emotions that the *Virginia's* appearance had unleashed. William H. Parker, who had commanded the Confederate gunboat *Beaufort* during the battle of Hampton Roads, recalled:

Upon our return to Norfolk, which was on Sunday, March 9th, the whole city was alive with joy and excitement. Nothing was talked of but the *Merrimac* and what she had accomplished. As to what she could do in the future, no limit was set to her powers. The papers indulged in the wildest speculations, and everybody went mad, as usual. At the North the same fever prevailed. No battle that was ever fought caused as great a sensation throughout the civilized world. The moral effect at the North was most marvelous; and even now I can scarcely realize it. The people of New York and Washington were in hourly expectation of the *Merrimac's* appearance off those cities, and I suppose were ready to yield at the first summons. At the South it was expected that she would take Fortress Monroe when she again went out.¹⁴

These popular expectations, however, proved false. Another Confederate authority recalled the *Virginia's* actual capabilities:

14. William Harwar Parker, *Recollections of a Naval Officer, 1841–1865*, with an introduction and notes by Craig L. Symonds (Annapolis: Naval Institute Press, 1985), 287–88.

The truth was that the ship was not weatherly enough to move in Hampton Roads at all times with safety, and she never could have been moved more than three hours' sail from a machine shop. [She] was in every respect ill-proportioned and top heavy; and what with her immense length and wretched engines (than which a more ill-contrived, spindling, and unreliable pair were never made; failing on one occasion while the ship was under fire) she was little more navigable than a timber-raft. Her quarters for the crew were close, damp, ill-ventilated, and unhealthy; one-third of the men were always on the sick list and were most always transferred to the hospital, where they would convalesce immediately. She steered very badly and both her rudder and screw were wholly unprotected. Every man and officer well understood the utter feebleness of the ship.¹⁵

The *Virginia* had wrought such havoc on the Union fleet because they had been unprepared for her. Badeau gave little indication of the *Virginia's* limitations, thereby leading his readers to believe that the inaccurate popular perceptions of the *Virginia* reflected the reality.

Badeau's article is not only misleading, but also unbalanced. Several recurring themes reveal a strong pro-Union bias. Notice, for example, how he reverentially described the actions of the *Cumberland's* crew during her fight with the *Virginia*, the death of Captain Joseph Smith, the "herculean" efforts of the *Monitor* crew during the duel with the *Virginia*, and the wounding of Union Captain John Worden. Badeau was neutral about the exploits of Confederate officers and men. Another recurring theme is the relative sizes of the *Monitor* ("this little craft") and the *Virginia* ("a huge steam frigate"). The rebel ironclad was an "iron monster", a "Confederate Leviathan", a "Titan". The Union vessel was a "mite", a "pigmy", a "dwarf", a "cheesebox on a raft", a "tin can on a shingle".

15. Unnamed Confederate cited in William C. Church, *The Life of John Ericson*, 2 vols. (New York: Charles Scribner's Sons, 1890), 1:300.

Badeau's allusion to the biblical story of David and Goliath caps the image, implying that the Federals were good and the Confederates evil. Another comparison reinforces the impression of Southern strength and readiness. Badeau declared that on the eve of their battle with the *Monitor*, the crew of the *Virginia* had "slept and rested and eaten". The *Monitor's* men, however, were exhausted, for they had been awake all night while their ship completed its voyage to Hampton Roads, and they had not had time for a hot meal. Badeau pointed out that the "greatest battles on land are usually fought by soldiers, hungry, and after long and exhausting marches: always won at the end of furious fighting and tremendous excitement that in ordinary times would drain the strength and spirits of the bravest". Badeau ended the article with the scuttling of the *Virginia* by her own crew to prevent her from falling into enemy hands. The *Monitor* is seen going up the James River to attack the batteries at Richmond. Badeau failed to mention that the Confederates repulsed the attack. He also failed to mention that the *Monitor* foundered off Cape Hatteras on 31 December 1862.

Badeau's article is thus a mixture of truth and misrepresentation. Although the portrayal of life on board the *Monitor* is accurate and the images of its armor and strength appropriately derogatory, his errors of fact, his bias, and his failure to separate popular imagination from historical fact misguide his readers and help foster the myth surrounding the battle.

