Palmetto Navy: Ironclad Construction and the Naval Defense of Charleston During the Civil War

by

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Abstract

This dissertation traces the creation and operation of the Charleston Naval Squadron in the Civil War through a look at the different ships and construction strategies implemented within Charleston Harbor. Under the direction of Stephen Mallory, the Confederate Navy pursued armored warships to defend local ports. Charleston shipyards completed four ironclads and started two others. The Confederate Navy did not enjoy a monopoly on maritime procurement, however. Navy shipwrights, army engineers, South Carolina government officials, the Charleston *Daily Courier*, independent contractors, and private citizens all participated in the shipbuilding process. These different entities promoted differing designs and concepts that included shot-proof steamers, lightly armored torpedo boats, and the submersible *Hunley*. Confederate naval construction in Charleston ultimately suffered from two critical problems: a congested procurement pipeline and an increasing resource scarcity, particularly of iron plate. The return of Gen. Pierre G. T. Beauregard in September 1862 contributed towards both problems when he championed an army-designed torpedo boat at the expense of additional ironclads. Regardless of what local shipwrights produced the sailors of the Charleston Squadron provided the best hope for success against the South Atlantic Blockading Squadron. Regular training provided sailors experience handling any ship within the harbor and helped them succeed despite durability issues amongst the finished vessels. The Charleston Squadron overcame policy disagreements and procurement problems to

successfully defend Charleston Harbor until the final months of the war. The final analysis posits the city needed both ironclads and torpedo boats so that the Charleston Squadron had the necessary tools to protect her home port but naval procurement should have been streamlined under the sole jurisdiction of the Confederate Navy and their local naval squadron.

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MOC	Museum of the Confederacy, Richmond, Virginia
NARA	National Archives and Records Administration, Washington, District of Columbia
ORA	*Official Records of the Union and Confederate Armies*
ORN	*Official Records of the Union and Confederate Navies*
SCHS	South Carolina Historical Society, Charleston, South Carolina
SCDAH	South Carolina Department of Archives and History, Columbia, South Carolina
SCL	South Caroliniana Library, University of South Carolina, Columbia, South Carolina
SCRR	South Carolina Railroad
SHC	Southern Historical Collection, University of North Carolina-Chapel Hill
VHS	Virginia Historical Society, Richmond, Virginia

Introduction

In the final months of the Civil War, Commodore William F. Lynch attempted to compile information to write a history of the Confederate Navy. Lynch sought reports from officers who participated in naval battles and campaigns. That included the Battle of Hampton Roads, which took place in Virginia on March 8-9, 1862. Lynch particularly requested a submission from Flag Officer of the Charleston Squadron John R. Tucker, a thirty-four year veteran of the US Navy before he resigned at the rank of Commander in April 1861. He had commanded the gunboat *Patrick Henry* during the battle. Tucker could not comply with Lynch's request however, and the former turned towards *Palmetto State* captain Lt. Cmdr. James H. Rochelle, who had served as Tucker's second-in-command onboard the *Patrick Henry*. In January 1865 the *Palmetto State* rested within a Charleston dry dock undergoing significant repairs, providing Rochelle with the opportunity to write an account on the *Patrick Henry*. When he mailed Lynch his narrative, Rochelle proclaimed, "Let us hope that the forthcoming work will be popular with the people, remove many of the prejudices against our service, and assist the present generation to the first conclusion that the Confederate Navy has done well its part."[1]

In the one hundred and fifty years since Rochelle made his proclamation, most facets of the Civil War remain popular with readers, including the centrality of Charleston in the rebellion. Scholars' consideration of Charleston have been spotty, however. Its role as the birthplace of secession has attracted the attention of veteran-authors and later military scholars. They primarily focused on topics pertaining to the defense of the low country. Charleston's fortifications unsurprisingly served as a beacon

for writers given the symbolic importance of Fort Sumter and the city it guarded. Former artillery officer John Johnson set the tone in 1890. A member of a five-man board charged in 1864 with recording events related to the siege of Charleston, Johnson detailed key events while an officer in Fort Sumter. His work shaped the historiography moving forward. Two more recent works concerned with the siege of Charleston, E. Milby Burton's *The Siege of Charleston, 1861-1865* and Stephen Wise's *Gate of Hell: Campaign for Charleston Harbor, 1863*, expanded upon Johnson's initial work. The then-director of the Charleston Museum in Charleston, South Carolina, Burton devoted attention to events such as the Battle of Secessionville and the Fort Sumter crisis, along with the 1863 siege of Charleston. Wise also built upon Johnson's early writings through substantial manuscript treatments but only dealt with events against the city in summer 1863. He specifically focused on attacks against local fortifications such as Battery Wagner on Morris Island. The role of the African-American soldiers of the 54th Massachusetts in that campaign also has received considerable attention since the premier of the film *Glory*. Da Capo Press republished Capt. Luis Emilio's regimental history of the 54th Massachusetts with a new introduction from historian Gregory J. W. Urwin, and Martin H. Blatt recently compiled a series of essays on the regiment's legacy along with Thomas J. Brown and Donald Yacovone.[2]

Other facets of Charleston's Civil War experience have received sporadic attention from historians in the past twenty years. In another work, Wise examined Confederate blockade running, highlighting Charleston's proximity to both Bermuda and the Bahamas, a location that made the city an important hub for blockade runners. Patrick Brennan penned a battle narrative about the June 1862 Battle of Secessionville, shining

light on that James Island skirmish and how it shaped later events. The discovery of the submersible *H. L. Hunley* off Charleston Harbor especially sparked a rash of books that not only concerned the operations, discovery, and restoration of the legendary submarine, but also told of the men who build, served, and died within the iron coffin. David Stone's recent study of the Charleston-Savannah railroad reveals a renewed focus on the study of regional railroads, their operations, and impact prior to the birth of and within the Confederacy. Authors additionally also delved into subjects such as powder procurement along the Augusta River and the creation of electric torpedoes.[3]

The past twenty years historians have also increasingly focused upon different facets of Civil War naval history. Much of that scholarship, to be sure, concerns Lincoln's navy. Since the mid-1990s Gary Joiner, William Roberts, Robert Browning and Craig Symonds all have provided multiple manuscripts looking at Union naval operations. Symonds as well as Spencer Tucker and James McPherson authored overviews of Civil War naval affairs. The burning of many Confederate Naval records during Richmond's evacuation in April 1865 has provided a hindrance to many a naval historian wishing to study the Confederate navy. Nonetheless, several crucial works on the subject exist. In several significant works William Still highlights the importance of the Confederate ironclad. Still's work opened the way for other historians. Raimondo Luraghi's 1996 *The History of the Confederate Navy* remains a vital text for considering the larger Confederate naval efforts in total.[4]

Moreover, several significant examinations of individual Confederate naval squadrons within southern cities appeared in the past thirty years. Maxine Turner considered naval operations and industrial procurement within Columbus, Georgia. The

Naval Iron Works built new steam engines for many of the Confederate Navy's later ironclads, including the Charleston Squadron's *Columbia*. Turner brought to the fore the city's role as a Confederate industrial hub, especially as a provider of naval parts and maritime steam engines. By focusing on operations and engineering, she demonstrated how the Columbus Naval Iron Works broadly impacted Confederate shipbuilding. John Coski's *A Capital Navy* meanwhile traced the James River Squadron, including operations of the vessels involved, as well as naval construction within Richmond, Virginia during the Civil War. Like Turner, Coski combined military affairs with industry, manpower and logistical concerns. Maurice Melton performs a similar task with Savannah Georgia. He focused on how squadron ships and sailors supplemented Savannah's defense. The success and publication of these works highlight the feasibility of composing a book-length publication on Confederate operations within a specific city.[5]

Outside of the famous case of the *Hunley*, however, historians have not yet afforded Charleston similar treatment despite the overall importance of the city as both a port and symbol. Historians instead have focused on specific events such as the Fort Sumter crisis, Samuel Du Pont's attack in April 1863 or the Morris Island campaign. Whether due to a lack of interest, lack of resources, or the choice to examine events in the latter half of the Civil War, the representation of Charleston as a focal point for either naval or military historians has not progressed past article or chapter length submissions.

One notable work in this thin historiography is Paul Lockhart's 1986 article "The Confederate Naval Squadron at Charleston and the Failure of Naval Harbor Defense." Lockhart, then an undergraduate, argued in his look at Confederate tactical operations in Charleston that the squadron's failures resulted from the conservatism of Commodores

Duncan Ingraham and John Tucker as well as the technological shortcomings of the ironclads themselves. Lockhart utilized selected archival resources from both the National Archives and the Augustine T. Smythe collection at the South Carolina Historical Society in Charleston.[6]

Other historians provided Charleston's maritime affairs limited exposure. Still's *Iron Afloat* features a chapter detailing the Charleston Squadron and its relationship with General Pierre G. T. Beauregard, who commanded the Department of South Carolina, Georgia, and East Florida in late 1862 and 1863. Symonds's 2009 *The Civil War at Sea* and his 2010 edited book *Union Combined Operations in the Civil War* both devote a chapter to Charleston's naval defenses and Du Pont's failed 1863 assault against the harbor. Luraghi more effectively engages Charleston's maritime experience throughout his book. He commented on the ironclads on multiple occasions but also noted local attempts to build torpedo boats and their use of these experimental craft along with the *H. L. Hunley.* McPherson adopted a similar approach in his recently published *War of the Waters.* While these accounts demonstrate the potential for further research, the existing scholarship ultimately remains brief and relatively shallow.[7]

This dissertation aims to fill this lacunae in the historiography through a look at naval procurement and the Charleston Squadron in the Civil War. Charleston's location and the emphasis placed on the harbor by both its inhabitants and officers provide an excellent case study for considering naval strategy, technological development, and military innovation. Through the previously mentioned tropes of operations and technology and combining them with original examinations of local policy and procurement, one can also use Charleston Harbor as a window into how Confederate and

state officials as well as civilians viewed naval construction and what they believed represented the best weapons to guard their harbor. Confederate Secretary of the Navy Stephen Mallory targeted shot-proof steamers, or ironclads, for the nascent Confederate Navy after he assumed control in March 1861. Ironclads were wooden-hulled warships between 150 and 250 feet in length with rolled iron plate affixed to the casemate shield as protection from enemy gunfire. The armor plating, use of newly designed rifled cannon, and shape of the low-slung superstructure differentiated the ironclad from the smaller, strictly wooden gunboats alternatively proposed in 1861. The success of the ironclad *Virginia* at the Battle of Hampton Roads outside Norfolk, Virginia on March 8-9, 1862 steered the navy away from strictly wooden gunboats. By mid-1862 Mallory had launched casemate ironclads in many Confederate ports, including Charleston. Mallory desired armored warships throughout the war, but Charleston officials in contrast expressed limited support towards the preferred design. The Confederate Navy did not enjoy a local monopoly on local ship construction either. The resulting competing concepts and projects started within local shipyards not only reflected the different parties involved with local naval procurement but also directly impacted Confederate naval operations in Charleston Harbor. The Charleston Squadron overcame the resource scarcity and procurement problems that plagued local naval construction and successfully defended Charleston Harbor with their finished ironclads until the final months of the war.

Chapter One necessarily starts with an introductory, contextual overview of overall Civil War naval construction policy. Both Mallory and his northern counterpart, Gideon Welles, desired modern warships for their navies. Mallory initially looked to

foreign-built steamers but could not develop ships that could lift the blockade. He then turned towards domestically-built casemate ironclads armored with rolled iron plate. The first vessels arose in Memphis, New Orleans, and Norfolk. They competed against wooden gunboats favored by Cmdr. Matthew Fontaine Maury. His wooden gunboats were shelved by March 1862 in favor of additional casemate ironclads. Welles meanwhile considered three experimental designs before settling on John Ericcson's *Monitor* as the basis for the *Passaic*-class monitors built in northern shipyards. Mallory and Welles both preferred similarly sized armored warships in the casemate ironclad and the *Passaic*-class monitors. The shift towards ironclads in 1862 signaled an emphasis on vessels that operated in closed harbors rather than ships that could operate in the open ocean. Ironclads provided Confederate squadrons good defensive warships, but others proposed different weapons. The ironclad did not enjoy universal support throughout the Confederacy.

The next three chapters topically highlight different procurement and construction aspects while highlighting the competitive nature of shipbuilding in wartime Charleston. Chapter Two focuses on civilian attitudes towards naval procurement through a case study of the 1862 Charleston Ladies Gunboat Fund. The existing portrayal of this movement written by gender historians stresses how local elite women conducted fundraisers throughout the state and built a gunboat to protect them. Over a two-month period South Carolinians did raise $30,000 towards local naval construction until martial law swiftly curtailed their efforts. The contributions led Mallory to name the Confederate Navy's first ironclad in Charleston *Palmetto State* to reflect the gunboat subscription. But in fact, the campaign accomplished relatively little. Gunboat contributions came from a

broad but relatively shallow cross-section of South Carolina's population as elites heavily participated in the movement. Moreover, local newspaper editors, not the area's women, took the lead in what amounted to a brief gunboat fad that only partially funded a single ironclad. The $30,000 received represented less than 20 percent of the *Palmetto State*'s final cost. The Ladies Gunboat Fund did not enjoy the longevity and scope of support when compared with other local benevolence movements.[8]

Chapter Three examines procurement through the lens of naval construction policy. From the earliest days of the Fort Sumter Crisis, South Carolinians desired strong maritime defenses. State officials unfortunately could not agree on what to do about it. Different projects offered by a host of competing builders concurrently occupied Charleston shipyards from March 1862 onward, when the Confederate Navy started the *Palmetto State* and the South Carolina Gunboat Commission began the *Chicora*. Further ironclad projects were launched later in 1862, but by then ironclads also faced stiff competition for shipbuilding resources after Gen. Pierre G. T. Beauregard's September 1862 return to the city. He championed army-designed vessels equipped with an underwater contact explosive known as a spar torpedo. He believed that with the torpedo boats they could more readily attack the blockaders. His desire to monopolize labor and materials within Charleston brought about conflict. When initial torpedo boat production stalled in mid-1863, Beauregard turned increasingly towards experimental craft built outside Charleston, including the torpedo boat *David*. The *David's* successful attack against the USS *New Ironsides* on October 5, 1863 sparked new torpedo boat construction in Charleston, but it was only after Beauregard left the city that inter-service cooperation increased over torpedo boat development. The torpedo boat largely remained

within the purview of army engineers and independent contractors while the Confederate Navy continued with casemate ironclads.[9]

Chapter Four looks at Charleston shipyards and the essential materials needed for naval procurement. Building an ironclad required the marriage of local and Confederate industrial resources in an attempt to ensure these warships entered service. Charleston naval industrialists could produce nearly every requisite item for the ironclads with only three exceptions: iron plate for the casemates, engines and heavy machinery to propel the vessels, and the rifled cannon that would prevent blockaders from reaching Charleston. Increasing resource scarcity and transportation problems prevented these and other items from reaching the unfinished ironclads. A lack of seasoned timber forced shipwrights to turn to freshly cut, or "green" wood for the hulls. This resulted in substantial leakage issues after the wood warped due to prolonged exposure. Iron plate shortages directly impacted every warship built since all projects underway needed armor in some form. Even if shipyards could locate sufficient iron they faced problems locating essential labor. Charleston shipyards depended upon mostly free black and enslaved workers and also employed any available laborers including reassigned soldiers and imported mechanics. As the war progressed local industrialists experienced difficulties keeping sufficient workers within their shops and shipyards. Resource scarcity and construction competition directly impacted Charleston maritime procurement and affected the durability of all finished warships.[10]

The final chapter looks at the ships in action. Three different entities guarded Charleston Harbor at different points of the war: the South Carolina Coast Police, the Savannah-based Department of South Carolina & Georgia, and the Charleston Squadron.

The torpedo boat *David*'s successful attack against the *New Ironsides* on October 5, 1863 and the submersible *Hunley*'s sinking of the *Housatonic* on February 4, 1864 were only achieved when trained sailors operated these craft. Squadron ironclads led by Ingraham achieved similar results in their January 31, 1863 sortie against the blockaders outside Charleston, capturing a steamer and crippling a second. The ironclads also disrupted an enemy assault against Ft. Sumter in September 1863. Mechanical problems though hindered all Charleston vessels in the second half of the war. Worn machinery and warped hulls meant warships spent increasing amounts of time within dry docks awaiting significant repairs rather than on harbor patrols. While the ships were laid up, squadron sailors participated in different assignments throughout the harbor, including industrial labor, inspecting outgoing blockade runners, and deployments as auxiliary infantry on James Island. Squadron sailors overcame durability issues onboard Charleston's recently launched vessels and successfully defended the harbor until the city's evacuation in February 1865.

Two factors ultimately shaped Charleston maritime procurement, a congested construction pipeline and resource scarcity. The Confederate Navy represented one of four interested parties that proposed warship designs for local operations. Other interested parties included army engineers, the South Carolina Executive Council and independent contractors that inaugurated naval projects within Charleston. The conflicting interests meant that local shipwrights had multiple projects underway from March 1862 onwards. These included ironclads, torpedo boats, and other endeavors that siphoned away key resources. Iron plate shortages in particular meant two ironclads in Charleston remained unfinished when Confederate forces abandoned the city in February 1865. The ships that

did emerge from local shipyards suffered from durability problems and increasing mechanical breakdowns.

Perhaps the final question this dissertation generates is not what Charlestonians built and why they did so but how the Charleston Squadron survived until the final months of the war. Squadron sailors, not new technologies, were key. Veteran mariners occupied increasingly diverse roles as the war progressed. They overcame shipbuilding deficiencies as well as inter-service rivalries and successfully operated the flawed ships at their disposal, including ironclads, torpedo boats and the submersible *Hunley*. The Charleston Squadron successfully defended their home port with locally built ironclads and torpedo boats despite increasing supply shortfalls and mechanical deficiencies until advances into the South Carolina interior forced the city's evacuation in February 1865.

Chapter 1

Creating the Confederate Navy: Mallory and the Casemate Ironclad

In the weeks between Abraham Lincoln's November 1860 presidential election and South Carolina's secession on December 20, 1860, the state began preparing its coastal defenses. On November 29, 1860, the state Senate asked the Committee on the Military to investigate Port Royal as a possible naval base for future operations. The next day, newspaper editor and ardent fire-eater Robert Barnwell Rhett published an article in his Charleston *Mercury* requesting that all South Carolina army and navy officers return and defend their native state. Rhett asserted the state needed "military skill and science" to aid the state's defense, since he believed only military conquest would compel South Carolina's return if she seceded.[1]

In contrast, when the Confederate Government formed in February 1861, Confederate Secretary of the Navy Stephen Mallory had not enjoyed the luxury of preparation required to immediately create both a functioning bureaucracy and capable navy. This chapter provides a contextual overview of wider Confederate naval policy and explores Mallory's options when he created a navy from scratch, options that eventually would shape events in Charleston. As Secretary of the Navy, Mallory took several tacks. Throughout the Civil War, Mallory and the Confederate Navy contracted for and built warships in foreign ports. He used the Liverpool officials from Charleston merchants Fraser, Trenholm and Company as middlemen and financiers to acquire ocean-going commerce raiders. He later sent Comd. Matthew Fontaine Maury and other agents abroad to accomplish similar ends. The international initiative eventually yielded the commerce

raiders *Alabama, Florida*, *Georgia,* and *Shenandoah*. These four vessels ravaged United States flagged merchant traffic around the globe throughout the Civil War. Initial failures securing foreign-built warships in 1861, however, steadily forced Mallory towards embracing domestically built vessels despite the South's relative inexperience in ship construction. Mallory primarily desired modern, iron-plated steam-powered warships. In June 1861, he famously approved Lt. John Brooke's plans converting the salvaged steamer *Merrimack* into a casemate ironclad. Elsewhere, Mallory authorized differing designs from shipbuilders in Memphis and New Orleans on the Mississippi River. Mallory inaugurated additional ironclad procurement in March 1862 with Chief Constructor John L. Porter's casemate design the predominate template for nearly all remaining southern armored warships.

Mallory was not alone in embracing modern shipbuilding approaches. Others in the Confederate military pursued ironclad alternatives. Maury advocated building one hundred wooden gunboats and torpedo obstructions in Confederate harbors and rivers. Army officers championed torpedo deployments, including Brig. Gen. Gabriel Rains, Capt. Francis M. Lee, and Capt. M. M. Gray. The torpedo emerged as an equally important weapon both Confederate military branches embraced. Nor was the Union Navy inactive on the iron front. The casemate ironclad served as Mallory's primary warship but alternatives literally lurked beneath the surface, and nowhere more so than in Charleston.

