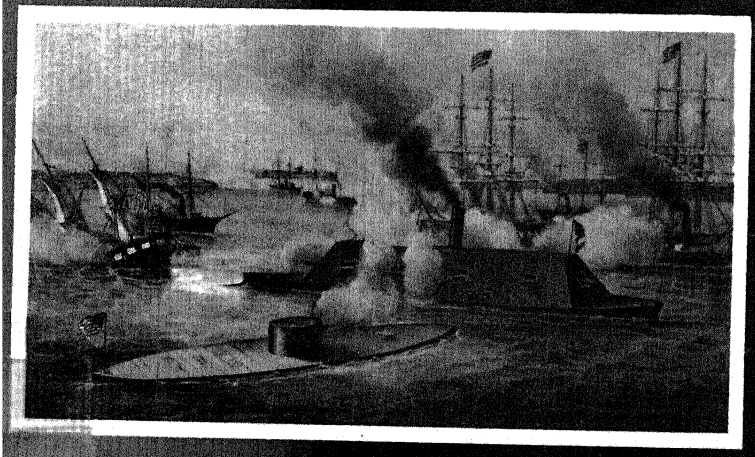
TIN CAN on a SHINGLE

The Full Story of the MONITOR and the MERRIMAC



William Chapman White
and Ruth White

Introduction by
Henry Steele Commager

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The Full Story of the
Monitor *and the* Merrimac

By

WILLIAM CHAPMAN WHITE
and RUTH WHITE

Introduction by Henry Steele Commager

"The day was March 9 (1862)," says Bruce Catton in *This Hallowed Ground*, "memorable for the most momentous drawn battle in history—a battle that nobody won, but that made the navies of the world obsolete."

This unique book records the full story of that famed battle, of the crews that manned both gallant ships and of the events which preceded and followed the conflict.

"Just before dawn on April 12, 1861, in the harbor of Charleston, South Carolina, gunfire from Confederate batteries touched off the sweeping wildfire of civil war. It was to be a war of land campaigns sending men deep into the South past hitherto obscure towns: Chancellorsville, Man-

(*Continued on Flap II*)

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Jacket design by H. Lawrence Hoffman

$3.50

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by William Chapman White and Ruth White

With an Introduction by Henry Steele Commager

ILLUSTRATED WITH PHOTOGRAPHS
AND FRONT ENDPAPER MAP

E. P. DUTTON & COMPANY, INC.

NEW YORK 1957

FIRST EDITION

Library of Congress Catalog Card Number: 57-7604

For Emma Morris

New York, January 20, 1862

Gustavus V. Fox,
Assistant Secretary of the Navy,
Washington, D. C.

Sir: In accordance with your request, I now submit for your approbation a name for the floating battery at Greenpoint. The impregnable and aggressive character of this structure will admonish the leaders of the Southern Rebellion that the batteries on the banks of their rivers will no longer present barriers to the entrance of the Union forces. The iron-clad intruder will thus prove a severe monitor to those leaders. But there are other leaders who will also be startled and admonished by the booming of the guns from the impregnable iron turret. "Downing Street" will hardly view with indifference this last "Yankee Notion," this monitor. To the Lords of the Admiralty the new craft will be a monitor, suggesting doubts as to the propriety of completing those four steel clad ships at three and a half million apiece. On these and many similar grounds, I propose to name the new battery "Monitor."

Your obedient servant,

J. Ericsson

Introduction

March 9, 1862, was surely the most dramatic day of the American Civil War, and perhaps the most important as well. It was dramatic because it combined, in a unique degree, coincidence, chance, heroism, and beauty; it was important because, after one momentary glimpse of triumph it dropped the curtain on Confederate victory, and then lifted it to reveal not so much victory as a new chapter in the history of warfare.

It was a little after noon of March 8 that the newly rebuilt ironclad, the *Merrimac,* proudly but briefly renamed the *Virginia,* steamed down the Elizabeth River into the James, and upstream to Hampton Roads toward the fleet of frigates that were the pride of the Union navy, the *Cumberland,* the *Congress,* the *Minnesota,* and others. At about two o'clock the *Merrimac* turned her Dahlgren guns on the hapless *Cumberland* and then stabbed her to death with her iron ram and sent her to the bottom. Next she turned on the *Congress,* and within an hour that proud frigate was aflame from stem to stern. It was the first contest between iron and wood, and it changed the history of naval warfare.

Late that afternoon the plucky *Minnesota,* the *Roanoke,* and the *St. Lawrence* hurried gallantly but desperately up to join the unequal fight; fortunately for them they arrived too late. When the *Merrimac* drew off to Norfolk it was with full confidence that the next day would see the de-

struction of the entire Union fleet, awaiting its fate in the quiet waters of Hampton Roads.

As for the Confederates in Norfolk and in Richmond, how their eyes must have dazzled, their hearts pounded, their imagination soared, as they contemplated the consequences of their momentous victory. The Union fleet destroyed—who could doubt that?—Washington in danger, the blockade broken, foreign recognition and with it foreign help; victory in sight!

But it was not to be. For at four o'clock that very afternoon a "little tin can on a shingle," battered and buffeted by a long struggle for life, came tumbling down from New York, turned her prow across Cape Henry and then through the Rip Raps and headed for the beleaguered Union fleet in Hampton Roads. At nine that night she dropped anchor alongside the little *Roanoke*.

The historian looks coldly on coincidence, demanding of it more impressive credentials than are usually required for authentication. In one sense this timely arrival of the *Monitor* was one of the striking coincidences of history; in another sense it was no coincidence at all but the fruit of long planning and desperate effort. For months, Secretary Welles had bent his energies to the construction of an ironclad to hold her own with the one he knew the Confederates were building at Norfolk; for three months, dour John Ericsson had worked day and night at the Greenpoint Navy Yard in Brooklyn, assailed by daily telegrams for speed and yet more speed. Yet not until February 19 had Ericsson delivered his ironclad to the Navy Yard; not until the 25th was she commissioned; and her voyage to the seat of battle was for all practical purposes her maiden voyage; it was that close a thing! She had been built just in the nick of time; she had fought her way down the stormy coast and reached her destination, just

in the nick of time—not in time to save the *Congress* and the *Cumberland*, but in time to save the rest of the Union fleet and perhaps the Union as well.

No wonder this battle of the ironclads is the darling not only of those who want their history melodramatic, but of those, too, who dwell lovingly on the "ifs" of history. No sensible historian really believes that for want of a nail a kingdom was lost, but the story of this famous encounter might almost persuade him that this could happen. If Cornelius Bushnell had not known both Secretary Welles and the lonely and difficult John Ericsson and been able to bring them together, in time; if Ericsson had not been able to win over a reluctant Ironclad Board, in time; if he had not had plans for an ironclad all ready from an earlier venture in 1854; if orders directing the *Monitor* to make for the Potomac had not come just two hours after the vessel had put to sea; if the two fierce storms that beat her and threatened to submerge her had not abated, just in time—if any of these, the *Monitor* would not have reached Hampton Roads on the night of the 8th, and the course of history might have been changed.

And yet, who knows! it is one of the many virtues of William C. and Ruth White's book that they do not indulge in idle speculation, or claim overmuch for the spectacular event that they chronicle, but allow each reader to bemuse himself with possibilities. Secretary Stanton was sure that a successful *Merrimac* would not only destroy the Union fleet, but Washington as well, and perhaps all the other coastal cities, and he was all but ready to concede defeat. But Stanton was hysterical. We know now—what the Confederate Captains Buchanan and Tattnall knew at the time—that the *Merrimac* was not really seaworthy, that she could not have destroyed Fort Monroe, or withstood the battering of the Atlantic waves, that she

drew too much draft to ascend the Potomac, that Washington and Philadelphia and New York were safe.

But did the North know this? And suppose even the most limited results: the wooden boats of the Union destroyed, Hampton Roads and the James River open, the blockade pierced if not broken, and foreign goods pouring in. With the rupture of the blockade, even temporarily, might Gladstone have persuaded Her Majesty's government to act on his assumption that Jefferson Davis had made not only an army and a navy but a nation as well?

We need not beguile ourselves with speculations about what might have happened; it is enough to note what did happen. Other battles of the Civil War—Vicksburg, Gettysburg, the Wilderness—might have been more consequential for the outcome of that war, but none had such far reaching consequences for warfare in general. It is hackneyed but still valid to say that the battle in Hampton Roads revolutionized naval warfare. Granted that the ironclad was already on the way, that Napoleon III boasted *La Gloire* and Queen Victoria *The Warrior*, and that the United States Navy was already brooding over the potentialities of ironclads, yet it was this battle that dramatized the whole thing and that enormously hastened new navies and new naval races everywhere.

This is a story that lends itself not only to dramatics but to rhetoric, exaggeration, and sensationalism. The authors have told it modestly and judiciously, knowing well that it does not need to be dressed up in the tricks of rhetoric. They have not permitted themselves to be the champion of either the Union or the Confederacy, but find glory enough for both. They do not exaggerate Ericsson's originality in designing the *Monitor*, nor do the Whites fail to make clear that the neglected and abused Ericsson was a great inventor and a great patriot. They

hold nicely the balance between the claims of both *Merrimac* and *Monitor* and do not require that either ship perform what it could not. It is clear that the story of the *Merrimac* and *Monitor* appealed to William C. White and his wife not for its excitement alone but for simpler and more enduring qualities. The men who fought these ships were not conscious of History or of Destiny; they were simple men who did their duty. They endured terrible hardships; faced problems, and solved them under staggering difficulties; they fought gallantly and suffered grievously; in the end they saw their ships destroyed; and they did not quarrel or complain.

Mr. and Mrs. White cut through the glory and the rhetoric and the controversy to this elementary integrity. The book which William C. White has left us and which was completed by his widow bears the stamp of that integrity and of his own as well.

HENRY STEELE COMMAGER

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I: The paper, and the ship

Just before dawn on April 12, 1861, in the harbor of Charleston, South Carolina, gunfire from Confederate batteries touched off the sweeping wildfire of civil war. It was to be a war of land campaigns sending men deep into the South past hitherto obscure towns: Chancellorsville, Manassas, Gaines' Mill, Chickamauga, Milledgeville, Appomattox. The history of the Civil War rings with their names and with the steady beat of marching armies.

But one ship, and one document, were to have as much to do with the winning of that war as any land brigade. The ship was the *US Ironclad Monitor*. The document was signed by Abraham Lincoln on April 19, one week after Fort Sumter fell.

On that date, the ship existed only as a small, black cardboard model of an ironclad, scorned as an impractical brain child of an erratic inventor, John Ericsson. The document proclaimed a blockade of the seceding Southern states:

"Now, therefore I, Abraham Lincoln, President of the United States . . . have further deemed it advisable to set on foot a blockade of the ports . . . in pursuance of the laws of the United States and of the Law of Nations in such cases provided."

The words of Mr. Lincoln's proclamation were sober and couched in the prim and precise phrases of international

law. They provided that any foreign ship that attempted to approach the harbors of the seceding states was liable to seizure, that foreign ships bound for enemy ports could be confiscated on the high seas, that any attempt of the seceding states to run the blockade could result in the capture of the vessels involved.

Mr. Lincoln did more than "set on foot" a blockade; his proclamation put into motion forces that would bring to pass one of the grimmest, bloodiest slaughters in all maritime history, the battle of March 8, 1862, in Hampton Roads, Virginia.

Mr. Lincoln knew that his proclamation of a blockade could mean death by economic strangulation to the South and to Southern hopes. The wealth of the seceding states was largely in millions of dollars worth of cotton that was stored in Southern warehouses, awaiting shipment abroad. Manufactured products from foreign markets were needed desperately by the agricultural South. The Confederacy hoped, and the North feared, that this intertwining of interests would bring about foreign intervention. The Federals knew that it must be prevented at all cost.

But the proclamation of the blockade had in it one tremendous flaw. The universally accepted law that had been set down in 1856 by the Declaration of Paris stipulated that "a blockade to be binding, must be effective"; the initiating nation must have enough ships to maintain it. For the North this meant guarding more than 3,000 miles of coastline, uncounted islands and inlets, and 189 harbors, ports and river entrances.

For that job there were on hand on April 19, 1861, exactly three usable vessels: the *Pawnee*, the *Mohawk*, and the *Crusader*. Three vessels to police the coast from Hampton Roads, in Virginia, to the tip of Florida, around the

Gulf and down the coast of Texas to the Rio Grande!

The duty of setting up the operation in some fashion fell to the Secretary of the Navy, Gideon Welles, of Hartford, Connecticut. This newspaper publisher, a politician by long practice and preference, was without naval experience, but that has never been a compulsory requirement for Secretaries of the Navy. He may not have known bow from stern, as Mr. Lincoln said, but he knew that an effective blockade needed ships, and needed them immediately.

When Secretary Welles examined the Navy List, he found ninety ship entries, few enough for a blockade if all had been usable and available. Ten of these were fine old ships-of-the-line, sailing vessels that had been famous and fearsome in their day. But of these the *Vermont* was the only one still in service. Nine others were employed as receiving ships, or were under repair in Navy Yards. They were excellent as training ships for young sailors or as impressive sights against a harbor sunset—and that was all. Forty other sailing frigates, sloops, and brigs would be useless against steam-driven blockade runners or blockade breakers, worse than useless in any pursuit into shallow waters and riverways.

Of the forty steam-powered ships in the Navy, six frigates with auxiliary steam power had been launched in 1855 and 1856. They were the *Merrimac*, *Wabash*, *Minnesota*, *Roanoke*, *Colorado* and *Niagara*. These vessels, each mounting 40 guns, were "the pride of the Navy . . . regarded as the highest and most perfect type of the men-of-war of the period." But they were no help to the put-upon Gideon Welles: in April 1861, they, too, and other smaller vessels were laid up for repair. Two of the sister ships are of particular interest to this chronicle: the *Minnesota*, and the *Merrimac*.

Twenty-four other ships were in commission—but

twenty-one of these were on various oversea duties. The remainder, no matter how the Secretary of the Navy counted it, was always the same: only three immediately usable ships in Northern ports.

The shortage of ships was not the only problem that confronted Secretary Welles. With no provisions for retirement in those days, men stayed on in the Navy until they died. Promotion from below, by seniority, was slow. All of the top officers had been trained in sailing ships; many looked on steam, first introduced in 1842, as something to be feared more than the enemy. Some of them—and distinguished officers were among them—had had their first naval training in the War of 1812; others had served thirty-five years without ever having fired a shot except in practice or ceremonial. Handsome men they were in their long coats of navy blue, but many were as outdated as the gallant ships they served.

Officers who "went South" created another hindrance to the building of the blockade. Of the 856 commissioned officers on the 1861 roster, 321 resigned to join the Confederacy. The shortage of young officers with command experience was serious; lack of manpower in the noncommissioned ratings was even more acute. The complement of the Navy had been set at 7,500 but that number was not filled. New vessels might be commissioned and put into service in a few months but, apart from those men already serving on ships in commission, there were just 207 seamen in all the ports to man any additions to the United States Navy.

In this crisis, the Navy Department did what it could. It issued a call for volunteers that was widely answered. It turned out all the midshipmen at Annapolis, even those with just one year's training, and gained that many new men in the officer corps. It bought or chartered—at fancy

profiteering prices—ferryboats, tugboats, oysterboats, coal-barges. Anything half seaworthy that could be fitted with guns was acquired for "Welles' Soap Box Fleet."

The Secretary and his advisers decided that it was impossible to legalize a blockade of the entire coast; they therefore limited the operation to selected harbors. As more ships returned from foreign duty or became available, the blockade could be slowly increased. More than six hundred vessels would be involved at the end of the war. But in April 1861 there was only a sufficient number to be stationed at Charleston, Savannah, along the Gulf Coast, Pensacola, Key West and, most important of all, Hampton Roads.

No more handsome harbor existed than this magnificent roadstead where Chesapeake Bay meets not only the Atlantic but the mouths of three Virginia rivers. Today it is a beautiful and bustling seaway, the east-coast rendezvous of the United States Navy. Its broad expanse is dotted with warships and cruisers, with tugboats and barges, with tramp steamers and fishing boats, elegant yachts and small pleasure craft. Many persons cross it on large, white and shining ferries. They rarely think of its sparkling waters as having once been littered with the shattered remnants of wooden vessels, or dyed with the blood of men who defended gallant ships.

Hampton Roads provides a complex bit of geography and is best understood by reference to a map. Cape Charles, on the tip of the "MarDelVa" (Maryland-Delaware-Virginia) Peninsula, to the north, and Cape Henry on the Virginia mainland to the south, guard the entrance to Chesapeake Bay, giving access to the Potomac River, to Washington and to Baltimore. Southwesterly lies the irregularly shaped Hampton Roads. Since 1819, Fort Monroe, at Virginia's Old Point Comfort, has guarded the

northern shore. Westward by 6½ miles lies Newport News. Fort Calhoun, incomplete when the Civil War began, was soon finished on a small shoal 3½ miles off the shore from Old Point. It is now called Fort Wool in honor of the Union commander of the Virginia Department. But in the 1860's it was known as the Rip Raps, for the sound of the water that lapped at its shore. On the south were swamps and inlets that have been reclaimed for the site of the present day United States Naval Operating Base at Norfolk.

Pouring into Hampton Roads are three rivers: the Nansemond; the James, giving access to Richmond; and two branches of the Elizabeth, one leading to the heart of Norfolk. Across the Elizabeth, on the site of what is now the shipyard at Portsmouth, was the important pre-Civil War Navy Yard at Gosport. Norfolk on the south and Newport News on the north look out over a superb view of a harbor 10 miles wide.

It was here that the *Monitor* and the *Merrimac* would clash in a battle that was later called one of the most decisive in naval history.

As the Civil War began, the North held all of the Atlantic Coast down to Chesapeake Bay and the northern shore of Hampton Roads. Fort Monroe had recently been strengthened and was not likely to fall into the hands of the Confederates. But one problem was uppermost: holding the Gosport Navy Yard for the Union if Virginia decided to secede.

When Abraham Lincoln took the oath of office on March 4, 1861, seven states had already withdrawn from the United States. South Carolina went first, on December 20, 1860; Mississippi, Florida, Alabama, Georgia, Louisiana

and Texas followed in turn. Virginia delayed action over tense and uncertain weeks.

Virginia's hesitation was only one of the harassing problems that President Lincoln had inherited from his predecessor, James Buchanan, but it was of vital importance. At the Gosport Navy Yard were precious supplies, ammunition, Dahlgren guns, and mighty Union ships, among them the proudest and finest, the *Merrimac*.

The *Merrimac* had been commissioned at the Boston Navy Yard in December 1855. To impress the world with American prowess in shipbuilding she had been sent abroad, and then on a prolonged tour of the West Indies and around the Horn to the Pacific. In the harbor of Rio de Janeiro, she happened to meet her sister ship, the *Minnesota*, and another, the *Congress*, and received their friendly salutes. The three ships did not come together again until they met in combat on March 8, 1862, in Hampton Roads.

Of the six sisters the *Merrimac* was the most graceful, 275 feet long, a lovely thing afloat. She had been built of seasoned live-oak frames especially adaptable to skillful molding for beauty and economy of line. She was "fast and handy under sail." Handsome to the eye and a joy to her crew, the *Merrimac's* beauty did not satisfy her engineers: from the beginning her Chief Engineer, Alban C. Stimers, complained that her power was inadequate for her 3,500 tons. On a later day, Stimers' assistant, H. Ashton Ramsay, chose to "go South" to his first assignment in the Confederate Navy in charge of the *Merrimac's* engines. Stimers, loyal to the Union, would be aboard the *Monitor* in battle. In less than one year, the former associates were destined to occupy posts on two vessels opposed in deadly combat.

Late in 1860 the *Merrimac* proceeded to the Gosport

Yard for repairs to her engines. With tragic lack of foresight, the Navy Department had ordered her to a Virginia shipyard. Early in April anxious queries came from Washington, prompted by concern over Virginia's threatening secession: how speedily could the *Merrimac* be put into condition for transfer to the Philadelphia Navy Yard?

The question was not an easy one for Gosport's elderly Commodore McCauley to answer. Under his command, officers who were secretly sympathetic to the South had no wish to speed the *Merrimac* from Southern waters. They reported that her repair could not be completed for several weeks. Commodore McCauley was loyal to the Union: none of his fellow officers ever questioned that. Welles later said of him: "He was faithful, but feeble, incompetent for the crisis." The Navy Department ordered to Virginia its chief engineer, Benjamin Franklin Isherwood; in three days, the *Merrimac* was ready.

Virginia passed the Ordinance of Secession on April 17, but did not formally join the Confederacy for eight additional days. The *Merrimac* could have steamed for Philadelphia on April 18, but McCauley could not rise above his own bewilderment, confusion and fear. His indecision was aggravated by a Confederate stratagem.

William Mahone, president of the Norfolk and Petersburg Railroad, ordered his trains to shuttle in and out of the Norfolk Station. He loaded them with civilians who had been instructed to whoop and cheer and shout upon arrival. The bellicose din they created at the station was heard at the not-too-distant Navy Yard. McCauley fell into the trap. Misinterpreting the clamor as an indication of the influx of thousands of Confederate troops, he was convinced that he could not hold the Yard against them. He was further distraught over contradictory orders that had been issued by Washington. One set urged the imme-

diate removal of the *Merrimac* from potential enemy territory; another cautioned against any hostile act that might project Virginia into the Confederacy.

On April 20, while McCauley still debated, the Union steam sloop-of-war, *Pawnee*, arrived at Gosport. Aboard her, Captain Hiram Paulding carried orders from the Navy Department to destroy all public property that could not be removed and, if need be, abandon a ruined Yard to the Confederacy. The wrecking crews worked swiftly. They sank or partially destroyed the *Pennsylvania*, *Delaware* and *Columbus*, three venerable ships-of-the-line; the frigates *Columbia* and *Raritan;* the sloops-of-war *Germantown* and *Plymouth;* and the *Dolphin*, a brig. A petty officer and a detachment from the sailing sloop *Cumberland* boarded the *Merrimac* and opened her sea valves. Navy buildings and workshops roared into flames that spread to the stately masts of the sinking *Merrimac*. Captain Paulding ordered that guns, ammunition and supplies, anything that could be moved, be hastily loaded aboard the *Cumberland*. Toward morning, she was towed safely across the Roads by the *Pawnee*.

On another day, the *Merrimac* would even scores with the *Cumberland*. In less than a year the roles of the two ships would be reversed, but on this April day of 1861, the proud, the lovely and cantankerous *Merrimac* was the victim.

Unhappily for the North, its plan to destroy the abandoned Navy Yard failed. The Confederates entered in time to extinguish the fires and smother a bomb that had been intended to blow up the drydock. Without firing a shot, they took one of the best yards in the country, along with 1,185 cannons and precious gunpowder and other supplies and stores which the South would have had difficulty procuring elsewhere.

The Commissioner of the State of Virginia, having made an inventory of the seized property, summed up its meaning to the Confederate cause: "The Navy Depot outfitted coastland defenses and inland camps. We are wholly indebted for our means of resistance to Northern loss and the acquisition of the Gosport Yard."

The loss of the Yard was one of the great Northern tragedies of the early days of the Civil War. There were those who said that its ships and stores could have been safely removed to Federal territory; others believed that the base might have been defended and held. McCauley's indecision and a bomb that failed to explode would cost the North millions of dollars and an untold number of lives.

Lost by the North, seemingly forever useless to the South, the *Merrimac* and her engines lay under brackish waters on the sticky mud bottom of the Elizabeth River, the first naval casualty of the war.

II: The Secretary without a Navy

In April 1861, Stephen Russell Mallory found himself in a new job. For ten years he had been a United States Senator from Florida, and a Chairman of the Committee on Naval Affairs. A genial and pleasant lawyer, with many friends, he had taken an interest in everything that pertained to the Navy. Among Mallory's friends was Jefferson Davis; his closest ties were with the South. As a result, he had joined the Confederate side and now, a few weeks later, found himself Secretary of the Confederate Navy.

Secretary Welles in Washington had problems, but time would solve many of them. Secretary Mallory's perplexities seemed insoluble; he was Secretary without a Navy and with almost no factories or yards for building one. The opening of hostilities had found few war vessels in southern ports. The Confederates at Pensacola succeeded in capturing the *Fulton*, a 30-year-old side-wheeler, and they had what was left of the *Merrimac*. A few small ships— revenue cutters, lighthouse tenders and sailing vessels—completed the haul. That was the Confederate Navy.

Though President Lincoln's proclamation of a blockade was yet a paper one, Mallory knew that in time it could bring about the death rattle of the Confederacy. The Confederate Navy was completely outnumbered by the North's mighty wooden ships and powerful guns. Stephen Mallory, less conservative than officials in the Union Navy, aware of experiments being made abroad in the building of

armored ships, proposed the construction of an ironclad.

Therefore, one of Secretary Mallory's first official acts after the Confederate Government settled in Richmond on May 29, 1861—with the war not yet two months old—was to urge a bold decision upon the Confederate Naval Committee: "I regard the possession of an iron-armored ship as a matter of the first necessity. Such a vessel at this time could traverse the entire coast of the United States, prevent all blockade, and encounter, with a fair prospect of success, their entire Navy. If . . . we follow their example and build wooden ships, we shall have to construct several at a time. . . . But inequality of numbers may be compensated by invulnerability. Thus not only does economy, but naval success, dictate the wisdom and expediency of fighting with iron against wood, without regard to cost."

That was remarkably foresighted. But Mallory was not clairvoyant enough to predict how ill-equipped Southern mills might roll the plates for an armored ship, or where he could procure the engines to give one power.

Mallory, well informed on European maritime trends, knew that France and England had for many years been experimenting with armored ships; early in May Captain James Bullock was sent abroad to investigate the possibility of ordering a British-built ironclad. The problem of whether one could be assembled somewhere in the nonindustrial South was turned over to a group of naval experts.

Mallory's interest in ironclads placed him far ahead of the officials of the United States Navy. Their apathy toward the ideas that were being explored by foreign navies was not willful negligence; it was simply a reflection of the trend of America's interests in the 1840's and 1850's. The nation's imagination, quickening to the expansion of a

vast continent, was stirred by iron locomotives—not iron battleships. A young country with untold wealth waiting in the West had no thought for conquest toward the East, nor for any attack that might come from that direction. Many ideas for ironclads had been submitted to the Navy Department in the decade that preceded the Civil War; receipts for them were signed, the sketches were filed—and promptly forgotten. One of these, complacently pigeonholed, was of the basic concept that was later employed for the reconversion of the South's first ironclad, the *Merrimac*.

It had been submitted by a native of Portsmouth, Virginia, John L. Porter, who was later stationed at Gosport when that Navy Yard fell to the Confederates. Porter stayed on with the South. He dusted off the model of his invention and carried it hopefully, on June 23, 1861, to the office of the Confederate Navy Department in Richmond. He was well received.

Secretary Mallory at once arranged a meeting for Porter with two of his naval advisors: William P. Williamson, an expert on engines; and John Mercer Brooke, a native of Florida, an Annapolis graduate and inventor of the Brooke rifle.

The three consultants knew that whatever plan they decided upon would be limited by what was expedient; regardless of the sort of ironclad they might wish, where could they find engines for her? It was Williamson who suggested the answer: take the engines from the *Merrimac*. She had been raised on May 30, 1861, and was now in drydock, her hull seemingly undamaged. She had been rechristened the *Virginia*, the name that appears in many Southern accounts of her exploits. But the alliterative association of her original name with that of her famous rival, the *Monitor*, has brought her down through history as the *Merrimac*.

Williamson's suggestion led inevitably to the next idea: convert the *Merrimac*—what was left of her—into an ironclad and thereby save time that was vital to the Southern cause. The consultants returned to Mallory with their proposal. Whether Brooke or Porter thought of it first was argued by them and their descendants long after the last gun of the Civil War was fired. Probably all three experts contributed to the plan. It was simply to take what was left of the *Merrimac*, cut her down to the waterline and build on the berth deck a 160-foot superstructure framed in thick oak and pine. This would be the *Merrimac's* gundeck. Resembling a mansard roof, it would slant at an angle of 35° and be topped by a grating of 2-inch iron bars. The whole would be encased with metal plates of a thickness to be determined by experiment. The *Merrimac* would be a heavy vessel, with a deep draft to accommodate two 2-cylinder engines, 4 Martin-type boilers, ventilators, and a crew of 350. An encircling shield of iron, 3 inches wide, would protect her wooden hull below the waterline. A smokestack would rise from the center of the grating to complete a low, ugly, menacing vessel. The *Merrimac* would not be beautiful, but beauty was not her purpose. The South was well informed on Washington plans and knew that no vessel existed in the Union Navy to stand up to her.

Mallory, pressed by the tightening grip of the blockade, eager to spring the trap of encirclement, was gratified by the plan that was presented to him by his committee of three. On July 11, he sent an order to Flag Officer French Forrest, at Norfolk: "You will proceed with all practical despatch to make changes in the *Merrimac* and to build, equip, and fit her in all respects, according to the designs and plans of the constructor and engineer, Messrs. Porter and Williamson. As time is of the utmost importance in

this matter, you will see that the work progresses without delay to completion."

Though his instructions do not mention the name of Brooke, Secretary Mallory later credited Brooke with the honor of the whole concept and a Confederate patent was issued in Brooke's name. Porter, who was the better draftsman, went ahead on the needed sketches. He then took up the work of supervising construction while Brooke attended to the preparation of the plates and ordnance.

Mallory assigned as an assistant to Brooke a young Virginian with the odd and proud name of Catesby ap R. Jones. The cryptic "ap" was a Welsh derivative signifying "son of." The Catesby who became a midshipman at fifteen, in 1836, was thus the son of Roger, and nephew of Thomas ap Catesby, in a Virginia genealogy of proud Navy men. On his mother's side, Catesby Jones was a grandnephew of Lighthorse Harry Lee. With that heritage, it was inevitable that Catesby ap R. Jones would "go South" in 1861. He would also relish a good fight; later, when he became executive officer of the *Merrimac*, he did.

Jones was the logical choice to assist Brooke in decisions about armor and ordnance. In 1856 he had helped install Dahlgren guns on the newly launched *Merrimac*. The inventor, Captain John A. Dahlgren, considered him one of the few men with sufficient knowledge to supervise the installations. In being assigned to the *Merrimac* a second time, Lieutenant Jones was in a sense going home. He would stay with her now, through her rebuilding, and her Battle, and serve as her only executive officer until the end of her days.

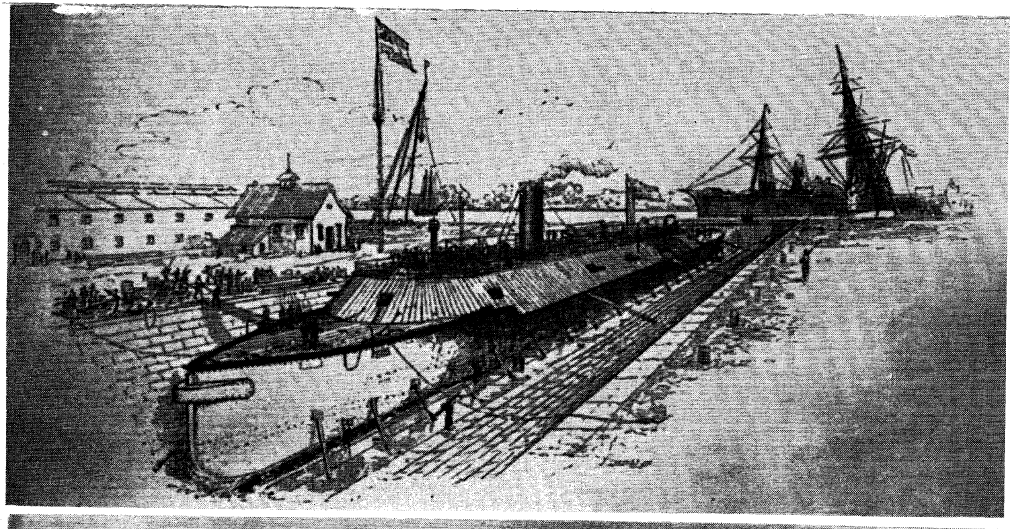
Conversion proceeded as swiftly as the limited resources of the South would allow. The only mill that could make the necessary armor plate was the Tredegar Iron Works in Richmond and it had much other war work to do. No one

knew how thick the plates should be, so the efficient son of Roger Jones was detailed to make tests. After firing at various targets he decided that 2 layers of plate, each 2 inches thick, made an armor that might be cracked but would protect its wooden backing. The plates would be put on with countersunk bolts to make a smooth surface.