But the fact that Badeau was in part a mythmaker does not mean that his article is without value. As the maxim goes, every generation of historians reinterprets the past in terms of the problems and predilections of its own time. In this respect, Badeau's article provides a framework for studying the motives and perspectives of different generations of historians. It also manifests the values (heroic self-sacrifice, perhaps, or distaste for the South, or uncritical admiration for technological innovation, or glorification of war) that an eminent man of his times wished, whether deliberately or unconsciously, to teach youthful readers. Additionally interesting is the material the article offers about why myths evolve and how they are perpetuated.

Last but not least, Badeau's article is pleasurable to read. His ac-

count of the arrival of the *Monitor* in Hampton Roads on the night of 8–9 March captures the drama of the moment. His remarks on the death of Joseph Smith movingly reflect the tragedy of war. But now, after these few background remarks, it is time to introduce Badeau himself. The story that follows has been copied as it appeared in its original manuscript form.

War Stories for Boys and Girls

BY GENERAL ADAM BADEAU

The Merrimac and the Monitor

IN THE FIRST YEAR of the civil war, at Norfolk, in Virginia, and at the same time at Brooklyn, in the state of New York, there was building a ship unlike any that had ever been seen in this world. Up to that time the navies of every nation had been made of wood, and when a wooden ship is struck in battle, every child knows it may be set on fire, or so torn to pieces that unless the rush of water into her hole is instantly stopped, the ship must sink. This is what makes a sea-fight so terrible.

Now it occurred to the leaders on both sides in the great war that if they could cover a ship with iron which a cannon ball could not penetrate, that ship would be able to destroy all its enemies. It would be like some of the wonders of the Arabian Nights; whoever possessed this enchanted vessel could do infinite harm to others without receiving any damage in return. He could attack and demolish whole fleets, and not only fleets, but even forts, and the cities which the fleets and forts defended. So both sides set to work to try to build such a wonderful ship.

The Southerners got the start. They were blockaded from the world, and had neither means nor material to construct an ordinary vessel of war; but their energy was great and they possessed the American faculty of invention. (They raised a ship from the bottom

of a river where she had been sunk and determined to convert her into an iron-clad.)

If you look at the map you will see that the city of Norfolk stands on the Elizabeth river only a few miles south of the point where that stream empties into the James. It is, however, completely hidden from view at the mouth by the windings of the river. Here before the war the United States owned a large navy yard, which early in 1861 fell into the hands of the Confederates, but not until all the vessels had been either sunk or burned. Among the ships thus destroyed was a huge steam-frigate, called the Merrimac, carrying forty guns—one of the largest vessels in the American navy.

This wreck the Southerners thought would do for their purposes. They hoisted her out of her miry bed, and then cut her down till the deck was level with the water. Next they boarded over each end for more than seventy feet. Then, on the middle portion, 170 feet long, they built a wooden wall, rising on all sides seven feet from the water's edge, and sloping inward like a roof, till the sides came within twenty feet of each other at the top. This wall, or roof, you may call it which you please, they completely covered with iron plates four inches thick, rivetted into the wood. The vessel then looked like a huge iron box, or a long low fort with port holes in the sides through which the guns could be fired. There were ten of these guns, one on each end, bow and stern; the others at the sides. In front was an iron horn or ram that projected two feet and a half, intended to strike and pierce the vessels of the enemy. The top of the box was covered with an iron grating to keep off some of the mischief of shells falling from above, and when the ship was not in battle it served for a promenade. Through this grating came all the light and air the ship received. The vessel was worked with the old engines which of course had been greatly damaged by the burning and sinking they had undergone. Nothing at all like this structure had ever been known in war. One or two iron ships had been built in England and France, but none had ever been used in actual battle. The Merrimac was an experiment. She was indeed hardly a ship, but a floating fort.

The Southerners had no navy, and it was difficult to find a crew, but three hundred men who once had been sailors were finally re-

cruited from their army. The commander was Commodore Buchanan, and the next in rank was Lieutenant Jones, both formerly officers of the United States navy.

Every effort was made to keep the building of this new ship a secret from the North, but this proved impossible, and the Washington Government at once set about preparing to meet so formidable an enemy. For if the Merrimac proved a success she could destroy any ship in the world, enter any harbor at the North, passing the forts and fire directly into the heart of New York or Boston from the bay. Nothing could withstand a ship whose armor was impenetrable.