* * *

On March 4, 1861, the Confederate Congress appointed Floridian Stephen Mallory as Secretary of the Confederate Navy. Few Confederates were more prepared for the job. Tasked with creating a Navy from scratch, Mallory drew upon extensive pre-war political and naval experience. Born in Trinidad in 1812, he immigrated to Key West, Florida, where he worked as a lawyer, judge, and eventually director of customs. In 1851, Mallory won election to the Senate as a Democrat, and three years later chaired the Committee on Naval Affairs. With Secretary of the Navy James Dobbin, he proposed substantial reforms after Dobbins issued his scathing report on the Navy's antiquated warships in December 1853. He helped pass a new Navy procurement bill and his committee authorized six new screw-propeller steam frigates armed with up to fifty cannon. The new warships mirrored early British steamers from the 1830s and 1840s since the craft carried both steam and sail propulsion systems. Although underpowered, they represented the first new warships produced in the 1850s and included three influential Civil War craft, the *Wabash, Minnesota,* and the *Merrimack*. Mallory also unsuccessfully lobbied for an armored craft Robert Stevens designed to defend New York harbor. Throughout his Senate career, he absorbed significant knowledge on modern naval technology, which informed his 1861 procurement strategy.[2]

Mallory faced two tasks, crafting a naval infrastructure and building a physical navy, both daunting even with his bureaucratic background. One week after his appointment, the Confederate Government authorized Mallory a staff of six individuals. The Navy Department soon comprised four bureaus, or areas of responsibility. Organized in a similar manner to the United States Navy, each bureau had its own specified mission. The Office of Orders and Detail handled personnel issues; the Office of Ordnance and

Hydrography oversaw navigation, munitions, and construction; the Office of Provision focused on logistics, and the Office of Medicine and Surgery managed naval hospitals. No formal organization initially existed for a separate naval construction bureau.[3]

Once Mallory established a familiar naval bureaucracy, he needed sailors and ships to make his navy an operational reality. He first absorbed useful elements from state navies created in the wake of secession. For example, when Virginia joined the Confederacy, many ships and sailors in the Virginia State Navy became part of the Confederate Navy. Lieutenant James H. Rochelle's experience illustrates the swiftness of the transition. A twenty-year veteran of the US Navy, in 1861 Rochelle served onboard the USS *Cumberland* at Norfolk Navy Yard. Rochelle resigned his commission on April 17 when Virginia seceded. About two weeks later, on May 2, he received an appointment as a Lieutenant in the Virginia Navy. He then transferred with the same rank into the Confederate Navy on June 6. The Georgia Navy likewise saw many of its personnel and craft folded into Mallory's burgeoning department. Mallory did not always readily accept every available vessel. The fate of the South Carolina Coast Police, discussed in greater detail in Chapter Three, reveals that Confederate officials demonstrated some discernment when accepting steamers into their fledgling navy.[4]

The converted boats Mallory annexed into the Confederate Navy could never protect Confederate harbors and a vast coastline from the comparative might of the US Navy. Mallory immediately turned towards armored warships and foreign shipyards as alternatives. At the onset of the Civil War, British shipbuilders possessed extensive experience launching ocean-going steamers. The Royal Navy projected British power throughout the globe, and increasingly implemented mechanical propulsion on their

vessels. Beginning with the second Earl of Minto in 1835, the British Admiralty had viewed steam-powered warships a key naval asset. Early British steamers were sail/steam hybrids equipped with both sails and steam-powered paddle wheels so that captains could conserve coal when necessary. British shipwrights in 1827 completed HMS *Dee*, the world's first oceangoing steam-powered warship, and fifteen years later launched the screw-propelled HMS *Rattler*. Steamers provided British officials quicker communications with imperial outposts and the ability to tow older ships-of-the-line into firing positions against static coastal fortifications. The steam engine, represented only one innovation that the Admiralty implemented during the mid-nineteenth century. British naval officers armed their warships with heavier smoothbore cannon and new shells developed by Frenchman Henri Paixans. Between 1835 and 1845, the British Navy built forty-two new steamers, starting a dozen new ships in 1844-1845 alone.[5]

British shipyards and industrialists meant the Royal Navy could outstrip France or any other rival in a naval arms race. The Royal Navy possessed more naval tonnage than the French and Russian navies combined in the 1840s. While France and Russia could not directly compete with the British, both countries also made significant strides in the 1850s. During the Crimean War, an armored Russian warship disabled a coastal fortification. In 1859, French shipwright Dupuy de Lôme, completed the *Gloire* for Emperor Napoleon III. Armed with 4.5-inch plating on the exterior of the *Gloire*'s wooden hull, the 255-foot warship represented the world's first oceangoing ironclad. The *Gloire*'s completion prompted a swift British response. Within two years the Thames Iron Works finished HMS *Warrior*. It foreshadowed future naval construction with an all-metal hull and watertight compartments and at 420-feet in length *Warrior* dwarfed the

Gloire and every other warship in service. The *Warrior*'s forty cannon included new Armstrong breech-loading rifles and sixty-eight pounder smoothbore cannon. Her size, armor, and armaments made the *Warrior* the world's most powerful warship and in many ways rendered every wooden warship obsolete.[6]

Both the *Gloire* and *Warrior* elicited attention from Mallory and other Confederate naval officers. Lt. John M. Brooke, a noted antebellum scientist and ordnance officer, suggested on May 8, 1861 the Navy obtain an iron-plated steamer in France. Once purchased and loaded with munitions, Confederate sailors could bring the steamer into any southern port. Two days later, Mallory wrote the Chairman of the House Committee on Naval Affairs in the Confederate Congress and set the Confederate Navy on a course towards ironclad procurement. Mallory argued that, "I regard the possession of an iron-armored ship as a matter of the first necessity….should the committee deem it expedient to begin at once the construction of a ship, not a moment should be lost." He then authorized $2,000,000 towards acquiring European-made steamers between May and July 1861. Mallory pursued options in both France and England but these early efforts yielded no ships.[7]

In contrast, Mallory initially refrained from domestic construction programs. At the war's onset, the South possessed few of the requisite materials and foundries. From an industrial perspective, the Confederate Navy could claim only the Tredegar Iron Works in Richmond as a large-scale foundry although smaller industrial facilities dotted the southern landscape. When the foreign hunt did not yield immediate dividends, however, Mallory launched a domestic construction program from his limited infrastructure. The April 1861 capture of Norfolk's Gosport Navy Yard after the firing on

Fort Sumter and Virginia's secession crucially supplemented his meager forces. Commodore Charles McCauley had received orders from Union Secretary of the Navy Gideon Wells to evacuate the shipyard and render it unusable. With a mob outside his gates, McCauley sank the USS *Merrimack*, a steamer built in 1854 that required an extensive retrofit due to her balky and underpowered engines. Scuttling crews burned the screw frigate only down to the waterline, however. After the arrival of Capt. Hiram Paulding on the USS *Pawnee*, the haphazard demolition of Gosport continued. McCauley's men torched eleven ships, salvaging only the sail frigate *Cumberland* from destruction. When McCauley and Paulding abandoned Gosport on April 19, the two left behind weapons and facilities the Confederate military quickly repurposed. Gosport eventually yielded 1,195 guns of various shapes and sizes, ammunition, functioning dry docks, and the partially destroyed *Merrimack*. When Confederate forces occupied the navy yard they quickly raised the *Merrimack* and placed the badly damaged steamer in an untouched dry dock.[8]

The burned out *Merrimack* piqued Mallory's and Brooke's interest. At Mallory's request, Brooke designed an iron-plated warship using what was left of her. Brooke's proposal featured an armored casemate made up of two feet thick timber plated with three inches of iron covering the exposed hull above the waterline. This made the *Merrimack* impervious to enemy fire and turned the wooden frigate into a shot-proof ironclad. Mallory liked Brooke's design and he then solicited the opinions of John Luke Porter, the Navy's Chief Naval Constructor, and William P. Williamson, the Confederate Navy's future Chief Engineer. Porter also had envisioned turning the *Virginia* into a casemate ironclad and submitted an alternate design. His proposal shared many similarities with

Brooke's concept, but contained one key difference. Porter's casemate ran only the length of the hull, while Brooke's shield extended beyond the hull both fore and aft to provide additional buoyancy. Mallory chose Brooke's concept while heeding Williamson's recommendation to refurbish the *Merrimack's* engines and hull for the project to alleviate production at Tredegar. Work commenced in both Norfolk and Richmond to transform the *Merrimack* into an ironclad. Tredegar produced machinery, armor, and cannon, and Norfolk officials impressed local mechanics and blacksmiths.[9]

As construction proceeded in Virginia, Mallory pursued additional shot-proof ironclad warships in Memphis and New Orleans. On paper these cities seemed good choices since both ports already possessed notable shipyards and relevant infrastructure. Memphis shipbuilder John T. Shirley began work on two ships, the *Arkansas* and *Tennessee* (I). Both vessels, about 180 feet in length, also featured a casemate design, had eight guns as its primary armament, and possessed twin screws to help them move in the swift Mississippi river currents. The Confederate government allocated $160,000 for Shirley's warships. In New Orleans, two builders conceived different vessels. Kentucky shipbuilder E. C. Murray designed and built the 269 foot *Louisiana*, featuring two center-placed paddle wheels, twin screws, and twenty cannon. Mallory also accepted a proposal from novice naval architects Asa and Nelson Tift. The brothers launched the *Mississippi*, a 260 foot triple-screw ironclad armed with twenty cannon. Including the *Merrimack* conversion, these represented the first wave of significant Confederate ironclad construction.[10]

Mallory's first five dedicated ironclads, while admirable given the Confederacy's shipbuilding inadequacies, possessed significant flaws that suggested later developments.

None of them were truly ocean-going vessels as originally envisioned. Shirley's *Tennessee* and *Arkansas* suffered from both material and labor shortages. Shirley could not locate adequate iron plate for his projects. He built two sawmills near Memphis so his shipyards would receive enough timber. Meanwhile, the Tift brothers and Murray found New Orleans oversaturated with other shipbuilding projects. New Orleans's shipwrights and industrialists had already commenced work on the submersible privateer *Pioneer*, gunboats, floating batteries, and other projects. New Orleans' largest foundry, Leeds & Company, could not handle the incoming work for the two contractors. This forced the New Orleans shipwrights towards Tredegar and shipments across the Confederacy for machinery. Outside of the material shortcomings, Mallory relied on unproven designs and, in the case of the Tift brothers, inexperienced naval architects.[11]

Given these difficulties and complications, no one knew how these ironclads would function when fully outfitted, let alone whether the ships would actually enter service. In Richmond, the reborn *Merrimack* emerged as the CSS *Virginia* in January 1862, but she did not become fully operational for an additional two months. On February 17, Brooke discovered a major problem during a floating test. Incorrect weight calculations meant the *Virginia* sat higher in the water than anticipated and exposed the wooden hull. Brooke imported hundreds of tons in scrap iron to alleviate the problem. The metal ballast lowered the casemate slightly below the waterline and increased the vessel's draft to twenty-two feet. The western projects also suffered from substantial delays that prolonged construction well past the original deadlines.[12]

Mallory ultimately had little choice but to rely on these unproven and untested experimental craft. The creation of the *Gloire* and *Warrior* in Europe had already

rendered all wooden warships obsolete at the start of the Civil War. He could also not get into a substantial ship for ship arms race with northern shipyards. Stephen Taafe noted the U. S. Navy blossomed from 1,300 officers, 6,700 sailors, and 42 steamers in April 1861 to 6,700 officers, 51,000 sailors, and over 650 warships of different types by the end of the war. While federal responsibilities included blockading the entire Confederate coastline, the Confederate Navy did not have the facilities to quantitatively compete with their rivals. This meant Mallory needed to develop superior warships either at home or purchase these vessels abroad. European developments suggested shot-proof steamers represented an advancement that Confederate builders could exploit for their material and military gain.[13]

None of these first-generation Confederate ironclads would survive beyond August 1862. The *Virginia* made history in the Battle of Hampton Roads on March 8-9, 1862, and illustrated the potential of iron-plated warships in battle. The Battle of Hampton Roads, conducted on March 8-9, 1862, represented a landmark shift in American naval history. On March 8 the *Virginia* sortied against five ships of the North Atlantic Blockading Squadron stationed in Hampton Roads: two steam frigates, two sailing frigates, and the sloop *Cumberland*. Commanded by Capt. Franklin Buchanan, the *Virginia* rammed and sank the *Cumberland*, destroyed the frigate *Congress*, and damaged the *Minnesota* when she ran aground in the shallows of Hampton Roads. In response, the five frigates achieved only minimal damage against the *Virginia*'s iron hull, with most of the damage occurring when the ironclad's ram broke off when she struck the *Cumberland*. The next day, the *Virginia* returned to Hampton Roads to finish off the *Minnesota* when she encountered a small armored craft that had been towed into Norfolk

the night before: the *Monitor*. The *Monitor* fought a four hour battle with the *Virginia*, with neither side able to penetrate the other's armor despite firing numerous rounds at close range. After the battle, both sides retreated. Although technically a draw, the *Monitor* won the days since she prevented the *Minnesota*'s destruction. The situation then deteriorated into a stalemate as neither force could lure their enemy counterpart into a second decisive encounter. The *Virginia's* increased weight and draft prevented her officers from towing the *Virginia* up the James River to safety during the Peninsula Campaign.

Union offensives along the Mississippi River meanwhile found most of the western ironclads unable to contribute. After Union Flag Officer David Farragut ran past Forts St. Philip and Jackson outside New Orleans on April 24, the Tifts burned the unfinished *Mississippi* to prevent her capture. Five days later, Confederate sailors blew up the *Louisiana* off Fort Jackson, where she sat as a floating battery. In Memphis, Flag Officer Andrew Foote's advance forced Shirley to abandon the *Tennessee* as well, but on April 26 Confederate defenders safely towed away the *Arkansas* towards Yazoo City, Mississippi on the Yazoo River. Lt. Isaac Brown completed the *Arkansas* in July and participated in the Vicksburg Campaign. The ironclad sortied past the Union ships at Vicksburg on July 14. Now south of Vicksburg, the *Arkansas* supported a Confederate attack against Baton Rouge, Louisiana, on August 3. Her success was short-lived. Three days later, the *Arkansas* lost the use of her engines in an engagement with Union gunboats. Disabled, the Confederate officers on board had no choice but to destroy the *Arkansas*. The last of the initial five ironclads was gone.[14]

Others in the Confederacy pursued wooden alternatives throughout the winter of 1861-1862. In late 1861, work began on five gunboats in Charleston and Savannah. The Mississippi legislature authorized funding for building a local warship, while Tennessee, South Carolina, and Louisiana all explored local gunboat construction as a feasible option. Noted antebellum scientist and Confederate naval officer Cmdr. Matthew Fontaine Maury in particular disagreed with Mallory's ironclad fixation. Prior to the Civil War, Maury had served as both the first Superintendent of the U. S. Naval Observatory and the Navy's first hydrographer. A native Virginia, he resigned from the U. S. Navy on April 20, 1861 and joined the Confederacy. Maury previously clashed with then-Senator Mallory in 1855 over Maury's prolonged land service and his subsequent placement on the inactive rolls. In late 1861, Maury proposed a fleet of one hundred wooden gunboats each armed with two cannon. He theorized that small, lightly armed craft provided a cheaper and more feasible alternative to expensive ironclads. The Confederate Congress initially agreed with Maury. In December 1861 Congress authorized two million dollars towards procuring gunboats that would be approximately 106-112 feet in length with a 21 foot beam. Maury's wooden program yielded the James River gunboats *Hampton* and *Nansemond,* but only lasted four months, until Gen. George B. McClellan's Army of the Potomac advanced up the York and James Rivers. Events in Virginia soon shifted expenditures towards additional armorclads.[15]

As the Peninsula Campaign raged around Hampton Roads, both sides reached decision on future procurement that shaped naval construction strategy for the remainder of the war. Prior to Hampton Roads, Mallory had inaugurated a second round of ironclad construction. Chief Naval Constructor John L. Porter oversaw naval procurement and

designed nearly all remaining ironclads. Unlike the first five ironclads, the emphasis of the second-generation ironclads shifted towards harbor defense rather than projected blue-water operations. Many of Porter's drawings nonetheless shared similar design elements with the *Virginia*, albeit on a reduced scale. The first of Porter's *Richmond*-class vessels, built in 1862, contained features found on nearly all ironclads built after 1861. The *Richmond* was a 150 foot vessel with a 34 foot keel and 11 foot draft. She possessed a flat-bottomed hull, narrowed bows and stern, and a knuckle where the side of the hull met the warship's superstructure. Slightly larger than Maury's wooden vessels, the *Richmond*'s size has led some historians to refer to these ships as ironclads or ironclad gunboats.[16]

The armored casemate, or protected enclosure, served as the Confederate ironclad's signature design element, however. This shield protected the ironclads' machinery, crew, and firepower from enemy fire. Elliptical in shape, the casemate ran flush against the ship's sides, but tapered fore and aft towards the ends of the hull. The casemate's size depended on the vessels' draft, machinery placement, and available iron. In October 1861, Brooke conducted experiments with Lt. Catesby ap. R. Jones on the effectiveness of different armor plating against close-range fire. A former scientist and mechanical engineer, Jones sided with the Confederacy when Virginia seceded in April 1861. He served as Buchanan's executive officer on the *Virginia* during the Battle of Hampton Roads, and later would run the Selma Iron Works in 1863 and 1864. Jones's expertise made him a capable partner when the two conducted these military experiments. Brooke operated under the assumption that ironclad engagements would take place near enemy vessels rather than fights at long distances. This meant he desired

armor that would render the casemate impervious to close-range cannon fire. Through their tests they discovered that angled plating provided better protection over vertical plating. This influenced the casemate design, as it featured sloped rather than straight exterior walls. All casemates included a minimum of two two-inch thick rolled iron plate reinforced with two feet of wood. This gave all ironclads at least four inches of metal armor. The top of the shield only possessed metal grating for ventilation purposes and left ships vulnerable to plunging fire. The armored casemates on the whole nonetheless provided adequate protection from enemy fire.[17]

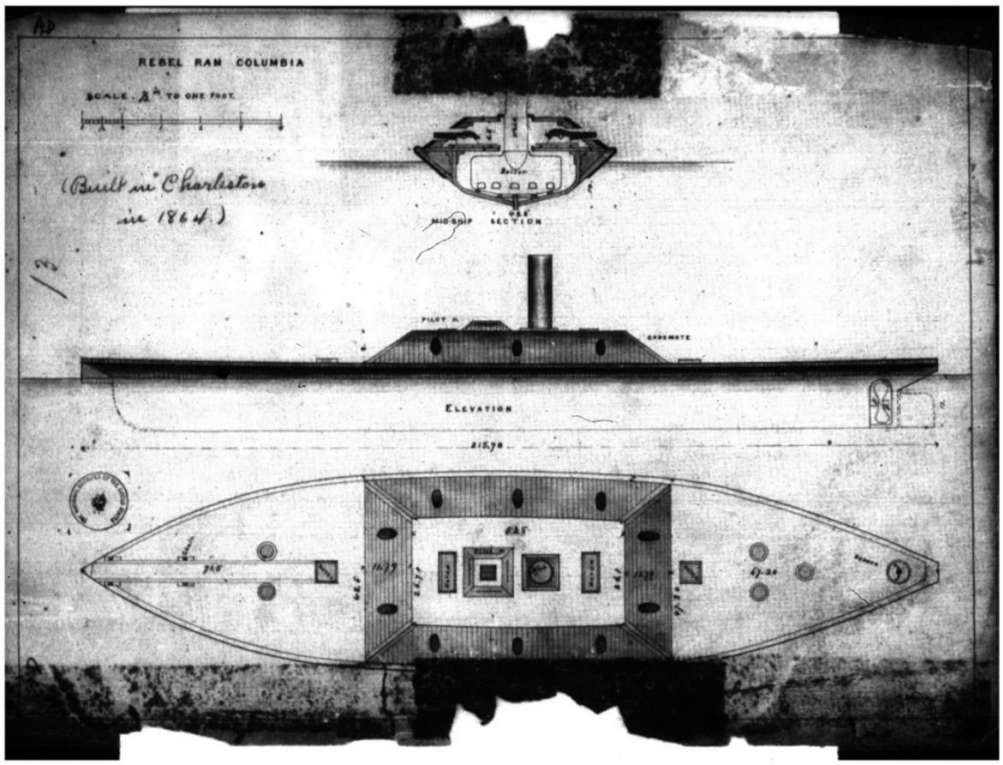

Figure 1.1. Sketch of the CSS *Columbia*, designed by John L. Porter and launched in 1864. One of the last ironclads completed during the Civil War, the *Columbia* was an enlarged version of Porter's *Richmond*-class ironclad built throughout the Confederacy. The smaller casemate of the *Columbia* and later ironclads resulted from increasing iron shortages.
Source: Sketch of the CSS *Columbia*, Subject File of the Confederate States Navy, 1861-1865, Reel 7, Records of the Office of Naval Records and Library, National Archives and Records Administration, Washington, D.C.

The later ironclads crammed three full decks, or levels, inside their smaller hulls. The casemate interior served as the main floor and gun deck. Figure 1.1 shows that Porter

placed the armored pilothouse forward of the steam stack, above the bow pivot gun. This allowed the pilot clear sight lines while maneuvering the vessels but still provided him the protection from the armored plating. The second deck, located below the casemate, consisted primarily of living and crew space, including the galley and the wardroom. The third level rested deep inside the hull. This area housed both the ironclad's machinery and storerooms, including ammunition magazines and shell rooms. The one hundred and forty or so men stationed onboard a *Richmond*-class ironclad slept in two locations: the second deck and on hammocks hung throughout the gun deck. This maximized space within the casemate and turned the main combat area into auxiliary living quarters.[18]

The bowels of the ironclad housed the ironclad's propulsion system: engines and boilers. The power plants were typically single valve, reciprocating steam engines, and the number of boilers varied in design, orientation, and number. Ironclads typically possessed one or two engines and anywhere from one to six boilers. Nearly all Confederate shot-proof vessels possessed at least one screw propeller underneath the hull, and many held two to four propellers. Only three ironclads—most notably the CSS *Louisiana*—utilized a paddlewheel rather than a screw propeller.[19]

The gun deck held the ironclad's primary armaments. Hidden behind porthole covers within the casemate, cannons were placed in fixed positions port and starboard as well as on pivots located at the front and rear of the casemate. Most of Mallory's 1862 ironclads only carried between four and eight cannon. This marked a rapid departure from the larger 1861 warships, which featured upwards of twenty pieces. Shipbuilders deposited different guns within the casemate. Many placed traditional smoothbore cannons on fixed carriages, and also installed new rifled cannon Brooke initially crafted

for the *Virginia*. Brooke created two different guns on Mallory's behalf: a 7-inch caliber cannon that weighed around 14,500 pounds, and a 6.4 inch caliber cannon that weighed about 9,000 pounds. Brooke later designed an 11 inch smoothbore cannon. Tredegar Iron Works initially cast Brooke's cannon in Richmond, Virginia. In June 1863, Jones operated the Selma Iron Works. Selma's presence relieved pressure on the overburdened Tredegar Iron Works and provided shipwrights a second naval artillery foundry.[20]

Brooke and Mallory's early emphasis on rifled cannon marked a significant departure from standard U. S. Navy practices. Nearly all pre-war naval artillery featured smoothbore cannon, which allowed rapid reloading on the gun decks. Rifling cannon permitted more powerful and accurate projectiles, similar to rifling small arms during the American Revolution. Ordnance officers moreover could design shells particularly suited for enhancing the effectiveness of these rifled cannon. In Virginia, Brooke developed solid shot and armor piercing rounds that could puncture both wooden and armored hulls when fired from his rifles.[21]

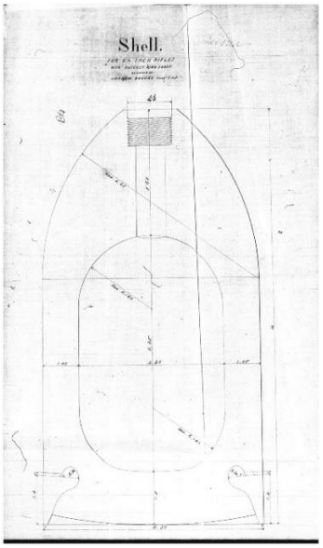

Figure 1.2 Design of a 6.4 inch conical shell by John Brooke. Similar in shape to the minié ball both sides used in rifle-muskets, Brooke specifically crafted the shell for his rifled cannon.
Source: John Brooke, Shell for 6.4" rifles, Subject File of the Confederate States Navy, 1861-1865, Reel 10, Records of the Office of Naval Records and Library, National Archives and Records Administration, Washington, D.C.

In retrospect, Brooke's rifles can be seen as part of a series of new technological advances for naval ordnance. Paixans had experimented with powder-filled shells as early as the 1820s. Lt. John Dahlgren more importantly had domestically conducted tests with explosive powders and large caliber weapons in an effort to design an effective, reliable naval weapon. His Dahlgren gun, first developed in 1855, increased the thickness of the entire tube so that it could better withstand the pressures exerted during firing. Dahlgren became known especially in the antebellum period for his 9 inch cannon, which fired a 100-pound projectile. The smoothbore Dahlgren, either in 9 or 10 inch variants, finally emerged as the most common Civil War naval artillery piece in both navies. During the war, Dahlgren crafted larger 11 inch and 15 inch smoothbore cannons for the *Monitor* and later Union ironclads. He believed increasing the size of his guns helped withstand the intense pressures placed upon the cannon when fired. Other individuals thought that strengthening the breech, or base of the gun, would suffice. After placing a band of red-hot wrought iron around the breech, it was allowed to cool in place. This process, known as banding, provided an easier alternative to the Dahlgren method of making the entire gun thicker. The banding process provided cannon with extra support and strength. When finished, it looked like a ring had been placed around the cannon breech. Foundries sometimes placed two or three iron braces around the base, creating a double-banded or even a triple-banded gun. In the Confederate Navy, double-banded or even triple-banded Dahlgrens or Brookes were not uncommon sights.