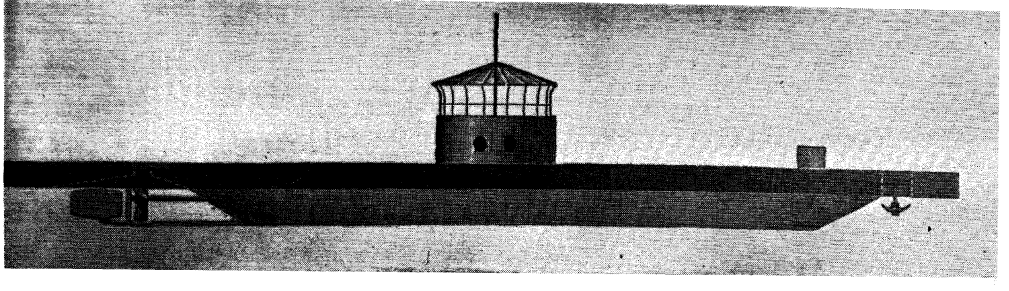
As the plates were being rolled at Richmond, construction went on at Gosport. The iron was rushed by rail over the 100 miles from the Confederate capital, as it was ready. By the end of July, 1,500 workmen labored around the clock at both the Navy Yard and the Tredegar Works. Their speed quickened in proportion to the South's apprehension growing out of rumors that anticipated an arrival, on the York Peninsula, of the Union's General George B. McClellan, on the first stage of a dreaded advance on Richmond.

Secretary Mallory could be pleased. He would have the ironclad he wanted, a ship of a sort never before seen on any sea. Better yet, there was no sign of the North, with all its industrial wealth and acumen, having anything to meet her, or of even knowing what dread secret was being readied in the South.

Remodeling the *Merrimac* at the Gosport Navy Yard.

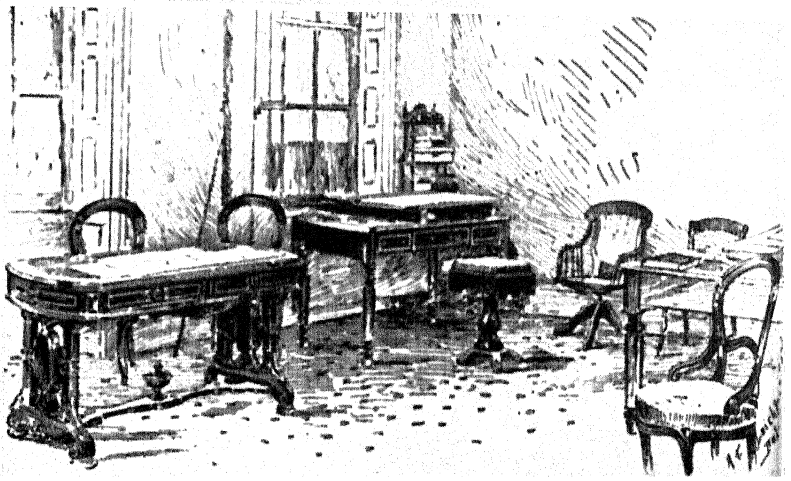


The original *Monitor*.



John Ericsson, 1865.

The room in which Ericsson worked for 25 years.



III: Ironclads, and a not-too-barnacled Board

Naval experts in Washington may not have known at that time of the *Merrimac,* but they were as familiar as anyone in Richmond with foreign progress on ironclads. They, too, were in need of ships, but deliberated long over the use of iron. Designs were pulled from old files. New ones were examined. But the Navy authorities, although they spoke constantly of the need for action, were unwilling to put energy and funds into untried models.

Whenever men of the Union Navy gathered, talk was of iron ships, as though such things had never existed. Yet the use of iron vessels was not new. Ships of ancient Greece carried lead plates for defense; Norsemen strengthened their wooden hulls with strips of iron and bronze; Da Vinci experimented with armored models. Even the sixteenth-century Koreans had introduced an iron-plated turtle-back deck that could not be damaged by arrows, bullets or fire.

From our own War of 1812 came a plan, by John Stevens of Hoboken, for a round floating battery covered with iron plates. Anchored at a river or harbor entrance, it was designed to revolve by steam-driven propellers so that each gun could be turned on the enemy in order. In 1814, Thomas Gregg of Pennsylvania patented his idea for a shot-proof, steam-run floating battery whose sides sloped at an angle that would deflect enemy fire.

The nineteenth century had already seen more changes in shipbuilding, particularly in the construction of vessels powered by steam, than the preceding four hundred years. The transformation began with Robert Fulton in 1807—and a paddle-wheeler that was steam driven. The *Clermont's* maiden voyage, on September 4, startled its passengers by its speed as well as its price of $7 a ticket. The steamer raced, nonstop at 5 miles an hour, up the Hudson from New York City to Clermont, 110 miles away. In 1815, Fulton built a steam-propelled "warship," intended, but never used, for the defense of New York City. It boasted two hulls with a paddle wheel in the middle.

The British put steam into a ship with one hull for the first time in 1821. The first steam-powered warships, devised by the British and copied by the French, were paddle-wheelers, heavy and unwieldy, hard to handle. Their need to carry fuel as well as machinery made them clumsy, but they could outmaneuver sailing vessels. The screw propeller which John Ericsson and an Englishman, Francis Pettit Smith, developed independently in 1837 enabled shipbuilders to put engines below the water line.

During the Crimean War the French employed three small ironclads to attack Russian land fortifications; the ships stood up well. John Ericsson, with traditional Scandinavian hatred of Russians, sent Napoleon III a model, armored and with a movable turret, very like the future *Monitor*. France's Emperor acknowledged the submission, but did not adopt the design. He approved, instead, plans for the *Gloire*, an armored ship with displacement of 5,617 tons and a speed of 11 knots. Nothing that the English had could match her; they proceeded at once to try to surpass the *Gloire*, as did other nations.

By that time, nearly one hundred armored vessels of various sizes were being built in European ports. But men

in the top ranks of the United States Navy, who had been trained on wooden men-of-war, scoffed at ironclads because they were "new and untried." They resisted the thought of bolting plates to the sides of their lovely ships and asked, "Did you ever see a piece of iron float?" And they were silent at the answer: "Did you ever see an iron dipper float atop a keg of water?"

Prior to the Civil War, the world's naval constructors were convinced, if the sea captains were not, that the day of the wooden warship had come to an end. They were saying: "The time for line-of-battle ships is over. They will be no match for the heavily armored, fast, ironclad frigates. No ships constructed on the old system are capable of sustaining fifteen minutes fight with one of these invulnerable monsters without being blown to pieces." Meanwhile, "one of these invulnerable monsters" was rapidly taking form in the South.

The American Navy had taken one forward step with the invention of the Dahlgren gun that was installed on many United States vessels in the 1850's. It was a powerful weapon: bottle shaped, with thickened metal where the pressure of exploding gases was greatest. It could fire either shell or solid shot. However, the Navy Department, fearful perhaps of its own progress, ordered that only 15 pounds of powder could be used for any shot from the Dahlgren gun. The men aboard the *Monitor* in battle would have reason to protest that inflexible rule, for it was later found that Captain Dahlgren's gun could handle 30, even 50, pounds of powder.

Naval architects, wary of any innovation in ordnance or ship design, further questioned the efficiency of iron ships. While men in Richmond and Norfolk were drawing plans and rushing to completion a mighty iron war-machine, their opposite numbers in Washington talked and argued

and issued no specific orders; worse yet, they arrived at no conclusions.

In early June of 1861, Secretary Welles reported to Congress on the state of the Navy, stressing the need to order "one or more ironclad steamers or floating batteries to be constructed with a view to perfect protection from the effects of present ordnance at close range." He recommended that a competent board of experts be appointed to investigate the matter of ironclads.

After three weeks of seemingly endless debate, Congress agreed with the Secretary. It was decided that if a board of experts reported favorably on any plan, the Navy could spend up to $1,500,000 to build one or more armored ships. In August an examining board was set up and Welles advertised for "offers from parties for construction of one or more ironclad steam vessels of war . . . to be rigged with 2 masts, with wire rope standing rigging." Sketches and specifications were required for acceptance before September 3, 1861.

Welles appointed a committee of three: Commodore Joseph Smith, Chief of the Bureau of Navy Yards and Docks, as senior officer, Commodore Hiram Paulding and Commander Charles Henry Davis. It was a conservative but not-too-barnacled board, even though Commodore Smith was a man of seventy who had grown old in the Navy under sail.

Born in 1791, the Commodore had entered the Navy as a midshipman before the War of 1812, and fought at the Battle of Plattsburg. He had taken his present assignment in 1846, after years of sea duty. The pride of the Navy was strong in him: he was happy when his son entered the service and particularly proud that the young officer had a berth on the fine sailing frigate, the *Congress*.

Commodore Paulding, a younger man, was the Navy's

Engineer-in-Chief. His reputation for clear, quick thinking had recommended him for the mission to Virginia, in the preceding April, to bolster the timid spirits of Commodore McCauley: whatever had been salvaged for the Union or kept from falling into Confederate hands had been through Paulding's efforts. The third member, Commander Davis, in his early fifties, was an officer with a fine list of achievements: a linguist, Harvard student at fourteen, midshipman at sixteen. A superb mathematician, he was eventually detailed to prepare an American Nautical Almanac, which is still in use today.

The call for submission of ideas and plans attracted countless inventors who beat their way to Washington with sketches and models. Among those submitted before the expiration of the closing date was one for a conventional warship with a slanted superstructure to carry iron plates 4½ inches thick. She would be known as the *New Ironsides.*

A second vessel was proposed by Cornelius Scranton Bushnell, a native of Madison, Connecticut, an energetic and shrewd business man with interests in many fields, and a man of great means. Bushnell came rightly by an imaginative and brisk talent for commercial enterprises: his forebears, braving the uncertainties of life in the New Haven Colony, had emigrated there from England in 1683, and helped to negotiate the purchase from the Indians of the Guilford Plantation. Throughout his life Bushnell wore success as easily as though it had been fashioned for him by an artful tailor. His first interest was in mercantile ships and the coastal trade: at sixteen he became the captain of a 60-foot schooner. At twenty-one, he left the sea and soon established a thriving wholesale grocery business in New Haven. At thirty, his agile attention shifted to railroading: he completed sections of the Shore Line Railroad

between New Haven and New London, thereby opening a new route between New York and Boston. He was to play a leading part in the financing and construction of the Union Pacific Railroad, but at the beginning of the Civil War his lively mind turned once more to the sea and to the North's dire need for ships of all kinds—but mostly for ships of iron.

In association with two partners, John Griswold and John F. Winslow who owned foundries in Troy, New York, Bushnell proposed to construct an iron-plated gunboat, the *Galena.* The vessel he described would carry armor of a thickness of 3 inches. This would be backed by 1½ inches of solid rubber on the somewhat eccentric theory that a bumper might have some repelling effect on gunshot. Eventually the rubber was eliminated and the iron plates thickened.

Of all the ideas received in August, those for the *New Ironsides* and *Galena* most pleased the Board on Ironclads. Bushnell was encouraged by the approval of his model, but many Naval officers warned him gloomily that the *Galena* might not be able to carry the weight of her armor.

Cornelius Bushnell, devoted supporter of President Lincoln and the Union cause, seemingly more alive than most to the consequences of postponement and delay, desperately needed the advice of some expert engineer. Ever kind, Fate led him to the workroom of a future partner and lifelong friend: John Ericsson.

IV: John Ericsson, inventor

On a hot evening in August 1861, John Ericsson seated himself at his desk to write a letter. He was alone in his handsome house at 95 Franklin Street, in New York City. Based on his previous unhappy experiences with them, Ericsson's opinions placed little faith in any board of judges composed of professional Navy men. This letter, in neat longhand, he addressed directly to Abraham Lincoln. Ericsson was not a shy man given to understatement, nor was he a braggart inflated with pretentious phrases. He believed in himself and in his work and hoped to cut through red tape by directly addressing the President.

New York, August 29, 1861

To His Excellency Abraham Lincoln,
President of the United States.

The writer, having introduced the present system of naval propulsion and constructed the first screw ship of war, now offers to construct a vessel for the destruction of the rebel fleet at Norfolk and for scouring the Southern rivers and inlets of all craft protected by rebel batteries. Having thus briefly noticed the object of my addressing you, it will be proper for me most respectfully to state that in making this offer I seek no private advantage or emolument of any kind. Fortunately I have already upward of one thousand of my caloric engines in successful operation, with affluence in prospect. Attachment to the Union alone impels me to offer my

services at this fearful crisis—my life if need be—in the great cause which Providence has called upon you to defend.

The letter continued with a brief description of Ericsson's idea, less briefly with the destruction of the enemy that the idea could accomplish when translated into reality. It concluded: "Should you decide to put the work in hand, if my plan meets your own approbation, please telegraph and within forty-eight hours the writer will report himself at the White House."

It may be possible that Abraham Lincoln did not know of Ericsson, whose fame had not yet spread beyond engineering circles; perhaps he never saw the letter. If he did see it, the thought of confronting the author of such burning prose may have wearied a man troubled as Mr. Lincoln was with the woes of a nation. Whatever the reason, the President did not reply to John Ericsson.

The inventor waited, undoubtedly fuming, until September 3 when he wrote another letter, this one addressed to the Committee on Ironclads. He enclosed sketches of his proposed ironclad and stated bluntly that his revolving turret with armor 8 inches thick—12 if need be— was impregnable and that its guns would "split the rebel fleet at Norfolk into matches in half an hour."

That letter, too, went unanswered. The closing date for consideration of proposed plans had come and gone.

The dour Swedish-American was then fifty-eight. He was one of the geniuses of the nineteenth century—some of his friends, indeed, said the greatest since Newton. In a new mechanical and industrial age, when all an inventor had to do was look around to determine what next there was to be invented, Ericsson's interest covered broad fields. He was no abstract scientist searching out basic laws: if

they turned up in his work, fine. He was after practical use of the forces of nature and the improvement of their application. No one was more a typical child of the Industrial Revolution in the nineteenth century.

John Ericsson was a great American. A monumental figure, he towers above many, a fine example of the old Norse element of the American Navy, and of the Scandinavian streak that runs through the *Monitor* story. Dahlgren, who gave the *Monitor* its guns, was the son of the Swedish consul in Philadelphia. The quartermaster who steered her was a Dane. Two petty officers and at least four members of her crew were Swedes. Gustavus Fox, Assistant Secretary of the Navy, one of the earliest advocates of the *Monitor*, was of Swedish descent. Ericsson himself was born in 1803 in Langbanshyttan, a small backwoods mining village near Filipstad, Sweden.

As a boy he was fascinated by machinery at the mine, and taught himself how to draw those machines by using his mother's sewing needles as the points of his homemade compasses. He went every day to the mines or worked at home, solitary and undisturbed by the need for companionship or play.

Absorbed in the principles of weight, balance and motion, he studied the drift of log rafts floating on the Dalalven River and its streams. He was accumulating, with the undeviating drive of genius, work habits, knowledge and experience that would shape his dedicated course. In him was forming the aloof, unsocial personality of his almost monastic life. In later years, he would be heaped with academic and scientific honors, but these symbols of success had no meaning for him: many he declined. Yet, in 1880, when the National Academy of Science in Washington elected him a member, he refused to accept the honor because "the Academy ought to have elected me some twenty

years previously." He described another engineer who had welcomed membership in the society as a "huge sham sustained by hired brains."

In spite of Ericsson's brusqueness, his manner was described many years later by a friend as "courteous and extremely taking. He invariably made friends of high and low alike. With those in immediate contact in carrying out his work he was extremely popular. . . . He could be hearty, open and frank, and he was a good talker."

In Sweden he had broadened his knowledge of draftsmanship and his reputation in mechanics. He also developed his body so that his strength became almost legendary. He joined the Army and was sent for training to Jemtland, at the extreme north of Sweden. Here Ericsson met and fell in love with a Swedish girl by whom he had a child. Strict laws regulating the marriage of young Swedish officers prevented the legalizing of the union. The young woman eventually married someone else, and Ericsson took his son, Hjalmar, to the home of his mother who cared lovingly for her grandchild.

An older brother recognized the talent that was in John Ericsson, and supplied money for a trip to England, where, he argued, new ideas were being developed. Ericsson took leave of absence from the Army and never returned to it; later he was reinstated in absentia, with the rank of Captain, and forthwith resigned from the Army on the same day. However, he valued the title of "Captain" throughout his life.

He arrived in England in 1826 and spent the next thirteen years there. During the first ten years he took out thirty patents, producing one invention after the other—in 1831, a locomotive that did a mile in fifty-six seconds. From his head came ideas for a new type of pump, a condenser for steam engines, a steam fire engine, the first high-pressure

steam devices, a depth finder for use on ships, a machine for cutting files and finally, in 1836, he patented the screw propeller as used in modern navigation. He built the first propeller-driven ship to cross the Atlantic: the *Robert F. Stockton,* a steam schooner of 30 tons, later used as a towing vessel on the Erie Canal.

He married an attractive English girl, Amelia Byam. When the British, in favor of a rival inventor whose patent pre-dated his own, disputed Ericsson's prior claim to payments on the screw propeller, he left for America, in November, 1839. Later, his wife joined him. Perhaps she was bored with New York and a husband who buried himself in his work; she returned to England, expecting that he would follow shortly. He never did, and never saw Amelia again although he wrote warmly to her and supported her whenever he had money—which was not at all times.

Mrs. Ericsson was a handsome, graceful woman, with fine eyes and a proud lift to her head. She was unhappy in America and increasingly discontented with a husband who was completely absorbed in his work: "she was jealous of a steam engine," Ericsson said. She wrote him often from her home in Kensington Gardens, always with pride in his success and wifely annoyance toward any who failed to acknowledge his talents. Ericsson sent her passage money to return to the States, but she refused to leave her homeland and died in London, in 1865. Her last words were a fond message to him. Ericsson seldom discussed his personal affairs, even with his biographer, but he did comment many years later on this strange marriage: "Fate made it possible for me to devote twenty-five years of undivided, undisturbed attention to my work which would not have been so if I had lived in what is called a happy marriage."

Of his own wedding, Ericsson said years later, "I have not been in a church since March 1826, except once in

London when on a certain morning I committed the indiscretion of not only going inside the holy room but of also appearing before the altar and there giving a promise too difficult to keep." After the death of his wife he wrote, "My future and my success in the world required that I should not be troubled with children or with a wife who had a full right to live with me."

In America, the Ericssons first stayed at the Astor House. Later, in 1843, they settled in a handsome gray stone mansion that still stands at 95 Franklin Street, occupied today by a textile firm. Bolts of gay cotton are now piled against the tall windows of the rooms where Ericsson lived and worked. Underneath the west window, placed there in 1913, rests a bronze plaque commemorating Ericsson and his partners, Bushnell, Griswold and Winslow, and their famous *Monitor*.

Ericsson set up his studio-office in a sparsely furnished room on the street floor. He needed only a work desk for his drawing board, a slender bookcase for his drawing tools, a piano stool to be raised or lowered as work demanded, a few simple chairs. Across the room a large table held books and sketches; on occasion it also held an overworked inventor, asleep, too tired to climb to his bedroom on an upper floor. He lived simply, cared for by an elderly maid: breakfast at 8:30, dinner at 4 p.m., tea and toast at 7. New York, as a city, had no interest for him. Later in life, his friends said that he refused to take even a brief tour of Central Park. He saw Brooklyn Bridge quite by accident. During all his years in New York he could not be persuaded to ride on an elevated railroad and said that the Czar would have been assassinated if he had raised such a monstrosity above the streets of Petersburg.

Interest in propeller-driven vessels, then in Navy vessels, took him eventually to Greenpoint and the shipyards. He

spent many mornings at Sandy Hook testing a new type of cannon. Soon after Ericsson arrived in America, a Navy officer, Captain Robert Stockton, his associate in shipbuilding in England, interested him in designing a new ship for the United States Navy. It became the *Princeton,* built in 1842, the first screw-driven, metal-hulled American vessel.

A great tragedy overtook the *Princeton* on its second trial run down the Potomac. Stockton, an ambitious man with many influential friends, had arranged an impressive guest list for the occasion. He didn't bother, however, to invite the inventor, Ericsson. Among the dignitaries present were President Tyler and members of his Cabinet and their wives. After a splendid dinner, served on board, Stockton offered his guests a display of gunnery. One of the guns exploded, killing Secretary of State Upshur and Secretary of the Navy Gilmer and injuring other invited guests.

The resulting scandal was almost as horrible as the tragedy that was caused by the explosion. Stockton, who had not wished to share the credit, was now eager to bestow on Ericsson all of the blame. Ericsson explained, in vain, that although the gun had been built from his model, his specifications had not been followed, but had been executed by Stockton without consulting him. Stockton had friends in high places: a Congressional investigation absolved him from responsibility for the disaster. No charges were preferred against Ericsson, but the government refused to settle the $15,000 payment that was due him for his work. The bill was pressed many times, but never paid. It is interesting that Stephen Mallory, then a member of a U. S. Senate Naval Committee, supported Ericsson's claim. He and others unsuccessfully presented the accurate facts: Ericsson had himself, in 1842, personally tested the

original gun three hundred times, using a 212-pound shot and charges of powder up to 25 pounds. The gun had performed perfectly.

The Fifty-first Congress of 1890 would pay tribute to the man who had built the *Princeton*—but it would be a tribute of words only. The original model of the Ericsson gun, and the target at which it fired, rest today just outside the Sands Street Gate, at the New York Naval Shipyard in Brooklyn, a lasting evidence of two years of the closest work—and a bill that was never paid.

As a result of the episode of the *Princeton*, the Navy marked Ericsson as a difficult person to deal with. This may have been so. During his life Ericsson could not tolerate fools or knaves and the Navy Department of his day had its share of both.

Ericsson turned out one idea after the other but did not always bother to patent his inventions. When he did take out patents, it was often so that he and others could freely use them. The idea mattered to him more than the profit; yet, when he was cheated or defrauded, as happened often, he could react with high-pressured fury, be rude even to his friends, and then be apologetic the next day.

On one occasion, Ericsson reached out to protect a workman about to put his hand in a machine, and thereby lost a finger of his own right hand. Without fear or haste, he eventually sought a doctor to tend the wound. That night the doctor dropped by 95 Franklin Street and found his patient drawing with his left hand. Ericsson explained that since he might be forced to use his left hand for the rest of his life, it was not too early to begin training it.

This was the man who left a child in Sweden and from time to time helped support him. Yet Ericsson had no curiosity about seeing his own son until, at forty, Hjalmar came to America to visit his father.

This was the man who described America at one time as a place where "confining work, trade fraud, and superficial show are all this country has to offer." Yet Ericsson never returned to Sweden. He became a naturalized citizen in 1848, and lived out his days in loyal service to his adopted land.

This was the man on whom Cornelius Bushnell called one day in September 1861—with the *Merrimac* now almost two months underway in Norfolk—while the Committee on Ironclads in Washington still deliberated.

V: The floating battery at Greenpoint

John Ericsson received Cornelius Scranton Bushnell with the formal, precise and friendly politeness that was so often his manner. The Connecticut industrialist laid before him the plans of the *Galena.* "I gave him the data necessary for his calculations," Bushnell later wrote to Gideon Welles. "He told me to call the next day for his reply. This I did, and received his answer: 'She will easily carry the load you propose and stand a 6-inch shot at a respectable distance.'

"Captain Ericsson asked me if I had time just to examine the plan of a floating battery, absolutely impregnable to the heaviest shot or shell. I replied that the problem had been occupying me for the last three months. . . . He then produced a small, dust-covered box, and placed before me the plan of the *Monitor.* . . . I was perfectly overjoyed when, at the close of the interview, Captain Ericsson entrusted the box with its precious contents to my care."

Bushnell took the model at once to the Hartford home of Gideon Welles, announcing, "The country is safe. . . . I have found a battery which will make us masters of the situation."

The Secretary of the Navy urged Bushnell to go at once to Washington, promising to join him there later in the week and do all he could to further the project. Welles knew at that time, and was one of the few who had known

for almost two months, of reports that had been made by trusted spies: the *Merrimac* had been raised and was being converted into an ironclad.

Bushnell's partners, John Griswold and John Winslow, were friends of Secretary of State Seward; they sought his intercession with the President. A strong letter of recommendation from Seward brought Bushnell an appointment at the White House the very next day. Model under arm, he told his story.

The President was greatly impressed. He offered to appear with Bushnell, the next day, before the Committee on Ironclads. Promptly at 11 a.m. Mr. Lincoln arrived at the Navy Department, accompanied by Assistant Secretary of the Navy Fox and several other officers. Once again Bushnell told his story. Some who were present thought the idea exciting; others said, "Tommyrot!"

Mr. Lincoln thoughtfully held the model in his hand. To many in the room it must have looked as it did to some Southerners who were to see the real *Monitor* on a morning of the following March: like a "tin can on a shingle," a "cheese box on a raft." Quotable history would have been served if the President had pronounced a round, declamatory sentence billowing with wordy images about the world-stirring potential of the tiny model. What he said was so simple, so characteristically homespun that it rings with clear prophecy, only somewhat understated.

"All I can say," said Mr. Lincoln, "is what the girl said when she put her foot in the stocking. 'It strikes me there's something in it.' "

Approval from the highest source resulted in a full meeting of the Board on Ironclads on the following day. Once more Bushnell, Ericsson's model again under his arm, went before the committee. Smith and Paulding voted affirma-

tively, as they had on the previous occasion. The third member, however, was skeptical: Commander Davis demurred. He brought up Ericsson's past record with the Navy Department, going back twenty years to the episode of the *Princeton* and the exploded gun. Bushnell patiently argued Ericsson's side of the story. Smith and Paulding agreed to sign a report advising that a trial Ericsson floating battery be built—providing that Commander Davis would join them in signing it.

This he refused to do. He handed the model back to Bushnell. "Take it home and worship it," he said. "It will not be idolatry. It is in the image of nothing in the heaven above, or the earth beneath, or the waters under the earth."

A downhearted shipbuilder reported to Secretary Welles the outcome of the meeting. Together, like crafty conspirators, they made a plan. Ericsson must come to Washington and plead his cause in person. Bushnell knew how deeply the incident of the *Princeton* had rankled, and feared that the outspoken inventor would abide by his vow never again to set foot in Washington.

Bushnell left at once for New York. He told Ericsson that the committee had tentatively approved his plan, but wished further details. Secretary Welles had personally requested Ericsson's appearance at a meeting in Welles' office the next day, September 13, 1861. Ericsson agreed at once to be there.

Both men took the night train to the Federal capital and met with Welles and the Board—to learn the truth: that Ericsson's design had been rejected. Just how Bushnell looked at that moment has never been told. Ericsson looked very well. He was a tall man, broad-shouldered, with proud, almost military, carriage. His manner, when he wanted it to, could command respect: there was a firm set to his jaw. Well-groomed in customarily close-fitting

frock coat and trousers and velvet vest, he was at ease and in surprising command of his temper.

He demanded to know why his plan had been turned down. He was told, by which courageous Board member accounts do not state, that in the opinion of the Board his ship lacked stability. Thereupon, he lectured on the basic elements of physics, arguing his case for two hours and having the pleasure of hearing Paulding say, "Sir, I have learned more about the stability of a vessel from what you have said than I ever knew before."

The plan of the future *Monitor* was approved in a quick meeting. Ericsson was urged to begin the work at once without waiting for proper contracts to be drawn. He needed no such urging: the keel of his ship had been forged before the contract ever reached Ericsson and his associates.

Ericsson agreed to build, in one hundred days, for $275,000 to be paid in four installments, a graceful metal hull beneath an iron-covered deck. In general it was like the model which Ericsson mailed to Napoleon III on September 26, 1854—different only in details. Around the hull ran an "overhang," 5 feet wide, 5 feet deep, of solid wooden blocks covered with iron plates. In the middle of the metal-topped deck rose a revolving turret enclosing two 11-inch Dahlgren guns. Except for a forward pilot house and a smokestack, collapsible in time of battle, the deck was bare and a scant foot above the waterline. That was the craft that Ericsson eventually named the *Monitor*. When she was launched, she looked as if some graceful canoe had unhappily come up under a raft and was supporting it.

The *Monitor's* deck was 172 feet long, with a 41-foot beam and a depth of 11½ feet. Her supporting hull was 124 feet long, her total displacement 776 tons. The turret,

20 feet in diameter, rose 9 feet above the deck, and was encased with 8 inches of armor. The square, depressed pilot house, rising but 3 feet 10 inches above the deck, was 3½ feet long, 2 feet 8 inches wide. Not a blueprint of that ship existed as Ericsson returned to New York to build it. It was all in his head and had to be reproduced in just one hundred days.

Construction began before there was an overall drawing. The tremendous job would have appalled anyone but John Ericsson. He worked on separate drawings, staying up all night to complete them and, in the morning, taking his rough sketches over to the Greenpoint Yard. The finished vessel was not precisely as he agreed to build it in the contract, for in reality he deepened it and broadened it slightly. He agreed to pay another inventor, Theodore R. Timby, $5,000 for the basic design of a revolving turret, and $5,000 on every additional turreted vessel until $100,000 had been received. Ericsson preferred to make this payment rather than risk litigation that might hold up his work. There would be no time for delay, legal or otherwise, in translating a brand new idea into a brand new kind of ship in one hundred days.

One hundred days added up to a short time in terms of shipbuilding, but not to the anxious leaders of the Union, troubled by daily rumors that were delivered by spies and escapees from Norfolk: a host of men were gun-testing on the *Merrimac;* she would soon be ready to take Fort Monroe, destroy the Union fleet, raze Northern harbor towns. Newspapers rumored the construction of a "Southern Monster," and in the North rose disquiet and the beginning of a great fear. If the *Merrimac* put to sea and attacked Northern ports, what ship in the U. S. could stop her?

October 1861 found a respectable number of Union

ships at Newport News and off Fort Monroe. In the Roads, Commodore Louis M. Goldsborough, Commander of the North Atlantic Blockading Squadron, was impressed with, but not unduly disturbed by, rumors of the *Merrimac's* progress. In his command were the *Congress*, a sailing frigate with 5 guns; the sailing sloop, *Cumberland*, with 30 guns; the steam frigates *Roanoke* and *Minnesota*, sister ships of the original *Merrimac*, with 80 guns between them. The Commodore was a sailor of the old school: he confidently expected to encircle the *Merrimac* with his mighty vessels and with their heavy guns pound her to pieces. All he required were a few tugs to tow the giant sailing ships into position to aim their ordnance.

Not all were as sanguine as Commodore Goldsborough. No day passed when men on the northern shore did not stare anxiously across the water toward where the *Merrimac* was being built 10 miles down the mouth of the Elizabeth River.

John Ericsson, working feverishly in New York, did not pause to look toward the South. Jobs were parceled out at Greenpoint. The Continental Iron Works of Thomas F. Rowland, at the foot of Calyer Street, would lay the keel and the hull, as additional parts arrived. Another company would build the engines and the rest of the machinery. A third company in New York, well-named the Novelty Iron Works, would construct the turret. From the Hollis Street foundry in Nashua, New Hampshire, symbolically located along the Merrimack River, would come the porthole stoppers, heavy pieces of iron to be swung down to cover the ports when the guns were not in action. Minor jobs were awarded to smaller plants as fast as Ericsson could have the detailed drawings made. Sometimes assistants developed them into neat blueprints; more often there was not time for finished work,

and Ericsson's own rough sketches were sent out to foundries and shops. Forty were patentable, but Ericsson did not bother to register them; he was too busy.

Thomas Rowland described the inventor during the building: "Mr. Ericsson was in every part of the vessel apparently at the same moment, skipping over planks and gangways, and up and down ladders, as though he were a boy of sixteen. It seemed as though a plate could not be placed or a bolt struck without his making his appearance at the workman's side."

Ericsson's ship represented in a unique way the culmination of the wealth of interest of his lifetime. He drew the concept of it from every corner of his experience: from his memory of the motion of rafts on Swedish waters; from his own experiments with artillery and the penetration of shot and shell; from his knowledge and improvement of the steam engine. The *Monitor* was his, to the last rivet, as he tore into work through days and often sleepless nights, and insisted on the same driving output from his staff and building crews.

When completed contracts from the Navy Department reached him in early October, he found in them a shocking clause: the builders were required to assume all risk and forfeit advance payments if the *Monitor* proved to be unsuccessful. The Navy was not willing to gamble a cent on experiment, no matter how entertainingly the originator might discourse on the basic laws of ship stability. Further, the Navy stipulated a test period of ninety days in which experts might judge if the ship were workable—even if their tests had to be run under enemy fire. Of the sum agreed upon the Navy would withhold 25 percent until the vessel had been properly tested and accepted. The builders were obliged to take out a bond guaranteeing that these particulars would be observed. Ericsson might justifiably have canceled so unyielding a contract, as another instance of un-

satisfactory dealings with Navy. But he and Bushnell. Griswold and Winslow were motivated by patriotism beyond profit. They went ahead, Ericsson advancing the ideas, his three partners providing the means. It was agreed that all net profits—or losses—would be equally divided among the four partners.

As work progressed during the autumn of 1861, Commodore Smith, Chairman of the Ironclad Board, grew frightened and restless, weighed down by the responsibility of his vote in favor of an armored ship. Many of his brother officers, he said, had expressed misgivings not only concerning ironclads but about the Commodore's sanity in having approved one. In letter after letter, he entreated Ericsson for reassurance. Much of the time that the busy inventor might have spent at his drawing board, or at the shipyard, was occupied by the need to respond to the aged Commodore. Smith's quibbling would have infuriated a man more patient than Ericsson, and would have disheartened a less optimistic one.