Captain John Ericsson, a Swede by birth, but an American citizen, had long been planning an iron clad ship of his own, and his plans were now laid before the Government and accepted. He built in Brooklyn, New York harbor, what he called a fighting machine. Instead of a great, floating fort, heavy and difficult to move, he designed a small battery of only two heavy guns, which was to be able to move in shallow water where the great ship could not go, to be itself as fully protected by its iron armor as the Merrimac, but being small, to be easily handled; to be able to turn more quickly, to approach the enemy at close quarters when it chose, and to escape every attack which it could not withstand. The great question, however, was the protection—the armor.

Ericsson contrived a structure, you could hardly call it a ship, 170 feet long and about forty wide, and reaching only eleven feet below the water: while the deck was only one foot above. There was nothing whatever above the deck but the pilot house and a revolving iron tower with two guns inside: these were the only cannon aboard, but they fired shot weighing 180 pounds. The object of the revolving tower was to be able to get along with fewer guns. By turning the tower you could use the same gun in any direction; whereas, in a great unwieldy ship, the whole mass must turn, or you can only fire from one side. The tower or turret, was twenty feet across and nine feet high. The tops of the smoke pipes also rose six feet above the deck, and the blower pipes four and a half feet; but when the thing was fighting, these pipes were all removed, and the openings covered with iron gratings, so that there was nothing

to aim at, nothing to be struck or injured, but the turret and the pilot-house. The deck was plated with iron and hung over to guard the hull.

The pilot-house was extremely small, containing just space for three men and the wheel. It was built entirely of iron, in solid blocks twelve inches deep and nine inches thick. The only look-out was an opening left between the blocks, making a long and narrow sight hole all around the pilot house, five eighths of an inch in width. In battle the commanding officer must remain in the pilot-house and direct the action of the ship and of the guns, while the next in rank, the executive officer superintended the firing. A speaking trumpet connected the pilot-house and the turret and conveyed the commander's orders. Everything else, engines, boilers, anchor, officers' rooms, quarters for the men, all were below; all shielded from the enemy by the iron armor reaching over the deck on the outside. The whole thing looked like a cheese box on a raft or as one of the Southerners said when he saw it for his first time—like a tin can on a shingle. Ericsson called it the "Monitor", because it was to admonish or warn the Southerners that they could not resist the Union.

As the news came that the Merrimac was nearly complete and might come out of her hiding place in the Elizabeth river any day, work was pressed on the Monitor night and day. For the whole result of the War might be changed if the Confederate monster got out of the James. Indeed, even if the Monitor met her, it was uncertain whether this strange invention of Ericsson could withstand the fighting machine. Still there was this chance, the only one. The little craft was begun in October 1861, and in less than a hundred days was launched. On the 25th of February she was handed over to the Government. She had a ship's company in all of 58 souls, Lieutenant Worden commanding, and Lieutenant Greene, a boy of twenty-two, next in rank. The crew was composed of volunteers from other vessels of war in New York harbor. The duty was known to be especially hazardous, the service difficult in the extreme; the men must live in low cramped quarters; there was no sailing apparatus whatever; the strange little skiff must be worked altogether by steam, and the entire mechanism was unfamiliar to

seaman; but the crew was easily found; and on the 6th of March the Monitor was towed out of New York bay.

The next day there was a moderate breeze and it was soon seen that the Monitor was unfit to go to sea. Unless the wind had gone down she would have been wrecked on her first voyage. The deck leaked and the waves came down under the turret like a water fall. They struck the pilot-house and penetrated the narrow eye-holes with such force as to knock the helmsman completely away from the wheel. They came down the blow-holes in the deck and the engines were stopped below, for the fires could not get air. When the men tried to check the inflow they were nearly choked with the escaping gas, and were dragged out more dead than alive, and carried to the top of the turret for air, which gradually revived them. But the water continued to pour down in such quantities that there was danger of sinking. The pumps did not work, and the water had to be handed up in buckets. All night long, the crew was fighting the leaks, and with an exhausted, anxious company, the Monitor plowed through the waves to Hampton Roads.