Two northern foundry operators, Robert Parrot of the Cold Springs Arsenal near West Point, New York, and Thomas Rodman at the Fort Pitt foundry in Pittsburgh, Pa, also made important artillery advancements on the eve of the Civil War. Parrot produced

a doubled-banded rifle known as the Parrot Rifle, with cannons ranging in size from 30-pounders (firing a thirty pound shell or projectile) to a 300-pound Parrot (firing a shell ten inches in diameter that weighed three hundred pounds). Rodman on the other hand conceived a new manufacturing process. Rather than utilize the standard method of casting a solid mold and let the metal cool from the outside in, Rodman cast his cannon as hollow tubes. Once made, he shot cold water into the barrel as hot coals surrounded the metal shell. This cooled the cannon from the inside out. The Rodman method resulted in three key advantages: quicker production times, larger cannon, and strong, stable weaponry. Beginning in 1859, the United States government required all arsenals manufacturing cannon for the government to utilize the Rodman method. Only Tredegar Iron Works proprietor and artillery producer Joseph Anderson rebelled against the new directive. He believed Tredegar and their locally sourced pig iron produced a superior product. Anderson's stubbornness and short-sightedness not only cost Tredegar significant business in 1859 and 1860, but as the only government artillery contractor in the South, deprived the Confederate military of a shop outfitted with the Rodman method for producing cannon.[22]

Outside of Tredegar, Mallory's builders possessed growing but still limited industrial resources after the fall of New Orleans and Norfolk. Tredegar was one of only two places that manufactured heavy artillery and one of three places that could roll two inch iron plate to armor ironclads. Many southern cities held facilities capable of crafting the boilers, pipes, and many requisite parts, but obtaining new engines was more difficult. In many cases, early ironclads repurposed existing engines from tugboats or other light steamers. This left ironclads notoriously underpowered when coupled with the weight

from the casemate's armor. Mallory and his top subordinate, Chief Engineer Williamson, recognized southern industrial deficiencies and built new interior hubs in Charlotte, North Carolina and Columbus, Georgia. Front line manpower requirements however placed significant strains on Confederate industrialists. Tredegar, Selma, and other major shops suffered substantial shortages throughout the war. Mallory realized labor deficiencies represented a "serious drawback" to Confederate industry, but could not substantially support Anderson, Jones, or other industrialists in securing requisite personnel. Labor deficiencies partially mitigated Williamson's industrial expansion.[23]

Two other issues affected ironclads. Their weight and lack of appropriate engines hindered ironclad operations outside of optimal weather and tidal conditions. Underpowered ironclad steam plants directly impacted multiple battles, including the *Virginia* at the Battle of Hampton Roads and later the *Tennessee (II)* at Mobile Bay. The ironclads' deep draft meanwhile forced Capt. Duncan Ingraham to have the ironclads *Chicora* and *Palmetto State* remain dangerously outside Charleston Harbor for twelve hours after they attacked the South Atlantic Blockading Squadron on January 31, 1863. The warships could only cross the sandbar at the harbor mouth at high tide with only a foot of water beneath the keel. Restricted ventilation from the grates and port holes in the casemate meanwhile reduced air circulation and contributed to crew discomfort, sickness, and poor morale. Augustine T. Smythe, a signal officer onboard the *Palmetto State*, remarked on October 5, 1863, "I expect I shall have the pleasure of wintering down here in this narrow little craft, dark, cold, & damp as they said it is in cold weather, with no employment for the dark, long nights, for our supply of candles and oil is limited." Smythe added, "The great trouble is the close confinement, which is very trying, as we

have no place for exercise except the small deck." Limitations aside, the casemate ironclad provided Confederate naval squadrons armored warships against the Union navy, assuming shipbuilders possessed the time, materials, and requisite manpower.[24]

* * *

While Mallory committed the Navy towards Porter's ironclads, others groups pursued alternative means for protecting Confederate waterways through explosive obstructions. The use of underwater mines or torpedoes was not pioneered by the Confederate military. Throughout the nineteenth century, American and European inventors had experimented with different chemicals and electric triggers. German engineer Walter von Siemens deployed mines protecting the port of Kiel in 1848, and the Russians utilized these devices within the Baltic and Black Seas during the Crimean War. Although European powers deployed torpedoes, the scale in which the Confederate military deployed submerged obstructions marked their use as a new step in naval warfare.[25]

There is a substantial debate within Civil War Naval historiography over who merits credit to first use electric torpedoes within the Confederacy, but nearly all agree that both Matthew Fountaine Maury and Gabriel Rains made significant contributions. In 1862 Maury experimented with both electric and non-electric torpedoes. After the Battle of Hampton Roads, Maury and Lt. Hunter Davidson deployed two separate torpedo batteries in the James River. When Maury departed for Europe as a Confederate agent abroad, Army Brig. Gen. Gabriel Rains emerged as a key torpedo advocate. Rains

received a transfer to Submarine Defense and seeded submerged devices in the Appomattox and James Rivers in an effort to slow down the Union Navy.[26]

In October 1862, the Confederate government created three separate torpedo agencies: the Confederate States Submarine Battery Service, the Torpedo Bureau, and the Secret Service Corps. Davidson led the Submarine Battery Service while Brig. Gen. Rains headed the Torpedo Bureau. Although these organizations often saw their duties overlap, the creation of these departments legitimized the manufacture and deployment of maritime mines. They soon became important weapons in the defense of Charleston. Rains ordered Capt. M. M. Gray to Charleston and Rains assisted with their creation. After his arrival in January 1863, Gray manufactured and deployed three different devices in Mount Pleasant outside Charleston: frame torpedoes, floating barrel torpedoes, and electric torpedoes. The frame torpedo, conically shaped, were converted shells filled with gunpowder and deployed as part of submarine mortar batteries constructed. Floating barrels were simply barrels filled with gunpowder and weighed down in the water by a makeweight so they wouldn't float away, and could be attached to boom emplacements or deployed en masse. Electric torpedoes on the other hand referred to their primer switch, which could be triggered by an electric current either by pressure or remotely from a wire. Rains, Davidson and other military men deployed torpedo systems throughout the Confederacy. In Charleston, Gray's operations, combined with the work of Rains, Capt. Francis D. Lee, and the larger-than-life presence of Gen. Pierre G. T. Beauregard, brought torpedo procurement in Charleston primarily under the purview of the Confederate Army. Beauregard and Lee moreover desired delivery vehicles that could transform the static device into an offensive weapon.[27]

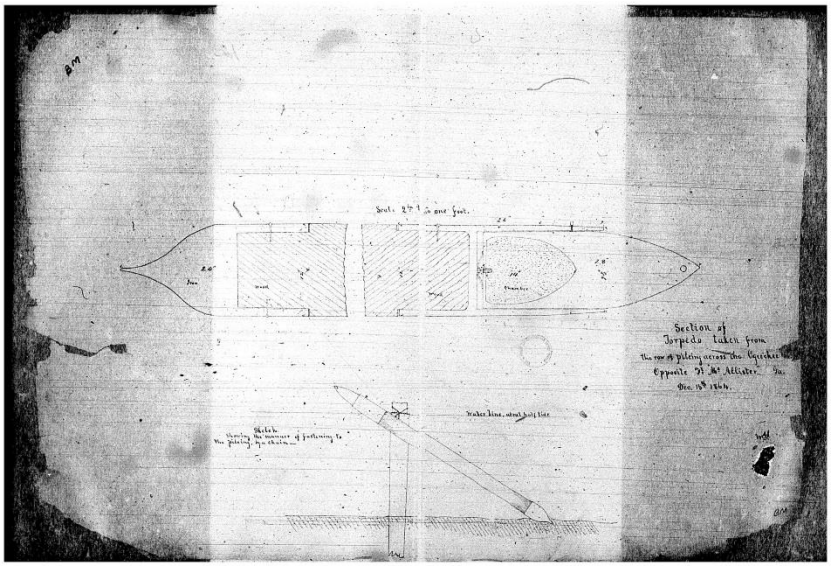

Figure 1.3. Sketch of part of a frame torpedo found off Ft. McAllister in the Ogeechee River near Savannah, Georgia, December 15, 1864. The conical shape gives the frame torpedo its distinctive shape. Source: Section of a torpedo, Subject File of the Confederate States Navy, 1861-1865, Reel 9, Records of the Office of Naval Records and Library, National Archives and Records Administration, Washington, D.C.

The development of the electric torpedo and the *Richmond*-class casemate ironclad marked a shift in strategy from Mallory and the Navy Department. While the *Virginia*, *Mississippi*, and *Louisiana* possessed both the size and heavy cannon to break the blockades, their deeper drafts made them less suitable for harbor or riverine operations. Porter's smaller *Richmond*-class ironclad, with fewer cannon, underpowered engines and slower speeds, remedied this problem. Torpedo deployments also showed a more defensive turn from Confederate officials. The capture of Port Royal and other coastal locations forced Mallory into protecting his remaining, vulnerable harbors with torpedo obstructions and new ironclad construction provided in Wilmington, Charleston, and other locales. Mallory still desired foreign-built steamers, but the domestic shift demonstrated the impact of Confederate losses in 1861 and early 1862.[28]

* * *

While Mallory pursued new weapons, his Washington counterpart Union Secretary of the Navy Gideon Welles also explored armored warship development. Welles did not want to commit towards an un-proven concept, however. On August 3, 1861, Congress authorized a three man examination board that considered ironclad proposals and allocated $1.5 million towards the project. Four days later, the Navy Department published their call for submissions. Compulsory details included a draft of less than sixteen feet, support eighty to one hundred and twenty tons worth of iron and weaponry, and carry enough provisions for upwards of three hundred sailors on station for sixty days. All proposals further required a detailed description, a sketch of the proposed vessel, and the estimated building time and total cost. This set Wells and Congress apart from Mallory's 1861 construction strategy. The Tift brothers, for example, caressed Confederate political connections when the two lobbied and secured a New Orleans contract from Mallory despite no previous shipbuilding pedigree.[29]

Nearly six weeks after the Navy Department solicited shot-proof vessel submissions, the three evaluators advised building multiple experimental craft on September 16. In doing so, the three believed the Navy required further information before committing towards a single design. After reviewing seventeen different proposals, the Board recommended submissions from Cornelius S. Bushnell in New Haven, Connecticut; Merrick & Sons in Philadelphia; and John Ericsson in New York. The three proposed radically different ships. Merrick & Sons crafted a 220 foot ocean going craft that could easily carry both iron plate and cannon and possessed a 13 foot draft. The $780,000 price tag meant the ship cost significantly more than either of the

other accepted designs. Bushnell's 180 foot drawing featured iron-rail armor, required only 10 feet of water under the keel, and possessed a top speed of twelve knots. At $235,250, the ship cost a third of the Merrick design, but the board raised concerns over the craft's operational suitability in rough waters and combat. Ericsson's $275,000 plan comprised a 172 foot craft with a 10 foot draft and featured a single-turret, shot-proof battery. The Board praised the Ericsson's originality, but expressed doubts over her seaworthiness in anything but smooth waters. At a total cost of $1,290,250, the Ironclad Board ultimately committed Welles and the Navy towards live fire tests.[30]

The three experimental craft all ultimately contributed to the Union war effort when placed in wartime conditions. Bushnell's experiment emerged as the USS *Galena* and participated in the Peninsula Campaign. The *Galena* attacked Confederate batteries at Drewry's Bluff on May 15, 1862 but Confederate gunners exposed a weakness to plunging fire. After Drewry's Bluff the *Galena* underwent significant modifications that removed most of her protective iron. Merrick's model meanwhile entered service as the Navy's most powerful warship, the USS *New Ironsides*. It led the April 7, 1863 assault against Fort Sumter and both attacks against Fort Fisher near Wilmington in December 1864 and January 1865. Ericcson's *Monitor*, the first of the three built, was towed to Hampton Roads, where the *Monitor* underwent a trial by fire in her engagement with the CSS *Virginia* on March 9, 1862. A tactical draw, the *Monitor*'s presence effectively neutralized the *Virginia*. Nine months later, the weather accomplished what the *Virginia* could not. The *Monitor* sank in a storm while being towed off Cape Hatteras on December 31, 1862.

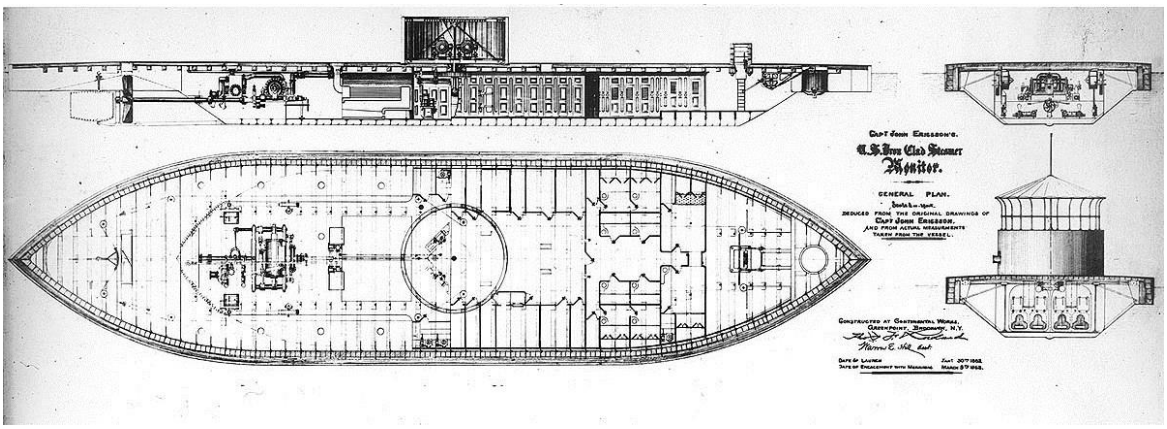

Figure 1.4. Plans of John Ericsson's USS *Monitor*, 1862. One of three experimental vessels built in 1861, the *Monitor* emerged as the Union Navy's preferred ironclad after the Battle of Hampton Roads due to its initial performance, cost, and production speed.
Source: Photo #NH-50954, U. S. Navy History & Heritage Command, Washington, D. C.

While the only Union experimental craft sunk, Ericsson's conception nonetheless heavily influenced future naval procurement. Ericcson mesmerized Welles, Asst. Secretary of the Navy Gustavus Fox, and other politicians with how quickly he built the *Monitor.* This was even more impressive, given Ericcson's checkered history with the Navy Department after a disaster onboard the Ericsson-built *Princeton* in 1843. The Navy's first screw-propeller warship, the *Princeton* was armed with Ericsson's infamous "Peacemaker" cannon. On February 28, 1844, the Peacemaker ruptured when fired during an onboard demonstration. The resulting explosion killed among others Secretary of the Navy Thomas Gilmer and Secretary of State Abel Upshur. Despite this handicap, Ericcson and his associates, which included *Galena* designer Bushnell, drew upon significant political capital and influence within the Navy Department. William Roberts noted Ericsson partners John F. Winslow and John F. Griswold teamed with Congressman Erastus Corning in operating a Troy, New York ironworks. The two also maintained close ties with Secretary of State William Seward. By December 1861, the only competition that stood in the way of Ericsson receiving a large contract for more

Monitors was the Navy Bureau of Construction, Equipment, and Design. The Bureau proposed an improved *Monitor* that featured wooden hulls, armored plating, and turrets fore and aft rather than a singular turret amidships. In December 1861, the House of Representatives initially passed a measure authorizing two million towards the construction of twenty ironclads, and the Senate approved the bill in February. Welles initially favored the Bureau drawings, but the speed of the *Monitor*'s construction, coupled with the positive press received in the wake of the Battle of Hampton Roads, swung popular perception towards the *Monitor*. When the Navy finalized the contracts, ten of the twenty ironclads were based off Ericcson's improved *Monitor* concept as *Passaic*-class warships. Others incorporated the twin-turret conception of the Bureau-supported conception, but even that drew inspiration from Ericsson's *Monitor*.[31]

Throughout the Civil War, the monitor emerged as the dominant Union naval design. Of the eighty-four ironclads built by the North, sixty-four were monitors. These ships were diametrically different than the Confederacy's casemate ironclads. The improved 200 foot *Passaic*-class warships represented the second wave of monitors built in 1862 and 1863. Designers moved the pilothouse to the top of the turret to increase visibility, and installed heavier armor for better protection. The *Passaic*-class ships took advantage of new 15 inch Dahlgren smoothbore cannon; each monitor featured one in the primary battery alongside an 11 inch Dahlgren or 100-pounder Parrot rifle. Despite these improvements, serious flaws remained. The increased size failed to address suitability concerns or seaworthiness while on prolonged service. The Dahlgren guns could only fire once every five to seven minutes, and made the ships unsuitable for prolonged combat

against fortifications. Welles nevertheless made monitors the focal point of his naval construction program just as Mallory fixated on the casemate ironclad.

* * *

Pre-war maritime innovations directly impacted naval construction on both sides of the Civil War. The development of new munitions and armaments led to the creation of larger smoothbore cannon and the introduction of rifled naval artillery. Confederate ordnance men borrowed from earlier European wars and made submerged torpedoes a weapon they could deploy in local waterways. Perhaps most importantly the naval arms race between France and Great Britain resulted in the creation of the world's first ocean-going ironclads, the *Gloire* and *Warrior*. These armored steamers rendered the world's wooden navies obsolete and forced naval policy makers on the other side of the Atlantic to heed these developments. Mallory articulated interest to arm the nascent Confederate Navy with an iron-plated warship by mid-April 1861 and Welles expressed similar sentiments about two months later.

Both the Union and Confederate Navies similarly progressed towards adopting a uniform armored ship, although they utilized vastly different methodologies. The summer of 1861 witnessed experimentation regarding the conceptualization of such a craft. The Confederate Navy utilized four diverse proposals for their five vessels in Norfolk, New Orleans, and Memphis, and the Union Navy selected three divergent plans from the seventeen submitted to the Ironclad Board in August 1861. Political connections partially influenced the distribution of contracts. The Tift brothers maximized their connections

with Mallory into both an interview and approval for the CSS *Mississippi*, while Ericsson's political capital aided in the receipt of additional building agreements for himself and his associates. Some of these one-off ships finally saw combat in 1862, famously including the ironclads *Monitor* and *Virginia* during the Battle of the Hampton Roads. In March 1862, both Union and Confederate officials rapidly expanded local shipbuilding programs and committed themselves towards the *Monitor*-style gunboat and the casemate ironclad respectively. These vessels overcame significant shortcomings and became key fixtures in both navies throughout the Civil War.

The Confederate Navy faced maritime competition from other builders in Charleston, however. Initial pushback came in March 1862 not from those who promoted ironclad alternatives but other parties interested in building ironclads themselves. The Confederate Navy was but one of three entities that desired to raise a Charleston ironclad. The South Carolina Executive Council authorized the creation of a gunboat commission that started a state-sponsored program. The Charleston *Daily Courier* meanwhile took matters into their own hands. In late February, the newspaper published a series of articles that culminated with a call for local women to inaugurate a gunboat subscription. The subsequent response sparked patriotic concerts and maritime-themed fundraisers as gunboat fever gripped the state.

Chapter 2

Iron Fever: The Charleston Ladies Gunboat Fund and Naval Procurement in Charleston

Saturday, October 11, 1862 marked a momentous occasion in Confederate Charleston. After months of looming threats to the city, her citizens celebrated the baptism of the newly finished ironclad gunboat *Palmetto State*. Held along the Cooper River at the shipyard of James Marsh and Son, many top Confederate officers and local dignitaries attended, including the newly appointed Department of South Carolina, Georgia, and East Florida commander Beauregard, and Capt. Duncan Ingraham. A Charleston native, Ingraham had first entered the navy in 1812 and served in both the War of 1812 and Mexican-American War. He headed the Bureau of Ordnance from 1855 to 1860 before he sided with South Carolina in January 1861. Charleston *Daily Courier* editor Col. Richard Yeadon provided the main oration, and Summerville native Sue Geltzer broke a bottle of champagne over the warship's hull.[1]

Although rain threatened proceedings and forced attendees inside Marsh's workshops for the post-ceremony reception, the weather could not detract from the accomplishment of Charleston's citizens. Gunboat fever had gripped the South Carolina countryside for ten weeks in spring 1862. Launched by Yeadon's *Daily Courier* on February 27, 1862 and Geltzer's response in the March 3 edition, South Carolinians whole-heartily committed towards fundraising efforts to build a gunboat. Subscriptions and various items poured into the offices of both the *Daily* Courier and its rival, the Charleston *Mercury*, while citizens throughout South Carolina put on concert, fairs, and tableaux vivants to garner additional funds for this vital project. After mid-May, interest

in gunboat subscriptions significantly waned. Martial law gripped Charleston due to significant Union activity in the city's environs. Residents turned their attention towards other benevolence movements, notably the Charleston Free Market. Nonetheless, those springtime efforts had helped produce an ironclad. The *Palmetto State*'s name reflected the subscriptions raised towards supporting ironclad construction, just as Geltzer's place of honor highlighted how her initial letter sparked the movement. Yeadon proudly presented Ingraham $30,000, the net result from seven months fundraising.[2]

The next three chapters concern naval procurement in Charleston. This chapter addresses the earliest stage of ironclad construction in Charleston with a particular focus on one part of the story, gunboats' popular appeal in the light of alleged government reaction. The concept of "gunboat fever" is generally associated with northern efforts. The construction of CSS *Virginia* created a temporary panic in Washington, as citizens including Secretary of War Edwin Stanton imagined destruction steaming up the Potomac. In the wake of the Battle of Hampton Roads on March 8-9, 1862, northern politicians, journalists, and civilians demanded more monitor-type vessels and expressed their support for the *Passaic*-class warships. Drew Gilpin Faust, however describes a similar "fever" amongst the women of the Confederacy, and attributes the proliferation of southern gunboat societies to the *Monitor*-*Virginia* duel. She argued the promise of the Confederate ironclad compelled mostly elite women in Richmond, Savannah, and elsewhere to supporting gunboat construction movements. In doing so, Faust asserts the role of women in channeling home front benevolence temporarily towards local defense efforts.[3]

Faust correctly notes that these gunboat societies indicate the outbreak of Southern gunboat fever, but who participated in the movement, and how important was it? An in-depth look at the origins and contributors of the Charleston Ladies Gunboat fund steers the historiography down a different course. Elite women in South Carolina did not control a movement to defend Charleston with ironclads. Yeadon's *Daily Courier* not only created the Ladies Gunboat Fund prior to the Battle of Hampton Roads, he also established the city's gunboat fair and determined fundraising goals to mesh with existing shipbuilding projects. The intense but ultimately fleeting nature of the movement confirms the presence of gunboat fever in 1862 Charleston as a three-month long fad, but an inability to resurrect interest after May 1862 demonstrates South Carolina's conditional-at-best support for building warships, ultimately leaving it to the state and national governments to actually defend the harbor.[4]