Smith wrote that he had been advised that concussion would drive the gun crews from the turret. He was concerned over the vessel's stability; expert naval architects believed that the ship would not remain upright under so much metal. Ericsson's replies reviewed the elementary laws of physics, and Smith seemed satisfied. But three days later, he had been figuring out the *Monitor's* displacement and statistics showed that she would not float; two days later, he was certain that even if she floated the roll of the sea would throw her crew off its feet. After five days more, what had Ericsson to say of the ventilation system? Suppose a sailor wanted to gain the deck for a bit of fresh sea air?

Smith's worried barrage continued throughout the building of the ship. To all his objections Ericsson replied patiently, politely, in the manner he seldom adopted toward

conservative, elderly commodores. He proceeded as uninterruptedly and as faithfully as he could to keep his one-hundred-day promise.

The Commodore's worries came not only from the doubts of his naval associates, but from questions that were being fired at the Navy by an impatient and intolerant press. The *Scientific American* had procured, from some unknown source, sketches of the *Merrimac*, and published them in early November. Ericsson, without consulting anyone and perhaps valuing the nation's confidence above its security, released to the same magazine a full description of the *Monitor*. The plans were examined, not only by Southern spies, but by readers, many of whom were not impressed by "Ericsson's Folly." Poor unhappy Commodore Smith was warned that if any defeat followed the launching of the *Merrimac* as the result of Ericsson's contraption, "it would prove no less fatal to the Union than to the Administration." As criticism and queries continued to plague the concentrated efforts of John Ericsson, one question rose above all others: "When will the *Monitor* be finished?" And that question Smith busily dispatched to Ericsson every day.

The last plan was drawn sometime in December. Assorted parts arrived at the Greenpoint Yard as they were finished. Through days and nights of work the vessel took shape. But the hundred days would be up in January and the *Monitor* was not yet launched. Ericsson depended on the Navy to supply the two guns that he needed, and had built the ship to carry ones of 15-inch caliber. None was available. Two 11-inch guns were taken from the *Dacotah* then in New York, and Ericsson saw to their proper mounting in the turret.

At last he stated with conviction that the *Monitor* would be launched on the 30th of January.

VI: The captain, and the crew

When the Civil War began, the *USS Hartford* was in the East Indies. It turned home in the autumn and came into New York. On board was a pleasant and cheerful young lieutenant, just three years out of Annapolis, lean and tall and browned by the sun. He was Samuel Dana Greene, born in Cumberland, Maryland. His family's roots were in New England; in his youth he returned with his parents to their native Rhode Island whence, from Providence in 1855, Greene received his appointment to the Naval Academy.

Government service was a tradition in the Greene family. Dana's father, George Sears Greene, was graduated from West Point in 1823. He served as a lieutenant in the artillery, then returned to the Academy as an instructor in mathematics. He resigned from the Army in 1836 and, as an engineer, assumed charge of the construction of New York's Croton Reservoir and the Croton Water Works Extension. With the Civil War, he returned to military service and was appointed a brigadier general on the staff of General Banks. When he was mustered out in 1866, the elder Greene resumed his former profession of engineering and helped to plan the construction of New York City's elevated railways. He became one of the founders and a later president of the American Society of Civil Engineers, but he never lost touch with, or interest in, West Point. He would live to the age of ninety-three and become the

Academy's oldest living graduate. In 1894, by a special Act of Congress, he returned to the regular Army as a first lieutenant, the rank he had held at the time of his resignation, and was then placed on the retired list.

His son graduated from Annapolis seventh among twenty in the class of 1859—a class that is famous for having included the great Naval historian and theoretician, Alfred T. Mahan. Young Greene was not a great student. English and languages troubled him, but his career would not call for those. He finished third in astronomy and navigation. He ranked second in seamanship and, very much to the point as will be seen, stood fourth in his class in naval gunnery. Whoever may have ranked first was not to have the experience that awaited young Lieutenant Greene.

Aboard the *Hartford* in New York, Greene heard about the strange new ship that was being built at the Rowland Yards, and went to see her. Thereafter he was rarely far from Calyer Street. As some men are taken with a maid or a calling, so Greene was held by the *Monitor*. He not only believed in her: he was willing to give his life to prove that belief.

He soon had an opportunity. The first call for volunteers to make up the crew brought Greene forward, even as men were saying that Ericsson's ship would never get to sea or—if she did—would be the iron coffin of her crew. Gloomy predictions did not discourage Greene. On the contrary, they were a challenge that made him the more eager for the launching of the *Monitor*.

An older man also waited that launching—a man of decision and kindness and quiet nobility. John Lorimer Worden would become one of the esteemed admirals of the Civil War, loved and respected by those who served under his command, but in 1862 he was a lieutenant. He had been one for twenty years, at the annual wage of

$1,875. Born in Poughkeepsie, New York, in 1818, he was forty-four when Commodore Smith appointed him commanding officer of the *Monitor*. He had entered the Navy as a midshipman in 1834, eleven years before the founding of Annapolis. A mature and reliable officer, he had been dispatched, just before the fall of Fort Sumter, on a dangerous secret mission to Pensacola, Florida. Captured while returning toward the North, he had spent seven months in an Alabama jail before being exchanged with the first group of prisoners of war. Still suffering from illness contracted in prison, he was appointed to the *Monitor* as an ideal choice for a post demanding ability and high courage.

Lieutenant Worden had never before commanded a ship. He put aside any inner misgivings when he inspected the *Monitor's* novelties, and reported:

> At all events, I am quite willing to be an agent to testing her capabilities and will readily devote whatever of capacity and energy I have to that object.

On the rainy morning of January 30, John Ericsson was ready for the launching. A crowd of curious sightseers and invited guests crowed the docks—along with a few cheerful bookmakers who took bets on whether the ship would sink or float. Their business was brisk. One bystander said, "If Ericsson ever finds his battery, after she is launched, he will have to fish her up from the mud into which her stern will surely plunge."

Ericsson and his associates stood on the deck, 20 feet from the bow. Farther back, glad to be aboard, was young Lieutenant Greene. Like Lieutenant Jones on the *Merrimac*, Greene was to serve throughout the *Monitor's* career as her only executive officer. It is a pity that the Navy has

preserved no fuller biographical account than the bare facts of his service record. It would be rewarding to know of the emotions and interests that shaped the courage, devotion and self-effacement of young Lieutenant Greene. Unhappily, no bronze plaques exist to commemorate his life and deeds.

At midmorning, the *Monitor's* blocks were knocked out from under her and, ironclad though she was, she slipped gracefully down the ways, stern first, flags flying. She hit the water, wavered, then floated as comfortably as a log. A boatman who had gone out into the river on the pessimistic assumption that he would rescue survivors returned cheerfully, alone, to the shore. From the crowd rose delayed cheers that were charged with the added intensity of a few seconds of finely drawn suspense. Even the bookmakers forgot that this day would show little profit, and responded with enthusiasm.

The *Monitor* was launched. The press hailed the one-hundred day wonder; actually the period had run over the allotted time, but the launching was none the less a spectacular achievement. The *New York World* of January 31 reported: "It was very evident even to the dullest observer that the battery hadn't the slightest intention of sinking." Ericsson confidently told reporters that his ironclad would sink the *Merrimac* and that she could withstand hours of punishment from any Southern ship: one of those boasts would be true.

After months of apathy toward ironclads in general, and lack of confidence toward one in particular, Navy officials suddenly awoke to the need for the *Monitor*. A mechanic had recently crossed over from Portsmouth to bring the North full details of the building of the *Merrimac*. Immediately after the launching ceremony, Ericsson tucked into his pocket a telegram that had just arrived from the

Navy's Assistant Secretary: "Hurry her to sea as the *Merrimac* is nearly ready at Norfolk." Commodore Smith contributed a thought of unusual brevity: "The *Monitor* is much wanted *now*." Gideon Welles forwarded word that the President wished Ericsson to keep him informed by daily telegraph regarding progress of the installations. Ericsson hoped that the *Monitor* could depart by mid-February, although nothing on the vessel had been tested or tried.

The *Monitor's* crew was composed of volunteers selected by Lieutenant Worden from the *North Carolina* and the *Sabine*. He warned them of their dangerous berths aboard a new and untried ship, but more volunteers applied for service than were needed: "a better crew," Worden said later, "no naval commander ever had the honor to command." Of the staff there were: Executive Officer Greene; Acting Masters Louis N. Stodder and J. N. Webber; Acting Master's Mate George Fredericksen; Acting Surgeon D. C. Logue; Paymaster W. F. Keeler. Isaac Newton was First Engineer in charge of steam machinery, assisted by R. W. Hands, A. B. Campbell and M. T. Sunstrom. Captain's Clerk Daniel Toffey, Quartermaster Peter Williams, Boatswain's Mate John Stocking completed the staff, with a crew of forty-two others. In addition, Chief Engineer Alban C. Stimers, formerly of the *Merrimac*, completing the ship's company, was present as an official observer for the Navy.

The first tests showed that small adjustments were needed. The trial run took place on February 27; it was a failure. Watchers on the dock greeted a depressed and chagrined crew when the *Monitor* returned, under tow. The engine valves had not been properly set; the steering mechanism had broken down.

These were repaired and, on March 3, the second de-

parture went off flawlessly. Families and friends lined the dock as the *Monitor* steamed off in a snowstorm. Friends felt they might never again see their loved ones. They saw them a few days later, for the rudder did not work. The *Monitor* log reported of one disillusioned seaman: "John Atkins deserted, and took with him the ship's cat and left for parts unknown."

All previous delays had been caused by errors of hasty installation. The mishap to the rudder resulted from the only mistake that Ericsson made in his drawings. When naval engineers suggested laying up the ship for a month to permit the installation of a new rudder, Ericsson replied angrily that he would have the present one working in three days. In his pocket was another telegram from Gustavus Fox: "It is very important that you should say exactly the day the *Monitor* can be at Hampton Roads."

Workmen were aboard her until the last moment, completing the repair in four days. The date of the *Monitor's* departure was set but she was held up, this time by bad weather. Finally on the morning of March 6, she left New York towed by the *Seth Low* and convoyed by the gunboats *Currituck* and *Sachem.*

She had barely put to sea when the Secretary of the Navy telegraphed Commander Paulding at the Brooklyn Navy Yard, changing the *Monitor's* orders: she was not to go to Hampton Roads but to proceed instead up the Potomac to Washington.

The only explanation for this sudden and surprising change of plan comes from John Nicolay, President Lincoln's secretary. He was present at a morning Cabinet meeting in Washington on the 6th of March. The members attending were in lively debate on the subject of General McClellan and his proposed Peninsular Campaign. He wished to transport his troops down the Atlantic Coast

to Fort Monroe. The President and various Cabinet members believed that this movement of McClellan's forces would dangerously expose Washington to the possibility of a Southern advance up the Potomac. They preferred that McClellan's men proceed southward down the Potomac, thus maintaining a buffer between the Southern forces and the Union capital. But across this route lay scattered enemy fortifications. Nicolay reported the decision of that meeting: the *Monitor* was to change her planned course and proceed up the Potomac to "silence the rebel batteries and clear the way for McClellan."

Fortunately for the Union, the order arrived too late. Happily unaware of the commotion created at the Brooklyn Navy Yard soon after her departure, the *Monitor* proceeded peacefully down the Jersey coast on a pleasant March day. Darkness set in gently and everything seemed well except for a breeze that strengthened as the night wore on.

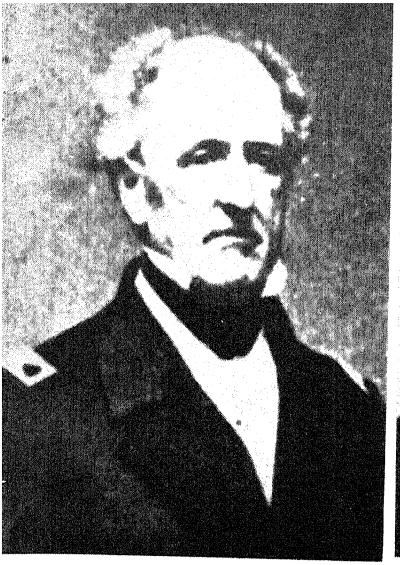
At last the *Monitor* was under way, one-hundred-and-fifty-two days from the October afternoon when Ericsson had described the ship to the Navy officials and when nothing of it existed but a cardboard model and an idea in his head.

VII: Rumors, false and true

Although the *Merrimac* had been rebuilding 20 miles from Fort Monroe, just across Hampton Roads, the reports that came to the Union officers in charge of the blockading fleet were astonishingly varied. One story said she was afloat, but with her roof under 2 feet of water and unable to carry any guns. Another said that she was so unsteady that any cross current would upset her. The South had, in fact, exploited the presence of known Northern spies by circulating false rumors. Inaccurate stories were planted in Norfolk newspapers bemoaning the fact that the *Merrimac's* old machinery had been discarded as useless; that miscalculations had been made in estimating her displacement; that her hull, rotted by river mud, was unseaworthy.

The Northern press was glad to blow away fears that had been rising in the coastal towns. Gleefully now, Union newspapers spread the false reports and sneered at "the impregnable armed raider." Confederate hopes, they said, had been blunted; the war would soon be over. Commodore Goldsborough, Commander of the North Atlantic Blockading Squadron, accepted these rumors cheerfully, reassured by his captains of the *Minnesota* and the heavily armed *Congress* that, even if the *Merrimac* were successfully completed, their ships could easily dispose of her.

But spies escaped to the North with different tales. A Negro woman carried a note to the Washington home of Gideon Welles: written by a mechanic who had fled the

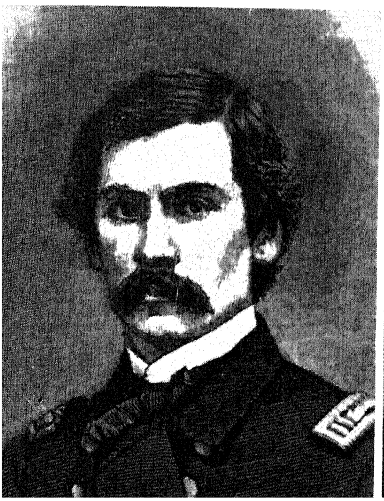


CAPTAIN FRANKLIN BUCHANAN

A photograph taken just before the war.

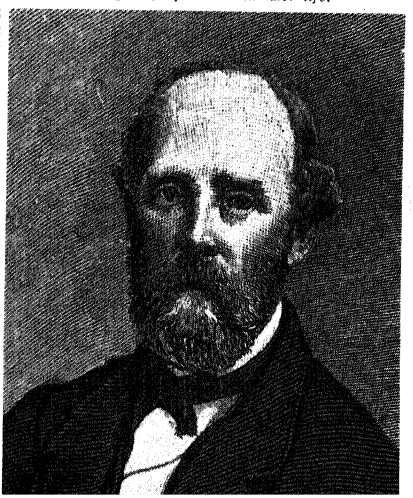
JOHN LORIMER WORDEN

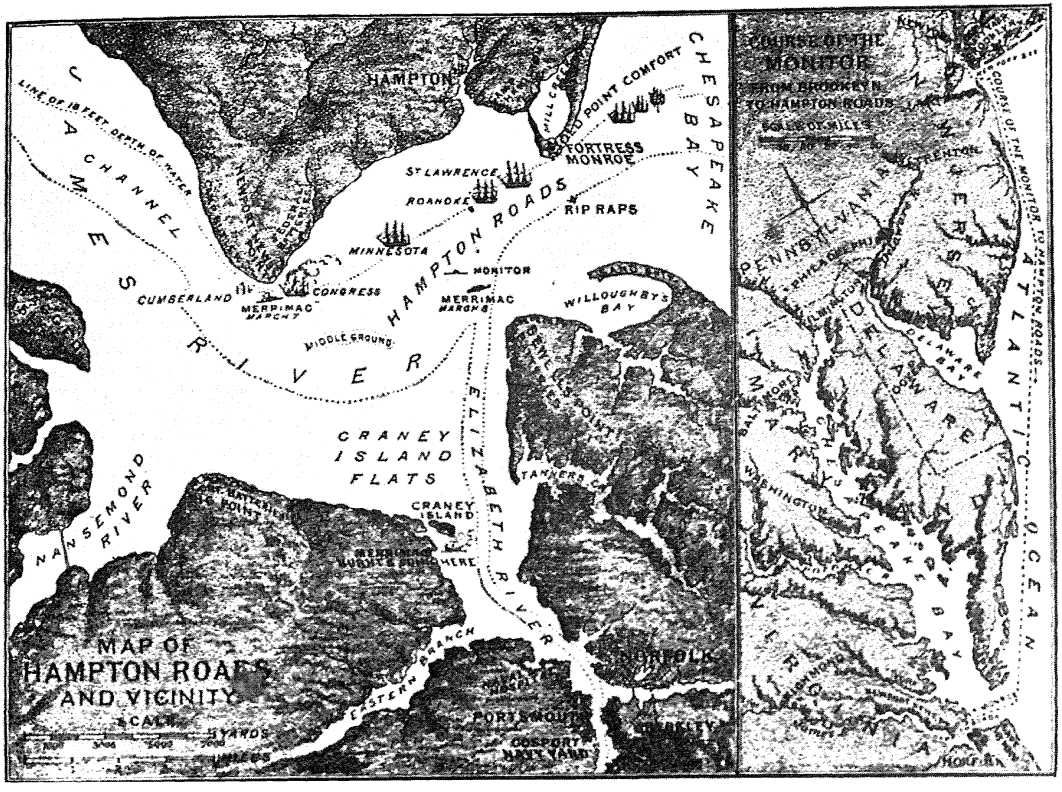
SAMUEL DANA GREENE



CATESBY ap R. JONES

A photograph taken in later life.





Map of the scene of battle and, right, the route of the *Monitor* from Brooklyn to Hampton Roads.

Gosport Navy Yard, it reported that the *Merrimac's* iron had been bolted into place, her engines repaired and turned over. Her old Dahlgren guns had been re-installed and, most frightening, her bow carried a 1,500 pound metal ram that could deal death to wooden ships. Authentic word arrived in February: the *Merrimac* had been launched.

A wave of terror swept over Union cities and congealed above Washington. Captain Dahlgren, the head of the Washington Navy Yard, advised Goldsborough to blockade the mouth of the Elizabeth River, so the *Merrimac* could not run out. He did not bother to say how to effect that blockade under the fire of the Confederate guns at Craney Island and Sewall's Point.

Edwin McMasters Stanton, Secretary of the Army, developed anxieties second only to those of Commodore Smith. He said that the *Merrimac* would destroy every vessel in the service of the North. Welles was peppery on the subject of the *Merrimac*. As Secretary of the Navy he had borne the brunt of criticism for the delayed seizure of the Gosport Navy Yard; his unpopularity increased each day with each fresh rumor of the *Merrimac's* conversion.

That conversion, though impeded by the South's lack of resources, had progressed steadily, paralleling the building of the *Monitor*. Both ships were launched at the end of January and commissioned within a day of each other: the *Merrimac*, renamed the *Virginia*, on the 24th, the *Monitor*, on the 25th, of February. Unlike the *Monitor*, the *Merrimac* would have no trial voyage. Out in the waters where the only tests could take place the Federal guns were waiting. Her maiden voyage would be one right into battle.

However varied were the Northern opinions of the *Merrimac*, there was no uncertainty about her in the mind of Stephen Mallory, Secretary of the Confederate Navy.

On a day in January, this sad-faced, thoughtful man sat at his desk in the Navy Department in Richmond and dictated stirring orders to the captain he had chosen for the top command, Franklin Buchanan.

You are hereby detached from the office of "Orders and Detail" and will proceed to Norfolk and report to Flag Officer Forrest for the naval defense of the James River.

You will hoist your flag on the *Virginia* (*Merrimac*) . . . or any other vessel of your squadron which will for the present embrace the *Virginia*, *Patrick Henry* (*Yorktown*), *Jamestown*, *Teaser*, *Raleigh* and *Beaufort*.

The *Virginia* is a novelty in naval construction, is untried, and her powers unknown, and the department will not give specific orders as to her attack on the enemy. Her powers as a ram are very formidable and it is hoped that you will be able to test them.

Like the bayonet charge of infantry, this mode of attack will commend itself to you in the present scarcity of ammunition. . . . Even without guns the ship would be a formidable ram.

Could you pass Old Point and make a dashing cruise on the Potomac as far as Washington, its effect upon the public mind would be important to the cause.

The condition of our country and the painful reverses we have just suffered demand our utmost exertions. Convinced as I am that the means for striking a decided blow for our Navy are now for the first time presented, I congratulate you upon it and know that your judgment and gallantry will meet all just expectations. Action—prompt and successful action—now would be of serious importance to our cause.

In selecting Franklin Buchanan for the command of the *Merrimac*, Stephen Mallory paid the highest possible compliment to both the officer and the ship. Buchanan was one of the most distinguished men in the Confederate Navy. In

1845, he had organized the newly-created Naval Academy at Annapolis and at the outbreak of the Civil War, held the important position of head of the Washington Navy Yard. In record, deportment, appearance, he represented the finest type of Navy man. His features were cleanly molded and his eyes had the sparkle of forty-seven years spent on the Navy's sea. He resigned his high Washington command when it seemed that his native state of Maryland would join with the South; when it did not, he tried to withdraw that resignation. Gideon Welles insisted that it stand.

Not a secessionist, deploring "this most useless, fratricidal war," Buchanan wrote to members of his family: "The deed is done and I am made an unhappy man, but I must submit." He turned to the South and was awarded her highest accolade: command of the ship that had been built to smash Mr. Lincoln's blockade.

So distinguished a commander deserved and was given a staff composed of the best the South could offer: Catesby ap Roger Jones as Executive Officer; H. Ashton Ramsay as Chief Engineer. No one knew better than Ramsay the eccentricities of the *Merrimac's* engines: in his opinion, "a more ill-contrived and unreliable pair . . . could be found only in the U.S.N." Lieutenants appointed to the *Merrimac* were John Taylor Wood, Charles Simms, Hunter Davidson and R. D. Minor. A fifth lieutenant, Walter Butt, had been a roommate in student days at Annapolis of the *Monitor's* young Samuel Dana Greene. The midshipmen were Fonte, Marmaduke, Craig, Long, Rootes, and Littlepage. John Semple was Paymaster. Ramsay's assistants in the engine room would be Tynan and Arthur Sinclair, Jr. Surgeon Dinwiddie Phillips had as his assistant Algernon S. Garnett.

These were men who bore the proudest and gentlest names of the South, and who would soon write those names

into a brutal page of history. They were the men chosen to serve aboard the *Merrimac* under the battle orders of an immaculate commander whose hasty resignation aligned him irrevocably against the Union. Though he stayed with the South, Buchanan expressed "a horror of firing on the Stars and Stripes." He was torn by the need to fight not only against friends but against boys that he had trained at Annapolis.

As the day came to load ammunition on the *Merrimac*, Buchanan may have been even more troubled by a second dispatch from Secretary Mallory, this one more imperative than the last:

> I submit for your consideration the attack of New York by the *Virginia*. . . . Can the *Virginia* steam to New York and attack and burn the city? She can, I doubt not, pass Old Point safely and in good weather and a smooth sea she could doubtless go to New York. Once in the bay she could shell and burn the city and the shipping. Such an event would eclipse all the glories of all the combats of the sea, would place every man in it comparatively high, and would strike a blow from which the enemy would never recover. Peace would inevitably follow. Bankers would withdraw their capital from the city, the Brooklyn Navy Yard and its magazine and all the lower part of the city would be destroyed, and such an event by a single ship, would do more to achieve an immediate independence than would the results of many campaigns. Can the ship go there? Please give me your views.

Could the ship go there? Buchanan did not know how many furlongs she could move down the Elizabeth River. He could not speak for a vessel whose guns had never been fired, whose crew had never put to sea in her, whose engines sputtered and wheezed and clanked.

Yet Mallory's dream was not altogether wild. It could

all happen as he predicted; the unknown factor was the behavior of the ship once she put out into the Roads and faced the grim line of almost 300 guns that were waiting on the wooden ships across the harbor.

On the night of March 7, one day after the *Monitor* had left New York, Buchanan made an abrupt decision. He issued orders for the priming of the *Merrimac's* engines and the rapid completion of all her work. He may have received word that the *Monitor* was on her way South. He had no way of knowing anything about the performance of that well-advertised little ship but even news of her departure would have troubled him.

If, on that night of March 7, the commander of the *Merrimac* had known what the *Monitor* then faced, he might have been less agitated. The crew whose friends had whispered that all that Ericsson had built for its brave seamen was a giant steel coffin may have wondered if that were not the truth.

VIII: The "Yankee Notion" goes south

The *Monitor* sailed serenely down the Jersey coast on the clear, cold morning of Thursday, March 6. Her captain and crew hardly dared hope that she was really under way, but the voyage proceeded in perfect order.

Close by were the *Currituck* and *Sachem,* like protective mother hens suddenly gone to sea. Boatswain's Mate John Stocking reported that the repaired rudder held steadily to the course set by the towing tugboat, the *Seth Low.* The new engine, of Ericsson's own design, pulsed with a resolute and reassuring hum. Chief Engineer Newton observed with satisfaction the rhythmic rise and fall of the 2 pistons whose connecting rods drove the *Monitor's* 9-foot propeller.

Tons of coal filled the bunkers that walled the engine room. At home on the sea, even in these unfamiliar surroundings, engineering Assistants Sunstrom, Campbell and Hands busied themselves with endless chores. Their quarters were filled with the comfortable smell of warm steam and clean, freshly oiled machinery.

At 4 p.m. Sandy Hook Light bore WNW, 6 miles away. If the *Monitor* performed as well in battle as on her first cruise no man aboard her need fear any encounter. The crew shared their officers' curiosity concerning the ironclad's novel features, and took courage from knowing that her propeller was safe from cannon fire and ramming, shielded by the overhang of the metal deck.

Gunner's Mate Joseph Crown and members of the gun-

crews shifted the weight of the heavy shot that had been stored under the berth deck to a more forward position to balance the machinery astern. Other crewmen inspected the supplies of whale oil in the brass illuminating lamps that swung from the beams, and checked the number of candles for the pendant glass-enclosed holders in the turret.

In the rush of construction many last minute details had been omitted, yet the staff quarters were comfortably outfitted with well-designed chairs and bunks, tables and cabinets. Since living quarters were all on one deck, below the waterline, Ericsson had provided powerful pumps for drawing air in through pipes that rose about a foot above the deck; the current was conducted to the furnaces, as well as through the interior of the ship.

In a broad center passage on the berth deck, beneath and astern of the turret, the ships cooks attended to their work in the galley. Acting Masters Stodder, Webber and Fredericksen were to share the tricks at the wheel. Others listed the ship's supplies that were stored in lockers lining the berth deck. Surgeon D. C. Logue set up simple infirmary equipment in his cabin. In Captain Worden's two-room cabin across the bow, Captain's Clerk Daniel Toffey set a water carafe in its wall bracket.

In the partially sunk pilot house, Louis Stodder stood on a platform below the main deck. His eyes were on a level with two 5/8-inch elongated slits. Except for these minute openings for conning the ship, he was surrounded by solid walls of wrought iron, 12 inches thick. Above his head was a plate of iron, 2 inches thick, left unbolted so that it could serve in any emergency as an escape hatch. The pilot house communicated by ladder with the berth deck, and by speaking tubes to the turret and engine rooms.

Aft of the captain's cabin were the partitioned staterooms and the wardroom of the officers. The remainder

of the berth deck provided quarters for the crew, an allowance of 14 inches having been assigned to the space for the hanging of each hammock. Ever practical, Ericsson had provided sleeping space for only one half of the crew, on the assumption that only part of them would be off duty at one time. Behind one door was another of Ericsson's inventions, the first self-flushing toilet. If not operated correctly, it could draw in a jet of sea water 3 feet high.

These were the quarters in which the *Monitor's* officers and her men lived and where some of them would die.

As one bell in the first watch struck, Barnegat Light was sighted, bearing S by W. At midnight, George Frederickssen wrote peacefully in the Log, "So ends this day." Morning broke clear and cold, with a freshened wind that began to raise a sea. For the first time, the new ship was to meet rough water; as the wind increased, Captain Worden became uneasy.

If the ship had been tight this would have been a rough sea but not a dangerous one. Someone at the shipyard had not believed Ericsson's conviction that the turret, with its base mounted on a precisely machined brass grove sunk snugly into the deck, could safely ship a little water: Ericsson had provided a pump for this contingency. Without Ericsson's knowledge the base of the turret had been pried up and packed with oakum. Now, as the sea became rougher, some of the oakum washed out, leaving slits a fraction of an inch high, but several feet long through which the water poured. A raging ocean smashed against the pilot house and roared back over the turret in great arcs that drained down through the berth deck hatch.

One of the most ingenious devices Ericsson had provided for his ironclad was a method of lowering her anchor through a well in the overhanging deck where it would be protected from enemy fire. Now, as the overhang spanked

down upon the rough sea, air rushed out of the well cylinder with great gusts of groaning, tortured sound. Seamen battling to save their ship stopped in their tracks, frozen by these wails of doom that swept from bow to stern: "worse," Greene later said, "than the death groans of twenty men."

In the pilot house, George Fredericksen braced himself at the wheel, straining to hold the ship against the battering sea. R. W. Hands reported by tube to the pilot house that water was pouring down on the machinery through the air blowers and that the ventilating system had failed. A second later brought news that without a draft boiler fires were dying: gas from smoldering fires was slowly filling the engine-room. To Captain Worden it seemed that everything that had taken months to plan and then to build would in one hour be smashed by the tyrant sea.

The people of the North believed that the *Monitor* had been ordered South to engage the *Merrimac:* so she had. For that purpose, not only Ericsson but President Lincoln as well had urged her upon the cautious Navy. But on this maiden voyage, her objectives were not merely to float and to fight; the matter of first importance was *how* she floated, and *how* she fought. She was the Navy's ironclad guinea pig—to prove herself for Ericsson and the engineers, or to disprove herself for those skeptics whose faith remained with the old line of wooden ships. Aboard her to keep score for both factions, Alban C. Stimers was expected to be a balanced judge. He was a naval officer, but he was also a trained engineer.

At this moment the observer for the Navy was being given a vivid idea of the *Monitor's* behavior in a rough sea. When the vessel continued to ship water, and Engineer Newton reported that the pumps were unable to cope with the rising level in the bilges, Stimers fought his way to the

engine room. As both men struggled with the pumps they were overcome by gases from the smoldering fires. Choking crewmen, their faces covered with wet rags, rushed through the bulkhead and barely managed to haul both men out alive. Against the buffeting of the sea they were carried to the turret to be revived by fresh air.

With the fires dying, the steam pressure fell, making the pumps useless. John Stocking ordered men to the hand pumps, but these were ineffectual against the inrushing water. The crew, many of them unused to the ways of machinery, all unrehearsed in the roles they were expected to play, dashed from one piece of equipment to the other, trying to make repairs. Worden and Greene tried to be everywhere. At nightfall, with pumps faltering, the engines scarcely turning and disaster near, wind and sea suddenly abated. The pounding on the open deck stopped and the *Monitor* rode smoothly. Newton and his men at once rushed to the engines. They started the fires. Danger seemed miraculously passed. Greene had to admit that as a seagoing craft his beloved *Monitor* was ill-fitted for rough weather, but he refused to give up his hopes for her as a fighting ship.

President Lincoln shared Greene's hopes that night. He sat at his desk at the White House, talking with Assistant Secretary of the Navy Fox. Fox had brought fresh rumors that the *Merrimac* was ready and feared what she might do, unchallenged, to wooden Union ships. Lincoln reminded him of the *Monitor:* "She may yet be the veritable sling with a stone that shall smite the *Merrimac* Philistine in the head."

But after midnight the wind came up again and all hands were called to do what they could to save a seemingly doomed ship. This time Webber, at the wheel, suddenly felt it jam and found that he could no longer steer. Now

the *Monitor,* still in tow, was out of control, plunging about like a calf at the end of a rope. Worden knew, if her hawser broke, that his ship would be driven by the wind smashing against the shore.

For the second time, officers and men faced death in an iron shroud. As dawn broke, Worden hailed the captain of the towing *Seth Low* to slacken his speed, but he could not make himself heard over the raging storm. Acting Master Stodder sent up a distress signal. One of the two escort vessels came near and Worden asked Captain Shankland, of the *Currituck,* to help tow him into calmer waters.

Once again the wind died down suddenly and once again the *Monitor* was saved. The steering ropes were cleared and exhausted men who were not on watch dropped to the deck, too weary to swing their hammocks. The galley stove had long been out. The best the cook could produce were dry ship's biscuits, but these the men took gladly. Newton still felt violently ill but stayed near to watch the engines.