Those who wish to understand what follows must look at the map again. Hampton Roads is the name given to the broad sheet of water at the mouth of the James into which that river expands before it empties into Chesapeake Bay. On Saturday the 8th of March a Union fleet was moving about this harbor between Fortress Monroe at the entrance and Newport News, a point that juts out from the northern shore, about seven miles up the river. Off Newport News two sailing frigates were anchored, about three hundred yards from shore—the Cumberland of thirty guns, and the Congress carrying fifty cannon—both first class men of war. Further towards the sea was the Minnesota, a steam frigate of forty guns, and still beyond her lay the Roanoke, her sister ship, and the St. Lawrence, a sailing vessel of war—all of the largest size known in the American navy. There were besides several smaller steamers, armed tugs, floating about the Roads. This fleet was engaged in blockading the James—the only avenue between Richmond and the sea. Fortress Monroe, the great work at the entrance, and a land battery at Newport News were the only points on the James at that time in the possession of Northerners, but their naval strength en-

abled them to command the river and prevent all communication between the Southern capital and the outside world.

On the southern side of the bay the Confederates had several batteries, the most important of which was at Sewall's Point to protect the mouth of the Elizabeth and the approach to Norfolk.

About noon, on the 8th of March the Merrimac appeared. Steaming out from the Elizabeth river she came into the Roads and headed direct for Newport News, where the Cumberland and the Congress lay, unconscious of the approaching danger. The Cumberland was a little west of the peninsula, the Congress about two hundred yards to the east. The day was calm, the ships were swinging lazily by their anchors, the clothes were hanging in the rigging, the small boats fastened to the boom. But as the monstrous mass moved steadily on, all knew at once what the black-looking object must be. The boats were dropped astern, all hands were ordered to their places, and the Cumberland was swung across the channel so that her broadside would bear against the stranger.

As the Merrimac approached she looked like a huge crocodile floating on the surface of the water. Her iron sides rose slantingly like the roof of a house on the arched back of a tortoise, the ram projecting in front above the water's edge. A flag was floating from one staff and a pennant at the stern; but not a man could be seen on the outside. She came at the rate of four or five miles an hour. When she got within half a mile the Cumberland opened fire, followed by the Congress, the gunboats and the batteries on shore. The Merrimac, however, made straight for the Cumberland, delivering a broadside into the Congress as she passed. The Congress returned the broadside and the Cumberland poured on another, but the balls bounced like india-rubber from her mailed sides, making not the slightest impression. The flagstaff was cut away, but no one could get out to replace it, and she fought for awhile with only the pennant at her stern.

Now the Congress and the Cumberland and all the shore batteries poured in their fire, and the Merrimac fired forward into the Cumberland, killing and wounding the crew of one of the guns. Two small vessels that had followed in her wake from Norfolk also took sides, and three Confederate gunboats came down the James

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to participate, while the Minnesota the Roanoke and the St. Lawrence all started from their moorings for the battle.

But the Merrimac steered steadily for the Cumberland and crushed her iron horn into the vessel's side, knocking a hole wide enough to drive in a horse and cart. The frigate was forced back upon her anchors with a tremendous shock, and the water at once went rushing into the hole. The Merrimac then drew off, but her ram was broken and she left it sticking in the Cumberland's side. All the Union vessels now poured shot and shell into or rather at the Merrimac. Two of her guns had the muzzles blown off, one of her anchors and all the smoke pipes were shot away; ropes, railings, timber, everything that could be struck was swept clean off. The flag staffs were repeatedly shot away, and the colors after a while were hoisted to the smoke-stack; when that went, they were fastened to a boarding pike. One of the crew came out of a port hole to the outside, but a ball from the Cumberland instantly cut him in two. But the armor was hardly damaged, though a hundred heavy guns must have been turned on it at once from ship or shore.

The Merrimac herself kept up her fire on both the Cumberland and the Congress from her different sides. After a while she advanced again towards the Cumberland and shot one shell that killed nine men, following this up with a broadside that mowed down officers, sailors and gunners; for on the wooden ship there was no protection whatever. The men stood up like targets, fighting against foes themselves unseen, and completely shielded. Morris who commanded the Cumberland was summoned to surrender, but he replied, "Never! I'll sink alongside." The water was all this time rushing into the hole made by the ram, and the vessel had been set on fire in several places. The decks were covered with dead and dying men, fragments of legs and arms, and pools of blood in which the living slipped as they worked at the guns. The Merrimac was within three hundred yards, and from their safe iron walls her crew could send each ball to its mark. The water kept pouring in, not only at the great hole made by the ram, but after a while at the port-holes. As the ship sank lower and lower, the crew was driven from deck to deck upward, working the guns that were left unsubmerged.