* * *

Charleston and her inhabitants stood at a crossroads in 1861. Founded in 1670, the city's 48,409 residents were nestled on a narrow peninsula between rivers named for one of the South Carolina's Lord Proprietors, Lord Ashley Cooper. The Ashley River ran down the west side of Charleston while the Cooper flowed from Lake Moultrie to Charleston's eastern waterfront. The two rivers met south of the peninsula and formed a natural harbor that emptied into the Atlantic Ocean. The rivers and inlets that littered coastal South Carolina directly connected the city with her rural hinterland along with three rail lines that terminated within the state's largest port by 1860. Charleston initially

blossomed in the eighteenth century, a product of the city's position as the fourth-largest city in British North America and her relationship to both the larger Atlantic World and the city's hinterland. Emma Hart noes that the Revolutionary Era shifted Charleston's fortunes politically and economically. The introduction of new crops, the population explosion within the South Carolina backcountry, and the British occupation of Charleston from 1780-1782 all helped shift local power away from the colonial capital towards the interior. In 1786, a bill was introduced to move the capital away from Charleston to Columbia, located more centrally within the state. Combined with economic depressions that hit the city at different points in the nineteenth century, Charleston's importance slowly declined throughout the nineteenth century. America's fifth largest city by population in 1800, Charleston slumped to twenty-second in size in 1860.[5]

While Charleston faded the institution of slavery remained strong amongst the region's inhabitants. The first settlers brought three slaves with them when they landed in 1670. Slavery soon became a key component of the burgeoning Charles Town settlement and the larger South Carolina colony. By 1708 enslaved Africans made up a majority of South Carolina's population, a trend that continued throughout the antebellum period. Although Charleston itself would regain a white majority by the eve of the Civil War, slavery still shaped its populace. According to the 1861 Charleston city census, 48,409 inhabitants lived within the city. Of these 48,409, 17,655, or 36.5 percent, were enslaved African-Americans, and 3,785, or 7.8 percent, were free blacks. From a labor perspective, the city depended upon a diverse workforce that included immigrant, free black, enslaved, and white skilled and unskilled workers.[6]

Tensions persisted amongst the region's white and black inhabitants. The perceived threat of slave insurrection hung over the region from the 1739 Stono Rebellion, and were reinforced from later events such as the 1775 hanging of slave pilot Thomas Jeremiah, the 1822 Denmark Vesey plot, and the 1831 Nat Turner rebellion in Virginia. These strains played out in part amongst the city's mechanics in the years immediately preceding the Civil War. African-American workers made up about one-third of the city's 969 industrial artisans in 1860. These included the West Point Rice Mill, which owned 160 slaves. Some mechanics also trained slaves as apprentices, and the city's slave badge laws allowed local slave owners to hire out slaves within the city. This provided Charleston businesses multiple options when they manned their shops, but they faced pushback from the city's white artisan population. White mechanics feared industrial competition and the lower wages free black and enslaved artisans received. In the 1850s, for example, newly arrived Irish workers allied with middling whites against slave labor and pushed for stricter enforcement of the city's slave badge laws. Police eventually cracked down and arrested both slaves caught without the requisite badge and mistakenly identified free blacks. These individuals also expressed their displeasure within the South Carolina state legislature. James Eason, owner of a foundry that produced heavy machinery within Charleston, promoted a bill before the Committee on the Colored Population on January 21, 1861 that barred free African-Americans from industrial occupations. He argued free black mechanics degraded white artisans who sought work within the city's forty-six surviving factories. Eason's efforts are especially notable since they occurred during the Fort Sumter crisis, a time where Charleston needed to marshal all available resources towards military preparations.[7]

Charleston's coastal location made the city vulnerable to outside assault. During the American Revolution British forces captured Charleston on May 12, 1780. British warships first ran past a wooden fort erected on Sullivan's Island and occupied the inner harbor. British soldiers then traveled up James Island and successfully besieged Charleston from the north. The combined army-navy operation compelled Gen. Benjamin Lincoln to surrender both the city and his army. In the eighty years after Lincoln's capitulation army engineers had made some progress erecting harbor defenses, but the city mostly featured incomplete fortifications. Abraham Lincoln's election in the 1860 presidential election prompted South Carolina to secede on December 20, 1860. State and Confederate forces rapidly finished the existing emplacements and erected new batteries. The city did not have an existing navy base, however. Most Charlestonians patiently waited for a naval squadron to rise within the harbor despite clamoring from one of the city's two major newspapers, the Charleston *Mercury*. In February 1862, the city's other major paper, the *Daily Courier*, took matters into their own hands.[8]

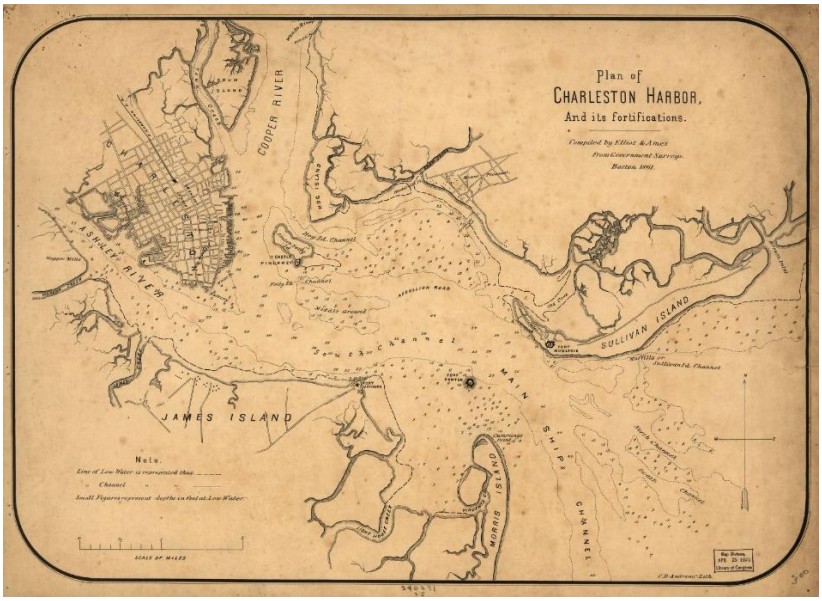

Figure 2.1: Plan of Charleston Harbor and its Fortifications, 1861.
Source: Eliot & Ames, "Plan of Charleston Harbor, and its Fortifications, 1861," (Boston, C. D. Andrews, 1861).

* * *

Confederate gunboat societies pre-dated the *Monitor*-*Virginia* duel. Women in New Orleans advocated the construction of a local ironclad as early as December 1861. Similar work commenced two months later in Mobile. On March 6, 1862 two women wrote to the Savannah *Republican* and sparked the launch of a Ladies Gunboat Fund in that port. The Battle of Hampton Roads, however, did kindle interest in such a movement in Richmond. Col. Blanton Duncan published an appeal for an iron-clad in the March 17, 1862 Richmond *Dispatch.* In early April residents of the city formed a Ladies Defense Association that launched fundraisers supporting naval procurement. In short, the *Virginia*'s exploits amplified feelings towards naval procurement but the requisite framework was already in place in many locales.[9]

Charleston proved no different. When the Charleston Ladies Gunboat Fund movement erupted, it only did so after the *Charleston Daily Courier* provided the necessary kindling for combustion to occur. On the surface this proved difficult, as Confederate newspaper editors faced production problems throughout the war. Readers had difficulties paying for their subscriptions, which required many to collect cash in advance for their product or even switch to a bartering system for their newspapers. Paper prices soared and forced Charleston newspapers to scale back their daily offerings. In November 1861, the Charleston *Daily Courier* reduced the size of its paper and the number of columns printed from eight to seven. The Charleston *Mercury* cut back the size of its newspaper by June 1862 from four to two pages due to decreasing revenue. The shrinking newspapers meant *Daily Courier* editor Yeadon and his counterpart at the

Mercury Robert Barnwell Rhett maintained a delicate balance between news, editorials, and advertisements within their daily editions.[10]

This space proved vital as Charleston's citizens had many aid organizations asking for attention and support in the winter of 1861-1862. Various Bible Societies operated throughout the region to furnish soldiers along the South Carolina coast with scriptures. Soldiers Relief Associations and Ladies Christian Associations meanwhile gathered donations for Charleston hospitals, and the Ladies Fuel Society promoted oil conservation. Other groups formed by women in Charleston during the early part of the war included a Ladies Clothing Association and the Ladies Volunteer Aid Society.[11]

The largest pre-gunboat benevolence fundraiser spawned in response to a local tragedy. On December 11, 1861, a fire accidently started in a factory located on Hasell and East Bay Streets. The fire spread south and west through downtown Charleston before local fire companies extinguished the blaze the next morning. The Great Charleston Fire burned 575 private homes, 540 acres worth of land, and caused $5 million worth of damage. As the final embers still smoldered Charleston Mayor Charles Macbeth established a relief committee to aid those affected by the fire. He appointed a seventeen person group to oversee the relief efforts. These men organized the daily supply of food, clothing, and shelter to those affected. The committee also established a free market that distributed soup, vegetables, small meats, and bread.[12]

Additional relief efforts immediately followed Macbeth's initiative. Three other companies donated $2,000 and inaugurated a fund for victims of the fire. The subscription effort quickly blossomed as support poured in from throughout the Confederacy. Donations recorded in the December 17, 1861 *Daily Courier* demonstrate

both the scale and scope of fire relief. Contributions published on that day included $1,000 from industrialist William Gregg, $4,398.50 from citizens of Augusta, Georgia, $10,000 from Savannah, $1,000 from Petersburg, Virginia, and $250.00 from a man in Liverpool, England. Bank of Charleston Treasurer J. K. Sass added he did not feel it necessary to note the "numerous and liberal" subscriptions from Charleston's own citizens, and he reported that he had already received $66,800 towards the relief efforts. By December 27, $142,313.95 had reached the Bank of Charleston towards supporting those affected by the Great Fire. Benefactors from throughout the Confederacy in total raised upwards of one million dollars to aid fire refugees.[13]

It was in the wake of the Charleston Fire relief effort that the *Daily Courier* and the Ladies Gunboat Fund launched their naval fundraiser. Lacking the obvious devastation of the fire, the *Daily Courier* first needed to illustrate the necessity for local gunboat construction by highlighting perceived inaction from state and Confederate officials. Rhett's *Mercury* fixated on Charleston's lack of new warships. On January 8, 1862, for example, the Charleston *Mercury* published the article "Shall We Build a Navy?" The article noted recently built Union warships participated in the Port Royal Expedition and demanded the Confederate government follow their lead towards widespread naval construction. Rhett's criticism towards Davis did not yield any initial reaction from local naval enthusiasts.[14]

Six weeks after the *Mercury*'s article, however, editor Col. Richard Yeadon and the *Daily Courier* started a call for local gunboat procurement amongst its citizens. At this point fire relief had largely subsided and provided organizers a chance to launch a new fundraiser. Yeadon pursued an alternate strategy to spark action amongst local

residents instead of criticizing existing policy. The *Daily Courier* spent the final week of February highlighting positive naval news within Charleston and throughout the Confederacy. In so doing, Yeadon placed these ideas in the public consciousness before he proposed a civilian-sponsored construction program. On February 25, the *Daily Courier* noted the opening of a naval recruitment office by Lieutenant H. K. Stevens of the Confederate States Navy at A. W. Black's Shipping Office, on East Bay Street. Yeadon commended Stevens' efforts and remarked, "We commend this opportunity to all good citizens, of nautical and naval inclinations, who desire to do good service." The following day the newspaper published a letter from the Mobile *Register* promoting that city's ladies gunboat fund. Yeadon hailed the patriotism of these Gulf Coast subscribers, and reminded his readers about the city's own maritime victories when he wrote, "The women of Charleston furnished and equipped a privateer in 1756. They are now ready to do all that the occasion demands."[15]

After priming the proverbial pump, the *Daily Courier* finally issued a brief if official call to arms on Thursday, February 27. In the middle of page two the editors ran a small, two-line entry, asking, "Can not the women of Charleston give an order for a gunboat?" Printing issues prohibited any published responses until Monday, March 3. As it turned out, two South Carolina women responded almost immediately and contributed to a local warship: Josephine Cordes of Charleston and Sue L. Geltzer of Summerville. Cordes sent $25 towards the project on behalf of herself and her three daughters. She expressed her optimism towards the idea when she wrote in her accompanying letter, "We hope we will have the pleasure of subscribing to many more, and most of them, built

by *our patriotic women*, with the fervent hope that our people will one more hail freedom."[16]

For reasons that remain unclear, the *Daily Courier* buried Cordes' submission until March 13, ten days after fundraising began. Geltzer's letter, combined with the backgrounds of both individuals, however, provide some possible explanations as to why the *Daily Courier* ultimately chose Geltzer as their heroine. Her letter presented a more aggressive, assertive message. Geltzer hearkened back to *Courier*'s previous articles when she noted that the ladies of New Orleans had requested a gunboat subscription and now the *Daily Courier* asked for something similar. While she mistook New Orleans for Mobile, she stressed how the *Daily Courier*'s actions spurred her response. She expressed regret that she could not contribute more than five dollars towards a gunboat, a sum significantly less than Cordes' contribution. Geltzer however asked her fellow citizens to match her donation. "If every true woman in our beloved state would contribute the same amount," she wrote, "we would soon be enabled to give an order for more than *one* 'Gunboat'….I most respectfully propose, then, that you should open a list for contributions, and inform the public through the columns of your valuable paper." Herein lies the second major difference between the two letters. Cordes only insinuated other gunboats might arise from their efforts. Geltzer issued her own patriotic challenge to both the women of South Carolina and the newspaper editors. The contribution amount advances an additional third reason for selecting Geltzer's letter. Her five dollar donation represented a much more reasonable goal that other contributors could match than the twenty-five dollars Cordes gave on behalf of her family.[17]

The personal backgrounds of both women reveal a fourth reason to bury Cordes' letter and place Geltzer's as the movement's centerpiece. According to the 1860 Federal Census, French native Josephine Cordes was in her late forties and the mother of four children. She had married Theo Cordes, a liquor dealer from Germany who owned $4,500 in real estate and $15,000 in personal wealth. Cordes's familial history presented two key concerns: her status as an immigrant and her husband's occupation selling spirits. Barely a month earlier the state government had cracked down on local alcoholic consumption and production. On February 7, the South Carolina Executive Council authorized the closure of all alcohol shops within Charleston near the construction of any fortifications. Twelve days later, Charleston officials received clearance from the Executive Council to prevent liquor sales to any soldiers and if necessary shutter local drinking establishments. All Charleston bars moreover were indefinitely closed the day before Yeadon published his request for a ladies gunboat. Given her familial ties to alcoholic consumption, it is conceivable that Yeadon did not want to use Cordes as the face for the gunboat movement, especially when a better alternative had already presented itself in Sue L. Geltzer.[18]

To be sure not much is known today about Sue Geltzer. Marguerite Couturier Steedman suggested there was a Sue Lining Geltzer, age 30, who lived in Summerville in 1862. Neither the 1850 or 1860 Federal Census, however list such a person. The 1860 census did note a Susan H. Geltzer, born around 1834, living some distance away in Walterboro. Her father, Thomas Geltzer, a notable planter, held $8,000 worth of property, possessed $34,809.00 in personal wealth, and owned 38 slaves. Unlike Cordes, the Geltzer family were native South Carolinians, and as planters they exerted significant

influence across all facets of southern society. When faced with a choice, Yeadon turned towards someone connected with elite South Carolinians who could financially support the movement. Geltzer's letter provided Yeadon the perfect opportunity to launch a gunboat subscription.[19]

Charlestonians opening the March 3, 1862 *Daily Courier* thus found Geltzer's letter published in full alongside a massive article entitled "The Gunboat to be Built and Equipped by the Patriotic Women of South Carolina." Yeadon opened by stating, "A patriotic daughter of the Palmetto State has inaugurated a subscription for building and equipping the Gunboat 'Palmetto State.'" He extolled Geltzer's actions and asked from every South Carolina woman five dollars, the sum she had donated. If they did this, then he believed the city could swiftly launch a fleet of gunboats. Yeadon implored future subscribers send any and all donations to the *Daily Courier* offices. This made the newspaper the movement's headquarters and placed Yeadon as the gunboat subscription's director.[20]

The next day, the *Daily Courier* established their guidelines on how they would handle submissions. Yeadon would announce updates on any contributions received. When he had available space, he would publish gunboat letters sent to their offices or directly respond to inquiries within these notes. The newspaper also promoted any upcoming gunboat related fundraisers, including gunboat raffles, musical concerts and patriotic festivals. Only one day into fundraising, the editors happily printed that the newspaper had already received $101 in contributions, as well as breakfast, dinner, and tea sets from a Mrs. Thomas McDonald. She sent the tea sets in the hope that they would be raffled off, with all proceeds headed toward the Gunboat Fund. The editors not only

printed Mrs. McDonald's letter they also promoted and supervise the subsequent raffle of her goods in the coming days.[21]

The *Daily Courier's* counterpart, the Rhett's increasingly anti-Davis *Mercury,* initially seemed oblivious to the burgeoning movement. On March 6, the *Mercury* did publish "The President and Our Seacoast, River, and Naval Defenses." A critique of Davis and Mallory's naval policy up to this point, the editors noted that the Confederate Navy had only started local naval construction within the past six weeks. But while the *Mercury* complained about inaction, the *Daily Courier* praised their readers. On the same day the *Mercury* printed their editorial the *Daily Courier* proudly proclaimed they had already raised $791.03 and sold all 200 chances for Mrs. McDonald's China raffle at $1 apiece. Within the first week the *Daily Courier* received contributions from sixteen towns scattered across South Carolina. Yeadon felt bullish on their prospects after seeing the initial outpouring of support and believed they could perhaps launch two vessels within Charleston.[22]

Like so many other Confederates, the *Mercury* only turned to supporting local gunboat fundraising in the wake of the *Monitor-Virginia* fight. It was probably the younger Rhett who ultimately came around on supporting the Ladies Gunboat Fund. On Monday, March 10, the *Mercury* published news of the *Virginia*'s exploits at the Battle of Hampton Roads, exclaiming, "It is not difficult to foresee that this iron-sheathed monster may play a most important part in the future scenes of the war." Two days later the *Mercury* finally praised existing gunboat societies in both Charleston and Mobile and hoped their efforts would spur further action towards ironclad development. On March 14 the *Mercury* acted on its own suggestion and began publishing subscriptions letters sent

to their offices. As the *Daily Courier* ran Sue Geltzer's letter on March 3 as inspiration for the movement, the *Mercury* printed a patriotic note from a Mrs. C. Love who had sent fifty dollars for the Gunboat Fund. She encouraged other women to give more if they could, believing larger sacrifices now would be better than losing everything in the future. Love moreover helpfully pandered to the Rhett's and their anti-Davis criticisms. She argued if others had listened to the paper's previous musings on Confederate policy, Port Royal might have remained in Confederate possession. With Love's letter, the *Mercury* wholeheartedly began supporting the Ladies Gunboat Fund.[23]

Not everyone in Charleston greeted the Gunboat Fund with immediate gusto. "Mrs. H. E. B." expressed concern about the gunboat fund when she wrote the *Daily Courier* on March 4 and asked, "Is the gunboat a sarcasm, Messers. Editors?" The Editors mollified her concerns in responding, "Our proposed gunboat is no sarcasm. We intend it as a *bona fide* aid to the hero statesman, at the head of our Confederacy." In the *Mercury*, meanwhile, "Nemesis" proposed a male gunboat fund:

> No true Carolinian will object to the "Palmetto State," and indeed, it is a very good name for a boat' but *too tame for myth*. I therefore propose that we resist in favor of the "Gentleman's Gunboat," and choose something more *significant and striking*. I do not seek a pun, but only that, as one gentleman can, with hard blows, give tangible proof of *their* spirit, the women may be allowed the name of *their only weapon*, by giving to their boat a name that will strike terror into their enemies."

A Gentlemen's Gunboat fund actually followed, but despite Nemesis' letter it only received fifty dollars and disappeared entirely after March 17. Another Charlestonian thought that madness gripped his city. Charleston native Edward Harleston Edwards served in the Mobile Naval Squadron and wrote his mother on March 25, 1862. "Having heard about the Ladies Gunboat fund," he exclaimed, "Holmes wrote me all about the

concerts which the Ladies have been giving, it seems that all the Ladies in Charleston have gone crazy about building Gunboats how long will it continue so? About three or four weeks I suppose."[24]

Edwards' pessimistic prediction ultimately would not be far off. Even by the end of March, the *Daily Courier* editors tempered their fundraising expectations. When the gunboat fund had kicked off on March 3, Yeadon, Geltzer, and the *Daily Courier* made their goal explicitly clear: "At present…we confine ourselves to the project of building and equipping the Gunboat *Palmetto State*." While they briefly flirted with the fantasy of building multiple ships, locally funding and equipping a gunboat, possibly iron-plated, was their initial endgame. These plans changed after Yeadon met with Ingraham in late March. Ingraham told him that building an ironclad would cost at least $250,000. Rather than carry forth with the "Herculean enterprise" of building an ironclad, the *Daily Courier* proclaimed on March 24 they could build a simpler gunboat for $30,000. Less than a month later the Gunboat Directors made a final course correction. In a April 19, Gunboat Fair meeting chaired by Yeadon, he proposed that given the prohibitive price for building any armored warship, the women instead should raise at least $50,000 towards Ingraham's ironclad. According to the *Daily Courier*, the women gave "their unanimous concurrence," and solidified this new fundraising goal. While not a fully-funded ironclad, they could still significantly contribute towards local naval procurement. This also aided local shipwrights since it consolidated proposed naval projects and meant the Ladies Gunboat would not siphon valuable shipbuilding resources from Ingraham's warship.[25]

* * *

As the gunboat directors debated on how they should direct their funds, Geltzer's letter motivated women throughout South Carolina. The experiences of Mary Elizabeth Anderson illustrated Geltzer's impact as well as how subscriptions appeared within the *Daily Courier* and *Mercury*. Born in 1837, Mary Elizabeth Anderson was the daughter of cotton planter and slave owner David Anderson, in Pleasant Falls, South Carolina. Similar to Geltzer, Anderson possessed familial ties with elite planters and used her status to assume a leadership position for local fundraising. After reading Geltzer's letter, she organized local tableau vivants. She also traveled along with two friends throughout Crawfordville, Reidville, and Cashville soliciting donations. By March 19, Anderson and her cohorts received thirty-nine submissions. The same day, in a letter to her brother, a cadet at the Citadel in Charleston, she wrote, "I know you have heard of the Gun Boat. I have been trying what I could do in our district." Anderson ultimately raised nearly $110.00 for the gunboat fund. She then informed her brother on March 22 to watch the *Daily Courier* for her letter. Her collections appeared in two separate letters published by the *Daily Courier*, on March 26 from "M. E. A." and April 17 from Anderson's friend Lizzie Bivings. These two contributions totaled $109.50, which equaled the $110 referenced in Anderson's March 22 letter.[26]