The *Monitor* rode on in smooth water on the sunny morning of March 8. By late afternoon she passed Cape Charles and swung into Chesapeake Bay. On her portside was Cape Henry Light at the turning point into the mouth of the peaceful Chesapeake waters, with Hampton Roads 20 miles beyond. On deck Worden looked to the west far across the water and saw an ominous black cloud rising from the direction of the Roads. On the pleasant spring air came the sound of heavy gunfire.

At once he ordered his weary crew to strip for action. Both he and his men had been without sleep for forty-eight hours. He looked again at the black smoke billowing into the blue sky and he knew what that meant.

The *Merrimac* was out and at large.

IX: Black cloud on the horizon

At Hampton Roads, the early morning of March 8, 1862, promised a fine day. The mist lifted early and the high blue sky was unbroken by clouds. A gentle breeze came from the south soon after daybreak.

On the northern shore of the Roads the day began like any other. The Federal ships swung at anchor—waiting. A report from reliable sources had said that the *Merrimac* would almost certainly be out on this day but no one aboard the ships put much stock in it. The alarm had been sounded so many times that it had lost its urgency.

Captain Van Brunt, at the *Minnesota's* anchorage off Fort Monroe, wrote home of the boredom that had settled on officers and men: "We are tired of waiting for the *Merrimac*. We wish she would come out." Close by the *Minnesota*, the sailing frigate *St. Lawrence* had dropped anchor during the night. She had just returned from a cruise and the men were restive at being denied shore leave. Aboard the screw frigate *Roanoke*, Captain John Marston was serving as senior officer of the squadron in the absence of Commodore Goldsborough who, free from apprehension, had joined the successful attack on Roanoke Island, in North Carolina. Off Newport News, the captain of a third-class vessel argued heatedly with a pilot on one of the tugs. His ship was the *Mystic*, a "dilapidated boat of two old-fashioned guns." Dilapidated she was, but her captain took pride in her. He believed that the *Merrimac*

would soon be in Hampton Roads, and he wished the *Mystic* there to receive her. After much persuasion, he prevailed upon a tug to tow him into the Roads close by where the *Congress* waited.

Aboard the *Congress*, young lieutenant Joseph Smith, son of the worrisome chairman of the Board on Ironclads, regretted his recent appointment to an area that saw so little action; he considered the possibility of writing to his father in Washington requesting transfer. The crew of his ship and of the nearby *Cumberland* had done their washing, and their garments fluttered in the soft breeze like gay pennons on dress parade. Sea gulls planed arching patterns high above the ships. For most of the men it was just another day of quiet boredom, waiting for an enemy who never came and about whom each bit of gossip out of Norfolk had become increasingly fantastic.

These were the mightiest new ships of their day, anchored within the 7-mile crescent of the northern shore of Hampton Roads. The *Cumberland*, 300 yards off Newport News, was a sailing frigate, her masts and her spars etched high against the sky. Among her 30 guns were new and powerful ones, the most aggressive in the Roads. Her 10-inch pivots could be turned, to fire rapidly; her broadside guns could be employed only when they faced the enemy. The only method of bringing the guns on each side into action was by hand-over-hand hauling of spring lines that attached to the *Cumberland's* anchor-cables. In the time-honored tradition of warfare on wooden vessels, the gunners fired the cannon; the sailors aimed the ship.

Twenty miles south of these fine, proud vessels, the *Merrimac*, with steam up, prepared for battle. A detachment of Norfolk United Artillery marched aboard. Gun-crews—landlubbers who had been practicing at gunnery targets—were ordered to the ship. A hundred things that

were to have been done were left undone. The last all-important order was given: to slush down the slanting sides of the *Merrimac's* superstructure with tallow, to ward off enemy fire.

At 11 a.m. Captain Buchanan gave the order to weigh anchor. The engine room bells rang. Chief Engineer Ramsay slowly let steam into the cylinders. Their pounding did not drown out the words of farewell that beat in his brain, spoken by a friend at dockside: "I shall never see you again. She will prove your coffin." Few in the crowds that lined the shore, however, shared that cheerless thought; the vessel began to move and, with her, the hopes and dreams of the secessionist states.

More than hopes and dreams followed in the wake of the *Merrimac* as she put out into the Elizabeth River. William Harwar Parker, captain of one of the escort ships, the *Beaufort*, later described it: "Nearly every man, woman and child in Norfolk and Portsmouth went down to Sewall's Point and Craney Island to watch. Everything that would float—from Army tugboat to oysterman's skiff—was on its way down. Craney Island was loaded to the waters with spectators waving caps and kerchiefs." Men, women and children shared the same triumphant conviction: this ship, this day, would proclaim the right of the Confederate States to dissolve the bonds of Union.

It was 20 miles from the Yard to where the Federal vessels lay, a distance that Captain Buchanan welcomed for the opportunity it would give to test the *Merrimac's* engines. For their first tests the guncrews would have to wait, and no one could say what would happen when the Federal 10-inch pivots began to spit their iron.

A few yards off, the crew could see the two gunboats in the convoy—each with 1 gun—the *Raleigh* and the *Beaufort*. Still out of sight, waiting up the James River, lay the three

other gunboats of Buchanan's squadron: the *Yorktown*, with 12 guns; the *Jamestown*, with 2 guns, and the *Teaser*, with 2 guns. The *Yorktown*, a former steam packet in the New York-to-Virginia run, was now well armed and carried plate abreast the boilers and a short distance below the waterline.

The *Merrimac's* engines were noisy and moved almost in rebellion but they did move and Ramsay was happy to learn from the pilot that, in spite of her massive weight, the vessel seemed to be able to do 6 knots. The quartermaster and the pilot knew from the sluggish response of the rudder and the wheel that she would be a bulky vessel to maneuver.

A call from the pilot house requested Engineer Ramsay to report to Captain Buchanan.

"Ramsay," the Captain said, "what would happen to your engines and boilers if there should be a collision?"

"They are braced tight," Ramsay assured him. "Though the boilers stand 14 feet, they are so securely fastened that no collision could budge them."

"I am told," Buchanan continued, "that the *Cumberland* has the new rifled guns, the only ones in their whole fleet we have cause to fear. The moment we are in the Roads I'm going to make right for her and ram her. How about your engines? Should they be tested by a trial trip?"

"She will have to travel yet some 10 miles down the river before we get to the Roads," Ramsay replied. "I think that will be sufficient trial trip."

As Ramsay returned to the engine room he observed that battle orders had been given. Ammunition was being stacked near the guns—pyramids of 150-pound shot that could work havoc on wooden vessels. Surgeon Dinwiddie Phillips was quietly laying out his instruments. Powder boys stood in their places. The steward offered Ramsay a

last bit to eat: "Your last chance. The galley fires must be out when the magazines are opened."

Captain Buchanan gathered the crew on the open grating of the top deck. He said, "Men, you are now to face the enemy. You shall have no reason to complain of not fighting at close quarters. Remember you fight for your homes and your country. Beat to quarters."

The crew took a last look at the open sun and air and returned to the cover of the gun deck. Some would never feel air and sun again.

Steadily the black smoke of the *Merrimac* poured into the sky. With her two gunboats, she set out across the Roads. The Federal ships were but an hour away.

The *Merrimac* entered Hampton Roads at 1 p.m.

No one can say who first saw her, that black cloud on the southern horizon that seemed to bear steadily toward Newport News.

It was seen at Old Point Comfort from the ramparts of Fort Monroe and an alarm gun sounded over the Roads. The entire garrison of the Fort, the Tenth Regiment of New York, turned out promptly under arms. They were addressed briefly by Colonel Bendix who proclaimed the long awaited action.

One officer of the *Congress* saw it, took a quick look through his glass and shouted: "That *Thing* is coming down!" Another officer lolling nearby told him to be quiet and not interrupt people who had newspapers to read. The Captain of the belligerent little *Mystic* saw it, too, and ordered his men back to their battle stations.

Black cloud coming, and coming straight for the *Congress* and the *Cumberland*.

The Federal ships came to life. Down from the rigging

flashed the laundry; the guncrews rushed to quarters. Up went signal flags on the *Cumberland* and the *Congress* to alert the ships that lay off Fort Monroe. The *Minnesota* got steam up at once to come down the Roads to help. A tug got a line on the *Roanoke* to pull her toward Newport News. The Confederate batteries at Sewall's Point fired at the frigates and, although the distance was great, managed to cripple the *Minnesota's* mainmast and rip the mainsail of the *Roanoke*. Not to be left out, Union sharpshooters on the Rip Raps sent a salvo toward Sewall's Point.

On the *Cumberland* and *Congress* the crews waited and stared across the bay. As they made out more clearly the outlines of the *Merrimac*, they were the more astounded. She lay low in the water with nothing showing but her superstructure, gross and ugly, like a floating barn roof, with a chimney that belched cloud after cloud of black smoke. Not a man was visible anywhere on her: only her guns showed through the ports. At her stern flew the Stars and Bars of the Confederacy. Some thought her masthead carried the French flag; others said, more plausibly, that it was Buchanan's blue command-pennant; others saw at the bow a black flag that promised death to the Union. Some saw her ram looking like two long iron points, about 6 feet apart, "resembling ploughs."

There were those who watched who would not believe what they saw: that this was a deadly and dangerous vessel, bent on destruction. Men argued that she would not fight without a trial run and that this was that trial. Lieutenant George U. Morris, on the *Cumberland*, having ordered his men to battle stations, told them to leave their places and continue their noonday meal.

It was almost 2 o'clock before the *Merrimac* was within firing range. Her guns would soon discharge their shot

and, in that moment, explode forever the idea that wooden ships could stand up to the ironclads. With that first shot the day of the modern navy began.

The *Merrimac*, having circled after her entrance into the Roads, came up first near the *Congress*. Trained gunners awaited her. Lieutenant Smith gave the order to fire when the *Merrimac* was less than a mile away; he would not lament lack of action on this day.

The *Congress*' heavy shells sped on their way as gunners and officers watched. Such a broadside would have stopped any conventional ship afloat but the shells only pounded on the sides of the ironclad, set her waxy slush to sizzling, then smoking, and fell harmlessly away.

The Merrimac returned the blast as she came on. Every shot hit its target and fire and death followed. The *Congress* reloaded her guns and waited for the *Merrimac* to come in closer range, but the *Merrimac* had other business—against the *Cumberland*, farther on. This was the ship with the most powerful weapons, but one that could not maneuver. Buchanan knew this. He headed at once for a forward position abaft the *Cumberland's* bow: at this angle her broadside guns would be useless.

On came the *Merrimac* to be greeted by a salvo from the *Cumberland's* forward guns. For a moment it seemed as though the *Merrimac* had met her match: the *Cumberland's* shells entered two of the ironclad's ports and put two guns out of commission. Nineteen men lay dead or wounded on the *Merrimac's* gundeck.

She answered with broadside after broadside, solid shot and grape that tore into the *Cumberland's* gundeck. Casualties were heavy. Luck was no longer with those *Cumberland* gunners who still lived and fired the few guns that could be trained on the enemy: their shots rolled off the

iron sides like toy bullets. Broken bodies strewed the deck. Black smoke drew a curtain over the sun. Blood seeped along the sanded slippery decks over the wooden sides of the ship and dripped into the green water below. Those of the dead who could be moved were taken to the far deck.

Off Fort Monroe, tugs were pulling hard at the *Minnesota*, the *Roanoke* and the *St. Lawrence* to bring their guns into battle. The *Congress*, fearing the Merrimac's ram, had retired into shallow water—and was now aground. The same fate overtook the *Roanoke* and the *St. Lawrence* and the *Minnesota*, less than a mile away from where the *Merrimac* was making quick, bloody, smoking work of the *Cumberland*.

The captain of the *Mystic*, eager though he was to show the fighting qualities of his gunboat, was given pause. He halloed the pilot of his towing escort: "What do you think I should do?"

"If I were you," shouted the pilot, "I would get just as far away from here as the good Lord would let me."

"I think you are right," said the captain of the *Mystic*—and did.

Colonel Bendix, at Fort Monroe, saw the smoke rising over Newport News and dismissed his men. No one returned to the barracks. As many as could climbed to the ramparts and strained their eyes toward the west.

On the *Merrimac*, Ramsay was reassured by the steady, albeit noisy, pounding of his engines. At 3 p.m., the engine room bell rang suddenly, shrilling over the deep pulse of the engines: "Reverse—Stop—Full Speed Ahead." Ramsay at the controls knew the meaning of those orders: the *Merrimac* was going forward to ram.

He tugged at the controls and felt a shudder of response—the churning, the plunge ahead, the fearful drive, the per-

cussive shock as the wedge of iron gored the side of the *Cumberland,* opening a hole later described as "wide enough to drive in a horse and cart."

The *Cumberland* had been given her death blow under the fore-rigging on the starboard side. But her crew continued to fight her as though there was still hope. They manned each gun until the rising water covered it; none heeded the moans of the wounded and the dying. And still the *Merrimac* poured in her relentless broadsides. A shot pierced the sick bay, instantly killing five men. Others smashed into the berth deck and the gundeck.

Ramsay reversed the *Merrimac's* engines. There was an ugly wrench. She backed away, her ram broken off and water trickling through her bow timbers.

With water rushing through her bow ports, the *Cumberland* listed. Men still manned the guns that were not awash; some worked the pumps; others moved the dead and injured to what they hoped would be safer ground.

Still close, like a boxer in for the kill, the *Merrimac* moved to the stern of the wounded ship, firing all the while and taking harmless shot on her iron sides. Captain Buchanan, within hailing distance, called for the ship to surrender. Lieutenant Morris did not hesitate in his answer: "Never! We will sink with our colors flying."

The *Cumberland's* flag flew proud and high. Guncrews kept to their work, barefooted and stripped to the waist. Lieutenant Morris tried to send off a boat to turn the vessel so that the port guns could come into use. Smoke settled on the deck and over the sea. The cries of the wounded and the dying sounded across the water and sea birds screamed in the distance.

At 3:30 when his ship could take no more, Lieutenant Morris gave the order: "All save who can." One old gunner, Matthew Tenney, paid no heed. He rushed to the

spar deck where one gun was still clear of the rising sea. In water up to his ankles he fired one more shot as the *Cumberland* went down, and he with her. The seas roared over the brave ship as she sank in 54 feet of water, her masts high and defiant, her flag still flying. Not a man was captured. Those who were not dead or dying swam to shore or were picked up by small boats.

Of the *Cumberland*, Lieutenant Wood of the *Merrimac* wrote in a later account: "No ship ever fought more gallantly": 376 men had taken her into battle; in one hour, 121 of these were dead, wounded or missing.

The *Merrimac* had her first victim—but not without a price. The lost ram and the slow leak in her bow were to play their own part on the morrow. Her riddled stack even now was giving Ramsay a new set of problems in keeping up a draft. Two guns were wrecked and heat from the old engines had scorched her deck, but she was not too crippled to seek another victim. The crew on the *Congress*, aground nearby, watching, firing when they felt their shots might take effect, knew well who that victim would be.

X: *The battle, and the victory*

Slowly the *Merrimac* came about. Her two gunboats, the *Raleigh* and the *Beaufort,* were close by and were soon joined by the *Teaser,* the *Yorktown* and the *Jamestown* steaming out from their anchorage up the James River. Now all six ships of Buchanan's squadron set out for the *Congress,* caught on the mud like a sitting duck.

At a range of 150 yards the Confederate ships opened fire, their guns blazing death at every shot. The first shot killed the crew at one gun. Young Joe Smith knew that his ship, grounded in shallow water, need not fear the deadly ram. But he also knew that no defense could save her from the bite of the *Merrimac's* gunfire. The *Roanoke* and the *Minnesota,* both aground, were helpless. Valiantly Smith ordered his men to return fire for fire, but only two stern guns of the *Congress* could be brought to bear on their target. It mattered not: the *Merrimac* was impervious to the heaviest shot from the mightiest cannon.

There were no minor casualties aboard Smith's ship. "The only insignificant wound I dressed," the surgeon of the *Congress* said later, "was that of one of the crew who had his hand shot off." Bodies were dismembered in the swift, horrible slaughter. The dying lay all about and blood trickled over the decks under the gentling sky of the late afternoon. On the open deck of his ship, face to the heavens, lay the body of Lieutenant Joseph Smith, the youth in him, and the hope, and the dreams, ended for all time.

At one gun the service of powder stopped. The gun captain looked back for the reason. A *Merrimac* charge had killed or wounded the entire line of powder passers, youngsters in their teens. Fires broke out in widely scattered sections of the ship. Lieutenant Pendergast, who had succeeded to the command, issued frantic orders. On the decks were so many wounded that the surgeon could only apply tourniquets and offer brandy to relieve suffering.

Lieutenant Pendergast ran up the white flag.

The *Beaufort* came alongside to take off prisoners and as many of the wounded as could be moved. Federal sharpshooters on shore, not seeing the flag of truce, kept up their fire and killed several men on the Confederate gunboat. Buchanan was infuriated. His stern code could not accept what seemed blackest treachery. He ordered the *Congress* fired at once. His command: "Pour hot shot into her and don't leave her until she's afire," gave no hint that he knew that his own brother, McKean Buchanan, was the paymaster on the doomed ship.

Down in the engine room, Ramsay had a special furnace for heating incendiaries. Great tongs grasped a ball from the fire and dropped it into a bucket in which it was rushed to the gundeck. Powder, then wet hemp, were rammed into the gun. The glowing shot was rolled down the gun barrel and fired at once. It made a direct hit. The *Merrimac* had her second victim but, again, at a price. As he stood on the upper grating watching the fire spread, Buchanan was shot in the hip by a bullet of a sharpshooter from shore.

Catesby ap R. Jones now commanded the *Merrimac*. He turned her greedily toward her third victim, the *Minnesota*, aground not far off. Smoke rose high against the dusk of late afternoon as the *Congress* burned.

Great black clouds of smoke billowed to the east where the *Monitor* was rounding Cape Henry.

The *Minnesota* waited helplessly and not a man on her decks but knew that his ship would be next. Those men could not guess what was happening aboard the *Merrimac*. Lieutenant Jones had given his first command: to steer the ship as close as possible to the *Minnesota*. The pilots shook their heads. The tide had turned and if the *Merrimac* were to get back to Norfolk that night she must retire now while there was yet light and a deep channel.

The decision was a hard one for a hotheaded young Southerner in a shining new command. Ahead of Jones lay the mighty *Minnesota*, grounded, helpless. She would be easy prey. But reports were brought to him of the *Merrimac's* leaking bow. Ramsay complained that the creaking old engines had been sorely put upon. The battle had lasted more than six hours. Light was fading from the sky and the tide was going out. Jones did not dare resist the persuasion of his pilots. As he ordered a course set for Sewall's Point, he saw that the *Roanoke* and the *St. Lawrence* had been pulled toward Old Point and the safety of the Fort guns. The *Minnesota* seemed stuck for all eternity. Tomorrow would be another day.

On the *Minnesota*, *Merrimac* gunfire had drilled one hole in the hull and started several fires that were soon under control. As he saw the *Merrimac* withdraw, Captain Van Brunt looked across the Roads incredulously. He did not wait to verify her direction but immediately ordered crew and tugs to lighten his ship and float her off the mud. As if resigned to her doom, she would not budge. Night fell on a desperate crew, scurrying over the ship, picked out of darkness by great bursts of light from the flaming *Congress*.

Thoughts on the *Merrimac*, as she turned away, were mixed. There was triumph. Ugly tub though she was, the *Merrimac* had destroyed the best of the Northern ships. Clumsy though she was, she had been immune to the stern-

est of the Federal guns. Her crew, against dire prophecy, had not gone to an iron grave in Hampton Roads. Regret for the deaths of men who a few hours and months before had been friends and shipmates, was muted. Cheering crowds waited at the Norfolk dockside and the hulk of the *Congress* still burned against the northern sky. Through the night spectators on the southern shore, men on the grating of the *Merrimac*, stood and cheered and rejoiced as brilliant wicked flames slashed at the sky. This was war, and this was victory. Some aboard the *Merrimac* questioned that victory: there were still ships across the Roads, and men who lived and breathed and would fight.

Unnoticed, at about 10 o'clock that night, a little vessel, the like of which had never been seen anywhere, had made its way up the Roads close by Fort Monroe. She went to the *Roanoke* where the flag of the squadron flew. Her orders were to proceed at once to the *Minnesota*. She signaled the shore for a pilot to come aboard, but the Chesapeake pilots refused to come out. Some have said since that among them were Confederate sympathizers who had no wish to aid the *Monitor*. It is more likely that, being men of the sea and not of war, they had no wish to board any contraptious little ship that thought it could stand up to the monster they had seen that day. Finally, Acting Master Samuel Howard of the *Roanoke*, a trained pilot, volunteered to see the *Monitor* through the Channel. He would give a good account of himself in the pilot house with Worden the next day.

It was well past midnight when Worden came alongside the *Minnesota* and sent Lieutenant Greene aboard to report to Captain Van Brunt that the *Monitor* had arrived and was ready for battle.

Whatever hope may have comforted Van Brunt at the sight of the tall and straight young officer must have been

quickly dispelled by one look at his ship. She lay low on the water and the few crewmen on her deck were as disheveled as hands on a coal barge. Next to the mighty *Minnesota* she was, as some seaman described her, a grotesque toy—a very "tin can on a shingle." Northerners who had seen her entrance into the Roads had thought her a new type of watertank come to deliver supplies. One of the sailors who nervously paced the *Minnesota's* deck said later that when he saw her over the side his heart died within him; she "looked that contemptible." A shipmate agreed: "The *Merrimac* will sink her with one broadside."

Aboard the *Monitor* that night there was little sleep for her exhausted crew. Repair parties were still setting to rights the damage done by the rough seas and preparing her as best they could for whatever ordeal she faced with the morning. When they could, they dropped to the deck for snatches of sleep.

Worden returned to his cabin. He wrote his wife a letter that could well have been one of farewell. Simple and eloquent, it carried no hint of dread of the next dawn: "I am arrived here an hour since. . . . The *Merrimac* has caused sad work among our vessels. She cannot hurt us. God bless you and our little ones. Yours ever and devotedly."

Across the Roads the victors celebrated and dinner was not served aboard the *Merrimac* until almost 11 o'clock. Several detachments of her crew still worked at plugging the holes in her smokestack, and patching, as best they could, her leaking bow. On shore and in Richmond there was no end of celebration. It was a night for great dreams. On the morrow the *Merrimac* would destroy or capture every Federal ship in the Roads and break the blockade. Beyond that there were no limits but the imagination of the dreamer. The hopes of Secretary Mallory seemed fulfilled

that night: out from the Roads, on to Washington, to New York, even to Boston, to bombard cities, to levy tribute, to win recognition from foreign nations. All that and more was in the Confederacy's grasp.

A final token of Southern victory came shortly after midnight. The fire on the *Congress* reached her magazine. A surge of fiery splinters streaked to the stars and then, across Hampton waters, came the awful roar of the explosion of the *Congress*.

Exhausted men on the deck of the *Monitor* jumped from fitful sleep, learned what had happened, and returned to a more restless sleep than before.

On the *Minnesota* Van Brunt still tried to free his ship. The explosion of the *Congress* lit up his men as they worked at heaving overboard unessential gear and supplies.

For all they knew, their own ship would go the same way in a very few hours—and they with it.

XI: "Worst day of the war"

In spite of the newly-laid telegraph line from Newport News to Fort Monroe and Washington, news of the North's crushing defeat at the first Battle of Hampton Roads, on March 8, did not reach Washington until early morning of the next day. Secretary Welles many years later called that Sunday in Washington, March 9, 1862, "the worst day of the war."

All that was known was that the *Cumberland* had been sunk, the *Congress* burned, the *Minnesota* threatened, and that the dread ironclad *Merrimac* controlled Hampton Roads. It was understood that the little black *Monitor,* brain child of a Swedish inventor, had arrived at the Roads after the battle. But no one talked or even thought very much about that, as fear of the *Merrimac* swept over the land. In Washington, there was no time to talk about anything but the devastating defeat of the preceding day.

On that Sunday, Welles' "worst day of the war," the North indeed faced defeat. If the *Merrimac* should now have her way in Hampton Roads, the blockade would be broken and "King Cotton" rule once more in a prospering South; the Confederacy could secure supplies from abroad and win recognition from foreign powers; the Union cause would be irreparably shaken.

First reports of the disaster of March 8 had flashed, during the battle, from Newport News to Fort Monroe: "The *Merrimac* is close at hand . . . the *Merrimac* is

engaging the *Cumberland* at close quarters . . . the *Congress* has surrendered . . . We want blankets for the crews of the *Cumberland* and the *Congress*. . . . The *Merrimac* has it all her own way. . . . We have no more ammunition and the *Merrimac* and *Yorktown* are off Signal Point. . . . We are towing transports out to sea to keep clear if the *Merrimac* comes down to the Fort."

In the early Sunday morning hours the Secretary of the Union Army, Edwin McMasters Stanton, received from General Wool at Fort Monroe the first comprehensive and official report to reach Washington. It ended with the startling statement: "It is thought that the *Merrimac*, *Jamestown* and *Yorktown* will pass the Fort tonight."

Stanton rushed to the White House, brandishing the message like a rattling saber.

President Lincoln at once called General McClellan and the Cabinet into emergency session. These leaders of the Union sat stunned and silent. Stanton gave little opportunity for anyone to express an opinion. He ranted and stamped, glaring at Gideon Welles as though that Navy person had himself ordered the *Merrimac* gunfire. He raged at Seward, he glowered at McClellan, and with each shout and glare his prophecies of doom rose to a higher pitch.

The *Merrimac*, he repeated as he paced the White House rooms talking to anyone who would listen, would take the Fort, steam up the Potomac, destroy the Capitol and all the other public buildings. Or she might turn and head for New York and Boston and demand tribute under threat of imminent destruction. He urged that telegrams be sent to all the Northern seacoast towns telling them to make haste to obstruct and defend their harbors. He was about to order the Navy Department in Washington to blockade the Potomac. A quarrel over Army-Navy protocol at once

arose between Stanton and Welles but abated when the President intervened.

Welles had himself received a telegram from Hampton Roads. Hoping to soothe him, he showed it now to Stanton. It read:

U.S.S. Monitor
Hampton Roads, March 8, 1862

Sir: I have the honor to report that I arrived at this anchorage at 9 o'clock this evening, and am ordered to proceed immediately to the assistance of the *Minnesota,* aground near Newport News.

Respectfully, your obedient servant,
John L. Worden.
Lieutenant, Commanding

If the Cabinet members heard the message, few heeded it in their panic. Welles finally agreed to order as many ships as the North could spare to reinforce Goldsborough's Chesapeake squadron.

Chase was impatient with everyone as he itemized ship by ship, cannon by cannon, the cost of the day's battle. McClellan sat silent and glum; the "little Napoleon" had labored for months to shape raw recruits into a disciplined Army of the Potomac. His plan to transport them to Fort Monroe and thence to march on Richmond had been frustrated in one day, by one ship. John Nicolay stood close by, listening in silence. He feared for the health of the gaunt and grim President who studied charts, read dispatches, questioned officers who brought details that had not been included in the first blunt message. The President, weary, depressed, was trying to shape a plan out of the chaos of defeat. Finally he asked Nicolay to send for a carriage to take him to the Navy Yard to confer with Cap-

tain Dahlgren. He left the room, head down, muttering, "Frightful news!"

Throughout the battle of March 8, messages had sped over the wires from Fort Monroe and dispatches crackled out of Washington. General Wool, from the Fort, warned General Dix in Baltimore to be on the alert: "The *Merrimac* might run out of the Roads." McClellan wired Wool that, in the event that Wool could not defend Newport News, he was to entrench all forces at Old Point Comfort and hold Fort Monroe at all costs. Wool responded by demanding "hard bread, flour, whiskey, spades, shovels and picks; 2,000 infantry, 8,000 volunteers, 5 batteries of light artillery and 1,100 horses." All this, to defend the North against one ship: a Southern ironclad.

At 2 p.m. on this black Sunday, Captain Dahlgren, as Commandant of the Washington Navy Yard, after conferring with President Lincoln, settled the Stanton-Welles argument with a wire to General Hooker. He instructed the General to prepare the stone-laden barges that had been advocated by Stanton, and to sink them in the Potomac at the first word that the *Merrimac* had broken through the Chesapeake fleet. Stanton promptly carried out the rest of his plan and wired the governors of New York, Massachusetts and Maine to defend their harbors. Quartermaster M. C. Meigs alerted Colonel Ingalls at Annapolis to prepare to welcome the *Merrimac* with boarding parties.

Grim stories of the battle of March 8 settled like damp chilling fog over Washington and swept on through the North. Men gathered on street corners, in bars, in clubs, to tell of it and to wonder when death would strike their cities. Newsboys shouted it from the sidewalks. Mothers called their children to the shelter of their homes and then wondered how long the walls of those homes would be safe and standing. From New York, on to Newport, to New

London, New Bedford, Boston, as far north as Portland, the terror spread. Harbor defenses were hastily thrown up, harbor forts alerted—against what precise eventuality no one exactly knew. It was as though men had landed from Mars to lay waste the coastal towns.

Great as was the panic in the North, it could not equal the confusion that had swept during the night of March 8 over the northern shores of Hampton Roads. Ferryboats, gunboats, tugboats, skittered over the waters, back and forth from the anchored ships to Newport News, to Fort Monroe. From the Fort sounded the rattle of drums and the blare of bugles. Men everywhere spoke of the work that had been done that day by the "terrible engine of war."

As morning came, crowds gathered, some putting out in small boats to pull as close as they dared to the mighty sloops and frigates. Some saw the newly arrived *Monitor* as a "little black mass," a ridiculous "tin can on a shingle." Captain Fox and Lieutenant H. A. Wise of the Navy's Bureau of Ordnance, who had brought with them extra ammunition for the *Monitor,* watched from shore. A division of Troy riflemen, some of whom may have bellowed the furnaces that poured the iron that went into the *Monitor's* plates, watched from positions on the Fort's ramparts. Near them were survivors of the crews rescued from the *Congress* and the *Cumberland.* Negroes who had been slaves but had escaped by the Underground to the protection of the Fort, clustered in small groups on the embankment. They looked fearfully across the water; they, of all who watched, and prayed, and feared, knew the sickening sense of hope suddenly lit and now but faint and flickering.

Forward of this great wave of panic and confusion, of hope and despair and fear, like a gallant figurehead on a bow, the little *Monitor* rocked gently on Hampton waters.

The fifty-eight men aboard her were ready, by their sole effort, to beat back the menace that gripped the North. Even as panic spread out of Washington and the leaders of the Union and the people of the coastal towns sought frantically for means to stop the *Merrimac*, the little *Monitor*, in battle trim, lay close by the *Minnesota*, ready to do just that, on this Sunday, March 9, the "worst day of the war."

XII: The Monitor, and the Merrimac

As dawn broke over Hampton Roads that Sunday, it promised fair weather. The mist of the early morning soon cleared into the loveliest of spring days and the waters rippled in the first morning wind. Gulls cried high, gathering in groups, or hovered in the sky and dived fast and sudden for a feast. Here on the quiet waters floated fragments, or entire bodies, of men who the day before on the *Congress* and the *Cumberland* had seen the same sort of quiet March morning rise in the blue sky.

All through the miserable night Captain Van Brunt had tried and failed to float the *Minnesota*. He knew that he must either offer some opposition to the *Merrimac* or move to the protection of the Fort guns. Close by, the little *Monitor* rode in the early morning wind. From time to time Van Brunt must have stared at her and wondered. He saw her crew remove her smokestack and he could hear the hammering, from inside the ironclad, of last minute adjustments. But with the dawn Van Brunt had eyes for only one spot: that misty place 8 miles across the Roads where the *Merrimac* was berthed and whence she would surely put out early.

It was just after daybreak when the drums on the *Minnesota* sounded beat to quarters and Van Brunt and a thousand other watchmen on the northern shore saw the large cloud of black smoke that meant the *Merrimac* was under way. Glasses went up as the vessel came on as steadily and relentlessly as an executioner down a corridor. With the

Merrimac were the *Jamestown* and the *Yorktown.* As the convoy moved, Van Brunt must have looked despairingly at the masts of his own proud ship, then glanced westward to where a few feet of the tall straight masts of the *Cumberland* showed above the rippling water.

The *Merrimac* and her escorts were not alone. A fleet of small boats had put out from Norfolk to follow a short distance off, carrying eager spectators to what would surely be another day's sport. As the small boats advanced across the harbor some of the spectators turned their glasses on the *Monitor.* They could see nothing impressive. Many mistook her identity: someone said, "The *Minnesota's* crew are leaving her on a raft."

Midway between Old Point Comfort and the southern shore, the *Rinaldo* and the *Gassendi* rocked at anchor: gunboats sent by Britain and France. Their captains had been ordered to Hampton Roads expressly to observe the behavior in battle of the two ironclads. Vital decisions, despite previously announced neutrality, hung on the reports that these captains would send back to their respective governments after this day's first encounter. The threat of foreign intervention, bearing with it the promise of inevitable Southern Victory, rested in this balance of the *Monitor-Merrimac* score.