At thirty minutes past three the water had risen to the gun deck, and the crew delivered a parting fire; each man then tried to save himself by jumping overboard; some scrambled through the port holes, others leaped from the rigging or the mast, but many went down with the ship which settled with a roar, the stars and stripes still waving. That flag was finally submerged, but even after the hull was grounded on the sands, the pennant was still flying from the topmast above the waves. None of the crew were captured, but nearly all the wounded were drowned. In all about a hundred were lost: small boats came out from shore and rescued the remainder under the Confederate fire.

The Merrimac now turned on the Congress, which seeing the fate of her comrade, had moved in toward shore and purposely got aground, where the Merrimac could not follow, without also getting aground. This would have been fatal to the heavy Confederate battery, so that there was no danger of the Merrimac ramming the Congress. Still the unhappy frigate was at the mercy of her enemy. The iron monster came up so close that her crew fired pistol shots into the port holes of the Congress. The Minnesota and her sister frigates had all got aground lower down the bay, and were unable to assist their struggling consort.

The Merrimac at last took a position astern and at a distance of only 150 yards, and raked her helpless antagonist from stem to stern. The other Confederate vessels all came up and poured shot and shell into the stranded ship. The commander was killed. There was no prospect of relief from the Minnesota. The men were knocked away from the guns as fast as they tried to fire, and at last not a single piece could be brought to bear on the enemy. The ship was on fire in several places, and at half past four the colors were lowered. It was the first time the American flag was ever struck on a vessel of war. When the father of Captain Jos. Smith who had been in command was told that the Congress had shown the white flag—he simply remarked: “Joe’s dead.”

Buchanan, the commander of the Merrimac sent a boarding party, and the flag as well as the sword of the dead commander was surrendered. The flag was found soaked in blood when it was opened two days after in Richmond. The second in rank on the

Congress was directed to transfer his wounded as quickly as possible: but the batteries on shore kept up their fire and would not permit the transfer of the prisoners, although the white flag was flying. “*We have not surrendered*”, said General Mansfield, in command at Newport News. As Buchanan was unable to take possession of his prize, he ordered hot shell to be fired at her and the Congress was soon in flames in every part. At the same moment he was himself shot and severely wounded. His brother was an officer on the Congress. The Confederates were driven off by the renewed fire, and the crew escaped in small boats, or swimming, to the shore; but thirty were captured and many lost.

The Merrimac now turned her attention to the Minnesota which was aground and at the mercy of the Confederates. It was only five o’clock and there were still two hours of daylight; but the tide was ebbing, and there was some dispute about the channel with the pilots. The Confederates supposed they had only to wait till morning to secure the remainder of the fleet. Rescue was impossible. The giant could dispatch whatever victim stood in his way. So the Merrimac retired to the entrance of the Elizabeth river and waited till morning to resume her task. She had lost twenty-one men killed and wounded.

During that terrible night the Minnesota lay within a mile and a half of Newport News, on the sandbank where the ship seemed to have made a cradle for herself. At ten the tide turned to flood, and all hands were at work from that time till four in the morning with steam tugs and ropes endeavoring to haul the ship off the bank, but without avail. The St. Lawrence and the Roanoke were below in the harbor.

The moon was in her second quarter. The masthead of the Cumberland could be seen above the waves, with her colors still flying, while a little south of Newport News the Congress was in a blaze. As the flames crept up the rigging every mast and spar and rope glittered against the sky in lines of fire. The port-holes in the hull looked like the mouths of fiery furnaces; a shell or a loaded gun went off from time to time as the fire reached it, and at two o’clock the magazine exploded with a tremendous shock and sound. A mountain sheaf of flame went up, a flash seemed to divide the sky,

and the blazing fragments were scattered in every direction. When the glare subsided the rigging had vanished, and only the hull remained, charred and shattered. The port-holes were blown into one great gap where the conflagration blazed and smoldered till morning.