The delay in which the Anderson's letters appeared in the newspapers reflected the backlog from the volume of donations and the limited space for printing acknowledgments. Sometimes letters might take days or weeks to appear in the newspapers, if they did at all. The *Daily Courier* repeatedly noted letters arrived faster than they could print their contents. It thus began printing truncated lists of subscribers,

briefly listing what was sent and by whom. This allowed the newspaper to more quickly recognize donors without devoting room for the flowery letters that accompanied their submissions. When they had available space, both newspapers printed some letters in full, days or weeks after they first appearing in truncated form. An example of this comes from a lottery of two Palmetto Caps in the 12th Regiment, South Carolina Volunteers. Miss A. C. Thomas and Miss Mattie Rosborough crafted the caps and raised $102 from the raffle. Their contribution first appeared in the April 4 *Daily Courier* from a "J.W.D." Six days later, Yeadon acknowledged that Miss Thomas and Miss Rosborough donated the caps for the regimental raffle and reprinted the submission in full. Neither entry specified where these subscribers came from, but they illustrate the difficulty in announcing donations in a timely and accurate manner.[27]

South Carolinians ultimately demonstrated their patriotism towards the Ladies Gunboat Fund in four different ways: direct monetary contributions, raffles, patriotic performances, and gunboats fairs. Of these, financial gifts served as the most common donation method. Participants either directly mailed in subscriptions or gave towards a larger collection. Contributions published in the April 10 *Daily Courier* provide an example of this diversity. The first gift came from a group of students in the Second Class Boys' Department of the St. Philip's Street School. These boys gave seventeen dollars through their teacher, Miss M. E. Cantwell. The same list of responses also featured individual contributions from Mrs. F. Melchers, a self-proclaimed daughter of South Carolina and Alice B******, a ten-year old girl, sent in a gold coin given to her by her father, a recruiter at Fort Moultrie. Although only a small sample of what the *Daily*

Courier published that day, they reflect the varying ways individuals provided funds toward a gunboat.[28]

Individuals also provided articles for either raffle or sale. Some did not have surplus cash, but they had various items that they could make or donate. Lotteries then were held for these items. Each raffle raised upwards of $200 or more depending upon ticket prices and the number of chances sold. The first, as discussed above, came from Mrs. Theresa McDonald's tea sets. The newspaper sold all 200 tickets at $1.00 each before noon on March 5. Two days later the *Daily Courier* conducted the raffle at Courtenay's Literary Depot. After drawing thirty-five blanks, the thirty-sixth ticket, held by a Mr. J. H. Dawson, won the china sets. Within a week Seigling's Music Store at King and Beufain hosted eight other raffles, including drawings for a musical box, a basket of wax fruit, two baskets of shell work, and various pieces of silver. These early events just represented a fraction of the gunboat lotteries that occurred throughout South Carolina,[29]

Perhaps the most notable item sent by subscribers highlighted South Carolina's agricultural production. On March 12, Elias B. Scott of Harrietville in St. Paul's Parish donated 15 bales of short staple cotton. He hoped to generate $500 from his cash crop but fell slightly short of his stated goal. He earned a net profit $446.22 after deducting $15 in freight costs for shipping the cotton to Graniteville. Others soon followed suit. Industrialist William Gregg and Adams, Frost, & Company sold gunboat cotton on behalf of interested individuals. The two sold a combined thirteen bales of cotton on behalf of five different clients. In total the Ladies Gunboat fund received a mix of forty-three short staple and long staple cotton bales. It is unclear how much cotton sales yielded the

gunboat fund, but known sales from thirty-one of the forty-three bales resulted in a net profit of $1,297.98.[30]

Patriotic concerts and plays represented a third way South Carolinians participated in the gunboat fund. Charleston held at least four different events in March and April, starting with a Patriotic Concert at Hibernian Hall on March 20. The concert featured fourteen different amateur performances led by Professor M. S. Reeves. The songs included Beethoven's "Adelaide for Violoncello," and a rendition of "My Maryland." Charleston music stores sold tickets to the concert at fifty cents each and filled Hibernian Hall on Meeting Street. The high demand forced Professor Reeves to add a repeat performance the following evening. The two shows raised a net total of $822.00 for the Gunboat Fund. A third concert, held on April 2, raised $522.00, while a smaller event held on April 11 by women in Charleston garnered an additional $100.00. Outside of the patriotic festivals, plays and other performances occurred throughout South Carolina. A tableaux vivant held at Military Hall in Charleston ran for three straight nights in April due to popular demand. A similar performance in Helena raised eighty dollars. A tea party held in Aiken raised $181, which they then eagerly sent to the gunboat managers.[31]

South Carolinians finally organized fundraising fairs and bazaars. Gunboat fairs were held in multiple locations throughout the state, including in Columbia, Summerville, and Lawndale. The Columbia Gunboat fair, for example, held at Atheneum Hall, attracted full crowds for each night of its run in the second week of April. The Columbia *South Carolinian* reported the fair featured depictions of the gun boat fleets, including *Merrimack*-type vessels that swept away all "attacks" made from other craft as onlookers

watched on. To accommodate the large crowds, they held the fair twice daily, from 12:00 to 3:00 in the afternoon and at 7:30 at night. Attendance cost twenty-five cents, and the ladies invited, among others, Governor Francis Pickens, Col. James Chestnut, and other prominent gentlemen in the capital to attend and act as fair managers.[32]

The biggest and most well-known of the statewide gunboat fairs occurred in Charleston from May 6-10, 1862. Although the climax of gunboat fundraising, the Charleston fair did not arise from patriotic virtue alone. Rather, it emerged as a byproduct of the *Daily Courier*'s growing surplus of raffle items, which their offices could not process in a timely manner. The goods had proved too enticing for some. On March 23 thieves broke into the *Daily Courier* offices and stole two gunboat raffle items: a pair of gold spectacle and a box of China ware. Yeadon hoped that the thieves would be caught but there was no mention in either newspaper about the apprehension of the robbers or the return of the missing items. The day after the break-in the *Daily Courier* editors rectified the looming problem when they published the following message:

> The numerous articles, patriotically contributed, by the generous sons and daughters of the Palmetto State, to be disposed of by raffle, in order to build a gunboat, bearing that time honored and glorious name, cannot all be so disposed of, without great trouble and great delay. We therefore propose to the matrons and maidens of the Palmetto State to inaugurate forthwith, a Grand Ladies' Gunboat Fair, to which we shall contribute the numerous elegant gunboat gifts, now on hand, and to which we expect a multitude of others to be added, by patriotic donors of both sexes.

As the newspaper had manufactured the public movement that provided all the raffle items, they now created a supporting endeavor to alleviate the strain from managing individual gunboat lotteries. The theft of contributions from the *Daily Courier* offices on March 23 provided an even greater impetus towards the great gunboat raffle. Although

coated in patriotic overtones, the fair represented a pragmatic solution for the newspaper's increasing inventory.[33]

When Yeadon and the *Daily Courier* organized Charleston's gunboat fair they continued established traditions regarding bazaars and male management. On April 2, the *Daily Courier* published a list of men requested to act as senior and junior managers. These men represented some of the most prestigious individuals in the city. The fair organizers then met with selected ladies on April 19 to establish the fair's program. At the meeting the managers placed the Grand Raffle as the fair's signature event. According to the meeting notes published by the *Daily Courier*, women in attendance did not have a chance for promoting any program ideas. They instead voiced their "unanimous concurrence" for the manager-conceived programs, similar to how the women "approved" Yeadon's altered fundraising goal. Throughout the fair the *Daily Courier* noted that the male managers supervised proceedings while the ladies ran the fair itself. Male oversight of Civil War fundraising fairs and benevolence efforts was not uncommon. As noted above the Columbia Gunboat Fair only featured male managers. Beverly Gordon argued this point when she examined Confederate bazaars. This also dovetails with what other historians have noted regarding United States Sanitary Commission fairs.[34]

Charleston women and the gunboat managers organized a mostly successful gunboat fair at Hibernian Hall from May 6-10. Organizers charged attendees' 25 cents admittance and the event received widespread support from Charleston's citizenry and local officials such as Pickens. The women filled the space with nearly a dozen large tables stuffed with typical bazaar offerings, including embroidery, hot coffee, foodstuffs,

and other items. An account from the evening of May 8 depicted what one of these table held. On this particular table local women had placed among other items "a showy and tasteful canopy of flags and offers…nightcaps, porcelain, silver plate, jewelry, lamp mats, tidys, slippers, pictures, etc." Others within Charleston provided additional support. The Marine School sent eleven flags from their stores onboard the steamer *Petrel* to Hibernian Hall on the first day of the fair, and the Eutaw Battalion Band provided entertainment. The *Mercury* noted the absence in their view of two typical fair items due to the blockade and local ordinances: punch and other spirits. The local prohibition did not deter Charlestonians from nightly packing Hibernian Hall. The Great Gunboat Raffle with 250 prizes capped proceedings. Organizers sold 2,900 out of a possible 4,000 tickets for the raffle. The $2,900 raised from the raffle represented nearly half of the total proceeds from the fair. Gordon claimed the Gunboat Fair raised $10,000, but reports from the *Daily Courier* indicate the fair netted $5,644.45. The five-day fair nonetheless raised nearly 20 percent of all gunboat subscriptions.[35]

The onset of Union offensives in May and the enactment of martial law within Charleston on May 5 essentially broke gunboat fever. Martial law provided departmental commander Maj. Gen. Joseph Pemberton the necessary power and authority to implement emergency regulations as he saw fit. The Ladies Gunboat Fair went off with the auspices of Martial Law hanging over everyone's heads. When the fair ended on May 10 military officials swung into action. On May 12 both the *Daily Courier* and *Mercury* published winning ticket numbers from the gunboat lottery so that those not present could claim their prizes. Those good tidings were bracketed by announcements from Pickens, Pemberton, South Carolina Inspector-Gen. Wilmot G. DeSaussure, and Provost Marshall

Johnson Hagood detailing the implementation of martial law. Military affairs now assumed top priority in the ever-shrinking newspapers, particularly after slave and ship pilot Robert Smalls successfully stole the steamer *Planter* in the early morning of May 13. From this point through the *Palmetto State*'s celebration on October 11, both newspapers paid the Ladies Gunboat Fund minimal interest. Ever after the initial threat subsided by July, military fundraising remained in the background. The Ladies Gunboat fund only re-emerged into the public consciousness when she neared completion in October. Otherwise no one who picked up a local newspaper throughout most of the summer might have even known the movement had existed.[36]

* * *

Between March 3 and July 3, 1862, the *Daily Courier* and *Mercury* received 2,633 contributions supporting the subscription effort. This figure includes those who sent in raffle tickets for any of the numerous lotteries conducted throughout the spring, any person who made a local donation mailed to either newspaper, as well as concerts, plays, tea parties, and fairs held and submitted their proceeds. After considering these figures a few key points emerge. Table 2.1 notes how many contributions each paper received and demonstrates the *Daily Courier*'s prominence within the movement. While the *Mercury* began accepting their own subscriptions about two weeks after Yeadon inaugurated the movement, the Rhett's only received 595 contributions, 22.6 percent of the total subscriptions published in both newspapers. Part of this arose from the *Mercury*'s dwindling readership. In June 1862 4,400 people subscribed to the *Mercury's*

daily editions, down from 10,000 before the war. Only 13.5 percent of their June 1862 audience directly supported gunboat procurement. This was despite the *Mercury* more actively supporting Charleston's different patriotic performances than the *Daily Courier* in late March and April. While some of the Rhett's' readers might have attended these concerts, or directly mailed the *Daily Courier*, this demonstrated the *Mercury*'s restricted reach within the larger movement.[37]

Table 2.1: Breakdown of Gunboat Subscribers by Newspaper

Newspaper	Number of Gunboat Subscribers	Percentage of Contributors (%)
Charleston *Daily Courier*	2038	77.4
Charleston *Mercury*	595	22.6

Source: Data adapted from *Charleston Daily Courier*, March 3 to July 8, 1862; *Charleston Mercury*, March 15 to July 15, 1862.

Table 2.2 Date of Gunboat Contributions Published

Newspaper	Submissions in March	Submissions in April	Submissions after April 30
Charleston *Daily Courier*	603 (29.6%)	746 (36.6%)	689 (33.8%)
Charleston *Mercury*	55 (9.2%)	394 (66.2%)	146 (24.5%)

Source: Data adapted from Charleston *Daily Courier*, March 3 to July 8, 1862; Charleston *Mercury*, March 15 to July 15, 1862.
Note: Percentages out of 2,633 total subscribers.

The date of these publications also note the limited attention gunboat procurement received. Over 90 percent of all subscriptions were either sent or published in the first twelve weeks after Sue Geltzer's call for a gunboat fund. The gap appears even more dramatic when broken down month by month. Table 2.2 shows when the newspapers published gunboat contributions. By the end of April the newspapers had already printed 1,798 of the 2,633 donations, which represented 68.3 percent of the total contributions. While the *Daily Courier* attracted a steady stream of donations, the *Mercury* could not

generate additional awareness. This illustrated the fleeting nature of gunboat fever; intense initial interest that faded as the days and weeks progressed.

Outside of the brief window of contributions, those who gave overwhelmingly sent their wares to the *Charleston Daily Courier*. Most of the limited subscriptions received by the *Mercury* can be traced to one of eleven submissions from communities throughout South Carolina. These collections often included two dozen or more individual donors and greatly bulked up the *Mercury*'s figures. Thus the *Mercury*'s reach extended little beyond these eleven mailings.[38]

The impact of the *Daily Courier* extended beyond the total contributions received. Throughout the fundraising effort the two newspapers received 73 separate gifts over $100. This included group collections, estimated values of raffle items, proceeds from cotton bales sold, and funds from patriotic concerts and festivals throughout South Carolina. Of these major donations only 17, or 23.3 percent, appeared within the *Mercury*. These percentages proportionally mirrored the total newspaper contributions. The newspapers though did not always receive these large payments. Both the steamer *Aid* and Mechanics Bank of Augusta, Georgia pledged $5,000 in cash and bank shares respectively but it does not appear Yeadon received these amounts. The largest individual donation instead arrived from Holcomb's Legion, whose soldiers collected $1,967.[39]

The *Daily Courier* clearly drove gunboat offerings within South Carolina, but who were the individuals who participated? Of the 2,653 subscribers, a little fewer than half, 1,254 persons, appear within the 1860 Census Population and Slave Schedules. These citizens reveal the cross-section of South Carolina's citizens who participated in Yeadon's manufactured movement. Table 2.3 notes the approximate age of gunboat

subscribers. Of the 1,254 identified individuals, 518 were born between 1823 and 1842. This represents 41.3 percent of the total number of contributors. An additional 294 donors were born after 1842, while 292 were born between the years of 1803 and 1822. Some of the youngest donors came from families whose mother or father had already given which possibly skewered the figures. Regardless, gunboat procurement produced interest across three different generations of contributors.

Table 2.3 Age of Known Gunboat Subscribers

Approximate Birth Year	Known Subscribers	Percentage (%)
1765-1802	58	4.6
1803-1822	292	23.3
1823-1842	518	41.3
1843-1862	294	23.5
Unknown	87	6.9

Source: Data adapted from U. S. Department of the Interior, *Eighth Census*, vol. 1, *Population of the United States in 1860* (Washington, D.C.: Government Printing Office, 1864).
Note: Percentages out of 1,254 identified subscribers.

Table 2.4: Location of Gunboat Subscribers

State	Number	Percentage (%)
Florida	13	1.0
Georgia	8	0.6
Mississippi	8	0.6
North Carolina	5	0.4
South Carolina	1160	92.5
Tennessee	1	0.0
Texas	1	0.0
Virginia	3	0.2
Unknown	5	0.4
Unlisted	54	4.3

Source: Data adapted from Charleston *Daily Courier* and Charleston *Mercury*, March 3-July 31, 1862.

While the Ladies Gunboat Fund drew widespread backing from people under the age of sixty, it received minimal assistance from outside South Carolina. Table 2.4 depicts the location from where these submissions originated. People from eight different Confederate states provided financial or material support: Florida, Georgia, Mississippi, North Carolina, South Carolina, Tennessee, Texas, and Virginia. Internal submission

however comprised 1,160 of the 1,254 identified subscribers, or 92.5 percent. No other state claimed more than thirteen donations. The movement's influence seemingly stopped then at the state border.

Table 2.5: Birthplace of Gunboat Subscribers

Location	Number of Subscribers
Alabama	3
Bermuda	1
Connecticut	3
Darmstah	1
England	2
Florida	2
Georgia	19
Germanic States	15
Ireland	10
Maine	1
Maryland	2
Massachusetts	2
New York	3
North Carolina	32
Pennsylvania	1
Poland	2
Prussia	3
Rhode Island	1
Russia	1
South Carolina	1071
Tennessee	1
Virginia	13
Unknown	6
Blank	55

Source: Data compiled from U. S. Department of the Interior, *Eight Census,* vol. 1: *Population.*

These conclusions are further bolstered when the birthplace of these donors are considered. Table 2.5 highlights where the different gunboat subscribers were born. These individuals claimed twenty-four different places of origin, including Bermuda, Poland, Russia, and Scotland. On the surface this seemed a diverse group, but 1,071 contributors, or 85.4 percent, were born within the Palmetto State. In comparison, the second-largest group, North Carolina, only claimed thirty-two residents. These numbers

clearly demonstrate how the Charleston Ladies Gunboat Fund relied nearly exclusively on South Carolinian support.

Table 2.6: Selected Occupations of Known Gunboat Subscribers in the 1860 Census

Occupation	Number
Bank Officials	9
Baptist Ministers	4
Carpenters	14
Carriage Makers	5
Day Laborers	5
Doctors	9
Farmers	423
Farmhands	8
Governess	3
Hotelkeeper	4
Housekeeper	5
Laborer	11
Lawyer	21
Machinist	5
Merchant	78
Merchant/Planters	4
Methodist Clergy	8
Overseer	14
Physician	27
Planter	59
Railroad Agent	5
Saddler	4
Seamstress	6
Teacher	10
Unknown	23
Unlisted	30

Source: Data adapted from U. S. Department of the Interior, *Eight Census*, vol. 1: *Population.*
Note: Drawn from 969 identified gunboat subscribers that listed occupations in 1860 Census.

Nearly all of the contributors possessed South Carolina connections, and these individuals ran the full gamut of possible occupations. Table 2.6 lists a selection of occupations as reported in the 1860 Census. Out of the 1,254, 969 had self-identified jobs. Selected professions included tar laborers, jewelers, master butchers, bank officers, clergy members, storekeepers, wheelwrights, teachers, booksellers, and mechanics. Approximately 53 percent of known contributors pursued agrarian-related professions.

This included 423 farmers, 68 self-proclaimed planters, and 14 plantation overseers. Merchants made up the second largest group. At least 78 people directly referred to themselves in this fashion, about 8 percent of the total contributors. It is not surprising that these families supported gunboat procurement. Historian Frank Byrne asserts that both planters and merchants similarly supported benevolence efforts throughout the South. Although substantially fewer than the planters, the fact that merchants represented the second largest gunboat subscriber population reinforces Byrne's conclusions.[40]

Table 2.7: Property Values of Known Gunboat Contributors

Property Value	Number	Percentage (5)
$100,000 or greater	4	0.4
$50,000-$99,999	21	2.2
$10,000-$49,999	193	19.9
$5,000-$9,999	134	13.8
$1,000-$4,999	306	31.6
$1-$999	69	7.1
0	219	22.6
Unknown/Unlisted	23	2.4

Source: Data adapted from U. S. Department of the Interior, *Eight Census*, vol. 1: *Population.*
Note: Percentages out of 969 identified gunboat subscribers.

Most gunboat donors or their families either engaged in agriculture or trade and they also possessed the means to financially contribute towards this military fundraiser. Table 2.7 notes that over two-thirds of the 969 identified workers minimally held moderate land holdings. About 67.9 percent of recognized gunboat subscribers owned at least $1,000 worth of property. These numbers could be skewered somewhat by location. Coastal properties could hold different values than those in the South Carolina Upcountry, and vice versa. The Ladies Gunboat fund though exerted some interest amongst yeoman and middling workers. Nearly one-quarter of these contributors did not own any property in the 1860 census.

Examinations of the personal estates of these 969 individuals or families revealed comparable findings. About three-quarters of these individuals held at least $1,000 in personal wealth on the eve of the Civil War and nearly half held over $10,000. This suggests that most gunboat subscribers possessed both the property and disposable wealth to fund an expensive endeavor such as a locally built ironclad. Only ninety-five contributors, or about ten percent of those identified, had no identifiable wealth listed in the 1860 Census. Gunboat support came from all social classes, in short, but upper-class families unsurprisingly financially dominated the movement.

Table 2.8: Personal Estate Value of Known Gunboat Contributors

Personal Estate Value	Number of Contributors	Percentage (%)
$100,000 or greater	39	4.0
$50,000-$99,999	68	7.0
$10,000-$49,999	339	35.0
$5,000-$9,999	118	12.2
$1,000-$4,999	165	17.0
$1-$999	123	12.7
0	95	9.8
Unknown/Unlisted	24	2.5

Source: Data adapted from U. S. Department of the Interior, *Eight Census,* vol. 1: *Population.*
Note: From 969 identified gunboat subscribers.

In addition to possessing substantial land holdings and personal estates, a majority of gunboat subscribers also owned slaves. Tables 2.9 and 2.10 depict slave owning statistics amongst the 969 identified participants. Nearly 60 percent of these gunboat donors directly owned slaves or had immediate family members who did. Of the 601 individual slave owners, over half owned at least ten slaves, and 240 moreover owned at least 20 slaves. According to James Huston, planters, or those who owned more than twenty slaves, only comprised 3 percent of all southern families. By this definition, at least 240 different planters and their family members participated in the Ladies Gunboat Fund and made up nearly a fifth of the 1,254 recognized contributors. This was

substantially more than the fifty-nine people who self-identified themselves as such. These planters moreover owned significantly more than twenty slaves; 66 owned at least 50 slaves, and another 21 owned over 100. When combined with Huston's analysis, it is clear that planters are heavily over-represented in the Ladies Gunboat Fund.[41]

Table 2.9: Slave Owning Statistics from Known Gunboat Contributors

Category	Number	Percentage (%)
Directly Owned Slaves	601	47.9
Family Owned Slaves	145	11.6
Did Not Own Slaves	319	25.4
Family Did Not Own Slaves	30	2.4
Unknown	56	4.5
Unlisted	102	8.13

Source: Data adapted from U. S. Department of the Interior, *Eight Census*, vol 1: *Population*.

Table 2.10: Number of Slaves Owned by Known Gunboat Contributors

Number of Slaves Owned	Number of Slave-owners	Percentage of Total Slave-owners
Over 100	21	3.5%
51-100	66	11.0%
20-50	143	23.8%
10-19	131	21.8%
1-9	234	38.9%
Unknown	6	1.0%

Source: Data adapted from U. S. Department of the Interior, Eight Census, vol. 1: *Population*.
Note: Drawn from 601 identified slave owners from Table 2.9.