Aboard the *Merrimac* there had been little sleep that night—least of all for Catesby ap R. Jones. He had inspected repairs being made to the bow and smokestack. He had probably dropped by Buchanan's quarters to see if his wounded commander could be moved in the morning to Craney Island and thence to a hospital farther south. Over and over he may have reviewed his plan of attack; in it there must be no flaw, as there had been yesterday, to cheat the South of the *Minnesota.* Jones' hope of demolishing her may well have become a burning obsession.

He knew that victory would not be easy. He knew the *Merrimac:* her ancient, sluggish engines, her unwieldy bulk, her poor ventilation, her vulnerable propeller, and he knew that her knuckle—where the metal shield joined the hull—was protected by iron plate for a depth of only 3 feet. Any shot that might land below that metal band could send the *Merrimac* to the bottom of Hampton Roads.

Catesby ap R. Jones, descendant of the South's proud Joneses and Lees, had never shunned a fight. As a young lieutenant on leave in Paris, he had been wounded in a street brawl; years later he would die feuding in the chivalrous tradition of his kin. On this morning of March 9, he stood on the grating of his "impregnable machine of death" and looked intently across the Hampton waters. Through his mariner's glass he strained to see the little ship that spies had reported as having arrived in the night.

"What are you going to do?" a junior officer asked.

"Fight her, of course," Jones said. "She has many advantages over us if she sees them. Our knuckle is our great weakness. If she concentrates her fire on that she will make short work of us. She has nothing to do but fire at our water line."

Last minute jobs had been attended to. The bow was once more watertight. Again, melted tallow had been poured over the sloping sides. Hooks and cutlasses for boarding parties were in their racks. Tray after tray of ammunition for the guns was stacked in line, all shells that would explode on contact and not one solid shot among them. Powderboys and even cooks were forming lines for passing powder buckets. Swabbers were ready with sponges that would clean the guns between shots. A few men grabbed up the last bits of food, slices of cold tongue. In his place, Surgeon Dinwiddie Phillips was once again laying out his surgical instruments.

In the engine room Ramsay kept up the steam pressure. His furnaces were hot and firemen worked the coals with devil's claw and slice bar to make them hotter. Not for a second did the loud whine and protest of the engines cease.

In the control house the pilots decided not to steer across the harbor but toward the east where the *Merrimac* could approach the *Minnesota* in a deeper channel than she had yesterday. On she steamed, 2 miles from the Union ships, then a mile and a half, then a mile—and the crew stood by at their guns.

On the *Monitor*, bedraggled men, weary but determined, were also at their battle stations: Webber and Joseph Crown in charge of the powder on the berth deck; Greene and Stodder in the turret. Though Alban C. Stimers was aboard only as a naval observer, he had volunteered to operate the turret machinery. At each gun was its captain and his crew of eight men, shirts open, rags binding their foreheads. Trays of solid shot had been hauled up through the opening in the berth deck, each shot 168 pounds of cast-iron, and with them their charges of powder. Reserves of ammunition were stored on the deck below but there would be little chance to pass up supplies during battle unless the opening in the floor of the turret happened to coincide with the opening in the deck. Heavy stoppers that now covered the gun ports must be pulled aside, with block and tackle, by the strong muscles of the crew before a gun could be run out and fired. Strips of sunlight, filtering through the overhead grating, splattered strange patterns over men and guns. The heat mounted in spite of the ventilating system and even on this fresh March day the men were beginning to perspire.

Showing the same tense excitement as his men, young Lieutenant Greene who would be in charge of all gunnery saw that the guns were loaded and checked the lockstrings

that would fire them. In his short naval career he had never before held a position of such grave responsibility. Indeed, on this novel ship, the same could have been said of many who had seen longer service in the United States Navy.

Young Greene went below for assurance that the men of the powder division were at their posts. Webber and Joseph Crown, who were in charge, would see none of the battle. They would be as blind to the outside world as rats in a plugged hole and just as helpless should a *Merrimac* shot penetrate at the waterline. Greene regretted the Navy order permitting the use of only 15 pounds of powder to each shot. But the Navy Department, where there were some with less faith or daring than the men who were willing to risk their lives on newfangled inventions, had insisted that the limitation remain.

From the pilot house Worden observed the wind freshen and watched it toss high the smoke of the oncoming *Merrimac*. She was only a mile away and Worden's hand must have moved toward the engine room controls. Through the narrow slit in the iron of the pilot house, he watched and waited, pondering, as he later revealed, three problems. He feared the effect on the turret of a direct broadside. Would the interior bolts, under the impact of heavy gunfire, fly through the air like bullets to tear human flesh? There were no replacements aboard for his gun-crews. Would a heavy shot jar and disable the turret machinery? Would it smash the iron wall?

Worden's second concern was much the same as Jones' aboard the *Merrimac*. He feared his ship's weakness where the hull met the deck. A direct hit at the waterline might pierce the seam and, in spite of Ericsson's assurances that his *Monitor* was impregnable, her commander could only hope that it would be so. Finally, Worden was uneasy

about the pilot house itself and the danger there of a direct hit.

Whether or not his worries were justified, Lieutenant Worden could not know. He could only watch and wait as a black menace, 4 times larger than the *Monitor*, bearing 10 guns to the *Monitor's* 2, came steadily on. Worden knew this: that his ship was as ready as a crew of men who had almost perished in a storm at sea, with little food and almost no sleep for forty-eight hours, could make her. Beside him was the pilot, Samuel Howard of the *Roanoke*, who knew the Roads well, and Quartermaster Peter Williams, silent and grim, his taut hands on the wheel. Overhead no cloud marked the morning sky as sea birds drifted peacefully in the light air. In another moment they would be screaming and wheeling away in panic.

Aboard the *Merrimac* as she came relentlessly on, Lieutenant Jones had one advantage over Lieutenant Worden: a day's experience with his ship. He knew what she could and could not withstand. As the pilot reported deeper water Jones ordered, "Hard-a-port," and the vessel came slowly around to point straight for the helpless *Minnesota*. Jones gave the order, "Commence firing!" and a 10-inch shell weighing 150 pounds sped on its way. It fell short in what, to Van Brunt, must have seemed like a pitiless, brief reprieve.

The *Monitor* went forward. She had been ordered to protect the *Minnesota* and the time had come, just after 8 o'clock in the morning. She did not fire as she sped through the water but, like a terrier after a bone, dashed straight for the *Merrimac*, as straight as Quartermaster Williams could hold her.

In the solidly encased turret, Lieutenant Greene felt the throb of the engines that meant accelerated speed. For ten

minutes the pounding continued and then over the speaking tube came the order: "Commence firing!"

The guncrew tugged and strained at the ropes that lifted the portstopper. As the gun ran out, Greene, lockstring in hand, caught a first sight of the enemy. Just 50 yards away, her black sides gleamed with cold brilliance in the morning sun. Greene pulled the lockstring and the *Monitor* fired her first shot in battle. It scored a direct hit, but the limited charge of powder behind the shot was not enough to send it smashing through the *Merrimac's* plates. While the crew brought the gun back for sponging, cooling, reloading and resetting the recoil mechanism—a time-consuming operation—the second gun was run out and the second shot was on its way while the first gun was again being readied.

The *Merrimac* felt the *Monitor's* shot and, like a smart fighter, let go at once with all she had. Her first shell made a circular dent in the iron plate of the turret, a scar 2½ inches deep, a perfect mold of a shell. It remained there throughout the *Monitor's* career as a proud battle mark; a few weeks later President Lincoln himself was to finger it in wonder.

The shot removed Lieutenant Worden's first worry. Greene reported at once to the pilot house: the shot had started no boltheads flying and the turret machinery still worked. It had not exploded against the wall but the noise of its impact inside the turret had been deafening. Stodder, who had rested one knee against the wall, was thrown to the deck unconscious. Greene ordered him carried below at the first chance provided by the swing of the turret.

There were few other such direct hits. The *Monitor's* diminutive size gave her great advantage; at such close range the *Merrimac* could not depress her guns sufficiently to hit her target. As the two ships circled each other, many

of the *Merrimac's* shells went flying over the *Monitor* to sink harmlessly to the bottom of Hampton Roads. Worden was reassured. He knew now that the *Merrimac* could not destroy his ship.

As the *Merrimac's* guncrews strained to reload and fire, Worden ordered the *Monitor* to maneuver around the *Merrimac's* stern to try to damage her propeller. The turret fired its second gun. This ball landed 2 feet to one side of the propeller and rudder, badly jolting the *Merrimac* but doing no serious damage. Had that shot been directed 2 feet to the other side, it would have ended the Battle of Hampton Roads.

Now the *Monitor* took another broadside from the *Merrimac*, and Peter Trescott, a gunner, was sent down from the turret, suffering from concussion. Many shells missed their mark but one landed full on the joint that had troubled Worden. It tore up one of the deck plates but did not split the seam. Worden's second worry was groundless. Like the turret, the joint and deck could take any shot the *Merrimac* fired.

It was now 9 a.m. and, in Washington, the agitated Cabinet meeting had reached high ferment. It was not yet known in Government circles or in the coastal towns that all the sunken barges, all the hastily thrown up defenses, all the summoning up of all the men, could not add up to the strength and power and pluck of one small ironclad with fifty-eight men aboard her.

At 9 in Hampton Roads, the two vessels began to circle each other like boxers testing strength and strategy. The wily little *Monitor* kept the *Merrimac* as far away as possible from the *Minnesota,* the original target now forgotten in the *Merrimac's* occupation with the *Monitor.* Aboard the *Minnesota* weary but wary guncrews stayed at their battle stations.

Round and round for the next two hours Worden took his vessel, ordering fire at the *Merrimac* whenever the guns were ready. The *Merrimac* also continued circling to keep the *Monitor* in range. On the *Merrimac* Lieutenant Jones saw from the pilot house one shell after the other miss its mark or, finding its target, hit and fall away "like so many pebblestones thrown by a child." It was as clear to Jones as to Worden that John Ericsson had built a vessel that could withstand, without injury, the heaviest cannonade. He wished fervently that someone had foreseen the need to bring aboard solid iron balls rather than shell and grape. With solid shot leaving the *Merrimac's* guns every two or three minutes, the story might have been different.

On the *Monitor* Greene had made some disconcerting discoveries. The plodding brawn needed to raise the port-stoppers and reset the recoil mechanism of the guns slowed their fire to once every seven or eight minutes. Seen from the *Merrimac* the effect must have been startling: an apparently automatic ship, no man or gun visible aboard her, circling against the *Merrimac's* own circles, smoke blowing from her deck-level vents. Then suddenly, like a camera shutter opened, the port cover cleared away, the ugly muzzle of an 11-inch gun came out, fired and recoiled as the shutter slammed tight.

Samuel Dana Greene later wrote a vivid description of these moments in the turret:

> The effect upon one shut in a revolving drum is perplexing; it is not a simple matter to keep the bearings. White marks had been placed on the stationary deck immediately below the turret to indicate the direction of starboard and port sides, and the bow and stern; but these marks were obliterated early in the action. I would continually ask the captain, "How does the *Merrimac* bear?" He replied, "On the starboard beam," or "On the port quarter," as the case might be. Then

the difficulty was to determine the direction of the starboard beam, or port quarter, or any other bearing. It finally resulted that when a gun was ready for firing, the turret would be started on its revolving journey in search of the target, and when found it was taken "on the fly" because the turret could not accurately be controlled.

Hideous as these circumstances were, Jones and everyone on the *Merrimac* felt the solid impact of the *Monitor's* shots, for most of them hit with a violent jolt and cracked iron plates when they happened to be direct hits. Splinters of metal had already flown high and pierced the *Merrimac's* smokestack.

Although Ramsay could see none of the battle from the *Merrimac's* enclosed engine room, he too, felt its effect, for the riddled smokestack made it increasingly hard to keep up a draft on the furnaces. Engine room smoke filtering along the *Merrimac's* gundeck choked the throats of the gunners. The men looked miserably toward their officers as if to comment that artillery on land had never been like this.

It was not long before Greene, aboard the *Monitor,* made another discovery—this one catastrophic. The speaking tubes to the pilot house had broken down, probably from the vibration caused by the *Merrimac's* shots. Now the young lieutenant was in the lonely world of a sealed and stifling iron drum. He made decisions guided neither by sight nor sound but by blind instinct. He could snatch only the quickest look over the gun barrels when the ports were open and the guns run out, without the faintest hope of knowing what his commander wanted of him or of the guns. But he continued methodically, aiming by chance and firing when ready.

Young Lieutenant Greene would later be lashed with

blame more stinging than the *Merrimac's* gunfire because he did not aim one deadly blow to sink the *Merrimac* on March 9. In his own defense he would give a factual yet modest account of that day, adding: "Worden lost no time bringing the *Monitor* to her battle test. . . . Worden skillfully maneuvered his quick turning vessel. . . . The Captain had cut out our work for us—we had only to follow his pattern." Of his own behavior then, he would have only this comment: "I was twenty-two years of age, and, previous to joining the *Monitor*, had seen less than three years service with the rank of midshipman."

He did not add that from that meager training of "less than three years" had come a performance of steel as stern and resolute as the little ship whose guns Greene, and only Greene, fired in one of the great naval battles of history.

XIII: The pigmy, and the giant

When Lieutenant Worden discovered that the speaking tubes were useless, he detailed two of his staff, Paymaster Keeler and Captain's Clerk Toffey, to race with messages back and forth across the berth deck. Neither was a trained man of the sea and it was not surprising if now and then a nautical order got badly garbled. Nor could the men always deliver their messages promptly; they were forced to wait until the turret had swung into a position that permitted contact with the deck below.

Critical though these circumstances were, Greene had another, even more serious, to contend with. The turret machinery continued to operate despite direct hits, but the revolving wall was heavy and hard to start in motion—harder to stop when in full swing. Stimers could not plan accurately when to release or to shut off the motivating steam pressure. Greene had literally no idea of direction when the ports were closed nor from what position the *Merrimac* fired its guns. He moved from one gun to the other in a chamber now steaming with 140 degrees of heat. He ordered the guns readied as fast as human strength could load them, shouted for the portstoppers to be raised, then peered into the sunny fresh air of another world, found his target, pulled the lockstring, and hoped that his aim would be straight and true. So it was with rounds ten, fifteen, twenty. Under such relentless pressure Lieutenant Greene had also to bear in mind the diminishing supply of

ammunition and find time to order replenishments hoisted into the turret.

And yet another crisis arose as hideous as it had been unpredictable. When the *Monitor* was pointed bow-on at the *Merrimac*, Greene did not dare fire a gun lest he hit his own pilothouse just 55 feet off the muzzle. It was a shattering discovery to add untold anguish to the almost unbearable load already borne by the young lieutenant.

At Fort Monroe and along the shores, among the thousands who watched were many who would later write completely contradictory accounts of what they believed they saw that day. In a semicircle, vessels a safe distance off from the battle were like ringside spectators at a championship bout. The adversaries circled in their own tight little ring. At times the *Monitor* fired not 10 yards off from the *Merrimac* and never once farther away than half a mile. More than one stray shot from the Merrimac fell into the water among the spectator craft and sent them scurrying off in quick fright.

"Black cannon smoke wrapped the combatants in a cloud" and hid them from view. When the smoke cleared to show the *Monitor* "light as a duck on the water," lusty cheers rose from the northern shore where the channel was deeper and gave the Union supporters the better view. Confederate sympathizers, watching from the boats, reserved their cheers for the knockdown blow they were sure would be delivered this day by the mighty *Merrimac*. The partisans of both sides knew, and later wrote of it as though they were imposing no great hardship on a Diety, that Divine Providence was with them on their Northern—or Southern—shores, blessing their purpose, withering the enemy's.

On the *Minnesota*, Van Brunt did not yet dare to believe that his ship was safe. He later wrote of his aston-

ishment at seeing the *Monitor:* ". . . lay herself right alongside of the *Merrimac*. . . . The contrast was that of a pigmy to a giant." He, too, was only a spectator unable to fire his guns for fear of sinking "a friend that would stand by us in our hour of trial."

In the dim light of the *Merrimac's* enclosed gundeck, powder-blackened men worked as fast as they could, always fearful that a ball from the *Monitor* might come through their open ports. Cooks and powder boys passed the heavy sacks of powder and the guns were fired as rapidly as they could be reloaded. When a solid shot from the *Monitor* landed on the vessel's sloping sides, the gunners struggled to keep their footing, but worked on. Below deck the furnaces were fed steadily with shovel after shovel of coal. Ramsay watched the steam gauge with dismay as the pressure dropped slowly, caused by a smokestack now so torn that "a flock of pigeons might have flown through it."

Suddenly an unfamiliar vibration ran through the Confederate ship. It was not the thud of solid metal on her sides but a nervous twitching from stem to stern, as if some monster had laid a heavy trembling hand on her bow. Jones unhappily knew the cause of that vibration and in a moment word from below confirmed his fear. In her constant maneuvering the *Merrimac* had slipped out of the channel and was aground. She could now look forward to being the same sort of sitting duck as the *Minnesota,* at the mercy of the *Monitor's* gunfire.

Excited signals coursed to the engine room. All responsibility for getting the *Merrimac* afloat now rested with Chief Engineer Ramsay. He ordered the safety valves fastened down and shouted to his men to pile into the furnaces cotton waste, chips of wood, anything that would

burn faster than coal, to build up pressure on the engines. Ramsay felt the periodic thud of the *Monitor's* shots and forgot his concern over machinery that had been submerged. In the hot smelly enclosure, raging flames flared through the doors of the opened furnaces bathing the sweating bodies of the men in fitful bursts of crimson light. The fires roared and the engines throbbed.

The *Yorktown* and *Jamestown* had withdrawn out of range of the battle but when the great billows of black smoke showed that the *Merrimac* was aground they signaled their willingness to come alongside and help. Before an answering signal could be run up on the *Merrimac*, another shudder ran through her. Vibrating with the pounding pulse of her engines, she slowly dragged herself off the mud bar. Once again she was afloat.

The *Merrimac's* men could breathe silent prayers of exhausted thanksgiving, but her young commander felt only discouragement and rising impatience. After three hours of battle, the *Minnesota* was still unharmed and the *Monitor* free. An officer of one of the guncrews shook his head. He had fired repeatedly and done no visible damage to the *Monitor*. His opinion was carried back to Jones: "Our powder is precious. After hours of incessant firing I find I can do about as much damage to the *Monitor* by snapping my thumb at her every two minutes and a half."

Jones knew he must devise a new tactic. He issued sharp, crisp orders. Again the engine room gongs clanged. If Lieutenant Jones could not demolish the pesky little ship by gunfire he would sink her by ramming, as Buchanan had rammed the *Cumberland* the day before.

One of the *Merrimac's* men, William Norris, later wrote of it:

Our next move is to run her down . . . now, "back the engines"—now "go ahead"—now "hard a-starboard the helm" —now "hard a-port"—weary, weary minutes. . . . At last we have way on her, and we ram her with all our force. But she is so flat and broad that she merely slides away under our stern, as a floating door would slip away before the cut-water of a barge; all that we could do was push her. . . . Jones now determines to board her; to choke her turret in some way and lash her. . . . At last the enemy is dead ahead. . . . Faster and faster, and we are all excitement, for within twenty minutes the Confederate colors shall fly from the *Monitor's* peak.

The pipes shrilled and the boatswain roared "boarders away!"—but at that moment the little *Monitor* was heading rapidly toward the northern shore where the *Merrimac* could not reach her. As his ship turned and veered out of the deep channel, Lieutenant Greene ran out a gun and fired. That shot shook the *Merrimac* and opened her casement plates. It was, furthermore, the last shot in the *Monitor's* turret. Word that the supply of ammunition was exhausted had been communicated to Worden who had at once ordered his vessel out of the deep channel. With all speed and strength the crews set about hauling up fresh supplies.

Aboard the *Merrimac,* Jones bitterly realized the failure of his desperate tactic. Grim warning came to him from the engine room: the glancing blow off the *Monitor* had opened the leak in the *Merrimac's* bow. Jones knew that whatever he hoped to accomplish must be done quickly. Mistaking the *Monitor's* sudden withdrawal for a signal of her defeat, Jones turned impatiently to an aide, saying, "We have disposed of her. Let us see what we can do with the *Minnesota.*"

Aboard that ship, fast in the mud, captain and men sank

to black despair as they saw the *Monitor* pulling toward shore and the *Merrimac* bearing down steadily on the *Minnesota*. At Van Brunt's command, fire spat from one of the *Minnesota's* big guns, to be answered at once by the *Merrimac's* rifled bow gun. Van Brunt said later that the *Merrimac's* shot passed through the chief engineer's stateroom, the engineers' messroom, amidships, and burst in the boatswain's locker-room, "tearing four rooms all into one in its passage, exploding two charges of powder which set the ship on fire, but it was promptly extinguished."

The *Minnesota* replied with a terrific blast that "would have blown out of the water any timber-built ship in the world." It had no effect on the *Merrimac*. Again she fired. This time her shot landed in the boiler room of a nearby tug, the *Dragon*. The small boat exploded, killing or wounding severely its crew of seven men.

Before Jones could follow up his advantage, he was again beset by the persistent little *Monitor*. Her brief rest for shifting ammunition had lowered the temperature in the turret to a mere 130° and Worden had ordered her with all haste back to the side of Van Brunt's ship. Once again, the *Minnesota* had been spared, as the *Monitor* smartly edged the *Merrimac* away from her—a half-mile, then a mile, in a contest that continued for almost another hour. The two ironclads stayed in close combat, firing gun after gun. As Greene once more ordered the port opened and scored a direct hit, he saw that one of the *Merrimac's* guns was not 10 feet off his ship's pilot house. As the *Merrimac* gun fired, the *Monitor's* ports slammed down closing off the view. But the impact of a heavy shell, and then another, ran through the *Monitor*.

In the sweltering turret Greene felt the deep rapid beat of the engines that meant the *Monitor* was running full

speed ahead. A few seconds later he heard voices from below calling desperately for him. Turning the guns over to Stimers he lowered himself to the berth deck and ran to the pilot house. Here, clinging to the base of the ladder, leaning on Surgeon Logue, was Worden in a pool of blood, his face torn and blackened by gunpowder. Greene helped the Surgeon carry him to his cabin. Worden gasped that the *Merrimac's* shot had smashed against the pilot house, and landed a deadly blow at the small sightholes. The concussion had driven fragments of cement and iron into Worden's face and blinded him; it had torn off and shattered one of the wrought-iron 9-by-12-inch bars covering the pilot house. Worden's face would stay blackened for the rest of his life, but Surgeon Logue soon determined that his injuries were not fatal.

The twenty-two year old lieutenant, now in full command of the *Monitor*, went at once to the pilot house. He found that the damage there was not as great as Worden had at first supposed and that, with a simple adjustment to the steering apparatus, the *Monitor* could return to battle.

Greene ordered her back to the side of the *Minnesota*. To his astonishment, he saw that the *Merrimac*, with her convoy, was headed not toward the *Minnesota* but toward Norfolk, away from the battle, "sagging down at her stern as though badly aleak." Greene ordered one salute to be fired from the turret and did not follow her but stayed, mission accomplished, at the side of the *Minnesota*.

The *Monitor*, unharmed, wore the badges of her gallant service: 21 dents in her armor. She had been struck 8 times on the side plates, twice on the pilothouse, 7 times on the turret, 4 times on the deck. The next morning she received the cheers of the Union and her crew were hailed as "the glory covered sailors." The young man who had handled

her guns in an unrelenting barrage that turned back the mighty *Merrimac* received the following communication from the Navy Department:

March 10, 1862
Aboard the *USS Roanoke*

My dear Mr. Greene,

Under the extraordinary circumstances of the contest yesterday, and the responsibilities devolving on me, and your extreme youth, I have suggested to Captain Marston to send on board the *Monitor* as temporary commanding lieutenant, Thomas O. Selfridge, until the arrival of Commodore Goldsborough which will be in a few days. I appreciate your position and you must appreciate mine and serve with the same zeal and fidelity. With the kindest wishes for you all. Most truly,

G. V. Fox
Asst. Sec. USN.

Greene remained aboard the *Monitor* and served with the same zeal and fidelity, in accordance with his orders.

At Norfolk the *Merrimac* was hailed as a triumphant hero. "Whistles shrilled and guns pounded," while along the northern shore men also celebrated and claimed the victory; it was enough for each that neither vessel had been sunk. The next morning, G. V. Fox telegraphed Washington: "The *Monitor* is down receiving the cheers of the garrisons and vessels. We are clearing all the vessels out of the Roads so that the *Monitor* will be the sole defender."

After the battle, Lieutenant Henry A. Wise, of the Navy's Bureau of Ordnance, boarded the *Monitor* to take her wounded commander back to Washington. He went at once to Worden's cabin.

"Have I saved the *Minnesota?*" Worden asked.

Wise assured him that he had, that she was being stripped of her gear to lighten her draft and, with the rising tide, would soon be safely anchored under the guns of Fort Monroe.

Worden nodded approval: "Then I don't care what becomes of me."

One of the first persons to greet Worden on his arrival in Washington was the President. Mr. Lincoln left a Cabinet meeting instantly when he heard that Worden was at Wise's home.

Lieutenant Worden, sightless from the explosion, was told that the President waited upon him. "You honor me, Mr. President," he said.

Mr. Lincoln grasped Worden's hand. "Sir," he replied, "you have done me more honor than ever I can do you."

XIV: The ships, and the legends

The "Tin Can" became, overnight, a hero to half a nation.

"Our cause," reported Monday morning's *New York Times*, "has had an escape and a triumph whose romantic form stirs the mind with mingled wonder and joy." The *Monitor* was "a heavenly directed little vessel," a rescuer who had arrived at precisely the right moment in the third act of a play. Oliver Wendell Holmes sang of "the age of fables and heroes and demi-gods."

Every one of consequence wired salvos of praise to someone of equal consequence, and the *Monitor* legend grew. It was to sweep the country: in advertisements for cigars—"El Monitor"—for men's hats, for household flour. Even those remotely connected with the *Monitor* would bask for a long time in her prestige. Ironworkers in Nashua, New Hampshire; in Laurel Forge, Pennsylvania; in Bridgewater, Massachusetts, were proud to have helped forge the *Monitor's* plates. Four hundred men of the Troy foundry marched to the home of their employer, John Griswold, one of the three Ericsson partners. They brandished torches and a banner blazoned with: "Honor to whom all honor is due—the *Monitor* has saved everything inside and outside the Fort." Brooklyn patriots turned out to parade for the boys who had built Ericsson's ship.

Ericsson, "the greatest man living," was presented with a golden replica of his ship, valued at $7,000 and weighing

14 pounds. Passers-by embraced him on the street and public meetings called for his appointment as Chief Engineer of the United States Navy at whatever price he cared to name. Young folk, country-wide, danced to the tune of "Ericsson's Gallope."

The dedicated engineer took this adulation in his long even stride, joining in no celebrations but sending a forthright wire to Assistant Secretary of the Navy Fox, who had stayed on at Fort Monroe: "Fire your guns at a dead level and you will sink the pirates in two rounds."

Ericsson was at work on improved designs for future monitors—waiting only a signal from the Navy Department. In all truth, he awaited more than an order for future work. The final payment for work he had already delivered merely as one of the contractors for the building of the *Monitor* was not made by the Navy until March 14, five days after his ironclad had proven herself in battle. This delay could not have unduly troubled a man who, as the *Monitor's* inventor, had refused to register the patentable devices in his ship. These he presented to the Government as his "contribution to the glorious cause of the Union," thereby relinquishing additional thousands of dollars that could have guaranteed him financial security for life.

When, soon after the battle, Cornelius Bushnell announced his candidacy for the Connecticut State Legislature, he found little need to campaign. The streets of New Haven echoed and re-echoed with the oratory of his advocates: "His *Monitor* has saved the country millions of dollars. . . . Let every man who appreciates the service Mr. Bushnell has rendered give him a vote." Mr. Bushnell was elected.

Greatest esteem poured over Worden. When Secretary Stanton, never one to keep out of the Navy's business,

heard that the meager-salaried lieutenant might permanently lose the sight of one eye, he trumpeted, "We will fill it with diamonds!" Every adult and child in the Northern States was urged to contribute at least one nickel toward the welfare of the Worden family. At the insistence of President Lincoln, the wounded officer was eventually upgraded by special Act of Congress: first to Captain and, later, Admiral.

But of all the tributes Worden received, the one that must have pleased him most came from Fort Monroe, sent by Fox to Welles on the 11th of March. It read: "Tell Wise to tell me how Worden's eyes are. All the crew wish to know. They love him."

People everywhere animatedly discussed the complicated details of the turret and its machinery. The favorite cartoon was a sketch of John Bull, as a plump and weeping lad in knickerbockers, who was enraged because Ericsson, portrayed as the owner of a toy shop, refused to sell him a *Monitor*. The smart set that read *Vanity Fair* chuckled over a squib, and passed it along merrily, that the British upper classes were setting their tables with ironware and shoeing their horses with silver. Self-appointed poets-laureate outstripped one another in the rush to publish epic poems in the daily press and illustrated weeklies. The rhythm of one such caught public fancy:

> But Hampton Roads saw another sight
> When the morning dawned on a second fight,
> For behold! the *Monitor*, in the night
> Had come to sustain the North.

Gideon Welles' moody spirits soared. The Secretary of the Navy could now accept plaudits for a maritime engagement. He celebrated quietly in the early hours of

March 10 by settling a small score with Secretary Stanton, his opposite number at the War Department. Welles officially suspended the operation—proposed by Stanton, seconded by the President, and administered by the Navy's Captain Dahlgren—to sink barges in the Potomac. But that action, like the swing of the *Monitor's* turret, proved topheavy and hard to handle. Quartermaster General Meigs, of the War Department, had it under his efficient, bristling wing and nothing as low, in his opinion, as an order from the Navy Department could halt him. He reported briskly to Captain Dahlgren: "How many canal boats do you want? . . . I'll send 8 . . . . Sending 15 canal boats . . . Have sent 23 in all . . . Do you want more?" On March 14, the conscientious Quartermaster was still occupied with barges; he dispatched 8 more, explaining: "I have seen nothing yet to satisfy me that in the next engagement the *Monitor* will not be sunk." He added, somewhat redundantly: "I believe in precaution."

As though in support of the War Department's feeling of insecurity, disturbing messages filtered in from Fort Monroe. "The *Merrimac* is being repaired and may be out again. . . . The *Monitor* is our chief defender. If any accident take her, it will be too bad for the North."

The merest hint of a possible second onslaught from the *Merrimac* was disquieting. The North still loved the *Monitor* and polished every facet of her fame, but insidious doubts now crept in to deaden the gleam of the *Monitor's* "victory."

Why was this *Monitor* the "chief defender"? Whose stupidity had delayed the construction of a fleet of monitors? What excuse had Greene for not having overtaken and demolished the *Merrimac* as she retreated toward Norfolk? The public cried for some head to fall for the loss of the *Congress* and the *Cumberland,* and the narrow

escape of the *Minnesota*, and reproachful eyes focused once again on the bowed and be-wigged head of Gideon Welles. Sentiment called for his dismissal in a mood sharply etched by the acid comment: "All's well that ends Welles."

Suggestions poured into the Navy Department importuning its Secretary to capture the *Merrimac*. He was advised to throw explosives down the ironclad's smokestack or to direct sprays of "liquid fire" through her open ports. H. K. Lawrence, a "patriot," offered his services:

Washington, D. C.
April 18, 1862

Sir: I propose to the Navy Department to destroy the rebel ironclad steamers *Merrimac*, *Jamestown* and *Yorktown* within twenty days from this date, the United States government paying me for the destruction of the steamer *Merrimac* $500,000, and for the destruction of the steamers *Jamestown* and *Yorktown* $100,000 apiece. . . . The government is to furnish me with 2,000 pounds of gunpowder . . . and with the necessary transportation for my men and apparatus from the city of Washington to a point as near the said steamers as shall be deemed safe to venture.

Mr. Lawrence had the honor to remain Mr. Welles' "obedient servant." When Welles asked for details, Lawrence confided that he planned to prepare submarine torpedoes and expected the Navy Department to furnish him with facilities and material for their manufacture at the arsenal in Washington. He reduced his rates to $100,000 for the destruction of all three ships. At this point, Mr. Lawrence fades from history.

As the public grew increasingly restless over the unchallenged existence of the *Merrimac*, all the principals involved with the *Monitor* sought to free themselves from any possible reproach. Even the aloof Ericsson stooped to

explain that, though Worden and his crew were brave and noble seamen, they were not trained engineers; they had not known how to utilize the *Monitor's* potential for undisputed conquest.

The supporters of the Union fought a series of small civil wars whose contenders seemed, at times, as bitterly pitted against each other as were the North and the South. Not least among these were the Federal Army and Navy. Secretary Stanton repeatedly emphasized his belief in the ever-present danger of renewed attack by the South's iron monster. He implied that the *Monitor*, with but 2 guns, could hardly be worth her weight in iron.