That night, there was consternation not only in the fleet and at Fortress Monroe, but farther yet, at Washington, and all over the North. It seemed as if nothing could prevent the complete success of the Merrimac. The anxious vessels lay in the Roads, the Minnesota waiting to be destroyed, like the Cumberland and the Congress, in the morning; the President and his Cabinet were discussing gloomily what might happen, and in every city in the North men lay awake, dreading the news of the morrow. For it was not only that the victory of the Union was delayed, that its forces were resisted, its ships destroyed, but disaster might be carried to any one of the harbors or cities of the Atlantic by this one vessel, which could find no opponent to withstand her, since she was herself invulnerable while able to inflict such terrible blows. It was like the fabled monster of antiquity that singly laid waste a kingdom.

At the South, on the other hand, the rejoicing was extravagant. The result itself was exaggerated; the wildest hopes were indulged. The blockade was to be raised, the war ended, the South to be made independent—all because of the Merrimac. On the spot the plan was to destroy the Minnesota in the morning and later the remainder of the fleet below Fortress Monroe. The crew of the Merrimac slept at their guns dreaming of other victories.

But neither side knew what was to happen in the morning. The Monitor had weathered the gale and the chances of wreck, and at four o'clock on Saturday afternoon the 8th of March, she passed Cape Henry, at the entrance of Chesapeake Bay. At that point the commander heard the booming of heavy guns twenty miles away, and guessed it must be from an engagement with the Merrimac. The Monitor must be put to trial at once.

He ordered the vessel stripped of her sea rig, and every preparation was made for battle. As they approached Hampton Roads they could see the fine old Congress burning brightly and soon a pilot came aboard and told the terrible story of disaster and dismay. At

9 o'clock in the night Worden reached the fleet and reported to the commanding officer. Every one was full of gloom, and the pigmy Monitor seemed no more of a champion than David with his sling after Goliath had defied the Israelites. Nevertheless Worden was ordered at once to the relief of the Minnesota, still hard aground. He arrived in time to see the explosion of the Congress, the powder tanks appearing to explode successively, each shower of sparks rivalling the other in height until they seemed to reach the zenith. Near, too, lay the gallant Cumberland, with her silent crew, at the bottom of the river, the colors still flying at the peak.

At daybreak the Merrimac was discovered at anchor with the Confederate gun boats, near Sewall's Point. At half past seven she got under way, and steered in the direction of the Minnesota. At the same time the little Monitor came out from behind the frigate to guard her lofty consort. Worden took his station in the pilot house which projected only four feet above the deck. Greene, with sixteen brawny men, eight to each gun, was in the turret. The remainder of the crew were distributed in the engine and fire-rooms, or were in the powder division. The Monitor had barely escaped shipwreck twice within thirty-six hours; since leaving New York hardly a man aboard had closed his eyes in sleep; and there had been nothing to eat but hard bread, for cooking had been impossible. Wrecks and disaster surrounded the little craft, and her efficiency in a fight was yet to be proved. But in such condition men's quality is tested, and the greatest battles on land are usually fought by soldiers, hungry, and after long and exhausting marches; always won at the end of furious fighting and tremendous excitement that in ordinary times would drain the strength and spirit of the bravest.

On the Merrimac all was elation. The crew had slept and rested and eaten; they had achieved a magnificent victory, and came out only to complete the success that was already they thought, secure. They saw the little Monitor covering and protecting with her diminutive proportions the mighty Minnesota, and had no fear of the result.

Worden steered directly for the enemy's fleet to meet and engage them as far as possible from the Minnesota. As he approached with one or two shots he drove the wooden vessels at once out of

range. Then to the astonishment of all of the spectators on the ships around and on both shores, the tiny Monitor laid herself directly alongside the Merrimac and stopped her engines; the porthole was opened, the gun run out, and the dwarf attacked the monster. The Merrimac was quick to reply. Gun after gun was returned by rattling broadsides from the Merrimac, only sixty yards away. The Merrimac had ten guns to the Monitor's two, and the turret and other parts of the little craft were struck again and again. But the shots did not penetrate, the tower was intact, and continued to revolve. A look of confidence passed over the faces of the men when this was sure, for they now believed the Merrimac could not repeat the performance of the day before. The Monitor was no longer an experiment. Her armor was proof. To the spectators the shots of the Merrimac seemed to have no more effect than as many pebbles thrown by a child.