One final conclusion, perhaps not surprising, is that the gunboat movement garnered practically zero support from South Carolina's free black or enslaved community. Only four offerings can be positively attributed to African-Americans. The most notable contribution came within the March 20 *Mercury,* where they printed the words of Betty, a slave to planter Mrs. A. Prince in Marlborough. The March 24 *Daily Courier* noted that they had received a free will offering of twenty-five cents from "a little negro girl," while Robert, a "patriotic free color man," supposedly contacted the newspaper editors on March 27 so he could support gunboat procurement. The last

known donation appeared in the April 16 *Daily Courier*. Mary, a black cook, gave four dollars to "R. L.," who then mailed in the donation on her behalf. The nature of these contributions do not specify if these individuals willingly provided funds or if others simply gave on their behalf. It is abundantly clear though naval fundraising did not extend beyond the state's white population.[42]

The statistics of the Ladies Gunboat Subscriptions published in the *Charleston Daily Courier* and *Charleston Mercury,* in short, reveal that the movement possessed brief but widespread appeal amongst white South Carolinians across class lines. Both middling and working class families demonstrated notable financial interest in naval procurement. The figures though indicate affluent parts of South Carolina society more heavily participated, especially planters and merchants. At its height between March and May 1862, ironclad fundraising garnered solicitations from throughout the Confederacy, but overwhelmingly remained a movement launched and supported by South Carolinians to promote naval construction. Drew Gilpin Faust suggests that this and other gunboat efforts throughout the Confederate South represented an attempt to dictate defense policy and illustrated displeasure with Confederate defensive programs. The Ladies Gunboat Fund however did not originate from the independently expressed desires of South Carolina's women. Yeadon and the *Daily Courier* inspired and launched this gunboat fundraiser prior to the Battle of Hampton Roads. The newspaper continually provided fuel to sustain the gunboat fad that throughout the state for ten weeks. Elite women such as Geltzer and Mary Elizabeth Anderson shaped the scope of fundraising, but they only responded to the promptings of the Charleston press. Once space disappeared within the

newspaper due to shrinking editions and the onset of Martial law, interest in the movement dissipated.[43]

* * *

As gunboat subscriptions tapered off, Confederate officials honored South Carolina's efforts. Ingraham initially desired that the first ironclad bear the name of his native city, Charleston, but Mallory overruled him. Mallory then wrote Yeadon on August 18, 1862 and informed the newspaper editor that he had named the vessel *Palmetto State* in honor of the state's noble women. Eleven days later, Yeadon proudly announced this information to his readers when he wrote, "Yesterday…the gunboat, recently built and launched…shall bear the proud and time-honored name of 'The Palmetto State.'" Yeadon thanked the subscribers for having provided Charleston with the means of protecting the harbor "against Federal rams and mortar fleets."[44]

On October 1, 1862 the *Daily Courier* updated readers with the total amount gunboat subscribers had raised: $30,198. From this figure the *Mercury* raised $6,929.60, while the *Courier* offices garnered $23,268.93 in solicitations. Yeadon hoped to augment these totals with future gunboat raffles, since he still held in his possession unclaimed items worth up to five hundred dollars. On the surface, $30,000 seemed a relatively paltry sum. The Ladies Gunboat fund ultimately raised roughly ten percent of how much Charleston's 1862 ironclads cost; the South Carolina Gunboat Committee spent $277,000 on the *Chicora,* and Raimondo Luraghi argued that the *Palmetto State* cost a similar amount. Even after considering Yeadon's revised fundraising target of $50,000 the

Ladies Gunboat Fund did not reach the amended goal. The $30,000 did represent money that Confederate naval builders could save when they built a Charleston ironclad.[45]

With the name set and the ironclad nearly ready for service, Yeadon announced Marsh's Wharf would host the *Palmetto State*'s launch on October 11. The newspaper published the date ten days early so that women from throughout South Carolina could travel and "grace the occasion with their presence." The baptism, conducted on the *Palmetto State*'s upper deck, boasted local dignitaries including Beauregard, Ingraham, Brig. Gen. States Rights Gist, industrialists, newspaper editors, all of the alderman, and Mayor Charles Macbeth. Both newspapers noted the ceremony also attracted a large crowd, including a significant number of women. Yeadon provided the main oration hailing both Geltzer and women throughout South Carolina. The ceremony ended with a salute from the *Chicora*, which steamed into view with builder James Eason and other officers onboard.

The two dailies differed in their reporting of the ceremony. The *Mercury* spent one full front page column to describing the major events, including the oration by Colonel Richard Yeadon, who chaired the festivities. Rhett's newspaper did not feature any direct quotations from the speech but hailed the day's proceedings "a positive blessing." In contrast the *Daily Courier* devoted the entire back page to the event. They described the celebration in great detail and printed Yeadon's entire speech. He credited the matrons and maidens of South Carolina for the event, thanking them for their patriotic and zealous spirit in creating this movement. Yeadon also read Sue Geltzer's letter from March 1, 1862, and revealed how this response sparked the larger movement. He downplayed his role as one of the *Daily Courier*'s editors, but his imprint on these

proceedings and the coverage in the October 13 *Daily Courier* dwarfed that of their Charleston brethren.[46]

* * *

After the *Palmetto State* launched on October 11, the Ladies Gunboat Fund continued operations. They provided $500 to Lt. Cmdr. John Rutledge and his men to outfit the *Palmetto State*'s interior. They made Cmdr. John Tucker a similar offer but he declined. Builder James Eason had already provided ample funds so Tucker's men could outfit the *Chicora* to their specifications. Yeadon and the gunboat directors also had over two dozen unclaimed gifts from the great gunboat raffle. On May 7, 1863, Yeadon launched a second lottery for the final twenty-eight items. He hoped to sell 1,000 chances at $1 each and proclaimed that all proceeds would support sailors onboard the two ironclads. The remaining prizes included a pair of vases, two patch work quilts, one marble bust of John C. Calhoun, two paintings, a scarf, two pair of ear rings, a copy of Shakespeare, and silver tea spoons. By June 7, the second Grand Gunboat Raffle had swelled to forty items.[47]

Yeadon and the Ladies Gunboat Fund could not generate notable interest in the new raffle, however. On June 15, the *Daily Courier* placed a small ad in the paper begging their readers to pay attention to their attempt to support local sailors. The public pleading garnered some reaction. Within four days the newspaper reported the sale of five raffle tickets, but Yeadon could not sustain momentum. He re-inserted the raffle ad on June 25 to ensure daily promotion but did not report any additional positive news. The

commencement of the Morris Island campaign in July removed the second gunboat raffle from print. As in May 1862, most of the newspaper space soon dealt with local fighting and rumored enemy movements. Without any room to run ads the second gunboat raffle quietly disappeared and it is unclear if it ever occurred.[48]

The difficulties experienced by the Ladies Gunboat Fund after May 1862 notably were not shared by other benevolence efforts. The Charleston Free Market also had garnered notable interest during and after the height of gunboat fever. This endeavor supplied families who had soldiers on the front lines with vegetables, meat, and other foodstuffs. Officially launched on May 5 after two months of planning, the Free Market enjoyed steady support throughout its first five months. Capt. James Copes for example sent a daily supply of fresh vegetables between July 28 and August 16, 1862 and the Summerville Salt Works provided bushels of salt. Others regularly provided cash contributions so the market could purchase necessary goods.[49]

The impact of the Charleston Free Market was perhaps best demonstrated on October 13. As previously mentioned the *Daily Courier* that day did not place the *Palmetto State* celebration on the front page. Yeadon instead featured a major article to promote the Charleston Free Market. The newspaper noted that since its May inception they received $30,000 along with "liberal" donations of vegetables and other supplies. Yeadon realized the market required constant financial support to keep it operational through the upcoming winter. He therefore asked his readers, "Is it not sinful to withhold our aid from such a cause as the one in whose behalf we now speak?" He supposed that if the Free Market suspended operations two thousand women and children would directly

suffer and "be thrust on the very uncertain charity of the community in a season of the year when the stings of poverty are doubly burdensome."[50]

Yeadon's article sparked renewed altruism from his readers. Multiple banks and other entities gave fresh offerings. Individuals including Charleston's Gen. Roswell Ripley provided financial and material reinforcements that kept the Free Market operational well into 1863. The scale and scope of the Charleston Free Market demonstrated people more widely supported this movement than gunboat fever's limited outbreak. The Free Market movement was not exclusive to Charleston. Similar efforts appeared in New Orleans, Vicksburg, and in Alabama. Both George Rable and Lee Drago have questioned the effectiveness of such organizations. In doing so they highlighting the bureaucratic issues associated with such movements as well as the amounts received by those receiving aid. The longevity of support for the Charleston Free Market though exhibited greater staying power within the minds and wallets of Charlestonians than ironclad procurement or supporting local sailors.[51]

* * *

A number of key conclusions emerge when considering the history of the Charleston Ladies Gunboat Fund. Contrary to earlier accounts, it was a movement largely manufactured and sustained by the men at the Charleston *Daily Courier*. Geltzer and Cordes did not act until after the *Daily Courier*'s February 27, 1862 call for a gunboat. Even then Yeadon selected a letter that came from a daughter of a local planter who aggressively challenged her fellow residents to act. While this partially supports Faust's

argument that elite women headed Confederate benevolence movements, Yeadon and the *Daily Courier* not only launched it they supervised its direction.

Significant factors limited subscription efforts. Dwindling readership in the Charleston *Mercury* restricted possible outreach. The Ladies Gunboat Fund meanwhile competed with shipbuilders and local benevolence efforts for limited financial and material resources. After meeting with Ingraham, Yeadon adjusted the intended fundraising targets to support existing naval projects after meeting with Ingraham. This allowed Yeadon to consolidate warship construction but he faced a larger problem. While vital to defensive efforts, gunboat procurement did not resonate as much with South Carolinians when they could instead help their fellow citizens' cope with more basic wartime exigencies. Charleston fire relief organizers immediately distributed food and clothing and secured temporary shelter for those who lost everything. The Charleston Free Market supplied needy families with fruit, vegetables, salt, or other perishables. Ironclad construction meanwhile took at least four to six months before it produced tangible results. Union offensives also curtailed Yeadon's military fundraising. Impending attacks in May 1862 and July 1863 forced South Carolinians to focus on more urgent matters. The shrinking size of Confederate newspapers meant Yeadon could not devote space to both current events and gunboat subscriptions. The *Daily Courier* subsequently could not sustain enthusiasm towards naval construction and resulted in the collection of only $30,000 towards an ironclad rather than the final revised goal of $50,000.

Those who contributed to the Gunboat Fund strengthened existing bonds to South Carolina. Family members spread news of the undertaking to residents outside of the

state as with Edward Harleston Edwards in Mobile. The Charleston Ladies Gunboat Fund exerted little pull outside of those with direct or familial ties with the Palmetto State, however, since over 90 percent of all gunboat subscribers came from South Carolina. The high percentage of slave-owners in the Gunboat Fund statistics and the over-representation of planters, along with the presence of Geltzer and Anderson, further suggest significant participation of elites within the movement. The Ladies Gunboat Fund received donations from nearly all aspects of white South Carolina society, both young and old as well as rich and middling individuals.

Despite the failure to reach their fundraising goals, Yeadon, Geltzer, and the Ladies Gunboat Fund deserve credit. While Robert Barnwell Rhett continually criticized the Davis administration for military inaction and Charleston smoldered from the Great Fire, the *Daily Courier* sparked ten weeks of constant naval fundraising throughout the state in the name of ironclad procurement. They raised $30,000 towards an ironclad and provided additional funds to outfit the *Palmetto State*. South Carolinians wary of maritime inaction desired strong defenses, and the Ladies Gunboat Fund presented an opportunity for that voice to be heard. The brevity of the movement, however, coupled with the relatively small amount of money raised, shows that South Carolinians moved onto other endeavors after gunboat fever flamed out.

Indeed, when Yeadon provided his celebratory oration at the *Palmetto State*'s baptismal fundraising, pre-existing currents had already firmly shifted. While he hailed the women of South Carolina and the *Palmetto State*, the army, the navy, and the state government were already were doing the lion's share of the labor of defending Charleston from the sea. That effort proved chaotic at times, however. The Confederate

Navy was determined to defend the city, but naval officers faced significant competition for future construction resources. The Ladies Gunboat Fund had only partially alleviated procurement concerns when they pledged their support towards Ingraham's *Palmetto State*. The South Carolina state government launched the ironclad *Chicora* and commenced work on the *Charleston.* Army engineers meanwhile promoted electric torpedo deployments throughout Charleston Harbor. As Beauregard listened to Yeadon's speech he had already championed an experimental vessel he believed could more successfully attack the blockaders than the recently finished ironclads. This new warship, a torpedo boat, permanently altered the contradictory currents of Confederate naval construction within Charleston far beyond the three month epidemic of iron fever.

Chapter 3

Competing Procurement Policies in Charleston Harbor

Throughout 1861, Stephen Mallory acquired lightly armed warships from existing state navies but also looked toward modern steamers both home and abroad. Although foreign efforts initially failed, ironclad construction also began in 1861 within Virginia and along the Mississippi River. Charleston did not directly benefit from Mallory's initial strategy. This sparked a series of editorials from Robert Barnwell Rhett's Charleston *Mercury,* which spoke out repeatedly against Davis and the Confederate Government. On August 10, 1861, for example, Rhett's son Robert Junior spoke out against Mallory's construction policy as it related to Charleston and proclaimed, "There may be reasons for the present inactivity, but…the Navy Department at Richmond has not displayed the energy and concentration which the circumstances that surround and menace us demand." The *Mercury* continued to hammer Mallory and Confederate naval policy throughout the first two years of the war even after ironclad construction began in March 1862.[1]

Harsh criticisms from the *Mercury* directed at the Davis administration were nothing new, however, and extended to a host of concerns rooted in the elder Rhett's abhorrence of centralized government and probably his thwarted presidential ambitions as well. In truth, the Rhett's were wrong. Mallory always wanted modern warships for his burgeoning Confederate Navy to operate in Charleston. In the city itself, military and government officials demonstrated from the Fort Sumter Crisis through the February 1865 evacuation a desire to obtain and build ships for service in Charleston Harbor. It was the various arms of the Confederate government, not the women of Charleston, that

largely funded the city's waterborne defenses. There was not always an agreement on how they should best accomplish these aims, however, or what ships should be built. Service rivalries divided government officials and added more confusion. The Confederate Navy did not achieve a monopoly on naval procurement. Confederate army and naval personnel, South Carolina state officials, and civilians all brought forth plans to supplement the city's naval defenses. These entities consistently demonstrated a willingness to consider outside proposals if they materially aided the defense of Charleston Harbor. Thanks in part to this flexibility, multiple endeavors from various builders ran concurrently onward from March 1862, initially contemporaneous with the city's outbreak of gunboat fever. Unfortunately, these projects competed for and brought about conflict over iron, manpower, and other necessary components for successful ship construction.

Beauregard's September 1862 arrival brought about the implementation of still more new ideas and more confusion. After examining a torpedo boat design from engineer Capt. Francis D. Lee, Beauregard argued those ships, not ironclads, provided the best possible option inflicting damage against the Federal South Atlantic Blockading Squadron. Beauregard wanted all available resources immediately shifted towards torpedo boats. The Confederate Navy disagreed and pushed for additional ironclads despite Beauregard's constant criticism. Civilians from outside Charleston meanwhile introduced two experimental craft in 1863: the submersible *H. L. Hunley* from Mobile, Alabama and the torpedo boat *David* from Moncks Corner, South Carolina. After the success of the *David* in October 1863, army engineers and civilians worked on additional *David*-type warships, but the navy still remained committed toward their ironclads. Local

officials were fully committed towards acquiring the necessary vessels to adequately protect Charleston Harbor from the South Atlantic Blockading Squadron. The competition between the differing designs and the resource scarcity that inevitably followed ultimately shaped Charleston naval construction policy throughout the Civil War.

* * *

Prior to South Carolina's secession on December 20, 1860, newspaper editors Robert Barnwell Rhett and his son expressed interest in Charleston Harbor's defenses. Multiple articles appeared in the Charleston *Mercury* throughout November addressing maritime themes. On December 18, for example, they published a front page editorial entitled "Sea Coast Defense." Anticipating the forthcoming hostile conflict, the *Mercury* believed that "we will, of course, soon have some kind of naval force, but we want something more." The *Mercury*'s harbor-centric anti-Davis writings from late 1860 into 1862 highlighted their concern over the city's approaches. As previously noted in December 1860 a ring of incomplete bases surrounded Charleston Harbor. A small federal garrison resided at Fort Moultrie, located on the southwest corner of Sullivan's Island near the harbor mouth. Two fortifications at various stages of completion, Fort Sumter and Castle Pinckney, occupied islands within the harbor while Fort Johnson protected James Island on the harbor's western coastline. The federal garrison did not receive support from a local naval base, even though Charlestonians lobbied Congress throughout the antebellum period to establish a local naval depot or base. Smaller

warships from the West Indies Squadron occasionally visited Charleston, but the city's shallow channel prevented larger craft from entering the harbor. The limited access prompted Pensacola's selection in 1825 as a southern navy base over Charleston.[2]

Charleston's lack of any organized maritime defense facilities forced newly-installed governor Francis Pickens into action on December 20. On the same day that South Carolina seceded, Pickens chartered the steamer *Nina* for one month and pressed it into state service. When Maj. Robert Anderson, the local US Army commander, contemplated moving his forces from Fort Moultrie to Fort Sumter on December 26, the *Nina* and fellow steamer *General Clinch* circled between Fort Moultrie and Fort Sumter to prevent unauthorized ships from entering or sailing within the harbor at night. That evening Anderson successfully evaded the pickets and secretly transported his men to Sumter. The following morning Charlestonians found smoke rising from Sullivan's Island. Investigating state forces found that Anderson had spiked his guns and his garrison safely sat within Sumter's walls. The *General Clinch*'s failure to stop Anderson's departure from Sullivan's Island resulted in the Executive Council appointing Lt. William Ryan from the Irish Volunteers as the ship's new captain on January 5, 1861.[3]

Sumter's occupation spurred Pickens and others towards further naval expenditures. South Carolina Secretary of the Interior A. G. Garlington quickly emphasized maritime defense as his department's top priority. The state legislature allocated $150,000 towards the purchase or construction of at least three steamers. The Executive Council also considered a $12,000 plan from D. F. Jamison for a floating battery, but concentrated on obtaining ships from outside Charleston. On January 10, the

council debated acquiring the steamer *Lamar* if the ship's draft would allow service in Charleston's relatively shallow harbor. Eight days later, Garlington received orders to quickly purchase and outfit two additional steamers. His initial search for suitable craft only yielded the steamer *James Gray* from the James River in Virginia. Purchased for $30,000, local officers renamed her the *Lady Davis* and placed two howitzers onboard. The ships Garlington and others formed the South Carolina's Coast Police. The state navy conducted nightly harbor patrols and in part helped prevent Anderson's resupply at Fort Sumter.[4]

Garlington faced competition for available steamers from other newly seceded ports. Confederate authorities such as those in Savannah sought similar vessels that they could quickly outfit for local defense. Acquiring additional craft became increasingly difficult as the Fort Sumter crisis wore on. On February 25, the Executive Council spent considerable time discussing a series of telegrams between Lieutenant Governor W. W. Harlee and R. B. McRae over purchasing the only available steamer in Wilmington, North Carolina. The Council either decided against this boat or were outbid in its acquisition. The *Lady Davis* remained Garlington's only outside acquisition despite weeks of searches throughout the Confederacy. [5]

South Carolina also purchased older hulls to sink in her approaches. The Executive Council noted on January 5 that vessels under thirteen feet of draft could easily sail into the harbor from one of the city's shipping channels that connected the port city to the Atlantic Ocean. Pickens rectified this concern four days later when he had ships loaded with granite and then sank in the harbor. In doing so, he wanted to "completely shut up the city, excepting Maffit's channel," which ran next to Sullivan's Island and Fort

Moultrie. The next day, W. M. Lawton informed him that they were already close to sinking this stone squadron in the main shipping channel. Through the stone squadron state officials limited deeper-draft northern warships from possibly entering Charleston. The federal blockaders later sank their own stone fleet off Charleston in December 1861, which further limited the navigable approaches. Channel obstructions became a tactic both sides employed in Charleston.[6]

When considering naval procurement policy during the Fort Sumter Crisis, South Carolina officials swiftly acted to secure their defenses. Whether small steamers for the Coast Police or ships laden with granite to block shipping channels, Pickens and Garlington successfully secured enough craft to maintain a nominal maritime presence while work proceeded on harbor batteries. Although Garlington faced competition from other southern ports to suitable boats, the Coast Police maintained a small, lightly armed squadron comprised of converted tug boats and small steamers. The creation of the Confederate Government and new federal organizations though meant vast changes concerning Charleston's defensive preparations in and around her harbor.

* * *

After the Confederate States officially organized in March 1861, four generals assumed direct responsibility for Charleston's defenses in the first eighteen months: Beauregard, Roswell Ripley, Robert E. Lee, and James Pemberton. While two others oversaw the Department of South Carolina, Georgia, and Florida in 1864 and 1865, Charleston had already sufficiently prepared her land and sea approaches. Beauregard,

Ripley, Lee and Pemberton shaped local and regional preparations throughout the first two years of the war, and sometimes met resistance from Pickens and other state officials.