Mistrusting the Navy's ability to defend Hampton Roads, he demanded daily reports from Fort Monroe. He instructed General Wool to secure twenty old ships and chain them together at anchor, stretched across the deep channel between Old Point and the Rip Raps—the egress to the North Atlantic. Nor was he reassured by Wool's response that Commodore Goldsborough believed the *Merrimac* was unseaworthy and incapable of venturing into open water.

Stanton refused to be reconciled to any belief in the *Monitor's* effective guardianship of the northern shore. He asserted volubly that if Ericsson's ship would not—or could not—engage the enemy, then some other ship must. He persuaded Commodore Vanderbilt to sell to the government, in exchange for $1, the *Vanderbilt*, the fastest and largest ship in the Commodore's fleet of ocean liners.

The Army's *Vanderbilt* departed for Hampton Roads on March 26 and, on Stanton's instruction, was delivered to General Wool at Fort Monroe. That nonplused soldier quite understandably turned her over to the Navy. Stanton promptly ordered Commodore Goldsborough to give her back. Assistant Secretary of the Army P. H. Watson, who

happened to be at the Roads, pointed out to Stanton the incongruity of civil war between branches of the armed services, and Stanton reluctantly surrendered his ship. But he immediately chartered, at a cost of $2,000 a day, another one, Vanderbilt's *Ocean Queen*, and dispatched her to the Roads. Not to be outdone, the Navy chartered the steamers *Illinois* and *Arago*, at a combined per diem of $2,600, in hasty answer to the enlarged public demand, spearheaded by Stanton, for decisive action against the *Merrimac*.

The *Monitor*, meanwhile, lay at her moorings, low and black and threatening.

In all the hubbub and intramural warfare, there were sane voices and reasoning minds. One of the earliest, yet perhaps the most useful, comment on the *Monitor* and her capabilities had come to General McClellan from G. V. Fox.

The message had been sent on March 9 while cheers for the *Monitor's* performance against the *Merrimac* still resounded at Fort Monroe. The Assistant Secretary of the Navy knew to what an extent McClellan's Army of the Potomac depended upon the little ironclad for its plan to move up the York Peninsula toward Richmond. His dispatch contained a calm and assured summation of what McClellan could expect of the doughty "Tin Can":

Fort Monroe
March 9th, 10:45 p.m.

The performance of the *Monitor* today shows a slight superiority in favor of the *Monitor*, as the *Merrimac* was forced to retreat to Norfolk after a few hours' engagement. . . . The *Monitor* is ready for her tomorrow. . . . [The *Merrimac*] is an ugly customer and it is too good luck to believe we are yet clear of her. . . . Our hopes are upon the *Monitor* and the day's work shows that the *Merrimac* must attend to her alone.

This unemotional statement built the bridge to the next developement in the *Monitor's* usefulness to the Northern cause: it motivated McClellan's decision to move thousands of men, the vanguard of his Army, to Fort Monroe. While Stanton, and his friends of little faith, recruited the mercenary services of chartered ships, the Navy's own *Monitor* stood off the Fort, saving, as had been said by the ironmongers of Troy, all without and within.

Following the battle of March 9, every emotion in the North had its twin in the Confederacy.

Joy spread through the South with stories that repeated and added luster to the honors bestowed by Jefferson Davis on the men of the *Merrimac*. Confederate officials talked of "the most remarkable victory, the greatest naval achievement of all time." The *Merrimac* had met the best the industrial North could produce, and had survived. Armored ships became the fashion, discussed over the candle-lit tables of Richmond and Petersburg, Charleston and Montgomery. The ladies of the South sponsored committees for "Ironclad Bazaars" to raise funds for more and more *Merrimacs*. Thus did a revitalized South snatch at the hope born of this "victory" to believe that the War between the States was all but won.

As in the North, the first waves of hysterical triumph were followed by bewildered doubts, then open discontent. Why had Lieutenant Jones not pursued the battle that the South had so obviously won? What bungling idiocy and ill-timed plan had left the great "war machine" at the mercy of the tides and of overcautious, perhaps "Yankee sympathizing," pilots? Had not John L. Porter originally proposed the construction of an ironclad during the earliest months of the war? Why had the Confederate Navy De-

partment taken until July 11, 1861, to order the *Merrimac's* conversion?

That the *Merrimac* had won the battle with the *Monitor* was clear to all Southerners. But where, they soon asked, were the tokens of victory? The *Monitor* was still afloat bottling up the Chesapeake and a grave threat to Norfolk and Richmond. Where now was the Southern ship that was to have broken the blockade and fired on New York banking houses?

Word soon spread that the conquering *Merrimac* was in drydock being overhauled. During the two days of battle, she had received 100 indentations in her armor, of which it was believed that the *Monitor* guns had accounted for at least 20. The replacement of her smashed iron plates, her smokestack and ram continued for three weeks. Her bow was again made watertight and her metal band extended an additional foot below the waterline. Iron shutters had been planned but were not yet added to her ports. Men, women and children held lanterns during the night so that the repairs could speed uninterrupted around the clock and the *Merrimac* could prove, for all time, her mastery of Hampton Roads and all that lay beyond.

The work was done under greatest pressure in constant fear that the *Monitor* would slip her moorings and appear suddenly at the mouth of the Elizabeth River. The Confederacy did not then know that it was protected from an attack by the *Monitor* by specific order of no less a person than the President of the United States.

On the evening of March 10, after President Lincoln and Worden had exchanged greetings, the President remained for a lengthy chat at the bedside of the wounded lieutenant. He interrogated Worden closely on the performance in battle of his unconventional ship, questioning quietly, listening attentively. As he returned to the White

House, he may have pondered deeply one phase of Worden's information: that the flat, low-lying *Monitor,* gallant fighting machine though she was, was nevertheless vulnerable to capture by boarding parties. He immediately requested Gideon Welles to send a message to Fox at Fort Monroe: "It is directed by the President that the *Monitor* be not too much exposed; that under no event shall any attempt be made to proceed with her unattended to Norfolk." The President seemingly knew better than blustering Stanton the strategic value of Ericsson's ship.

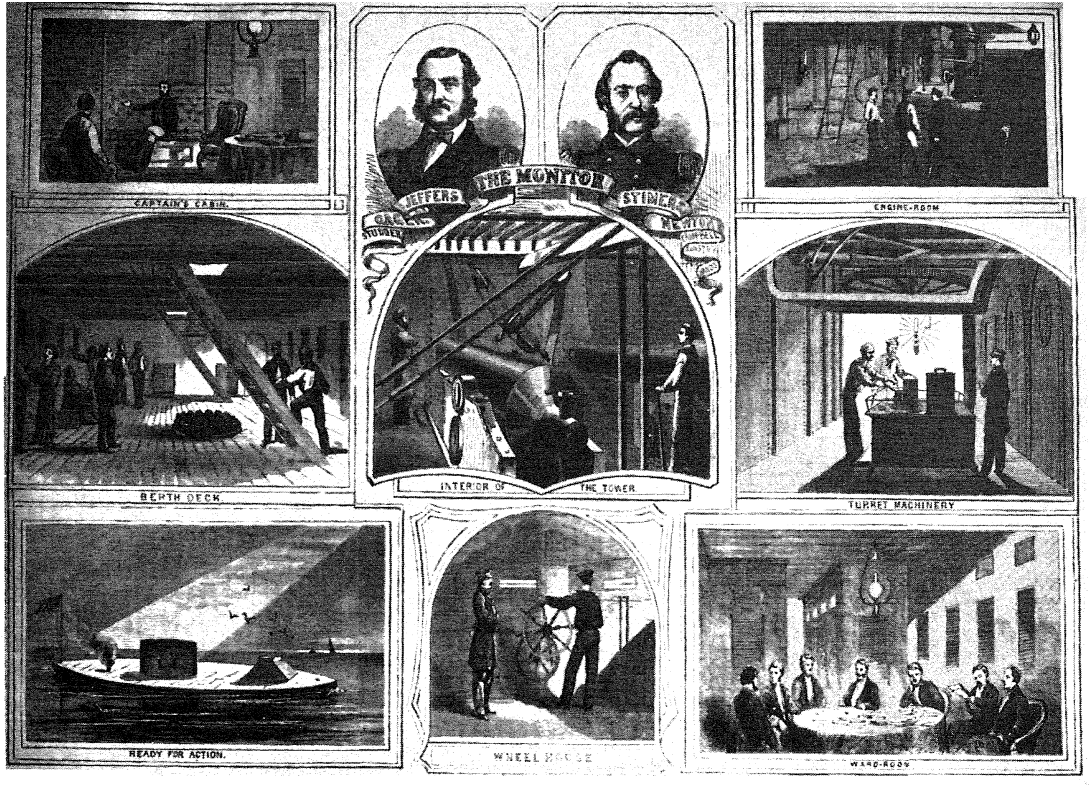
The *Monitor* never again engaged in close combat in Hampton Roads, although she was immediately put back into battle condition. Her pilot house was rebuilt with slanting rather than vertical sides, the better to deflect enemy shots. The hit on her pilot house had resulted in her only serious injury.

The *Monitor's* condition spoke well for Worden's handling of her, for she was not a flawless invention. Errors in her plan and execution had resulted from the haste in which she was conceived and constructed. Worden admitted that she was not seaworthy; Greene had sound reason to know of the near-tragic imperfections in her design; men who later commanded her reported many unsatisfactory features. But none of these faults outweighed the psychological effect of her initial appearance in Hampton Roads or the shocking impact of her first tenacious defense of the *Minnesota.* Waiting, on the defensive, for another onslaught from the *Merrimac,* she fulfilled Ericsson's hope of making the sea "an uncomfortable place for a maritime bully." She was a small ship, but she represented an enormous idea—one that neutralized the threat of the turret-less Southern ironclad.

Though world opinions about the *Monitor* were as varied as gradations of the spectrum, there was no uncertainty

about her in a statement that appeared, shortly after her battle, in the *London Times*:

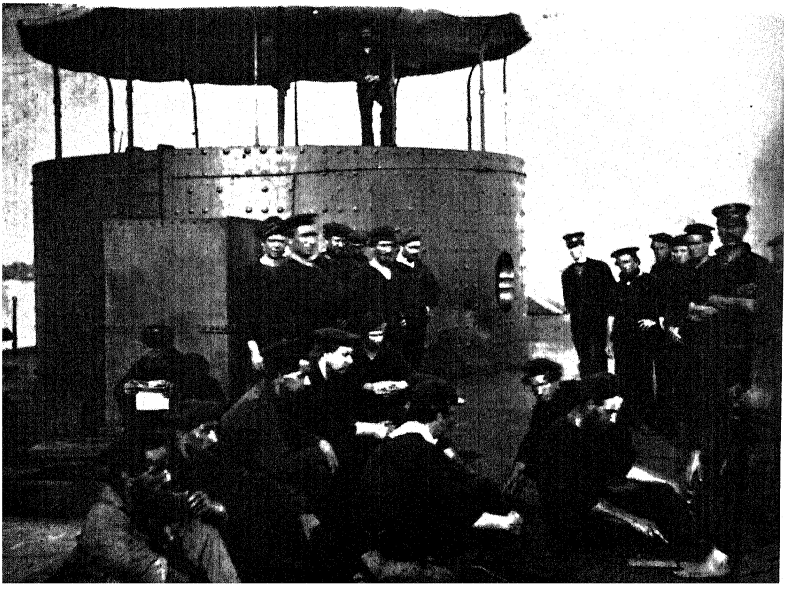
Whereas we had available for immediate purposes one hundred and forty-nine first class ships, we now have two, these two being the *Warrior* and *Ironside*. There is not now a ship in the English Navy, apart from these two, that it would not be madness to trust to an engagement against that little *Monitor*.



Views of the *Monitor*, mainly interior.

Deck view showing canopy over the *Monitor's* gun turret.

A contemporary photo of some of the *Monitor's* crew, on deck.



XV: Mr. Lincoln takes a trip

Catesby ap R. Jones' reward for his services aboard the *Merrimac* on March 9, like Greene's on the *Monitor*, was the announcement that his youth and inexperience made it inadvisable for the Confederate Navy to retain him in command of her only ironclad. That prize plum was presented to Flag Officer Josiah Tattnall who had been trained in the elegant days of gallant wooden ships and had "gone South" after years of glittering service in the China Seas, in the War of 1812 and the Mexican War. Tall, pompous, florid-complexioned, with deep-set blue eyes, aggressive jaw and pouting lower lip, he looked as gallantly seaworthy as a stately old ship-of-the-line. He shared the South's impatience for decisive results and fully appreciated the heroic quality of his assignment to the *Merrimac*. Of this he wrote to Secretary Mallory: "I have been aware from the first that my command is dangerous to my reputation, from the expectations of the public founded on the success of Commodore Buchanan." Tattnall knew that the officers and men of the *Merrimac* had petitioned that Lieutenant Jones be left in command. That knowledge, and a message from Secretary Mallory, made him all the more eager to show his mettle. The message had read: "If we can sink [the *Monitor*] in the Roads, the destruction of every other wooden vessel will be an easy task." Captain Tattnall's mind was set on victory and all its prizes.

During shackled days while the *Merrimac* was under

repair, the impatient Tattnall and his officers reviewed the battle performance of the "Tin Can" and knew that she could not be subdued by gunfire. They decided at a meeting of all the captains of the squadron that she would be an easy prey to boarding parties: "The results of such a victory," Secretary Mallory had urged, "may be some millions of money and, for the glory of our flag, some thousands of lives."

Northern spies made their way to Fort Monroe with detailed outlines of the boarding plans. Once again apprehension gripped the North, and panic raced to the cities with fresh fear that the *Monitor* would be taken. Vigilant eyes of men aboard the ships of the Union fleet studied the horizon for the first sign of attack. It came on April 11, when the *Merrimac* and her consorts, accompanied by the *Harmony* and another tug, steamed into the Roads.

Aboard each escort ship were three groups equipped for and well rehearsed in special assignments. Some were prepared to throw explosives down the *Monitor's* ventilator shafts, others to smother her pilot house in large sheets of wet canvas. The third group had been instructed to drive wedges under her turret and jam its machinery. If these men knew that the *Monitor* had been outfitted with hoses especially designed to repel boarders with jets of scalding water, they were not intimidated by that fact. Each man stood ready to perform his special task. But completion of the carefully laid plan called for the assistance of the *Monitor*: to be boarded she must first emerge from the shallows into the deeper water where the *Merrimac* and her escorts could come aboard. And that, in accordance with Mr. Lincoln's plan for her, is precisely what the *Monitor* did not do.

The first warning signal came from the *Minnesota* at 7 a.m.: "Beat to quarters." The response could not have

been more flattering to Tattnall's ambitions. "All the transports and vessels cleared out from the upper roads. Several of them were crowded with troops and moved down out of danger. Steam tugs ran whistling and screaming about, towing strings of vessels behind them, whilst sloops, schooners and brigs, taking advantage of what air there was, got up sail and moved out of harm's way."

The Union fleet moved a short distance off the northern shore where it had been anchored in two columns. To eastward were the *Minnesota, Vanderbilt,* and several other vessels. Toward Newport News, some 6½ miles from Old Point, was a second column composed of gunboats and the chartered steamers *Oriole, Arago, Illinois,* and *Ericsson,* with the *Baltimore,* a fast side-wheeler formerly owned by the Charleston Line. The *Rhode Island,* a supply ship well equipped with guns, was close by the *Monitor*—as she would be again, off Cape Hatteras, on a fateful day in late December.

The British *Rinaldo* and the French *Gassendi* were at the same neutral anchorages, midway between the Rip Raps and Fort Monroe, from which they had observed preceding battles; still under orders from their governments to report any weak chink in the *Monitor's* armor; ever alert to the British and French self-interest that might favor official recognition of the Confederate States.

Between the two columns of Union ships, like a ballerina poised before her entrance, was the *Monitor,* accompanied by a small, and only partially-armored ship, the *Naugatuck.* Lieutenant William Jeffers, who had succeeded Thomas O. Selfridge in command of the *Monitor,* had been given specific instructions to wait, on the defensive, for an attack.

The *Monitor,* steam up, her men eager to finish the work begun on March 9, looked in vain for the *Minnesota's* signal to advance. It never came—even when the *Raleigh* and the

Beaufort captured, and hoisted their colors on, three small Federal vessels that had too long delayed their return to shore. They were two brigs, the property of the Quartermaster's Department: the *Marcus* and the *Saboah*, and a schooner, the *Catherine T. Dix*. The *Merrimac* did not attack. For the next four hours, her guns silent, she steamed about hoping to lure the *Monitor* into the deep channel. She took a position midway between Newport News and Sewall's Point, careful to stay out of the range of the guns of Fort Monroe.

The *Monitor's* refusal to accept his challenge was an unsettling blow to Captain Tattnall. On entering the Roads, he had opened an address to his men with, "My good fellows," and had closed it with, "Now you go to your stations and I'll to mine!" and had climbed majestically to the grating of his ship where he "seated himself coolly in an armchair." As fruitless hours passed, his aplomb ebbed with the diminishing hope that the *Monitor* would come out and initiate the fight. His latent suspicions burgeoned into certainty that the Union fleet was trying to lure his ship to Newport News, "entangle her in obstructions," and then advance to bombard Norfolk. Tattnall's fervor shrank as the history-making battle that he coveted developed into what seemed an attenuated chess match. The same sort of circumstance that locked the *Monitor* under the guns of Fort Monroe also held the *Merrimac* in check. To the North, McClellan, after many delays, was finally besieging Yorktown; to the South were Huger's Confederate divisions and a new ironclad, the *Richmond*, under construction at the Gosport Navy Yard. Neither side dared to risk the capture of its foremost ship.

After hours of futile cruising about, Lieutenant Jones reported to Captain Tattnall that the *Merrimac's* signal corps officer had received instructions from shore not to

attack but to return at once to Sewall's Point. Tattnall glared angrily toward Norfolk in the direction of General Huger and his troops. "Huger has outwitted me," he growled.

"The order is peremptory, sir," Jones ventured, politely.

Captain Tattnall sprang from his chair. "Do what you please," he barked. "I leave you in command. I am going to bed." He went below. For the second time in his career Lieutenant Jones was left in command of the *Merrimac*.

A little before sunset, as if to issue one more wistful invitation, the *Merrimac* fired a shot toward Fort Monroe. It was answered by one of the new long-range guns on the *Naugatuck* with a shot that traveled an estimated 3½ miles to fall just short of the position of the *Beaufort*. "Blamed if they wasn't shooting me," exclaimed Bill Arp, a Confederate seaman, "before I knew they was in the county."

This was the sum of the battle of April 11. Just after sundown, the Confederate ships retired to moorings off Sewall's Point. A few days later the entire squadron withdrew to Norfolk, the *Merrimac* for further repairs to her engines. Jones later said, "Commander Tattnall commanded the *Merrimac* forty-five days of which time there were only thirteen days that she was not in dock or in the hands of the Navy Yard."

Of what happened—or failed to happen—on April 11, there are conflicting accounts. The South claimed that, at the alarm from the *Minnesota*, the Union ships fled out of the Roads or retreated to Fort Monroe. Viewers on the northern side stated in direct opposition that their fleet had weighed anchor and, "engines turning lazily, drifted eastward," waiting only for the right moment to bear down upon the *Merrimac*.

Opposing explanations were made by both commanders. Goldsborough's was that "the *Merrimac* and her consorts

all made their appearance yesterday morning and remained between Sewall's Point and Newport News, out of gunshot from Fort Monroe and the Rip Raps until late in the afternoon when they returned to their anchorage. Had the *Merrimac* engaged the *Monitor,* which she might have done, I was quite prepared with several vessels . . . to run her down."

Balanced against that is Tattnall's report: "We passed the battery and stood directly for the enemy for the purpose of engaging him and I thought an action certain. . . . Before, however, we got within gunshot, the enemy . . . retired with all speed under the protection of the guns of the Fortress, followed by the *Virginia* until the shells from the Rip Raps passed over her. The *Virginia* was then placed at her moorings at Sewall's Point."

Wherever the truth lay between the completely conflicting stories, it was apparent that neither side, North or South, wished to start an engagement—on that day, or during the dreary weeks ahead.

The *Monitor* men kept a "bright lookout" toward the south, but the *Merrimac's* black smoke failed to show on the horizon. In the following weeks, the *Monitor* was busy taking aboard coal and oil for the engines; belting for the blower fans; hand grenades and canisters; incendiary shot and shells. Mechanics came over the side to complete the restoration of the pilot house. Senator Hale, Chairman of the Senate Naval Committee, and a "large party of ladies and gentlemen" arrived to appraise the wondrous little ship. The Assistant Secretary of the Navy returned and brought with him two Senators, eager to tell their constituents of their exciting visit.

With no alternative but to brood over their uselessness, the crew of the *Monitor* sat down to write to their former commander:

USS Monitor, Hampton Roads
April 24, 1862

Dear Sir:

These few lines is from your own crew of the Monitor, with their kindest love to you their Honored Captain, hoping to God that they will have the pleasure of welcoming you back to us again soon, for we are all ready able and willing to meet Death or anything else, only give us back our Captain again. Dear Captain we have got your Pilot-house fixed and all ready for you when you get well again; and we all sincerely hope that soon we will have the pleasure of welcoming you back to it. . . . We are waiting very patiently to engage our Antagonist if we could only get a chance to do so. The last time she came out we all thought we would have the Pleasure of sinking her. But we all got disappointed for we did not fire one shot and the Norfolk papers says we are cowards in the Monitor—and all we want is a chance to show them where it lies with you for our Captain we can teach them who is cowards. But there is a great deal that we would like to write to you but we think you will soon be with us again yourself. But we all join in with our kindest love to you, hoping that God will restore you to us again and hoping that your sufferings is at an end now, and we are all so glad to hear that your eyesight will be spaired to you again. We would wish to write more to you if we have your kind Permission to do so but at present we all conclude by tendering to you our kindest Love and affection, to our Dear and Honored Captain.

We remain untill Death your Affectionate Crew

THE MONITOR BOYS

The *Monitor* Boys were not alone in their discontent. Their reaction was shared by many indignant citizens in the North. The daily newspapers in Union towns castigated the "humiliating disgraceful affair" and hurled insulting broadsides in partial relief from the still tormenting,

and very real, terror of the *Merrimac*. The most vulnerable target was, as usual, Gideon Welles who spent sleepless nights and prayerful days trying to convince his detractors that he had not solely been responsible for the *Monitor's* failure, on two occasions, to destroy the *Merrimac*. He listed the factors that had contributed to the *Monitor's* delayed arrival in Hampton Roads, on March 9. He was not free to disclose that the defensive role the *Monitor* had played on April 11 had been on instruction from the highest source. No one cared what he said, or even bothered to listen. Welles' "imbecility" had "paralyzed the best sailors and the best Navy in the world. . . . If the rebels will only send a gunboat or two down the Potomac and throw a large shell into the sleeping apartment of the venerable head of the Navy Department, we will forgive them all the damage they may do us in a year."

The situation was custom-built for the quick temper and sharp speech of the Secretary of the Army. Stanton was not given to discreet silence where the faults of the Navy were concerned. He had never been able to rid himself of the dread that the *Merrimac* would escape into Chesapeake Bay and lay siege to Washington. He now nursed a more appalling thought. He was convinced that the *Merrimac* could slip past Newport News at night, steam up the James River and attack from the rear McClellan's regiments, encamped before Yorktown. Nor was the *Merrimac* his only plague. She merely added to the almost insoluble problem Stanton had in his own bailiwick: the uncontrollable, enigmatic, self-assertive personality of General George B. McClellan.

General McClellan was well called by his devoted troops "Little Mac—the Young Napoleon." The General had a lively and very set mind of his own, and dreams of power that went as high as the Presidency of the United States.

No amount of persuasion from Stanton or the President could hasten him along the route that led to Richmond. His march up the York Peninsula between the James and York Rivers, began on April 4—and halted for a month before Yorktown. The South's General Magruder was encamped there; McClellan relied heavily on the frequently exaggerated reports of Pinkerton detectives to inform him of the numbers of the enemy troops. He refused to budge without more supplies, more ammunition, more guns, more men. He demanded gunboats and ironclads to back up his advance and help reduce the Confederate forts that blocked the way along the shores of the James River.

Stanton informed McClellan that, with the *Merrimac* at large, as many reserves as Washington could safely spare had already been assigned to the Peninsular Campaign. Gustavus Fox stated flatly that he did not think that the Navy should be required to "lift the Army of the Potomac out of the mire"; with the *Merrimac* still afloat, no ships could be sent out of Hampton Roads. Radicals in Washington implied that the General, sympathetic toward the South, was secretly conspiring to weaken the capital's defenses. Rabid Republicans believed that he was more interested in "rebuilding the Democratic Party than in the Army of the Potomac."

These were the vexations that Stanton brought daily to President Lincoln. Neither knew quite how to cope with them, but Stanton pounded away at the need for action. McClellan's tactics, he said, "would shake the Administration to pieces," and "spell the ruin of the nation." On April 16, President Lincoln sent a terse message to McClellan: "You must act." Stanton followed it up immediately with: "Let us have Yorktown and Magruder and his gang by May 1, and the job will be done."

May 1, 1862 passed, and Yorktown was not taken.

In spite of the creeping pace of McClellan's advance up the York Peninsula, the Confederacy was unnerved by it, and feared an ultimate thrust toward Richmond. The South's concern deepened when, on May 5, McClellan finally moved into Yorktown and Magruder's men fell back for the defense of the Confederate capital. Events were shaping the course of another significant assignment for the *Monitor*.

Stanton learned by way of spies that Huger's 15,000 men were slowly being moved out of Norfolk. They were marching north by a circuitous route to bolster the defenses around Richmond. The Secretary of War believed that Norfolk's weakened position provided the precisely right circumstances for the Army, under the orders of Edwin McMasters Stanton, to cross the Roads and take the city.

But the transportation of troops from Fort Monroe to Norfolk would require the co-operation of the naval forces at Hampton Roads. Stanton did not wish to deal with the Navy's Gideon Welles. He knew that the only person who could issue orders to the Navy, as well as the Army, was the President of the United States. Stanton wished to travel to Virginia in speed, comfort and style. To meet these requirements, his beady sights were trained on the *Miami*, the fastest and finest of the revenue cutters. The *Miami* could be procured for the journey only by special order from the Treasury Department.

The wily Stanton puzzled through these problems of protocol. On the night of May 5, he came up with an adroit solution: he prevailed upon Mr. Lincoln and Mr. Lincoln's Secretary of the Treasury, Mr. Salmon P. Chase, to accompany him down the Potomac, on a trip to Hampton Roads.

XVI: "Admiral-General Lincoln"

President Lincoln boarded the *Miami* on a dreary, rain-swept night. His tall hat and loosely draped clothes created a simple and homespun impression for one in command of a great Army and Navy. The two Cabinet members by his side were of far greater notability: Stanton, stern-faced, heavy-set, his manner as assured and uncompromising as a brilliant trial attorney; Chase, tall and massive, the Euclidean scholar, the rigid churchman and future Supreme Court Justice, prideful in his bearing, immaculate in his dress. If Mr. Lincoln's shoulders drooped, the burden they carried may have been, not the problems of war and state, but the knowledge that he was to spend the next days in close quarters with these two dynamic, dedicated, and utterly humorless men. In their company, a cruise down the Potomac on a wind-swept, wet Spring night, may have seemed a very grim prospect.

But Mr. Lincoln was a patient man, with shrewd understanding of those he chose to have about him. Stanton could be argumentative and provoking; the President admired his qualities of quick decision and ability to get things done, his direct approach to any target. With characteristic foresight, Stanton had included in the party a fourth member: General Egbert L. Viele. General Viele had already been chosen military governor of the occupation of Norfolk—so certain was Stanton of the success of his mission.

Continued bad weather delayed the *Miami* in Chesapeake Bay. It did not reach Fort Monroe until the evening of May 6. The President's party at once boarded the *Minnesota* to confer with Commodore Goldsborough and later went to the Fort as the guests of General Wool. The next day, like any group of zealous sightseers, they toured the Roads, inspecting the Fort and the detachments on the Rip Raps. They examined the new war fittings of the *Vanderbilt*, reserving for the last a prolonged tour of the *Monitor*. Mr. Lincoln silently studied her numerous battle scars, and must have thought of the significant day when he held in his hand a black, toy-sized model and had recommended it to the Board on Ironclads.

In late afternoon the *Merrimac* left her moorings at Sewall's Point and the important visitors hastily retired to the Fort. The Southern ship proceeded slowly and without menace toward Craney Island. It was not learned until later that she had been ordered there to await a moment of chance to steal past the Newport News guns and escape toward Richmond.

Having familiarized himself with the locale and conferred with principal officers of the Army and Navy, the President was ready, on May 8, to issue his commands. At his order, the *Galena* and two wooden gunboats were sent up the James River to support McClellan. Mr. Lincoln then turned his attention toward his pet ironclad: the *Monitor*, in company with the smaller *Naugatuck*, was ordered to proceed across the Roads to bombard Sewall's Point. They were to be followed by the *Minnesota*, *Vanderbilt* and other vessels whose captains carried Mr. Lincoln's instructions to close in and ram the *Merrimac* if she appeared and attempted to engage the *Monitor* in close combat.

"The demonstration resulted," Goldsborough wrote

later, "in establishing the fact that the number of guns on Sewall's Point . . . is not greater than 17 and the number of men now stationed there is comparatively limited."

That night, the captain of a tugboat, the *J. B. White*, slipped away from the southern shore across dark Hampton waters and brought further reassurance to the North: the Confederates were making preparations to abandon Norfolk and the Gosport Navy Yard.

The next day, May 9, was a lively one for the strategists of the Presidential party. There was, first, the need to check the validity of the report that had been given by the captain of the *J. B. White*. Toward that end, the President rose early and ordered a tug to take him and Stanton out to the *Monitor*. He wished to deliver his instructions in person to the commanding officer, Lieutenant William Jeffers. As on the previous day, he wished the *Monitor* to lead the ships across the Roads to Sewall's Point: "to ascertain whether those works had been abandoned or re-enforced."

Stanton had previously issued orders to General Wool to have ready a force of 6,000 men, prepared to embark on transports. Chase had gone eastward in the *Miami* to explore the south shore for a possible landing for Union troops. He found one at a lonely spot near Willoughby's Point on a long narrow sand spit that stretched out from the southern shore to within 5 miles of Old Point Comfort.

Pleased with the results of his scouting, Chase hurried back to the Fort and found the President in quiet conference with a pilot. Mr. Lincoln nodded to his Secretary and remarked casually that he had settled on an admirable location for the debarkation of troops on the southern shore. The President and the pilot boarded the *Baltimore* with Stanton; Chase, somewhat deflated, followed in the *Miami* to where Mr. Lincoln was standing on the beach

very near the spot previously selected by the Treasury Department. The Norfolk Ferry leaves today from the land President Lincoln trod.

The party hurried back to the Fort to discuss with General Wool the next phase of the operation. The President watched, from Army headquarters, as the little *Monitor* led the Union ships toward the Confederate shore to fire their guns on Sewall's Point.

Their action was returned by spasmodic gunfire from the Confederate batteries. For a third time the *Merrimac's* black smoke signaled her approach. When she emerged from the Elizabeth River to be confronted by the *Monitor* and other ships of the squadron, the *Merrimac* promptly retired. The Federal ships, having completed their exploratory assignment, returned to their own side of the Bay.

Toward evening, desultory firing again crackled from Sewall's Point. At the same time, Union troops began to embark, prepared to occupy Norfolk. At 9 p.m. lookouts in the tops of the *Merrimac's* escort ships saw "shells bursting in the direction of Willoughby's Point"; at daylight, on May 10, the captain of the *USS Dacotah* reported that the vanguard of General Wool's regiments were landing on the southern shore.

The surrender of Norfolk proceeded as smoothly as an expertly directed pageant. As early as March 26, the Confederate Secretary of the Navy had made grudging obeisance to the threat of the *Monitor* by ordering, as a precautionary measure, the removal from the Gosport Yard of all surplus machinery and tools. He had also urged the speedy completion of two gunboats and the ironclad *Richmond*, which was rumored to be even mightier and more fearsome than the *Merrimac*. Early in May, Mallory had warned that Norfolk's position was perilous, and urged

that the *Richmond* be burned, "if need be at a day's notice." During the night of May 8, the uncompleted *Richmond* was secretly towed up the James River, far to the west of the Federal artillery. By the 10th of May, Norfolk had been practically abandoned. Only 6,000 troops remained and those General Huger was moving out with all speed.

Obligingly, General Wool seemed in no hurry to move in. He ordered his regiments on at a pace so leisurely that civilian-bred Secretary Chase, with no training in the long marches of the infantry, easily fell in step on this deliberate but no less triumphant approach to a conquered city. At 4:30 in the afternoon, Mayor W. W. Lamb surrendered Norfolk to the Union forces.