The fight continued as fast as the guns could be served and at short range, Worden skillfully manoeuvring his quickly—turning his vessel, and trying to find some vulnerable point in his enemy. The little battery pointed her bow for her adversary's in the hope of sending a shot through her port-hole; then she would fly by her and rake her through the stern. Once she made a dash at the stern hoping to disable the screw, the Merrimac pouring broadside after broadside all the while, and the reverberation of the shots on the inside was terrible. One man leaning against the turret within was disabled by the shock and forced to go below. The speaking tube between the pilot house and the turret was broken early in the action, and orders and replies after that were carried by messengers. The Captain, commanding and guiding all, was enclosed in the pilot house, and the executive officer, working and fighting the guns, was shut up in the turret, and all communication between them was difficult and uncertain. The turret, too, did not always revolve easily, and it required prodigious exertion to control its motion. Greene, who directed the firing, got his only view of the outside world through an opening of only a few inches over the muzzles of the guns. The moment the gun was run in to load, the hole was closed by an iron pendulum, to hoist which required the whole ship's crew, so that the labor was immense every moment of the battle.

The tremendous guns were eleven inches across the muzzle, and the shock of the firing in this confined space was deafening, as well as the noise of the balls striking incessantly on the outside. The men became perfectly black with powder shut up in this dungeon; their underclothes to the skin were saturated as well as their bodies; they got nervous from the excitement; their muscles twitched as though electric shocks were passing through them and they were in danger of death every moment; but they kept at their work. It was difficult to aim. White marks had been made on the deck to indicate the position of the different sides of the ship; for as the tower revolved they could not know shut up in there, which was right and which was left; but the marks became obliterated in the action, and Greene had constantly to ask the captain where he was, and where the Merrimac. "On the starboard", which is seamen's word for the right of the ship; but "which was starboard?" Sometimes when the gun was ready to fire, the turret started on its revolving journey in search of the target, and finally when this was found, they had to fire without good aim, because the turret could not be controlled. But nearly all of the enemy's shot flew over the submerged propeller: there was nothing for a mark; nothing to strike but the turret and the pilot-house; and when the shots struck the bomb proof tower, they glanced off without effect.

Finding she could accomplish nothing with the Monitor, the Merrimac turned upon the wooden ships, and put an enormous shot into the Minnesota, tearing four rooms into one, and setting the ship on fire. The fire was quickly extinguished and the Minnesota replied with a broadside that would have blown out of water any wooden ship in the world; but the Merrimac was unharmed. It seemed like magic, and in other days would doubtless have been considered the effect of wicked enchantment. Fifty solid shot struck on the slanting sides without any apparent result. The Merrimac fired three times, in return at the Minnesota, and would have soon destroyed her, but the little Monitor came dancing down to the rescue, placing herself directly between the two huge craft, and compelled the Merrimac to change her position. In doing this the monster grounded and then the Minnesota poured in all the guns that could be brought to bear. Nearly every shot of the Monitor

now struck home, while when the commander of the Merrimac said to an officer apparently idle: "Why do you not fire?" "Our ammunition is precious," was the reply; "and after two hours, incessant firing, I find I can do her about as much damage by snapping my thumb at her." But the Merrimac got off the bottom, and then the little Monitor chased her down the bay.

The Monitor could move in only eleven feet of water, and the Merrimac required twenty-three, and the depth of the water was constantly varying. For the bottom of the river is as uneven as the land; it has its hills and valleys; and every now and then the larger ship would strike one of these hill-tops below the water; and stick fast; so that for a while she could not move. It took the Merrimac thirty minutes to turn. Her officers declared she was as unwieldy as Noah's Ark, and while she was turning, the Monitor fired at her from such points as she chose; running all around her to find a mark. The smoke stack of the Merrimac was gone and the engines consequently could hardly work: this also of course impeded her movements, and in this battle it was as important to be able to move as to fire; just as in a fight between men he who is alert and agile can avoid the enemy's blows and then leap quickly and deliver a telling one himself. This fight indeed was almost human in its character, it was single-handed. The channel was narrow and the Monitor could move about where her enemy could not come, so that her diminutive size itself was an element in her favor.