On March 6, 1861, newly appointed President Jefferson Davis sent Louisiana native and Brigadier Gen. Pierre G. T. Beauregard to take charge of military proceedings in Charleston. A graduate of West Point in 1833, Beauregard developed a reputation as an expert engineer and fort-builder. During the Mexican-American War, Beauregard worked alongside Robert E. Lee, James L. Mason, and George B. McClellan in the "Engineer Company," a group of top young junior officers under Gen. Winfield Scott during the Veracruz Campaign. While under Scott's command, Beauregard repeatedly demonstrated a need to prove his ideas as the correct course of action, traits that reappeared in the Civil War. After the Mexican-American War, Beauregard rebuilt Forts St. Philip and Jackson outside New Orleans on the Mississippi River and served in the New Orleans customhouse. He also invented and experimented with new tools. In the 1850s he patented a ship-based bar excavator for use in the Mississippi River channels, and an improvement on an existing artillery chassis to improve accuracy. None of these ideas received much traction, but they demonstrated his willingness to implement and champion unproved stratagems and devices if he believed they represented the best chance for success.[7]

Beauregard drew upon his extensive military and engineering experience after his Charleston arrival. Both Castle Pinckney and Fort Johnson required significant attention, and Beauregard devoted resources towards reinforcing these and other existing emplacements. He built new batteries around the harbor during and after the Fort Sumter Crisis since he believed the city served as the key to the state's defensive efforts. While

Beauregard focused on Charleston and its harbor, he asked Pickens to build fortifications in the Stono River as well as the North and South Edisto Rivers. Beauregard later designed at Pickens' request batteries for the entrance to Port Royal despite his belief that the guns could adequately protect the harbor's three-mile wide mouth from enemy ships. Events in November 1861 soon proved Beauregard right.[8]

On May 27, 1861, Beauregard received new orders from Richmond and headed to Virginia. Local command eventually fell to Brig. Gen. Roswell Ripley. Ripley continued work on new defensive lines, including batteries on Cole's Island at the mouth of the Stono River. Less than six months after he assumed command, the Confederate Government re-organized their defensive districts and created the Department of South Carolina and Georgia. On November 5, Davis placed Gen. Robert E. Lee in command of the department. Lee then divided the two states under his jurisdiction into five military districts. Ripley remained in charge of Charleston's immediate defenses, but under Lee's supervision. Lee immediately faced a significant setback. On the day of his appointment, Union forces under Flag Officer Samuel Francis Du Pont attacked and captured Port Royal, about fifty miles from Charleston. Both Ripley and Capt. Josiah Tattnall from Savannah disputed the landings. Beauregard's fortifications could not close the harbor nor Tattnall's motley collection of converted tugboats and steamers prevent Du Pont's warships from asserting naval supremacy. Port Royal provided Du Pont a foothold along the Atlantic coast to tighten the coastal blockade and a forward base for future offensives against Charleston, Savannah, and northeast Florida.[9]

The shifting tides along the Atlantic coast steered Lee towards new defensive strategies. He emphasized the Charleston and Savannah Railroad as his main defensive

line over the coastal fortifications Beauregard and Ripley had preferred. He recognized he could not guard every inlet from the Union Navy. Ripley did not agree with Lee's plan, but manpower and material shortages dictated his deployments. Lee's responsibilities in Charleston and Savannah enhanced the railroad's importance since it served as a vital lifeline between the two cities and he could quickly shuttle soldiers along the rail line if needed. In early 1862 Lee withdrew from the coastal islands towards the railroad while Ripley continued working on Charleston's defenses.[10]

Davis recalled Lee to Richmond on March 4, 1862. His replacement, staff officer Maj. Gen. Joseph Pemberton, continued with Lee's defensive strategy but his actions met with near disaster. Pemberton removed cannon from Winyah Bay near Georgetown and Cole's Island at the mouth of Stono Inlet. In their place he installed Quaker Guns, or wooden logs simulating coastal artillery. Ripley and Pickens objected to the withdrawals, particularly at Stono Inlet. Part of the modern day intracoastal waterway, the Stono separated James and Johns Island and provided access to Charleston Harbor through an inlet near downtown Charleston. Pemberton's risk depended on federal blockaders not learning about the evacuation but the subterfuge only lasted for a matter of hours. The steamer *Planter* picked up the Cole's Island cannon on May 12 and carried them back to Charleston. That evening, while the cannon remained onboard, slave pilot Robert Smalls commandeered the *Planter* and fled Charleston. Smalls used his experience as a pilot to slip past the harbor defenses. Upon reaching the blockaders, Smalls provided Du Pont with the Confederate artillery still on the *Planter* and updated military intelligence. Federal blockaders quickly occupied the Stono River and retained access to the river for the remainder of the war.[11]

In early June, Du Pont and Brig. Gen. Henry Benham launched the first federal offensive against Charleston via the recently opened Stono. The river provided Du Pont's steamers direct access to James Island, but both sides suffered setbacks. Campaigns in Richmond and Corinth demanded Confederate reinforcements from Charleston. The Confederate manpower drain hindered Pemberton's defensive preparations and he furiously threw up new emplacements on James Island. Federal shortages meanwhile hindered how many soldiers Du Pont's transports could handle. Du Pont and Benham also did not work well together. Benham first landed on James Island on June 2, and two weeks later attacked Confederate breastworks at Secessionville. Despite achieving tactical surprise and numerical supremacy, his soldiers could not breach the Confederate ranks. Forced back at Secessionville, Benham ended the campaign when he evacuated his soldiers from James Island at the end of June. The Confederate victory at Secessionville and Benham's subsequent withdrawal did not decrease tensions within the Confederate ranks. Local pressure mounted over Pemberton's conduct. Davis resolved the situation in late August when he provided Pemberton a promotion and new assignment in Mississippi that altered the defensive trajectories of both Charleston and Vicksburg. The last Confederate stronghold on the Mississippi River, Vicksburg fell under Pemberton's watch on July 4, 1863. Charleston meanwhile remained defiant amidst repeated attacks throughout 1863 under Pemberton's successor, Beauregard.[12]

Beauregard's second Charleston tour presented a chance for rehabilitating his image. After he departed in May 1861, he participated in the Confederate victory at Bull Run on July 21, 1861. Shipped out to the Mississippi River Valley in 1862, he oversaw setbacks at both Shiloh and Corinth in the spring after Gen. Albert Sidney Johnston's

death at Shiloh on April 6, 1862. He spent the summer on medical leave before he received a lifeline to return east and assume command of the Department of South Carolina, Georgia, and East Florida. Beauregard's Charleston recall placed him in familiar surroundings and more importantly around people who adored him after the Fort Sumter Crisis. He toured local fortifications between September 17 and 24 soon after he arrived in Charleston. He then resumed his original drive towards reinforced harbor defenses, additional personnel, and new munitions. On Sullivan's Island, three new batteries dotted the island and supplemented Ft. Moultrie's firepower, and new artillery positions occupied Morris Island. Beauregard also looked towards Charleston Harbor. Local shipbuilders recently finished two ironclads for the nascent Charleston Squadron and her commander Capt. Duncan Ingraham, the *Chicora* and *Palmetto State.* Although the warships provided Beauregard modern military concepts, Charleston naval procurement suffered similar problems as South Carolina fortification deployments. Throughout 1861 and 1862, South Carolina and Confederate officials implemented conflicting and contrasting naval policies that resulted in the concurrent construction of Charleston's first two ironclads from two different sources.[13]

* * *

South Carolina and Confederate officials had implemented different naval strategies in 1861. While Mallory pursued warships abroad and Beauregard erected coastal fortifications, local entrepreneurs outfitted privateers armed with cannon and letters of marque. This government documentation authorized civilian vessels to legally

attack enemy merchant vessels as recognized privateers. On April 17, 1861, President Davis solicited applications for official letters of marque and reprisal and Congress authorized their issue on May 6. Within days of Davis' initial announcement, Charlestonians submitted multiple requests to both Montgomery and later Richmond. James Gordon penned the first application from Charleston on April 23 in regards to his ship, the brig *Putnam*. Other applications soon followed, including groups who sought to arm the schooner *Savannah,* the fast steamer *Nashville,* and the ex-South Carolina Coast Police steamer *Petrel*.[14]

Some local privateers found limited success. The *Savannah* departed Charleston on June 3 and captured the brig *Joseph*. Soon after the *Savannah* installed a prize crew onboard, the blockader USS *Perry* fired on the privateer and forced her capitulation. The *Jefferson Davis* fared slightly better. The Baltimore-built brig *Putnam* initially served in the Coast Police before her Charleston owners petitioned for a letter of marque on May 21, 1861. Armed with five cannon and renamed the *Jefferson Davis*, she avoided Union blockaders when she escaped on June 28. The commerce raider captured ten merchant vessels over seven weeks and sent the captured ships towards Charleston. Not all of her prizes reached South Carolina. The USS *Albatross* boarded and captured a *Jefferson Davis* prize crew onboard the *Enchantress* off the Outer Banks, and a free black cook overwhelmed a second outfit onboard the *S. J. Waring* one hundred miles from Charleston. The *Jefferson Davis* operated unmolested until August 17 when she ran aground trying to enter St. Augustine, Florida. Attempts at removing her from the sandbar proved futile and the crew abandoned ship.[15]

Many factors quickly curtailed the effectiveness of domestically launched Confederate commerce raiders. On April 19, 1861, President Abraham Lincoln announced a blockade of the Confederate coastline to prevent foreign trade from reaching the rebellious southern states. By proclaiming a blockade Lincoln in some minds legally recognized the Confederate Government. According to international tactics, blockades could only be enacted against nations at war against each other. Lincoln's pronouncement had many rippling effects, including the Confederate Congress's authorization to accept letters of marque on May 6. Four days later, the steamship USS *Niagara* arrived off Charleston and initiated the federal blockade. The few ships initially committed towards blockade duty meant privateers such as the *Sumter* in New Orleans and the *Jefferson Davis* in late June could evade local patrols. It would take months for the US Navy to maintain a sizeable blockade on the Atlantic and Gulf Coasts. The increasing federal presence outside Confederate ports as 1861 progressed kept would-be privateers in local harbors. Diplomacy abroad also reduced possible profits from targeting northern merchant traffic. International measures passed in Great Britain on June 1, 1861 forbade the use of British ports by either Union or Confederate forces as a place where they could send captured prizes. Other European powers quickly followed suit.[16]

Confederate corsairs faced additional problems if they were captured. Lincoln also declared on April 19 that federal officers would treat apprehended privateers not as prisoners of war but as pirates. The Charleston commerce raiders were directly affected by this proclamation. In October 1861, the *Savannah*'s crew faced piracy charges in a New York federal court. Lawyers representing the *Savannah* argued President Davis's letter of marque provided her captain the perceived legal authority to capture the

merchant vessel *Joseph*. The *Savannah* case ultimately deadlocked in stalemate on October 31, but the *Jefferson Davis* prize crew onboard the *Enchantress* were not so lucky. Hauled into a Philadelphia District Court, they were convicted on piracy charges on October 29 and sentenced to death by hanging. These sailors were only spared after Davis threatened one for one reprisals against captured Union officers. Lincoln rescinded the impending executions and placed the remaining privateers in military prisons until they were eventually exchanged as prisoners of war.[17]

With dwindling prospects against northern shipping, would-be privateers turned instead toward blockade running. Entrepreneurs and daring ship captains slipped light, fast steamers past warships stationed outside Confederate harbors in an attempt to bring in much needed war material or luxury goods for maximum profit. The Charleston firm Fraser, Trenholm, and Company quickly became involved in these proceedings. In Liverpool, Fraser manager Charles Prioleau approached government agent Maj. Edward Anderson on July 29 about sending government goods from England to the Confederate coast onboard a newly built vessel. The ship in question, the iron-plated steamer *Bermuda*, departed England on August 22 for the Confederate coast. Loaded with at least eighteen field artillery guns, 6,500 rifles, 20,000 cartridges, and goods for private civilians, the *Bermuda* evaded the blockade and successfully arrived in Savannah on September 18. The *Bermuda* represented the first major importation of much needed weaponry and military supplies. The Scottish-built steamer *Fingal* followed on November 12 with 11,000 additional rifles and 2 Blakely cannon.[18]

Federal forces tightened the blockade after Port Royal's capture. Situated halfway between Charleston and Savannah near modern day Hilton Head, it provided du Pont a

natural, deep harbor and forward base for future blockading and offensive operations. His steamers could then remain on station for longer periods and not return to New York or Philadelphia for resupply and minor repairs. The initial presence of federal warships curtailed any domestic privateering missions, and du Pont's Port Royal success ensured a heavy blockade outside Charleston and Savannah for the war's duration. The ease in which du Pont's warships overcame Tattnall's steamers moreover meant the Confederate Navy required modern, armored warships to protect her harbors.[19]

* * *

While Mallory looked abroad and towards major shipbuilding locations for early warship construction, Charleston's changing political and military landscape influenced local naval strategy. The *Mercury* had advocated for immediate action in their February 20, 1861 editorial "The Organization of the Navy Confederate States." Envisioning themselves as the Secretary of the Navy, the Rhett's proposed a two-front naval construction program: domestically launched armor-plated floating batteries and European cruisers. The article proclaimed, "it will be worse than folly to plod along on the beaten track..." and particularly advocated British-built steamers. Once these ships were in Confederate hands, local mechanics could then build duplicates. The editorial never specified the requisite logistics and finances for domestic and international construction, but nonetheless once more highlighted Charleston's need for modern warships.[20]

After Fort Sumter, the Confederate Navy increasingly assumed maritime responsibilities and incorporated elements from state squadrons into their burgeoning force. Discussions regarding transferring South Carolina forces into the Confederate Navy began on March 22, 1861. South Carolina officially believed maritime expenditures fell within Mallory's purview and reduced naval spending. Mallory only selected the steamers *Firefly* and *Howell Cobb* for future Confederate operations. The cutbacks meant that Col. R. S. Dwaye rapidly reduced the remaining ships in his squadron after he assumed command of the Coast Police on May 27, 1861. He immediately laid up and released three different steamers from state service. The most notable of the released ships included the future privateer *Jefferson Davis* and the schooner *Petrel*. Plans for the *Petrel* to engage in commerce raiding seemingly fell through in June 1861 and the ship languished within Charleston for months. After ads appeared within Charleston newspapers regarding the schooner's sale, the *Petrel* became the new home for Charleston's Maritime School in April 1862. The rapid drawdown of the Coast Police reflected the state's reluctance to significantly contribute towards maritime defenses after the creation of the Confederate Navy and governed attitudes within the state government throughout 1861. [21]

Charleston initially fell within the jurisdiction of the Department of South Carolina and Georgia when Mallory created the Confederate Navy. Commodore Josiah Tattnall, the former commander of the Georgia Navy, served as the department's first squadron commander. Responsible for both Charleston and Savannah, he unsurprisingly based the squadron in Georgia given his previous duties. Tattnall's warships only made occasional sojourns to Charleston. The Squadron's Savannah residency sparked cries of

inaction within Charleston. On August 10, 1861, the Charleston *Mercury* published a scathing editorial on the lack of work throughout the Confederacy procuring ships for naval defense. In "The Navy of the Confederate States," the *Mercury* lambasted Secretary Mallory and other government officials, exclaiming, "What then, has our Government done….is not five months' time long enough to have procured some naval defense?" Noting the purchase of a few steamers and river boats, the *Mercury* nonetheless condemned Davis and the Navy Department when they wrote, "We are bound to believe and express the conviction forced upon us, that the Navy Department at Richmond had not displayed the energy and concentration which the circumstances that surround and menace us demand."[22]

Neither Tattnall nor the Confederate Navy really neglected Charleston. After Port Royal's capture in November Tattnall sent the *Huntress* and *Lady Davis* to Charleston. In the same month Charleston native Capt. Duncan Ingraham returned to Charleston from the Bureau of Ordnance for a second tour of duty. Ingraham initially supervised local naval construction under Tattnall's command. Tattnall and the navy also secured a contract to build three gunboats with Charleston shipbuilders Kirkwood & Knox. On the surface this seemed significant, but these boats proved inconsequential. The first mention in surviving Charleston records about these craft appeared in April 21, 1862, when Ingraham directed Lt. Wilburn B. Hall to take charge of Gun Boat No. 3 and help outfit the other two vessels. Wooden gunboats and converted steamers could not repeal the increasing number of blockaders however and Tattnall's squadron sat divided between Charleston and Savannah. Ironclads arose in Norfolk, New Orleans, and Memphis, but what about South Carolina? [23]

* * *

Before the South Carolina Convention and Executive Council both reconvened in December 1861, Charleston procurement paled in comparison to other major Confederate ports. Mallory inaugurated five ironclads between Memphis, New Orleans and Norfolk in the second half of 1861. Charleston and Savannah had seemingly been left behind in this first push for ironclad procurement. With only three small gunboats underway in December 1861 and the federal occupation of Port Royal, some South Carolinians pushed for local construction. On December 12, 1861, however, the Committee on the Military in the South Carolina House of Representatives denied a resolution to finance an ironclad gunboat and ram. Representative John Cunningham endorsed the rejection and argued naval construction should happen under the auspices of the Confederate Government. Shipwright James Marsh also tried to jumpstart local shipbuilding efforts when he submitted to Mallory an ironclad design he could build at his shipyard on the Cooper River. Mallory ultimately dismissed Marsh's proposal on January 2, 1862. Despite these setbacks South Carolina officials moved towards state-sponsored construction. The South Carolina Convention created on December 28, 1861 Special Committee No. 4, a five man group tasked with "devising and reporting a plan for building or providing war vessels for harbor and coast defense." Within five days, committee member A. H. Brown advanced a harbor defense strategy.[24]

In mid-February local plans moved closer to fruition. The state legislature authorized $300,000 towards "building a marine battery or ram." In response, the

Executive Council asked Chief of the Department of the Military Col. James Chesnut Jr. to obtain from Ingraham and local ship carpenters "a proper estimate for ten first-class Gun Boats of the strongest model for our waters." Ingraham suggested that Chesnut contact Tattnall regarding local construction, but South Carolina pressed forward. The Executive Council created on March 12 a state gunboat commission comprised of Ingraham, Capitan J. R. Hamilton, and George A Trenholm to build for South Carolina an iron-plated vessel for harbor defense. The gunboat commission received the $300,000 earmarked in February so Ingraham would have sufficient funds for this new endeavor. Through their meetings the Executive Council supported local construction and a separate Charleston Squadron under Ingraham's command.[25]

One problem quickly emerged. When the state advanced their shipbuilding plans, two other local naval projects had already been announced. On March 5, 1862, Mallory signed a contract with Charleston shipbuilder Francis M. Jones for three ships in Charleston. Marsh began work on the first gunboat under Ingraham's leadership with industrial support from the foundries of Cameron and Company. Ingraham's orders did not fully stop with the construction of one ironclad, as the Confederate Navy requested Ingraham launch an additional six wooden gunboats. Ingraham informed fellow gunboat commission member George A. Trenholm of these developments, and Trenholm in turn discussed Ingraham's concerns with Chesnut. It was at this point that gunboat fever meanwhile gripped South Carolina thanks to Geltzer, Yeadon, and the *Daily Courier*'s plans for their own Charleston warship. The State Gunboat Commission ironclad thus represented the third endeavor launched within March 1862 Charleston.[26]

These projects were reconciled somewhat by mid-April. Trenholm notified the Executive Council on March 18 about Ingraham's new orders and the new Confederate ironclad contract. The Executive Council considered the state-sponsored endeavor inessential and redirected local resources towards other projects. Ingraham also met in late March with Yeadon. Yeadon eventually steered proceeds from the Ladies Gunboat fund towards Ingraham's warship. This seemingly streamlined all requisite material towards Ingraham's ironclad.[27]

On April 8, however, the Executive Council reversed course. Yielding, in their words, to the request of Charleston's citizens, they redirected the $300,000 initially earmarked for a naval project toward building a marine ram. A five-man gunboat commission chaired by J. K. Sass oversaw all aspects of the project and any future ironclads the state would build. Although the Council claimed the public clamor warranted this change, Chesnut's August 1862 report to the State Convention revealed a more direct answer. He mentioned that changing circumstances along the coastline warranted the rapid construction of a second ironclad. Military necessity rather than public sentiment resurrected the state-sponsored ironclad. He further discussed delays that kept the state gunboat commission from starting work until April 9. Given that the Executive Council did not resurrect the state ironclad until April 8, this meant any hindrances over the state gunboat occurred in either late March or early April. Once the state fully committed towards the project work rapidly proceeded. Within eight days the Gunboat Commission selected Charleston industrialist James Eason to build the state gunboat, eventually named the *Chicora*. Eason successfully launched the *Chicora* in slightly more than four months on August 22.[28]

When government officials decided to build ironclads within Charleston in March 1862, they immediately congested the construction pipeline with two ironclads from different builders. Some civilians proposed additional projects as well, particularly ironclad alternatives. In late March, for example, Hugh Wilson submitted to Ingraham a self-designed submarine battery. While impressed with Wilson's ingenuity, Ingraham expressed lukewarm support toward his concept. He declared to Chesnut on March 31, "his idea is not at all new; one upon exactly the same principle was built at Richmond, but did not succeed, and lately one has been tried at Savannah, and the investor lost his life." He believed Wilson could not power his vessel underwater with the power plant he had initially designed. Instead of embracing the experimental concept, he rejected Wilson's proposal. These early design failures prompted Ingraham to adopt a conservative outlook towards the torpedo boat and remained indifferent to the concept.[29]

Wilson's project was not the last submarine battery considered during the first part of 1862. In late June, the South Carolina Executive Council considered a second proposal for a submarine battery brought forth by a Mr. Johnson. Similar to Wilson, the Executive Council initially expressed both intrigue and concern over the design. After careful consideration, the Executive Council could not spare resources and denied Johnson's request on June 25. With local assets overextended between defensive efforts on James Island and the partially finished warships along the Cooper River, it is unsurprising the State Gunboat Commission dismissed the plan. Despite the rejection, the commission informed Johnson they would reconsider the project, "if it is found it can be accomplished within a reasonable time," and on the condition that Johnson's idea received prior testing. Unlike Ingraham's flat rejection, the South Carolina Executive

Council demonstrated a willingness to consider maritime alternatives under the right conditions.[30]

In the meanwhile, ironclad production continued unabated. On August 22, the State Marine Battery Commission began work on two new projects, including a second ironclad. Eason would receive the contract to build this warship, eventually named the *Charleston*. The next evening, Eason launched the *Chicora*. Not much is known about the ceremony itself, but army engineer Capt. John Johnston informed his sister that "an immense crowd" attended the proceedings and local navy officers boasted about their new ironclad. South Carolina prepared to turn the *Chicora* over to Ingraham and the Confederate Navy once it received payment from Mallory. Work slowly progressed in Marsh's Shipyard on the *Palmetto State* and the Ladies Gunboat had her public baptism on October 11. As previously noted, this celebration of local industry and patriotic South Carolinians attracted local politicians and military officers including Beauregard. Although a day reserved for the ironclads, Beauregard had already launched a campaign to steer construction efforts away from further shot-proof vessels towards other naval alternatives.[31]

* * *

When Beauregard returned in 1862, he fully supported the completion of the *Chicora* and *Palmetto State*. In a letter to *Palmetto State* Capt. John R. Tucker, Beauregard even offered assistance securing manpower and material for the gunboats "being constructed at this point." He located sailors for the two gunboats and transferred

them to Ingraham's command. In an October 8 letter to Governor Pickens, Beauregard expressed hope and confidence in the *Chicora* and *Palmetto State* when he wrote, "The two gunboats now under construction are nearly ready, and I believe will be of material assistance to the forts at the entrance of and within the harbor."[32]

Yet in the next sentence, Beauregard indicated shifting tides towards future ironclads. Only the previous day, Charleston native and army engineer Capt. Francis D. Lee had brought Beauregard his designs for a "torpedo ram." Lee proposed a small cigar-shaped vessel designed to sit low in the water that featured on its bow a metal pole tipped with a spar torpedo, a contact explosive that extended in front of the ship and would detonate when rammed into an enemy hull. Persuaded by Lee's concept, Beauregard believed "half a dozen of these 'Torpedo Rams' of small comparative cost, would keep the Harbor clear of four times the number of the Enemy's ironclad gunboats." He expressed displeasure that the Navy had not pursued Lee's torpedo boat, but surviving records do not indicate if Ingraham or the South Carolina Executive Council received Lee's proposal let alone rejected this third ironclad alternative. Beauregard nonetheless expressed his desire to immediately launch torpedo boats. This letter fully demonstrated the difference between Ingraham and Beauregard. Ingraham previously expressed reluctance when he rejected Wilson's torpedo boat proposal. Beauregard meanwhile embraced the experimental craft and believed that it could significantly support his command.[33]

Beauregard continued to champion Lee's torpedo boat in the coming days and weeks. In a series of letters to Sass, Pickens, and Confederate Adjutant Gen. Samuel Cooper, Beauregard repeatedly stressed the economic and material advantages torpedo

boat procurement enjoyed over the second round of ironclads underway in Charleston. He argued to Cooper on October 13, for example, that the ironclads were "three times as costly" as Lee's proposed torpedo boat, and he could more rapidly finish his project than the second round of ironclads underway in Charleston. He further believed that the torpedo boats offered him "the most functional means of a successful encounter with the formidable ironclad gunboat of the enemy I have yet seen." Beauregard knew the Union navy would imminently deploy iron-plated monitors off Charleston harbor, and informed Pickens on November 8 "our ordinary gunboats will effect but little against the enemy's new gigantic monitors." He again recommended the torpedo boat since the spar torpedo could hit the monitors below the surface where they possessed little armor protection.[34]

In championing the torpedo boat, Beauregard believed that South Carolina and Confederate officials should channel all available naval resources toward Lee's torpedo boat rather than future ironclads. He did not think that Charleston could support multiple simultaneous building projects due to resource scarcity, the problem that already had doomed Johnson's June 1862 proposal. On November 8, he informed Pickens "Charleston cannot furnish all the labor and material required for the building of three rams at once; one or two must be stopped, to enable the other to be completed; otherwise all three will remain unfinished when the enemy will make his appearance here." He also noted that if he did not soon received sufficient supplies, he would have to stop work on Lee's craft. Beauregard's veiled threat was not surprising. In November 1862, Charleston's shipyards were already filled with partially finished ironclads and gunboats. The irony was that Beauregard himself had contributed to this logistical logjam when he insisted Charleston immediately work on the torpedo boat. Convinced on how the

torpedo boat would successfully attack the federal blockaders once built, he used his power to try and convince state and Confederate officials to bend to his wishes.[35]

Beauregard's October and November letters also made distinct differences on how he viewed both the ironclads and torpedo boats. Beauregard classified the *Chicora* and *Palmetto State* as defensive auxiliaries, ships that could supplement the fortifications and harbor obstructions in preventing a Union breakthrough. He derisively referred to the two ironclads at "ordinary gunboats." He believed that he needed something that could attack the off-shore monitors. Lee's experimental concept seemingly provided Beauregard an offensive capability that the ironclads seemingly did not possess. He also repeatedly stressed the financial and logistical gains from building torpedo boats over the ironclads. Between the strengthened fortifications that ringed Charleston Harbor and the two ironclads that steamed within her waters, Beauregard did not need another iron shield. The spar torpedo, mounted like a bayonet on Lee's low slung craft, instead provided an explosive sword to brandish against the enemy.