Two thousand men of the local Confederate regiments had managed hasty farewells to families and friends and fled before the Federal advance. More than one-fourth would never return.

They were the finest of the Virginia Regiments: the Blanchard Grays, the Jackson Grays, and the Wilson Guards. Some went to Petersburg, others farther south, still others marched to stand before Richmond. The men of the Craney Island Artillery were to be at the Battles of Malvern Hill and Gettysburg; the Norfolk County Rifle Patriots would give a good account of themselves at the Battle of Seven Pines. The men of one of the proudest of the Virginia Regiments, the Old Dominion Guard, "were among those who had seized the Gosport Navy Yard in 1861 and had since served on Craney Island. They were brave and young—all under twenty-one."

These county regiments left their kin under the none-too-benign rule of Stanton's General Viele. Women of Norfolk and Portsmouth had tended the wounded, sewed for the recruits who could not afford to provide their own uniforms, knitted wristlets and socks, and made soups and

pies and jams to soften the hardship of Confederate war days. They were left to pick up their lives as best they could in lonely homes in cities now governed by the North. Norfolk and Portsmouth were never again held by the Confederacy.

The only participant who seemed totally unprepared for the fall of Norfolk was Josiah Tattnall. Huger had again "outwitted" him.

Instead of freeing the *Merrimac* to escape up the James River with her consorts on the night of May 9, General Huger had insisted that the invaluable ironclad be retained off Norfolk to cover the evacuation. At 10 p.m. on May 10, Captain Tattnall observed that the Confederate flag no longer showed on Sewall's Point. He dispatched Lieutenant Jones to Craney Island, where the colors still flew. Jones returned with the incredible announcement that the enemy had occupied Norfolk, and that Craney Island would soon be abandoned. He reported the Navy Yard in flames; on reaching the city he had found no trace of General Huger who, with all his officers, had already entrained for Richmond.

Captain Tattnall, whose imagination had been so stirred by his own image as commanding officer of the South's *Merrimac*, had now to choose between abandoning her or trying, by some desperate means, to free her from the threat of capture.

He summoned his pilots. They assured him that, with a draft of 18 feet, they could take the *Merrimac* to within 40 miles of Richmond. Tattnall assembled "my good fellows," and addressed them with traditional, salty, quickening words. All hands gave him three lusty cheers and pitched in to lighten the *Merrimac*. Whereupon the Captain, quite understandably "not feeling well," once again

turned over his ship to his executive officer—and "went to bed."

Five or six hours later, Lieutenant Jones reported that the *Merrimac* was ready for her perilous voyage. But Chief Pilot Parrish refused to take the responsibility of guiding the bulky ship up the James River because of shifting winds that made her 18-foot draft still too hazardous. The *Merrimac's* waterline was now so high that her exposed wooden hull could have been shattered by any *Monitor* shot. Captain Tattnall made the heartbreaking, inevitable decision. His first thought was "to save the crew for any future use": he landed them at Craney Island. Proceeding by way of Suffolk, they marched to join the Confederate forces 22 miles away.

For a third time, Tattnall turned over the *Merrimac* to the young executive officer who had served on her since the glorious day of her resurgent commissioning. Catesby ap R. Jones and Lieutenant John Taylor Wood were given the pitiless duty of lighting the slow match that ended the *Merrimac's* career.

A little before dawn on the morning of May 11—black Sunday this time for the South—the *Merrimac* blew up with an explosion that shook the southern earth. Secretary Stanton thought it "one of the most beautiful sights ever beheld." Captain Tattnall wrote of it less aesthetically several days later from Richmond: "The *Virginia* no longer exists, but 300 brave and skillful officers and seamen are saved to the Confederacy."

How brave they were, how skillful they were, and how wise was Tattnall's decision were soon proved. McClellan's long delay before Yorktown, allowing the South time to build unassailable defenses, cost the North the capture of Richmond. On May 15, the footsore and weary *Merrimac* men joined their compatriots at Fort Darling, on Drury's

Bluff, 8 miles south of Richmond. They repulsed Northern ships that had steamed up the James to within sight of the towers of the Confederate capital. One of those ships, to which the *Merrimac* crew gave undivided attention, was the *Monitor*.

Commodore Buchanan later wrote to his former officers and men: "The destruction of the *Merrimac* saved Richmond, for if you all had not been at Drury's Bluff, Richmond would have been taken."

But on the 11th of May, the *Monitor* had not yet met even partial defeat. She spearheaded the victorious advance of the Northern ships across Hampton Roads and stood proud—for all her tin can size—before Norfolk. Mr. Lincoln and his Secretaries, with Commodore Goldsborough, disembarked from the *Baltimore*. In an open carriage, they made a triumphal tour through Norfolk and to Portsmouth, where the still smoldering hulk of the *Merrimac* was reduced to charred and smoking ruins.

The vessel that was to have bombarded New York and won the war had ceased to exist. To every Southerner the loss was personal, as though someone dearly loved had died. Among the crowds in the cities, in the small towns, in the groups clustered along the countryside, it was as though life, too, had stopped for the living. Then came the freezing, sickening grip of reality and, out of that, mourning, then anger, then mob violence. The *Merrimac,* "that noble gift of Providence," was really gone. Editorialists hurled their fury into black and bitter type, outraged by "the most terrible blunder of the war, a stupendous piece of folly . . . a confession of impotence . . . mismanagement and wretchedness too painful for consideration."

In time, at his own request, Josiah Tattnall faced a court of inquiry to defend himself against Mallory's charge of "culpable negligence and improvident conduct." The pro-

ceedings resulted in a judgment that circumstances, though they did not justify, might well excuse the Captain's action. This backhanded acquittal appeased neither Tattnall nor his men: they demanded a full court-martial. Mallory, hardly daring to belittle the heroes of March 8 and of Drury's Bluff, answered that the Captain alone was responsible. The *Merrimac's* men—and Catesby Jones was most vehement among them—clamored for their commanding officer to be heard and cleared.

Tattnall, "after serving fifty years with unblemished reputation," pleaded eloquently in his own defense. He pointed out that not only had the Northern fleet been augmented after March 8, but that his own vessel was not seaworthy: "I was in command of a ship that would not go to sea nor even into Chesapeake Bay." His statement was corroborated by Commodore Buchanan who claimed that, on any extended voyage, the *Merrimac* would have foundered before she reached Cape Henry. Lieutenant Jones concurred in that opinion. Ramsay repeated the advice that he had given on April 5: the *Merrimac* must constantly be kept close to the Yard for emergency repair. On five trips from Norfolk, he said, the Merrimac's engines had failed twice and on one occasion she had barely managed to get back to the Yard. Tattnall bitterly attacked the "much deeper stain"—the use in war of civilian pilots, unbound by Navy discipline, who had been unwilling, on March 8 as well as May 10, to face the legitimate risks of war.

Tattnall concluded his defense:

> Thus perished the *Virginia* and, with her, many high-flown hopes of naval supremacy and success. That denunciation, loud and deep, should follow in the wake of such an event might be expected from the excited mass . . . who recognize

in public men no criterion of merit but perfect success. But he who worthily aspires to a part in great and serious affairs must be unawed by the clamor . . . looking to the right-judging few . . . and patiently waiting for a calmer time . . . when full justice, though tardy, will be done to his character, motives, and conduct.

It becomes clear why no members of the crew, though they were stirred by them, ever directly quoted Captain Tattnall's battle addresses. They liked his drift; they just could not follow his sentence structure. At the conclusion of the reading of his statement, Captain Tattnall may have stalked from the room and perhaps, in the manner he liked to wear for battle, seated himself "coolly in an arm chair." The verdict was handed down in his favor: "Whereof the Court do award to the said Captain Josiah Tattnall, an honorable acquittal."

It is doubtful, however, if the South ever fully forgave him.

In the North there were no split emotions over the destruction of the *Merrimac*. The press proclaimed "Admiral-General Lincoln." The public echoed the inspired nickname, and re-echoed praise for the *Monitor* and Secretaries Stanton and Chase. The blanket of approval was even large and buoyant enough to spread over Gideon Welles.

The Navy's share of the adulation flowed from Mr. Lincoln's skillful handling of a delicate situation in which a President of the United States and his Secretary of War had directed a naval engagement.

The journey to Hampton Roads was Mr. Lincoln's first trip to a battle front on an excursion, fraught with discomfort and danger, that took him close to Confederate territory. The President's decision to accompany his Secretary

of War to within 10 miles of the fearsome *Merrimac* could not have been lightly made. One wonders what other reason, beyond the persuasions of Edwin M. Stanton, could have prompted the President to leave his desk in Washington and direct, in person, the occupation of Norfolk.

Examination of the official record suggests what that reason may have been. At the President's request, Commodore Goldsborough wrote an account of the events that had led up to the surrender of Norfolk. Mr. Lincoln had then inscribed across the document: "I send you this copy of your report of the events of yesterday for the purpose of saying to you in writing . . . that the movement made by you was in accordance with my wishes. . . . I avail myself of the occasion to thank you for your courtesy and all your conduct during my brief visit here."

President Lincoln then ordered this exchange of messages to be telegraphed to Secretary Welles for immediate publication in newspapers across the country. It was soon followed by the jubilant announcement of the destruction of the *Merrimac*.

The President's action supports the belief that he had accompanied Stanton not to issue joint orders to the Army and Navy but primarily to keep peace between the two feuding branches of his service. His tactful management indicates a deeply felt need to restore public confidence and raise the morale of his people by bringing hope and dignity to a united cause. The shrewdly handled publicity accomplished its end, bringing to the North a unanimity of thought that was rare in the groping, fumbling, schismatic days of the Civil War. The relief experienced in the Navy Department was tremendous. People could sleep quietly once more, free from the dread of the *Merrimac,* that "bugbear and terror . . . that hideous apprehension." Many church services, on that Sabbath of May 11, con-

cluded with the rolling chords of the Star Spangled Banner.

"So has ended a brilliant week's campaign with the President," Chase wrote to his daughter, "for I think it quite certain that if we had not come down, Norfolk would still have been in the possession of the enemy, and the *Merrimac* as grim and defiant and as much of a terror as ever. The whole coast is now virtually ours."

XVII: The Monitor, and Merrimac II

The *Monitor*, no longer held captive by her own fleet in the Roads, was released for duty elsewhere and was at once sent up the James River. Everyone, from the Commander of the North Atlantic Blockading Squadron to the smallest newsboy hawking his daily papers, shared the opinion that Ericsson's ship, alone and unaided, would take Richmond and, after Richmond, Charleston. Commander David Dixon Porter recommended that she be sent to Mobile Bay; she was "worth more than all the ironclads put together." She had "saved not only our Capitol but the reputation of our country." "Admiral-General Lincoln" was begged to take the *Monitor* under his personal command and continue to guide her destiny.

Public faith in the *Monitor* never dimmed even as May advanced into the heat of June and July and the soaring temperatures of August—and Richmond was not taken. A few dissenters wondered if the "invincibility of ironclads" was not a myth, but the majority held loyally to the original concept of her magic powers. Even when it became known that the Northern ships could not pass beyond obstructions that had been sunk in the James River, and that the drive on Richmond had failed, faith in the *Monitor* was undimmed. At Drury's Bluff, people said, the *Monitor* had been struck, without damage, three times; the *Galena* had been perforated thirteen times, with a loss of thirteen of her crew and eight wounded. The *Monitor* had proved

herself superior to other armored ships. They cheered that fact, when they could not cheer victory.

Survival of the crew during the blistering summer days called for stamina far beyond that required in actual combat. Scurvy broke out on board and Lieutenant Jeffers had to make frequent appeals for fresh provisions. He reported that "the air stood at 140° in the turret when in action which, when added to the gases of gunpowder and smoke, gases from the fire room, smoke and heat from the illuminating lamps . . . produced a fetid atmosphere, causing an alarming degree of exhaustion and prostration from the crew. In the galley, where temperatures often rose to 160°, several men have already literally wilted down by the intense heat of its position against the rear end of the boiler."

The heat was as hard on the engines as it was devitalizing to the men, and new machinery had to be sent for. Lieutenant Jeffers wrote, in an official report, "Human endurance has a limit," and was relieved in August by Commander Thomas H. Stephens. The little ironclad had been in service since February and it was decided that she, too, needed rest and repair. She was ordered to Hampton Roads in September.

But the Union fleet was not yet ready to release its sturdy little guardian. The *Richmond*, spoken of as bigger, fleeter, and with a shallower draft than the *Merrimac*, was nearing completion in the Confederate shipyard at the capital city. Not until the armored *New Ironsides* had arrived in the Roads, and Newport News had been fortified with six 200-pound Parrot rifles, could the *Monitor* be spared to proceed to the Washington Navy Yard.

The little ironclad was hauled into drydock on October 13, equipped with new fans and other improvements to her ventilator system. Her hull was scraped and painted and,

better than when she was new, the *Monitor* was re-launched on the 26th of October.

The occasion was celebrated by a reception on board. Lieutenant Greene, "a beardless boy," had the honor of welcoming the President of the United States to the gangway. The Navy Department guns fired a salute to Worden. Greene, "modest . . . diffident, had to be pushed into the circle, and prevailed upon" to deliver a speech describing the *Monitor* in battle. President Lincoln paid a tribute to the ship and her officers and men and then stood quietly, near the turret, during the ceremony.

All leaves were canceled and a new commander, Captain John Pine Bankhead, came aboard. The suspenseful cycle of the *Monitor's* first days recurred; the *Richmond* was being completed; the *Richmond* would be ready in ten days; the *Richmond* had been seen going down the James River. General J. A. Dix, at Baltimore, wrote to General Halleck: "There is nothing to cope with [the *Richmond*] but the *Monitor*. If anything befalls the *Monitor* . . . everything about us may be smashed up. . . . " Once again, frantic messages questioned: "When can the *Monitor* leave for Hampton Roads?"

The renowned ironclad was to have a gala day before her return to duty. The event was probably approved, may well have been instigated, by that superb director of public relations—"Admiral-General Lincoln." An invitation was extended to the people of Washington to come aboard the *Monitor* on the afternoon of November 6. Long before daybreak lines queued up at the Navy Yard; the crowds were controlled with difficulty. The public climbed aboard in droves, fascinated by every minute detail, every small appointment on this most original ship. Ladies in hoop skirts frisked up and down ladders into the turret, the engine room, the wardroom, inspecting the

"kitchen" and the "bedrooms" of the officers and crew. All agreed that she was a miraculous invention. "Bully for the *Monitor!*" exclaimed the *Washington Star*. On that day the heart of the redoubtable showman, Phineas T. Barnum, who was then in partial retirement at Bridgeport, Connecticut, must have swelled with yearning for such an attraction.

The crew of the *Monitor*, refreshed by shore leave, were puffed up by their duties of guiding worshipful landlubbers over their reconditioned ship; heroes at dockside, they longed for battle. They, too, had heard terror-ridden rumors of the threat of the *Richmond*, and wanted to settle, with this second *Merrimac*, their unpaid score with her predecessor. But the *Monitor* was held in Washington for further repairs—the installation of new steam pipes—and did not return to Virginia until November 15.

Weeks passed with no sign of the *Richmond* nor anything of interest in Hampton Roads beyond the busy flow of ships coming from or leaving for blockade duty. Captain Bankhead applied for, but was denied, transfer to a more active area; the crew wrote griping letters home and cursed the braggart Southern ship that would not come into the open and fight.

The *Monitor* men could not know that awaiting them was an opponent more paralyzing in power, more pitiless in dominion, than any man-made iron ship: the terrifying rage of an angry sea off the Diamond Shoals of Cape Hatteras.

XVIII: The Monitor men, and the sea

The North's relief over the destruction of the *Merrimac* was soon dispelled by omens of the *Richmond* and the renewed dread of ironclad attack. Once again fear swept through the North with rumors of a whole fleet of "Merrimacs" believed to be under construction in southern ports: at Richmond, at Wilmington, at Charleston and Savannah.

Some of these anxieties were corroborated by statements from trusted escapees. However, the Navy Department knew of another proposed menace to Northern hopes, one that was closer and could be more easily achieved: the South's determination to break the blockade off Wilmington, North Carolina.

That port, situated on a lonely coast, had been one of the weakest links in the blockade chain. Small ships stealing out at night from coves and inlets along the shore had managed to elude the Union squadron. They ran for Nassau and Bermuda, relaying cotton for shipment abroad; they picked up cargoes of contraband, returning with them to Wilmington, or dropping them off at isolated shelters along the beaches of Florida. The trade was not sufficient to bring to the South any degree of well-being or prosperity, but it was—and would be until 1865—"the lifeline of the Confederacy." It brought to the impoverished South meager shipments of precious ammunition and supplies. Allowed to grow, this infiltration could eventually jeopardize the international legality of the blockade.

Wilmington in 1862 was much like other southern towns that had been drained by Mr. Lincoln's proclamation. It was dirty, disheveled and ridden with yellow fever. Provisions were scarce and prices exorbitant for those days. Before the war's end, living costs would soar above any previous conception, but in the early days of the blockade, flour was already $30 a barrel, whiskey $15 a gallon, shoes $20 a pair, butter $1 a pound. Gripped by sickness and misery, the South was obliged to find some means to free itself from these growing threats to its economy.

William Robins, a carpenter who had been working at the Wilmington shipyards, escaped to the Roads to tell of the Confederate scheme. The South, he said, was secretly building two ironclad gunboats. Their keels had been laid in Wilmington in early September; their plates, like the *Merrimac's,* were being rolled in Richmond at the Tredegar Iron Works. Both gunboats would surely be finished by January 1863. In the planned assault on the Union blockaders, the ironclad would be supported by heavy shore batteries that had been recently transferred from Charleston. The artillery at Wilmington was mustering as many recruits as possible: "enlisting men from fourteen to fifty years of age."

Few ships could be spared from Hampton Roads to meet this threat. The Union vessels were held fast to their anchorages, immobilized by the very existence of a second *Merrimac.* Lacking quantity, the Navy chose quality: the *Monitor* was ordered to report for further instructions to Beaufort, North Carolina, on the first day after December 24 that promised a fair and peaceful voyage.

At 2:30 on the afternoon of December 29, the *Monitor* left the Roads in the tow of the *Rhode Island.* In the convoy was a second monitor, the newly completed *Passaic,* towed by the *State of Georgia.* It was a brisk, sunny day,

the bay was smooth and there was no hint of unsettled weather in the clear winter sky.

In the wake of the *Rhode Island*, a supply ship under the command of Stephen Decatur Trenchard, the *Monitor* was in good company. The *Rhode Island* had been one of the last merchant vessels to come off the ways in peacetime. She had hardly been launched—as the *Eagle*, a "first-class passenger steamer"—when the U. S. Navy acquired her for $185,000. Polished maple and walnut lined the cabins of this pride of the Charleston Line; grim 8-inch guns and an iron ram were added to her immaculate fittings when she joined the Navy. High speed of 14 knots suited her two-fold assignment of speeding provisions to the ships of the North Atlantic Blockading Squadron, and giving chase to any blockade runners that might cross her bow.

The Squadron called her "the Friendly Ship" in acknowledgment of her welcome deliveries of provisions along the line of the blockade. Her periodic visits brought basic stores and small luxuries to men on lonely stations, who had been long out of touch with the world. When the crews made out the distinguishing numbers on the *Rhode Island's* side, they quickly lowered their boats. Some were spurred by expectancy of beef and vegetables and tangy memories of fresh fruit. Others hungered for letters from home, or weeks-old newspapers, or the Navy Register. Still others wanted to hear verbal accounts of how the war was progressing and how many added months they might expect to spend in lonely vigil off the Atlantic Coast.

The *Rhode Island* got underway for Beaufort, her captain unaware that this was to be another mission of mercy. She dropped her speed to 6 knots to accommodate the little ship that followed, at the end of two 12-inch hawsers, as obediently as a toy on a string. The moon came up and sharpened the *Monitor's* outline against the gleam of a

gently rolling sea. The *Passaic* had proceeded on an easterly course and was out of sight.

Aboard the *Monitor* were Lieutenant Greene and other officers and more than twenty of the original crew that had shared her first passage down the East River nine months past. Captain Bankhead lacked Lieutenant Worden's pride in and affection for his ship. There were some in the Navy who believed that, a captain of the "old school," Bankhead had been mistakenly appointed to the command of an ironclad. He himself would have preferred another assignment; the Navy had insisted that he stay with the *Monitor*.

In the crew were some new recruits. Among them, Francis B. Butts had enlisted in Washington in November. "I forgot," he wrote later, "what I had been taught in the service—that a man always gets in trouble if he volunteers."

Francis Butts' "trouble" was that of being spared the fate of sixteen of his shipmates who would go down with the *Monitor* in the icy waters off Hatteras. His name would outlive him as the author of the only fully detailed account, written by a survivor, of the sinking of the North's first ironclad. He has received no citations except the ones he awarded himself in his own colorful prose. He may be pardoned for slight inaccuracies; differences of fact occurred in some of the reports that were written by his superiors. He may have lacked objectivity where his own deeds were concerned, but, except for a few instances, his memories dovetail with, and actually embellish, the crisp summaries in the official record.

Noon of the second day brought Butts his ". . . trick at the wheel . . . Being a good hand," he admitted, "I was kept there."

A storm had been building up since early morning and, by noon, had blown into a gale that strained at the cables with which the *Rhode Island* held the *Monitor* in tow.

When tumultuous seas swamped the pilothouse, the steering gear was hastily rigged atop the turret:

> The vessel was making very heavy weather, riding one wave, plunging through the next as if shooting straight for the bottom of the ocean, splashing down on another with such force that her hull would tremble with a shock that would sometimes almost take us off our feet, while a fourth would leap upon us and break far above the turret.

Butts and the officers present were saved from being swept overboard only by the chest-high railing that encircled the turret roof.

In late afternoon the sea abated somewhat, but Captain Bankhead believed that the steady pull of the tow lines was too hard on the *Monitor*. His ship had no mast on which to hoist the conventional code signals for exchanging information with her escort. The only means of communication was by messages written on a blackboard to be picked up by the strong glasses of the *Rhode Island's* signal officer. In acknowledgment of Bankhead's request, the *Rhode Island* lay to, but the *Monitor* continued to wallow in the rough sea. After fifteen minutes, every one of which Volunteer Butts must has spent in dismal self-recrimination, the *Monitor* signaled the *Rhode Island* to proceed.

"At dark we were . . . directly off Cape Hatteras," Francis Butts recorded. "The sea rolled high and pitched together in the peculiar manner seen only at Hatteras."

Those who are content to stand at the edge of the ocean at Nags Head, or Kill Devil, or Buxton—or any of the tidy villages on the Outer Banks—well know that restless, contentious beating of the sea. The breakers crash in walls of white spray, then tumble and fan out fast and wide on the beach, and collide angrily in their race to the shore. They

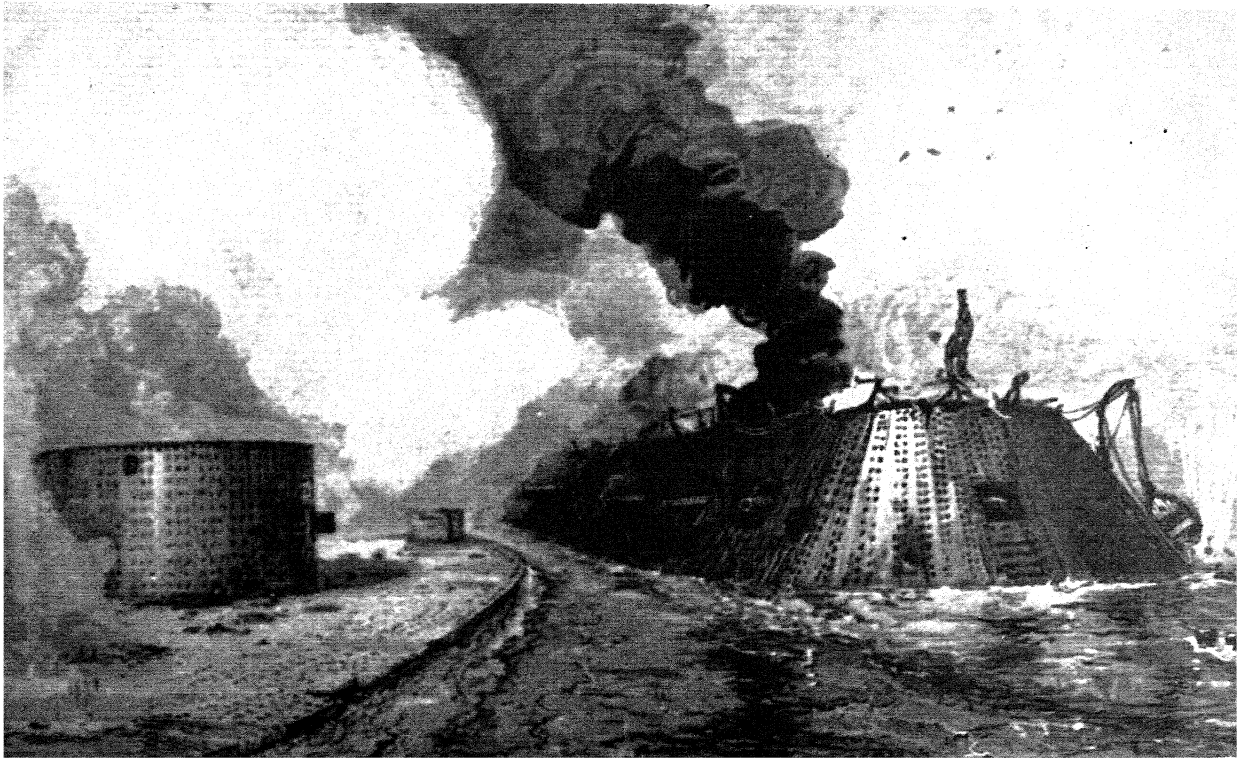
roar landward across submerged and treacherous ridges of sand that extend for 25 miles into the sea and are known as the Diamond Shoals. They have lost the warmth of the Gulf Stream and are chilled by the deep forbidding current that courses down from Labrador. Memories ride on them of the ships they have conquered.

Seas like these battered mercilessly at the little *Monitor* on that raging, howling night of December 30. The pounding brine accomplished what the *Merrimac*—with her armor, her ram, and her mighty Dahlgren guns—could not do: split the seam between the ironclad's hull and deck.

Butts saw the first trickle from the leak on his way to deliver a message from the Captain to Joseph Watters in the engine room. He returned at once to the top of the turret which was now assaulted by gusts of wind and blinding shafts of rain that tore out of the southwest. He reported that water was seeping in through the coal bunkers. Quartermasters Williams and Anjier were taking short turns at the wheel, pitting their strength against the onslaughts of the Atlantic. Shouting to be heard over the storm, Bankhead ordered Butts below to report on the action of the pumps. Again and again Butts descended into the rolling, pitching vessel with questions for the engine-room crew. Time after time he returned with dire and fateful answers: the water was gaining on the bilge pumps; the sea was pouring in through the hawse pipes. The Worthington pumps had been attached but were inadequate to handle the slowly rising tide. R. W. Hands had started the new centrifugal pump; water was spreading, an inch deep, across the engine-room floor; it had reached the ash pits; it was ankle deep.

Commander Bankhead knew now that he could not save his ship. The *Monitor* hoisted a red lantern, a prearranged signal to indicate abandonment. The *Rhode*

The battle at close range.



The end of the *Monitor* off Cape Hatteras.

Island cut off her engines; the *Monitor* steamed forward and came alongside. Shouting through his trumpet, Bankhead managed to be heard above the storm. "We are sinking—send boats!"

The *Rhode Island* cast off the tow ropes to maneuver into a more favorable position for lowering her launch and first cutter. Dangerously slack, the released cables danced to the wild rhythm of the sea. The *Rhode Island* attempted to steam ahead so that her drift would not bear directly on either of the small boats or the *Monitor*. But the *Rhode Island* was not free to pick her course: one of the loose cables had tangled in her paddle wheel. The *Monitor*, with the launch between her and the *Rhode Island*, was still in tow. "We were about to be towed under by our escort," Butts wrote.

Like sharply defined but disconnected segments of a nightmare, the elements of destruction closed in on the *Monitor*. The *Rhode Island*, pummeled by angry seas, could not go forward. Bankhead shouted for volunteers to cut the *Monitor's* end of the jammed cable. James Fenwick tried—and was swept overboard. Then John Stocking—one of the original *Monitor* men—with a series of swift blows, hacked away the hawser. As he swung around to retreat to the turret, a monstrous wave carried him out into the night.

The launch, now alongside, moved with alternating motion against the *Monitor's* rise and fall on the sea. Powerless, the *Rhode Island* bore steadily down. Suddenly, she steamed away: a fireman aboard her had climbed into the paddle wheel and chopped away the entangling cable. The launch was barely saved from being crushed between the *Rhode Island's* wooden hull and the *Monitor's* deck of iron; fifteen of the crew piled aboard her. Not as many followed in the cutter. Several who had not grabbed the

lifelines firmly enough were washed, screaming, from the deck.

The seas were now breaking over the entire ship. Butts was once more dispatched to the engine room. He carried instructions for Joseph Watters in the engine-room to reduce speed to a minimum so that all possible pressure could be applied to the pumps. Bankhead ordered the anchor let go on the run, hoping that this would stabilize the motion of the ship. It caught hold in 60 fathoms. This was the final stroke of the misfortune. The rushing cable ripped away the packing around the anchor well and water poured in.

On his way below, Butts came upon one of the engineers, S. A. Lewis, too ill to leave his bunk. "Is there any hope?" Lewis asked. Butts did not reply. The cook was scolding a group of terrified cabin boys who would not leave the cold comfort of the dimly lit galley for the dreaded unknown of the dark night. An old sailor seized the smallest of the boys and tied him in his duffel preparatory to tossing him into the next boat that came alongside.

Butts was like a man walking mechanically in sleep through moments of terror too great to be heeded, pangs of pity too deep to feel. He was aware of the small dramas being enacted around him but was not touched by their meaning. He proceeded to the turret and relayed Watters' report that the pressure in the boilers had sunk to 5 pounds per square inch. The small pumps were useless, choked with water. The fires were dying, and the engines had stopped. The main pump turned feebly. Butts was ordered to organize the remnants of the crew into a bailing brigade and recognized the order for what it was: a device to keep down panic.

He went to the turret to haul up the buckets that were being passed along the bailing line. By the time they

reached him, they had already spilled their contents back into the tossing ship and held but a few ounces to be heaved over the side. He still could not grasp that the *Monitor* would founder. Disturbed by the howling of the ship's cat, he tucked it out of harm's way in the muzzle of one of the turret guns. Before he replaced the tampion, he removed his jacket, folded it tidily and precisely and placed it with the cat for safe keeping. He heard the call for all hands to abandon ship and climbed to the turret roof with Watters, Hands, Seaman Thomas Joice, Ensign Norman Atwater and what was left of the engine-room crew and guncrew. They struggled down to the small boat bobbing perilously alongside. With them was the old sailor who toted over his shoulder a wriggling duffel bag. Some let themselves down from the turret by lifelines. Commander Bankhead held the boat's painter, as Greene tried to steady her against the push and pull of the sea. Bankhead issued a last call to the small group of men who refused to leave the turret. Richard Anjier was still at the wheel, and was ordered to come down. "No, sir," he told Bankhead. "Not until you go, sir." The rain had stopped and the moon came up, gleaming on the white faces of men and one cabin boy who preferred to face death on the iron turret rather than in a small open boat tossed by a bullying sea. Captain Bankhead, Greene, Stodder, Anjier and Butts were the last to leave. Greene gave the order, "Cut the painter!" and the last group of survivors left the *Monitor*.

"After a fearful and dangerous passage over the frantic seas," wrote Francis Butts, "we reached the *Rhode Island*. . . . We came alongside under the lee bows, where the first boat that had left the *Monitor* nearly an hour before had just discharged its men; . . . we were carried by the sea from stem to stern, for to have made fast would have been fatal; the boat was pounding against the ship's sides; some-

times it was below the wheel, and then, on the summit of a huge wave, far above the decks; then the two boats would crash together; and once, while Surgeon Weeks was holding onto the rail, he lost his fingers by a collision that swamped the other boat. Lines were thrown to us from the deck of the *Rhode Island*, which were of no assistance, for not one of us could climb a small rope."

The supply ship's crew finally succeeded in throwing down rescue lines. One by one, inserting a foot, or seating themselves within the loop, the *Monitor* men were hauled up over the side.

Clouds once more blocked out the moon. Shivering though they were from the wet, the cold, and the terror, the survivors nevertheless crowded to the rail to stare through the blackness toward the *Monitor's* red light. Now visible, now hidden in the trough of the sea, swept far by the tide, it pirouetted, swift and erratic, like the fanciful tip of a magician's wand. Suddenly it went out. "The *Monitor*," wrote Captain Bankhead, "was seen no more." No one could be sure, later, of where she foundered.