After a while, however, the Merrimac was in motion again, determined now to use her strength and if possible crush her pigmy adversary. She turned and ran full tilt at the Monitor as she had done at the unlucky Cumberland the day before. For a moment, to the lookers-on it seemed as if the Monitor was doomed, and the hearts of the officers of the Minnesota were in their throats. But Worden saw what was coming and avoided the direct shock by a skillful use of the helm, and the Merrimac struck only a glancing blow with her disabled ram. The little craft went down under the tremendous headway, but came dancing up again, and at the instant of collision Greene planted a solid 180 pound shot fair and square in the Merrimac's side; if she had been an ordinary ship it would have sent her to the bottom, never to rise again. As it was the ball forced

in the iron armor two or three inches; while all the crew on that side of the ship were knocked over and bled from the nose and ears. Another shot in the same place would have penetrated, said the Confederate commander. While the ships were alongside, the Merrimac called for men to board the Monitor and overwhelm her by numbers, but she dropped astern before they could get aboard.

After a while the supply of shot in the turret became exhausted; and Worden moved off for fifteen minutes to replenish. The hoisting of the heavy shot from below was a tedious operation: the turret had to remain stationary so that the scuttles in the floor and in the decks should be in a line with each other, in order to pass up the ammunition. Worden took advantage of this lull and crawled out through a port-hole to the deck, to get a better view of the situation. He remained a few minutes on the outside and returned unharmed.

Then the battle was renewed. Two things were most important to the Monitor; first to prevent the enemy's shot entering the turret through the port-holes; for the explosion of a shell on the inside would have ended the fight at once, by disabling the men at the guns, as there were no others to take their place in the little craft. That was one of the disadvantages of its size. There was only room for so many men: the fifty-eight that composed the crew were crowded and cramped. The other point was not to fire into their own pilot-house. A careless hand in the confusion during the whirligig of the tower might let slip one of their big shot against the pilot house. For this reason Greene fired every shot.

Soon after noon the Merrimac determined to concentrate fire on the pilot-house; one of her shells from a gun not ten yards distant struck directly in the sight-hole or slit; and exploded, cracking the iron, and lifting the top. Worden received the full force of the blow in his face; it stunned him partially, and utterly blinded him for a while, filling his eyes with powder. The flood of light that poured in from the open top caused him, blind as he was, to suppose the pilot house destroyed; he gave orders to move off, and sent for Greene.

It was a ghastly sight that met the young officer. The blood rushed apparently from every pore in his commander's face. The

wounded man was led to his cabin, and the boy took command. Blind and suffering, Worden's spirit did not forsake him. He thought he was mortally hurt, but asked in his agony: "Is the Minnesota safe?" When assured of this, he exclaimed: "Then I can die happy."

When Greene returned to the pilot-house he found the steering perfect, but in the confusion the Monitor had been drifting about without direction. Twenty minutes elapsed from the time of his shock before it was determined what course to pursue, and meanwhile the Merrimac had withdrawn. She was leaking badly, her engines could hardly work, and though doubtless she could have continued the fight, it was evident that she could accomplish nothing against her dwarf antagonist, who was able completely to defend the entire Northern fleet. Neither adversary had been able to destroy the other. The Monitor was now near shallow water where the Merrimac could not follow, and at two o'clock the great battery returned to Sewall's Point, completely foiled in her object by Ericsson's little machine. The Monitor fired a few shots after the retiring vessel but did not follow.

It required a month to repair the damages the Merrimac had received, and on the 11th of April, followed by six gunboats, she came into the Roads again. The Monitor was in sight with the Union fleet, but had received positive orders not to attack in the shore water where her consorts could not manoeuvre; and the Merrimac returned without a battle. This proceeding was repeated a few days later: the Merrimac steamed out and then returned. Neither side had another iron clad, and neither wished to risk the destruction of the craft that protected so vast a stake. Thus the Monitor stayed the course of the Merrimac and prevented all the great results that were hoped by one side and feared by the other. For a while the issue of the war seemed to depend on the little champion, and she stood her ground. It was like the nursery stories in which the dwarf beat off the giant and saved the land.

In April the Confederates abandoned Norfolk. The Merrimac did not dare face her pigmy antagonist, and was run ashore by her own crew and burnt, exactly two months after the great battle in Hampton Roads. Thus the Modern Minotaur, that had threatened a nation, not only withdrew, but turned on itself and destroyed its

own huge form with the fires it had meant for its enemies, while the little Monitor passed up the James unscathed to attack the batteries at Richmond.