The *Rhode Island* cruised the area all that night, burning Coston signals at hourly intervals, in search of a cutter that had gone back to the *Monitor* and failed to return to the *Rhode Island*, and of missing members of the *Monitor* crew. The cutter's crew, in charge of Master's Mate Browne, were eventually picked up by the schooner *A. Colby*—out of Bucksport, Maine—and landed safely at Beaufort. Twelve men and four officers of the *Monitor* went down with their ship when the *Rhode Island* was 8 or 10 miles off the coast, directly east of Hatteras.

A muster of the survivors aboard the *Rhode Island* accounted for forty-seven officers and men. On January 3, 1863, "At Sea Aboard the *USS Rhode Island*," twenty of them wrote a letter to the Hon. Gideon Welles. They

respectfully represented that they were: " . . . all who now remain of the original crew of the *USS Monitor*. . . . We feel that our officers will willingly accord to us no small degree of approval of our efforts to save her in the sad hour that compelled us to abandon her. In consideration whereof we humbly beg that we may be discharged from further service from the Navy of the United States." The petitioners hoped: " . . . that we may be privileged to serve our country in whatever capacity may seem best"—as long as that service was far removed from any ship, on any sea.

XIX: *The battle over the Battle, and "the highway of mankind"*

So ended, in a storm, the embattled career of the North's "pet monster of our ironclads." "The sadness reached every household," wrote Francis Butts, "and the nation wept."

The *Monitor's* turbulent existence spanned but eleven months. She fought one great battle that sent her name around the world and has carried it down through history. She was hated as extravagantly as she was loved; she was praised as lavishly as she was condemned. The *Monitor* was encased not only with iron but with the same stern, rugged ability to make friends and enemies that characterized her inventor: admirable, quixotic John Ericsson.

Although the *Monitor* was feared and detested by the South, no geographical boundary separated her friends from her foes. Long before she took form in wood and iron, the idea of the *Monitor* had to fight in the North for her right to exist. Long after she sank in the icy waters of the Atlantic, controversy rolled over her as tempestuously as the elements that sealed her doom.

As a result of the Battle of March 9, 1862, ironclad construction began, on a large scale, in every navy in the world. Commodore Smith's Ironclad Board, skeptical though it may have been prior to the "drawn battle" between the *Monitor* and the *Merrimac*, nevertheless obtained passage of a bill appropriating $10,000,000 for the future

construction of more monitors. The Board had awaited only the report of the *Monitor's* behavior in battle to let the contracts.

Ericsson and his partners accepted a proposal to build six light, turreted gunboats for use on the inland waterways. In addition, they signed a contract for the construction of six new monitors: the *Passaic,* and her sisters *Montauk, Catskill, Patapsco, Lehigh* and *Sangamon.* A second order resulted in four more. Eventually the giants, *Dictator, Puritan* and *Miniantonomah* were added, and forty-six others, of various types and tonnage. The *Dictator* was planned to do 16 knots. Actually her speed was 12 knots, but she and the *Puritan* and *Miniantonomah* were not finished in time for use in the Civil War. Of the entire Civil War fleet, only six monitors were sunk in battle or at sea: a fairly impressive record for ships that were not considered seaworthy. Fifteen were sold and eleven were broken up by the United States Navy in 1874. Thirty monitors, according to the great naval historian, James Russell Soley, were still in existence in 1883.

The hard-won recognition of monitors did not flow in an even, unbroken stream. When the *Monitor* sank off Cape Hatteras, the die-hards who still preferred wooden ships to ships of iron sang, once more, their doleful tunes. Again and again they chanted that monitors could not face the sea. They cited the fact that the *Passaic* had encountered almost the same fate in the same storm that had conquered the *Monitor.* These allegations, of course, were true. But those who recited them were deafened by their own persuasions, nor could they see beyond their own day to Ericsson's lasting contribution to naval architecture and to the final outcome of the Civil War.

Some of the *Monitor's* friends were as detrimental to the course of future monitors as were her foes. They—and

unfortunately the Navy's Secretary Welles and Assistant Secretary Fox were among them—claimed exaggerated powers for Ericsson's fighting batteries. When monitors were used, against Ericsson's advice, to subdue harbor forts, and when they failed in that task, monitors were once more discredited.

Ericsson stood firmly, belligerently, between the fanatics on either side. He reiterated that his *Monitor* had been planned for the defense of, not attacks upon, coastal towns. The week before Samuel Francis DuPont's unsuccessful attack on Charleston, in the spring of 1863, in which nine monitors took part, Ericsson wrote a warning to Gustavus Fox:

> I candidly confess that I cannot share in your confidence relative to the capture of Charleston. . . . If you succeed, it will not be a mechanical consequence of your "marvelous vessels," but because you are marvelously fortunate. The most *I* dare hope is that the contest will end without loss of that prestige which your ironclads have conferred on the nation abroad. If armed with proper guns, I believe your turreted vessels, now before Charleston, would destroy the whole fleet of England. A single shot will sink a ship, while 100 rounds will not silence a fort. . . . The immutable laws of force and resistance do not favor your enterprise.

Welles and Fox did not heed Ericsson's advice. As a result, Admiral DuPont was able to mark down monitors as a great fiasco, and to persuade five of his captains to sign an official document condemning their performance at sea and in battle.

The battle record of the monitors does not support that opinion.

As the war progressed, the blockade slowly tightened,

gripping the South in a relentless, pitiless stranglehold. Wherever the impoverished Confederacy attempted to raise the blockade with newly built ironclads, more fearsome even than the *Merrimac*, John Ericsson's monitors appeared to strike them down.

On February 28, 1863, the *Monitor's* John Lorimer Worden was in command of the monitor *Montauk*, on duty off the coast of Georgia. Worden had been informed that the Southern blockade runner *Nashville*, hidden from him by a strip of thickly wooded land and protected by the guns of Fort McAllister, waited a chance to slip by the Union fleet. He ordered his ship forward to drop anchor off the Fort. The *Montauk* withstood shore fire that smashed against her deck, turret and pilot house; her fifteenth shot put a 15-inch shell solidly into the *Nashville*, exploding the Southern ship in smoke and flame. Worden retired in triumph under fire from the Fort.

Following Admiral DuPont's failure to subdue Charleston in April, 1863, the Confederacy issued an erroneous proclamation that the Union blockade had been raised. A Confederate ironclad ram, the *Atlanta*, was sent out to demolish the Union fleet, accompanied by two excursion steamers filled with eager spectators crowding the rails. Off Savannah, the *Atlanta* was met by the monitor *Weehawken*, under the able command of Captain John Rodgers. The *Weehawken* greeted the *Atlanta* with blasts from her 15-inch guns. In hardly more than fifteen minutes the *Atlanta* surrendered, and her excursion convoy steamed back to shore with all speed.

Ericsson wrote: "To prevent blockade running off Charleston a monitor had to do picket duty every night at a point within easy range of five forts." A fleet of monitors in the command of the newly appointed Rear Admiral John A. Dahlgren, eventually returned to Charleston on

July 10, 1863, and maintained an effective blockade until the war ceased on that coast in February, 1865.

On August 5, 1864, Admiral Farragut led his gallant ships into Mobile Bay, preceded by the monitor, *Tecumseh.* Veering from the channel, the ironclad hit a submerged torpedo and exploded. Farragut, with "Damn the torpedoes," ordered his fleet forward to one of the great naval victories of the War. Yet the North's triumph at Mobile Bay was almost snatched from Farragut by the threat of a Confederate ironclad ram, the *Tennessee,* under the command of the *Merrimac's* Franklin Buchanan. Farragut later described the *Tennessee* as "the most formidable vessel of its kind ever to carry the Confederate flag." Three of the Union ships attempted to ram her with "more damage to themselves than to the enemy." The monitor *Chickasaw* was ordered to maintain a position within fifty yards of the *Tennessee* and pound her steadily with 11-inch shot: one hit the *Tennessee's* rudder, and Buchanan, wounded, ordered the surrender of his ship.

The Confederate threat to the blockade off Wilmington, North Carolina, was greatly enlarged by the South's stubborn hold on Fort Fisher. In the combined army-navy operation that finally subdued the Fort on January 15, 1865, Admiral David Dixon Porter, one of the earliest friends of the ironclads, ordered his monitors stationed midway between his wooden ships and the shore. The monitors kept up a barrage against bomb-proofs and magazines on land and, lying low in the water, were unharmed by projectiles discharged by the guns on the Union ships to soar over the monitors on their flight toward shore targets. Captain Dudley Knox later described this action as "an important novelty in naval tactic." It further demonstrated the battle qualities of John Ericsson's sturdy iron ships.

Ericsson, except for defending his brain children with words that were cudgels, proceeded uninterruptedly to perfect the inventions in his ironclads. His new monitors carried many innovations: cold water pipes to improve the ventilation; a hurricane deck and promenade deck atop the turret on the larger monitors; 15-inch and, later, 16-inch smooth bore guns; more skillfully inserted boltheads, improved sightholes in the pilot house; watertight inner skin. The overhang, of which Lieutenant Greene had complained, was eventually discarded and a new method devised for protecting the anchor. The pilot house was placed on top of the turret, with improved access to and communication with the berth deck and its stores of ammunition.

Ericsson made his monitors increasingly seaworthy. The *Dictator*, on her way to Key West, encountered a storm that sent her escort vessels to shore for protection. The *Dictator* rode out the gale with "fine seagoing qualities and plenty of coal in her bunker." The *Miniantonomah*, in 1866, transported a proud and justified Assistant Secretary of the Navy across the Atlantic on an exhibition cruise to Russia.

At the battle's end on March 9, 1862, an impartial observer would have called it a draw. Restrained witnesses on both sides who were not swayed by preconceived judgment called it just that. It has been so called for many years, in many textbooks, in many classrooms. But for the great masses of the people the selection of the victor depended only on what side the choice happened to favor.

When the sinking of the *Monitor* engulfed the Union in grief and revived all the legends of the ironclad's great achievements, the old arguments arose. The North's mourning was taken as a deliberate affront to Southern pride. The battle of words spat hate and malice that burned

deep and lay festering. Long after Appomattox, sharp pen-points jabbed at wounds and would not let them heal.

The conflict flared up again and again, undiminished with the years. In 1874, it settled around those unhappy *Monitor* men who had so wistfully petitioned Gideon Welles to excuse them from further service on the sea. He had replied at once—and abruptly—to the Commander of the North Atlantic Blockading Squadron at Hampton Roads: "Give them two weeks' leave, with 20 percent of all they may have due them. At the expiration they may return to receiving ships nearest their stations."

On behalf of his sailors, and their dependents, many of whom were in need, Worden petitioned Congress for prize money: he requested $200,000 for the men who had "so absolutely crippled and disabled [the *Merrimac*] that she was not afterward fit for active service."

To Confederates who had taken the *Merrimac* to "glorious victory" on March 9, Worden's statement was like the explosion of a battle gun. The Southern officers rallied to put down "Yankee lies" and "Worden's barefaced attempt to swindle the government." Southern papers called it "a novel plan to perpetuate an historical fable." If the *Monitor* had been so powerful, why had the North chartered ocean steamers to protect her from the South's ironclad threat?

To reduce any possible claim of the *Monitor* men on prize bounties, Southerners, with inverted pride, minimized the ability of their own ship. The *Monitor*, they said, could not possibly have saved the Union because the *Merrimac* never threatened it. They argued that experts had testified that she could never have put to sea, or bombarded towns, or broken the blockade.

The officers and men of the *Cumberland* joined in the uproar. The *Merrimac*, they said, had retired from the

battle of March 9 because of injuries she had received on March 8, from the *Cumberland.* If there were any who deserved prize money, it was said, they were the men of the *Cumberland.* Some senator from a midwestern state, far from the sea, inquired where prize bounties would stop: if they were distributed to the Navy, why not to the Army?

The battle, with none of its original courage and sacrifice, lived again in the North and in the South, in newspapers and magazines, in forums and club debates, on the floors of both houses of Congress. Worden's proposal was tabled, but was presented again in 1882, 1883—again in 1885. The Admiral pleaded in vain for his cause and parried unjust attacks upon his men. Stanchly he defended his young executive officer, Samuel Dana Greene.

After the sinking of the *Monitor,* Greene had gone on to continued faithful years in the Navy. As executive officer he served aboard the *Florida,* engaged in chasing blockade runners. He was made a Commander in 1872. Between 1866 and April 1884, he was attached to the Naval Academy as instructor in mathematics and head of the department of astronomy and navigation. He later saw service on European stations and with the Pacific Squadron. In 1884, against a rising tide of criticism for his handling of the *Monitor,* he was persuaded to present publicly his account of the Battle of the Ironclads. He told his story vividly, patiently, and in detail, in an article that appeared in the *Century Magazine* for March 1885. Commander Greene did not live to read proof on his pages.

On December 12, 1884, the Concord, New Hampshire, *Monitor* told his story:

Commander S. Dana Greene, U. S. Navy equipment officer at the Portsmouth Navy Yard, and one of the most popular officers in the service, committed suicide Thursday afternoon.

His lifeless body was discovered at the Franklin shiphouse at the yard, with a bullet wound in the head and a .38 calibre revolver in the right hand. He had been observed to act strangely for some time, and had been watched for fear that he might take his own life. As executive officer on the *Monitor* in the fight with the *Merrimac*, he took an important part in that encounter. Anxiety over the preparation of a literary work on that subject is thought to have resulted in temporary insanity. He is survived by a widow and three children, a son being an officer now on the Pacific station.

Two captains under whom Greene served on the *Monitor* in circumstances that called for extraordinary bravery cited him in official records for "courage, coolness, and skill," "particularly good conduct," "devotion to duty unsurpassed." He received few public honors and a great deal of bad-tempered, illogical blame. There had been no stronghold impenetrable enough to shield him from the bitter battle of words. Happily, a good and faithful servant of the United States Navy, he lived to see his son, Samuel Dana Greene, Jr., graduate from the Naval Academy at the head of his class of 1883.

Admiral Worden eventually gave up his efforts in behalf of the *Monitor* men. On March 2, 1886, he wrote:

The alleged poor gunnery of Lieutenant Greene is not worthy of attention. Nor is the claim made by our Southern friends that the advantage of the fight was with them. The fact that the *Merrimac* retired to Norfolk and that the *Monitor* remained in the field of battle, by the side of the *Minnesota*, cannot fairly be disputed. Certainly, I do not intend to enter into a newspaper controversy upon the matter. I find myself in such a weakened condition of physical and nervous exhaustion that I am determined to avoid trouble, and let History take care of itself.

Ericsson, too, had decided to let history speak for him. He had other work to do. He had moved to a smaller house at 36 Beach Street, not far from the Hudson River. There he had worked incessantly, refusing to reduce his hours to conserve his strength. He was concerned with ideas leading into a new age: torpedoes; the storage of solar energy; motors turned by solar rays reflected by mirrors; the problems of perpetual motion. "I propose to continue at my work," he said, "so long as I can stand at a drawing board."

John Ericsson, at the end of his days, set his sights far into the future. Of his monitors, and his later torpedoes, he wrote:

> My only object is that of seeing the sea declared by all nations as sacred neutral ground. It is the highway of mankind. . . . The art of war, as I have always contended, is positively in its infancy. When perfected, man will be forced to live in peace with man.

John Ericsson continued at his work until within three days of his death, on March 8, 1889. He departed from his drawing board, his sketches, his friendships, feuds and hope of peace just twenty-seven years, to the day, after his *Monitor* had rounded the capes of Virginia and the weary men aboard her were alerted by the low, ominous booming of the *Merrimac's* guns.

At the request of the Swedish Government, he was taken to his native land for burial. The United States Navy Department ordered the embarkation to be conducted "with every circumstance that can invest it with dignity and solemnity. All the vessels of war that may be available will assemble in New York. . . . The marines from the

ships and the stations will form a guard of honor . . . under the escort of all available steam launches and pulling boats of the squadron, formed in double column." Many dignitaries were invited to be present, including Rear Admiral John Lorimer Worden.

The cortege formed at the Battery. A statue stands there today, of John Ericsson holding in his hand a miniature *Monitor*. In a medium as inflexible and uncompromising as John Ericsson was in life, his image looks out past the Statue of Liberty across the far seas.

George H. Robinson, one of the executors of the Ericsson estate, pronounced the valedictory:

In the nation's tribute . . . the simple duty falls to us to yield to the claims of his mother-country, that she may again receive her son. We send him back crowned with honor; proud of the life of fifty years he devoted to this nation, and with gratitude to the gifts he gave us. Was he a dreamer? Yes. He dreamed of the practical application of screw propulsion, and the commerce of the world was revolutionized. He dreamed of making naval warfare more terrible and the *Monitor* was built. . . . Again he dreamed and the *Destroyer*, with its submarine gun, was born. He dreamed of hot air, and behold, ten thousand caloric engines. He dreamed of the sun's rays in sandy deserts where water was hard to get, and the solar engine came; and so he dreamed and worked for seventy years. He bore the strain of unremitting toil, and at the end his last words were: "This is rest." Well earned, benefactor of the world!

XX: *The Monitor, and the Victory*

The *Monitor* lies today somewhere off Hatteras, washed by the sands and the brine of the sea. For years men argued over where she went down. Some said 50 miles off the coast, some said 20. Others said that shifting shoals washed her toward land at a point not far from Hatteras Light; they cited as proof that the bodies of six survivors had been swept up on the beach and were buried in unmarked graves at Buxton. Some men say they have flown over her location and, on clear days when the sea is calm and the sky is blue, have seen her outline against the depths of the ocean sand.

A young ex-marine sergeant, Robert Marx, who learned how to skin-dive in his native California, claims to have walked her submerged iron deck. He is one of the many who have been enthralled by her legend. Another is a courtly North Carolinian, Ben Dixon MacNiell, author and journalist and official of the Hatteras Seashore State Park. Rather than live in a bustling city, he prefers a cottage on a high dune that overlooks Buxton and the sea. He speaks of the *Monitor*, and the Lighthouse, and the Gulf Stream, and the Labrador current as friends well known, and understood, and loved.

As with all those previously concerned with Ericsson's controversial ship, both men represent conflicting viewpoints whose supporters are divided into sternly opposed camps. One group wishes the *Monitor* salvaged and

restored as one of the nation's most beloved relics. The other would rather that she stay where she lies captured by the jealous sea. The Navy, as in the days when Ericsson tried—almost in vain—to stir its imagination, shows no interest in the Union Navy's "pet monster."

Over John Ericsson's ship, in lonely imprisonment off the Outer Banks of North Carolina, still rolls the question sounded by the prolonged paper battle over the Battle: to whom went the Victory: the *Monitor*—or the *Merrimac?*

Northern sympathizers hoped, on March 9, 1862, that their ironclad would destroy her Southern rival: in this the *Monitor* failed. But her official orders were to protect the *Minnesota:* this, she did. Her future orders limited her to strictly defensive warfare: these, she obeyed.

Her opponent, the *Merrimac*, steamed out of the Elizabeth River on that bright Sunday morning to complete the destruction of the *Minnesota* and every other Federal ship in Hampton Roads; unchallenged by the *Monitor* she might well have pounded them into extinction.

Twenty-one years later, James Russell Soley, a Professor at the U. S. Naval Academy and a later Assistant Secretary of the U. S. Navy, wrote his opinion of that day:

> The enemy possessed an engine of destruction whose offensive powers were a new revelation in maritime warfare. Had the waters of Hampton Roads remained under her control, the blockade would have been raised. . . . No single event in the naval war produced more momentous results than the victory of the *Monitor*. . . . Had the *Monitor's* arrival in Hampton Roads been postponed one single day, she would have found little of a fleet to need her protection.

The passage of twenty-one years had not provided suffi-

cient time for a naval historian who had been loyal to the Union to write of the South without reference to "the enemy." Many years would pass before other historians would shed the partisan hatreds that had encircled the two ships and prevented any dispassionate appraisal of the long-range results of their battle. The final judgment must be based upon the outcome of the war itself. Pronouncement of victory for the *Monitor* offers triumph enough for both sides in that the heroism that it chronicles wore both Blue and Gray and in that it helped to keep a great nation undived. It forged, out of pain and death, bonds that differences in local thought and custom—no matter how bitter or long-lived—cannot tear apart.

Ericsson called his *Monitor* a "fighting battery." She was more than that: she was a symbol. Her mechanized iron turret came out of a new age, startling, unpredictable, unconquered. The brave men of the *Merrimac* sent to their superiors no reports written in awe of the *Vanderbilt*, or the *Arago*, nor yet the small armored *Naugatuck* that had been dispatched to the *Monitor's* side. It was the *Monitor* they feared and needed to destroy. Lieutenant Catesby ap R. Jones said later that there had been for him no lasting satisfaction in the sinking of the *Cumberland* or the surrender of the *Congress*. Having permitted the *Monitor* to escape, he felt he "had done nothing."

John Ericsson made possible that escape by building for the Union an impregnable ship, the only one in the entire fleet able to repulse the terrifying *Merrimac*. Surviving that ordeal, even though held fast by her moorings in the Roads, the *Monitor* never had to fight again to earn her ultimate victory.

During the early months of the naval war, the *Monitor* was the link that held firm the young blockade, later described as "less spectacular than the operations of the Army,

but quite as effective in breaking down the Confederacy." Hampton Roads was the rendezvous of the North Atlantic Blockading Squadron. All through April 1862, and until the *Merrimac* was destroyed in mid-May, the presence of the *Monitor* protected Union ships on the northern shore from the threat of a second ironclad attack. The approaches to Hampton Roads were alive with Union vessels uninterruptedly plying between their base of supply and their blockading stations. Some delivered messages from American embassies abroad. Now preserved in the *Official Records of the Union and Confederate Navies*, these reports carried vital information that made possible the seizure of ships bearing contraband to the Confederacy by way of Bermuda and Nassau.

A passive but psychologically powerful guardian of the fleet, the *Monitor* provided a screen for the safe landing of McClellan's troops on the York Peninsula. The Prince de Joinville, who came from France to serve as a McClellan aide, described that landing. He wrote, on March 17, 1862:

> Soon the Roads were filled with vessels coming from Alexandria and Annapolis and filled, some with soldiers, some with horses, cannon and munitions of all kinds. Sometimes I counted several hundred vessels at the anchorage and, among them, twenty to twenty-five large transports waiting for their turn to come up to the quay and land the 15 to 20 thousand men whom they brought. The reader may judge how fearful would have been the catastrophe had the *Merrimac* suddenly appeared among this swarm of wooden ships, striking them one after another and sending to the bottom these human hives with all their inmates. Every time smoke was seen above the trees which concealed the Elizabeth River, the men's hearts beat faster.

The *Merrimac* did not emerge. She was then at the

Gosport Yard under repair for the damage that had been done her by the *Monitor's* guns.

The *Monitor* had been "the testing run, the trial ship for every monitor . . . important in psychological warfare . . . irreplaceable in fending off intervention." Because fifty-eight men had been willing to take into battle a "tin can on a shingle," a fleet of monitors could stand off from southern harbors, protecting Mr. Lincoln's blockade, preserving the Union. "It was the cannon in the rotary turret," Ericsson wrote in 1867, "that tore the fetters from millions of slaves."

Words that were written by Lieutenant Greene, but never seen by him in print, best describe the hard-fighting, hard fought-over, plucky little ironclad: "Not only by her providential arrival at the right moment did she secure the safety of Hampton Roads and all that depended on it, but the ideas that she embodied revolutionized the system of naval warfare which had existed from the earliest recorded history. . . . Crude and defective as was her construction in some of the details, she yet contained the idea of the turret which is today the central idea of the most powerful armored vessels. . . . No ship in the world's history has a more imperishable place in naval annals."

History, moving as precisely as John Ericsson's "immutable laws," speaks for the "tin can on a shingle": for Ericsson who made her; Worden, who commanded her; young Lieutenant Samuel Dana Greene, who fired her guns.

In acknowledgment to:

—Rear-Admiral John B. Heffernan USN (Ret), Washington, D.C., for consenting to read the manuscript for the purpose of ascertaining its technical and historical accuracy.

—Capt. Edwin M. Jameson (MC) USNR, Saranac Lake, N.Y., for contributing to portions of the text his knowledge and tangy vocabulary of the sea.

—Mrs. Ruth Worthington, Librarian, Saranac Lake Free Library, whose zest for research opens the door to its sources.

—The New York State Library, Albany, N.Y., for its invaluable Library Exchange Service. Added thanks are extended to Capt. J. K. Taussig, Jr. USN (Ret), United States Naval Institute, Annapolis, Md.; Mr. Elbert L. Huber, War Records Branch, National Archives and Record Service, Washington, D.C.; Miss Louise W. Turpin, Librarian, Brooklyn Public Library, Brooklyn, N.Y.; Mr. Marshall D. Butts, Curator, Norfolk Navy Shipyard, Norfolk, Va.; Miss Mary C. Brown, Librarian, Norfolk Public Library, Norfolk, Va.; Miss Cornelia D. Cree, American-Swedish Historical Foundation, Philadelphia, Pa.; Mr. Philip N. Guyol, New Hampshire Historical Society, Concord, N.H.; the Mariner's Museum, Newport News, Va.

—Lt. James MacIntyre USN (Ret) and the late Henry Hudson, Saranac Lake, N.Y., and Charles Edey Fay, Lake Worth, Fla., for making available photographs, magazines and newspaper clippings from their own collections.

Selective Bibliography

Bates, E. *Diary* (Annual Report American Historical Association vol. 4) Wash., Govt. Printing Office.

Baxter, J. P., *Introduction of the Ironclad Warship,* Harvard University Press, 1933.

Bennett, F. M. *The Monitor and the Navy Under Steam,* Boston, Houghton-Mifflin, 1900.

Besse, S. B. *US Ironclad Virginia,* Newport News, Mariner's Museum Publication, No. 4, 1937.

——— *US Ironclad Monitor,* ibid. No. 2, 1936.

Boynton, C. B. *A History of the Navy during the Rebellion,* N.Y., Appleton, 1867-8.

Chase, S. P. *Diary and Correspondence,* (Annual Report American Historical Association, 1902, vol. 2) Wash., Govt. Printing Office, 1903.

Church, W. C. *Life of Ericsson,* 2 vols. N.Y., Chas. Scribner's Sons, 1906.

Civil War, Battles and Leaders of, 2 vols. N.Y., Century Co., 1884-7.

Flower, F. A. *Edwin McMasters Stanton,* Akron, Saalfield Pub. Co., 1905.

Headley, J. T. *The Great Rebellion,* vol. 1, Hurlbut, Williams & Co., 1863.

Hendrick, B. J. *Lincoln's War Cabinet,* Boston, Little Brown, 1946.

Kelly, W. D. *Lincoln and Stanton,* N.Y., Putnam's, 1885.

Log of the US Ironclad Monitor, Photostats, Navy Archives, Wash., D.C.

Maclay, E. S. *Reminiscences of the Old Navy,* N.Y. and London, G. P. Putnam, 1898.

McCartney, C. E. *Mr. Lincoln's Admirals,* N.Y., Funk & Wagnall, 1956.

McCordock, R. S. *Yankee Cheese Box,* Phila., Dorrance & Co., 1938.
Mitchell, Lt. Col. J. B. *Decisive Battles of the Civil War,* Putnam, 1955.
Nicolay, J. and Hay, J. *Abraham Lincoln,* vol. 5, Century, 1890.
Official Records of the Union and Confederate Navies, ser. 1, vols. 6, 7, 8, 9.
Parker, Capt. W. H. *Recollections of a Naval Officer,* 1841-65, N. Y., Scribner's, 1883.
Porter, Adm. D. D. *The Naval History of the Civil War,* N.Y., Sherman Pub. Co., 1886.
Porter, W. H. *A Record of Events in Norfolk Co.,* Portsmouth, W. A. Fische, 1892.
Records of the Rebellion, vol. 4.
Selfridge, T. O. *Memoirs,* N. Y., Putnam's, 1924.
Soley, J. R. *The Blockade and the Cruisers,* Chas. Scribner's Sons, 1883.
U.S. Naval Inst. Proc., vol. 49, 1923.
Welles, G. S. *Diary,* 3 vols., Boston, Houghton-Mifflin, 1911.
Wertenbaker, T. J. *Norfolk, Historic Southern Port,* Durham, Duke University Press, 1931.
Wise, J. S. *The End of an Era,* Boston, Houghton, 1889.
Worden, Lt. J. L.; Greene, Lt. S. D. and Ramsay, H. A. *The Monitor and the Merrimac;* Both Sides of the Story, N.Y., Harper & Bro., 1922.

Many other books, as well as periodicals, pamphlets and newspaper clippings provided additional sources for *Tin Can on a Shingle.* Some were drawn on extensively; others yielded some small, elusive fact. Among these were: *Century Mag.,* vols. 8, 9, 29 and the *Century War Book,* Century Co., 1894; *Harper's Mag.,* vols. 25, 26, 27 and *Harper's Pictorial History of the Great Rebellion,* 1866; *Southern Mag.,* 1874; *Virginia Mag. of Hist. and Biog.,* vol. 31, 1923; *Vanity Fair,* 1862, 1863; *New England Mag.,* 1907.

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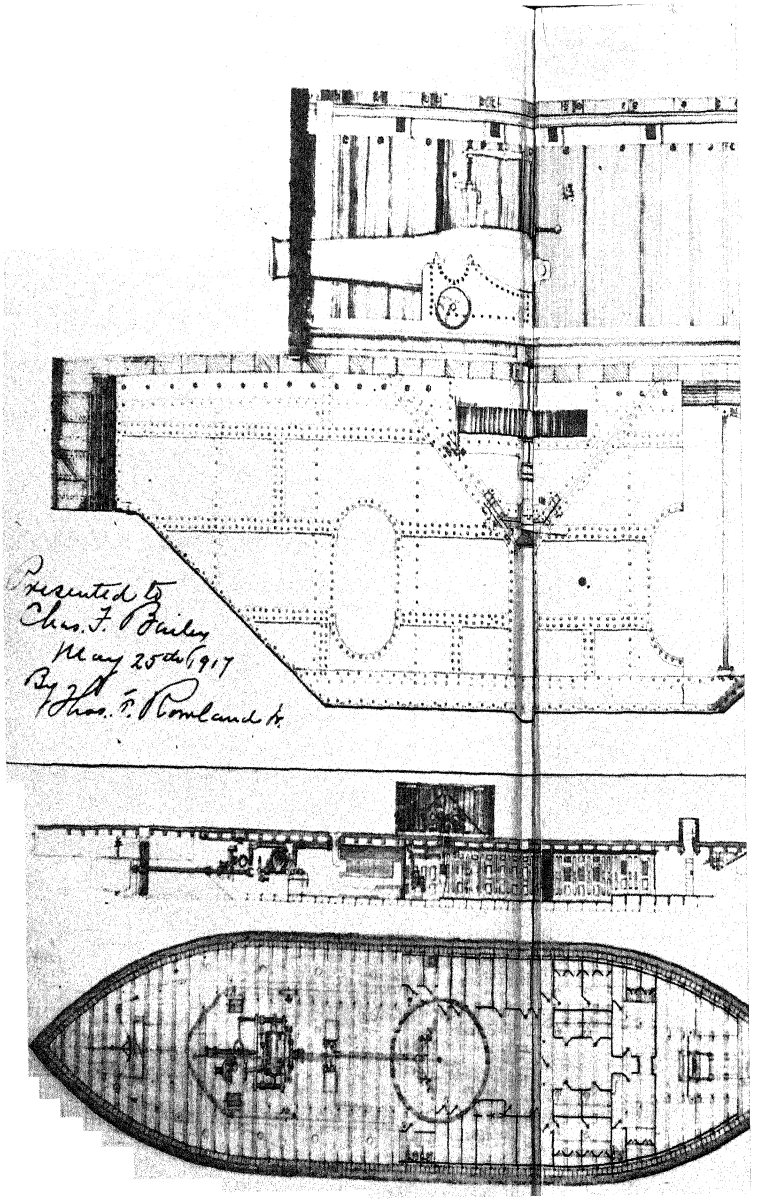
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Chas. F. Bailey
May 25th 1917
By Thos. F. Rowland Jr.

(*Continued from Flap 1*)

assas, Gaines' Mill, Chickamauga, Milledgeville, Appomattox. The history of the Civil War rings with their names and with the steady beat of marching armies.

"But one ship and one document were to have as much to do with the winning of that war as any land brigade. The ship was the *U. S. Ironclad Monitor.* The document was signed by Abraham Lincoln on April 19th, one week after Fort Sumter fell . . ."

Thus begins this story of the *Monitor* and the *Merrimac.* President Lincoln's "document" carried orders for a blockade of Southern ports—a blockade that the *Merrimac* threatened to nullify, but which the *Monitor,* rushed to completion in 152 frantic days, made a reality.

Rear Admiral John B. Heffernan, U. S. N., (Ret.) Director of Naval History in the Navy Department, 1946-1956, Secretary of the Naval Historical Foundation, says:

"I have just completed a careful reading of *Tin Can On A Shingle.* It gives the reader a clear understanding of the story of the U.S.S. *Monitor,* and presents all the fundamentals with historical accuracy. It is interesting and well-written."

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