Beauregard's open and enthusiastic support of Lee's torpedo boat marked the evolution in attitudes concerning ironclad alternatives throughout 1862. Ingraham, a conservative, veteran navy officer, immediately rejected Wilson's submarine battery after seeing similar attempts fail in Richmond and Savannah. Johnson's designs met with some interest from the Marine Battery Commission and the South Carolina Executive Council in June 1862, but resource scarcity prevented a more in-depth look. Beauregard's previous experience supporting mechanical innovations came through when Lee brought forth his torpedo plan in October 1862. Despite material shortages and multiple ships

already underway, Beauregard believed the torpedo boat represented the best possibility for Charleston's defenders to defeat the Union monitors.[36]

* * *

Lee meanwhile had obtained access to F. M. Jones' shipyards and the workshops of Cameron and Company, which previously supported the *Palmetto State* construction. Sass and the South Carolina Gunboat Commission provided Lee with $50,000 in proceeds from the sale of the *Chicora* to the Confederate Navy to help fund his project. Beauregard's Chief of Staff Thomas Jordan authorized Lee on December 10 to purchase the steamer *Barton* so that he could place the *Barton*'s engines within the torpedo ram.[37]

The project did not receive the lion's share of local shipbuilding resources, however. When cooperation failed Beauregard resorted to other means to try and secure sufficient resources. His staff officers investigated Eason's workforce in November. Lee then used Beauregard's office to remove soldiers assigned from Eason's foundry in December to supplement his meager labor force. This sparked a reply from both Eason and Sass over Lee's conduct and interference. Beauregard apologized and assumed responsibility for Lee's actions, but reminded Sass "the work in question was undertaken by me after a full and clear understanding with you as to its urgent importance over all other works for the defense of the Harbor & City."[38]

Increasing shipbuilding delays, labor shortages, and competition meant that both projects languished throughout the first half of 1863. This prompted Lt. Alexander Warley to exclaim on April 29 "None of the ironclads building here is making good

progress." The *Charleston* did not launch until July and Lee's torpedo boat only followed in August. These setbacks led Beauregard to unleash increasingly rancorous attacks against the ironclads and their continued production. When he lobbied Cooper on April 22 for more iron, for example, he derided the ironclads as "vessels that are forced to play so unimportant and passive a part" in the war. Lee soon followed suit. But Beauregard's anti-ironclad vitriol peaked when he wrote on November 10, 1863 "Remarks Related to Ironclad Gunboats." He detailed six major defects these ships allegedly possessed, focusing on their escalating cost, lack of speed, and their unseaworthiness within the harbors and for the crews onboard. He instead preferred fast, armored steamers armed with spar torpedoes at the expense of the slow, cumbersome ironclads. The ships he wanted were impossible given Confederate industrial capabilities, however. Mallory responded to Beauregard's inflammatory comments on December 19 and dismantled Beauregard's arguments. After defending both his officers and ironclads, he emphatically stated that a ship matching Beauregard's specifications had yet to be considered, designed, or built by anyone.[39]

The problems that emerged in late 1862 Charleston resulted from Beauregard's belief in the torpedo boat as a superior weapon and his aggressive personality. In March 1862, constant communications between Ingraham, the Charleston *Daily Courier*, and the South Carolina Executive Council had temporarily eased construction congestion within South Carolina. Although the Executive Council eventually reversed course and inaugurated the *Chicora* in April, there still was seemingly little conflict between the Confederate Navy and South Carolina Gunboat Commission. Beauregard's return in September 1862 altered the existing dynamic. Lee's torpedo boat and the spar-torpedo

payload represented an innovative way to engage the federal blockaders, but three problems hindered development. The South Carolina Gunboat Commission had already committed itself towards building a second ironclad under Eason's direction. Flag Officer Ingraham opposed the torpedo boat as an effective weapon given his own experiences within the Ordinance Department earlier in the war. Finally, Beauregard's aggression and determination impacted relations and the shipbuilding environment. Once Beauregard came across an innovation he liked he championed the product's superiority constantly. Lee's torpedo boat not only represented a new invention, it had originated amongst the army engineers. It prompted Beauregard and local engineers to enter the shipbuilding industry and attempt to consolidate all shipbuilding resources. The conflict that arose in December 1862 over army labor and the exchange between Beauregard and Mallory one year later illustrated the different naval visions at work. Beauregard rightly believed Charleston should eliminate surplus projects and focus on one or two endeavors, but only under his specifications and control.[40]

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The increasing delays that plagued Lee's torpedo boat forced Beauregard to seek out different naval concepts to attack the federal blockaders. Nearly all of these new methods shared one commonality: the use of spar torpedoes. Beauregard first turned towards locally produced solutions. He outfitted rowboats in March 1863 with Lee's spar torpedoes, but these attackers did not reach the blockaders. He also equipped auxiliary steamers with the weapons but again these ships did not result in any positive attacks.

When Union forces resumed military operations against Charleston's outer islands in July 1863, he looked outside the city to seek a maritime solution. He found two experimental craft by September that he believed would aid in his efforts, the torpedo boat *David* and the submersible *Fish Boat*. While the operations of both vessels will be discussed in more depth in Chapter 5, the origins of these ships demonstrate Beauregard's increasing desperation to find a suitable offensive weapon.[41]

Beauregard found the *David* in Moncks Corner, north of Charleston on the Cooper River. A consortium headed by Dr. St. Julien Ravenel Capt. Theodore Stoney, and David Ebaugh had proposed their own torpedo ram. Although the three had never built a ship, they believed they could successfully complete the vessel from local resources. They funded the endeavor themselves and used a design from Confederate sympathizer and Baltimore resident Ross Winam. The three based their operations on Ravenel's plantation and drew upon slave labor to work on the project. Ebaugh oversaw the construction as chief mechanic and installed onboard both iron plating and ballast tanks to keep their craft low in the water. Beauregard aided their efforts when he located an engine from the Northeastern Railroad for their use. The end product was a small, cigar-shaped ship, fifty-four feet in length and five and a half feet in diameter. Mrs. Ravenel named the boat *David* to directly invoke imagery of the biblical warrior and the Goliath the torpedo boat intended to destroy, the *New Ironsides*. Once the group finished they shipped the craft via train to Charleston in September 1863. Upon its arrival Lee outfitted the *David* with a spar torpedo armed with seventy-five pounds of explosives.[42]

As Glassel, Tomb, and Stoney readied the *David*, a group of New Orleans businessmen brought a second experimental craft east from Mobile Bay. Horace Hunley,

James McClintock, and Baxter Watson had initially set out to build a privateering submersible in New Orleans. Hunley, who initially worked as an assistant customs officer, met with McClintock and Watson in late 1861. The three started their ship at Watson and McClintock's machine shop before they progressed to the notable Leeds Foundry. They successfully built the submersible *Pioneer* but their craft retained significant propulsion, navigation, and leakage issues. The *Pioneer*'s flaws did not deter the partnership from receiving a letter of marque on March 31, 1862, but the fall of New Orleans only weeks later forced the three to destroy the *Pioneer*. [43]

The group then moved to Mobile and started work on the submersible *American Diver*. The consortium found new local partners including Thomas W. Park and Thomas B. Lyons. They also received military backing from Department of the Gulf commander Maj. Gen. Dabney Herndon Maury, Matthew Fontaine Maury's nephew and ward. The men completed the *American Diver* at Park and Lyons's workshop but failed to successfully install onboard a steam engine. This meant she subsisted on hand-crank propulsion. Mobile naval commander Adm. Franklin Buchanan did not trust the experimental craft, and resulting experiments justified his concerns. The *American Diver* sank to the bottom of Mobile Bay during tests in early 1863. The failure convinced Buchanan of the submersible's impracticability.[44]

Undeterred by the *American Diver*'s failure and Buchanan's stinging rebukes, Hunley and his partners built a third submersible, the *Fish Boat*. Hunley received new financial backing from Edward Collins Singer and the Singer Submarine Corps. McClintock learned from his experiences with the *Pioneer* and *American Diver* when he designed the *Fish Boat*. He lengthened the ship to forty-feet and slightly increased its

height. The expansion allowed for a crew of eight to safely fit inside the slender hull. Seven of the eight men operated a large hand crank attached to a small screw at the rear of the hull while the eight person served as captain and navigated. McClintock also placed onboard dive planes along the hull to aid the vessel's captain with diving and resurfacing. On July 31, 1863, the *Fish Boat* performed a series of tests in front of a crowd of civilians and high ranking Confederate officials. It successfully dived under a dummy barge, sank their intended target, and resurfaced a few hundred yards away. Buchanan remained unconvinced. Rather than keep the *Fish Boat* in Mobile, Buchanan conspired to offload the craft and her builders on Beauregard. He directed Watson to meet with Beauregard about bringing the ship to Charleston. Buchanan also sent his Charleston counterpart Flag Officer John Tucker a telegram that praised the *Fish Boat*'s successful test. This convinced Beauregard of the *Fish Boat*'s potential. It arrived on August 14 from Mobile via rail.[45]

What is clear in both episodes is Beauregard's increasing desperation to attack the South Atlantic Blockading Squadron. Lee's torpedo boat ran into increasing delays which forced Beauregard to turn towards alternative delivery vehicles. He initially used Charleston based rowboats and steamers but found these craft could not carry out the attacks. Beauregard then widened his scope to include untested designs from outside Charleston. This led him to the *David* and *Fish Boat*. Beauregard placed both craft in navy hands and witnessed mixed returns. The *Fish Boat* sank twice while undergoing tests and killed over a dozen onboard including part-owner Horace Hunley. The *David* meanwhile found immediate success. On October 5, 1863 the *David* attacked and damaged the ironclad *New Ironsides*, the most powerful ship in the South Atlantic

Blockading Squadron. The *David*'s victory sparked one final course correction in local shipbuilding policy.

* * *

Beauregard continually stressed throughout 1863 his desire for vessels that could deliver spar torpedo payloads against the federal blockaders. His increasingly critical rhetoric against the ironclads demonstrated how much he wanted capable offensive weapons. The *David* finally provided him the warship he needed to reach and engage the offshore blockaders. Her October 1863 success, discussed in fuller detail in Chapter 5, sparked a new wave of naval construction within Charleston. As gunboat fever gripped Charleston in March 1862, torpedo-boat fever now flared amongst local industrialists to build these ships in late 1863 and into 1864. In January 1864, deserter George L. Shipp informed Union commanders on January 8 that at least two torpedo boats were under construction for local use. A second defector named Belton provided more ominous news. He informed Brig. Gen. Alfred Terry that "twenty-five had been ordered to be build (sic) similar to the 'David.' Has seen eight or ten in course of construction at the different ship yards on Cooper River; those near ironclad No. 3 are most advanced." These two deserter reports, taken three months after the *David* attacked the *New Ironsides*, demonstrate the increased demand for torpedo boats.[46]

Desire for *David*-type torpedo boats soon spread beyond Charleston Harbor. On February 11, 1864, Beauregard asked Tucker if he could relocate the *David* to attack monitors stationed in the Stono River. Five weeks later, Flag Officer William W. Hunter

from the Savannah Squadron asked if Tucker could send the *David* to Savannah. Tucker could not ship the *David* to Georgia but he offered to send Hunter plans to build their own *Davids* as well as completed spar torpedoes if Hunter provided sufficient copper. Although Tucker received repeated requests for the *David*, the Navy did not even participate in local torpedo boat construction. He informed Hunter that the Charleston Station worked on two *Davids* but there are no surviving records that these ships were either started or completed.[47]

This meant the two groups responsible for Charleston's torpedo boat expansion were army engineers and civilian contractors. *David* part-owner Stoney for example formed the Southern Torpedo Company on November 23, 1863. Beauregard supported Stoney's endeavor when he informed him, "I will be most happy to afford the company all the facilities in my power for carrying into effect their proposed plans and operations." Lee meanwhile militarily supervised Charleston's second wave of torpedo boat procurement. He worked with local builders such as W. S. Henerey to secure the necessary machinery. He also prepared for army engineers a list of the requisite materials so they could build more *Davids*. Completed torpedo boats soon entered military service. By May 24, 1864, at least two army-operated vessels were fully staffed and operational.[48]

New assignments for both Ingraham and Beauregard meanwhile altered local relationships between the two military branches. Mallory sidelined Ingraham in March 1863 in an effort to place younger, seemingly more aggressive officers in squadron commands. Mallory appointed as Ingraham's replacement Capt. John Tucker from the *Chicora*. Tucker proved more open to the torpedo boats. Beauregard meanwhile remained until April 1864, when he received a new command in southern Virginia.

Richmond placed Maj. Gen. Samuel Jones in charge temporarily until Lt. Gen. William J. Hardee received the appointment in October 1864. Both Jones and Hardee continued forward with torpedo boat developments, but only with Tucker's assistance. In November 1864, Hardee proposed a separate torpedo boat squadron to test and evaluate these newly designed craft, but sought out the support of Tucker and other navy officers. This marked a departure from Beauregard, who had kept torpedo boat development under army jurisdiction. Hardee and Tucker recommended that they appoint officers experienced with torpedo boats and spar torpedoes, including Comd. Isaac N. Brown from the flagship *Charleston*. Although there is no evidence the torpedo board actually convened before Charleston fell in February 1865, the plans demonstrated Hardee's and Tucker's interest in working together to create Charleston's strongest possible defenses. A new era of army-navy cooperation had dawned.[49]

Increasing interest in the torpedo boat did not siphon resources away from further ironclad construction in the latter stages of the war. Throughout 1864 Eason and shipwright F. M. Jones continued work on the ironclad *Columbia* while two *Milledgeville*-class ironclads awaited iron plating. Chief Constructor John L. Porter's November 1864 shipbuilding report made no mention about any navy-launched torpedo boats underway in Charleston. Porter instead highlighted the near-readiness of Charleston's *Milledgeville*-class ironclads and that the Navy still committed an overwhelming amount of resources towards ironclad procurement throughout the Confederacy. The rise of the torpedo boat and Beauregard's departure did not take away from the city's remaining ironclads. If anything the number of major shipbuilding

projects underway simply increased between the ironclads and numerous torpedo boats started in Charleston.[50]

* * *

After the Fort Sumter Crisis, Confederate builders in Charleston crafted multiple warships for local service. They completed three wooden gunboats, four ironclads, and at least four torpedo boats. Local shipwrights also started two additional ironclads and numerous *David*s. A far cry from the do-nothing, build-nothing accusations of the *Charleston Mercury* on August 8, 1861, military and government officials strove throughout the war to give local defenders the necessary tools for protecting Charleston Harbor. Despite this activity, there was regular competition and disagreements on what to build for protecting Charleston Harbor, and who should build it. Confederate Naval officials primarily wanted ironclads while South Carolina and Confederate army personnel willingly entertained and explored other opportunities if it would yield them sufficiently powerful warships. By October 1862, a rift appeared in the relationship between Army and Navy Commanders, over whether to divert local resources from a third ironclad toward a torpedo boat designed by Francis D. Lee and supported by Beauregard. As both projects floundered due to iron shortages, civilians from outside Charleston brought the experimental torpedo boat *David* and submersible *Hunley* into Charleston Harbor. The *David*'s success in October 1863 sparked a wave of torpedo-boat construction from the Engineering Department, but the Confederate Navy still pursued ironclad procurement. Tucker and Hardee's appointments thawed inter-service tensions,

but their attempt at a torpedo board came too late to have much effect on local maritime procurement.

South Carolina and Confederate officials clearly demonstrated their desire to defend Charleston Harbor with the best possible warships for local service. Despite this shared goal, they could not in short develop a unified naval construction agenda, and multiple projects littered the local landscape from March 1862 onward as a result. These endeavors competed with each other and ironclads across the south over material and industrial access. Eason and Beauregard fought over labor in December 1862, but resource scarcity directly impacted all Confederate naval projects.

Chapter 4

Building Charleston's Ironclads

In late May 1862, Department of South Carolina and Georgia Commander Maj. Gen. John C. Pemberton received two urgent letters from the previous department commander and now President Davis's military advisor Gen. Robert E. Lee and South Carolina Governor Francis Pickens. Both Pickens and Lee stressed the importance of Charleston's defensive efforts in the immediate aftermath of the fall of New Orleans. The Confederacy's major surviving Atlantic port after the fall of Fort Pulaski outside Savannah, Charleston remained not only as a key haven for incoming blockade runners but also a vital venue for outgoing communications and links to construction efforts abroad. Lee placed special emphasis on the city's maritime preparations when he called Pemberton's attention to "river and harbor obstructions….spare no labor or expense upon them." Charleston not only needed strong fortifications from the Union Army, but also maritime safeguards against the South Atlantic Blockading Squadron.[1]

Two months earlier, the Confederate Navy, the South Carolina Executive Council, and the Charleston *Daily Courier* had all recognized that Charleston Harbor required modern warships. Beginning in 1861 with the contracts for Gunboats 1, 2, and 3, as they were called, local and Confederate businesses had worked with the South Carolina and the Confederate government on naval procurement. Throughout the war four casemate ironclad gunboats—*Charleston, Chicora, Columbia,* and *Palmetto State*—joined the Charleston Squadron, and local shipwrights nearly finished two *Milledgeville*-class ironclads. The Army also independently built multiple torpedo boats in 1863 and 1864. All of these ships required timber, iron, and manufactured machinery, materials

Duncan Ingraham and others obtained for local shipwrights. Surviving vouchers reveal what the Charleston Squadron received in both building materials and their transport. Through the eyes of Confederate Navy Paymasters Henry Myers and George Ritchie, one also can see both the scale and scope of local naval construction. Local businesses provided naval constructors with industrial and logistical support. Charleston shipwrights and mechanics required additional material and support from suppliers scattered throughout the Confederacy. The South Carolina Railroad brought in boxcars full of timber. Machinery arrived from the Selma Iron Works in Selma, Alabama, the Tredegar Iron Works in Richmond, Virginia, and the Columbus Naval Iron Works in Columbus, Georgia.[2]

Yet there was never enough. Three notable factors shaped Charleston's ironclad construction program: iron deficiencies, transportation problems, and the rise of the torpedo boat. Charleston's builders initially discovered a regional source for iron plate in April 1862, but iron shortages hampered both local shipwrights and major foundries throughout the South. By April 1864, Charleston's two *Milledgeville*-class ironclads required 800 tons of iron plate for their casemates. This was iron that no one within the Confederacy possessed, so these and other ironclads throughout the South remained unfinished awaiting materials that would never arrive. That year also saw a significant downturn in new navy-sponsored construction. Repairs for existing ironclads and the completion of the hulls for the *Ashley* and the other, never-named *Milledgeville*-class warship (known simply as ironclad #6) further affected the allocation of navy resources. Charleston's entrepreneurs did not stop building in 1864, however. They instead turned their attention towards torpedo boats based on Ebaugh, Stoney, and Ravenel's *David*.

Army engineers and independent businesses monopolized new naval construction in the last year of the war as the timber that had poured into Confederate shipyards throughout 1862 and 1863 simply disappeared, an unanticipated byproduct of the *David* and her success.[3]

* * *

Charleston shipwrights built different ironclads throughout the war. The *Chicora* and *Palmetto State*, built respectively by James Eason and James Marsh, were *Richmond*-class casemate ironclads, two of six 150 foot ships built in Charleston, Savannah, Richmond, and Wilmington, North Carolina. Squadron flagship *Charleston* was a one-off design from Naval Constructor John Graves, an enlarged *Richmond*-class craft 189 feet long. The *Columbia*, Charleston's largest warship, shared her 217 foot single-screw casemate concept with the CSS *Texas* in Richmond. Finally there were the two unfinished *Milledgeville*-class ironclads, double-screwed 175 feet armored warships built in Savannah and Charleston. Although the builders or other identifiers for these particular craft remain murky, surviving records hint at their names. In 1864, James Eason completed six months of iron work for the CSS *Ashley*, which does not appear in any official Confederate records as a completed ironclad. Eason's production suggests that the *Ashley* was in fact one of Charleston's *Milledgeville*-class ironclads. If this is the case, possibly the remaining ironclad would have been named *Cooper* after the other river that shaped Charleston's waterfront.[4]

Building casemate ironclads throughout the Confederacy required the coordination and cooperation of multiple parties. Although the Confederate Navy originated most maritime shipbuilding, civilian contractors locally managed the projects once they signed the contracts. These individuals or companies received blueprints from Chief Constructor John L. Porter. Under the supervision of the contractor or a shipwright with aid from local navy officers and a paymaster for reimbursement, builders acquired the requisite materials for assembling their projects and hired laborers that turned their blueprints and raw goods into a weapon of war. As the Confederate Navy relied on local contractors, cities that possessed both industrial and shipbuilding facilities emerged as key assets.[5]

Luckily for naval planners, Charleston maintained a substantial shipbuilding and industrial lineage that differed markedly from the rest of the South. Charlestonians first built vessels in the 1670s, less than a decade after English settlers first arrived. By the eve of the American Revolution, Charles Town shipwrights operated five separate shipyards that launched merchant ships for regional and intercontinental commerce. Ship construction reached its peak between 1789 and the War of 1812 and then regressed as did Charleston's maritime importance. The sand bar situated outside the harbor prevented deeper-draft ships from entering Charleston proper, while the rise of New Orleans and the construction of the Erie Canal in New York also siphoned merchant traffic and mechanics from the port.[6]

Only in the 1850s did Charleston partially resurrect its shipbuilding industry. Local officials moved to deepen the harbor's seaborne approaches so that larger merchant vessels could enter Charleston. Navy Lt. John N. Maffitt conducted an initial survey and

determined that work crews could increase the depth of Sullivan's Islands Channel, a key shipping lane that linked Charleston with open ocean shipping. Throughout 1857, industrialists James and Thomas Eason made substantial progress within the renamed Maffitt's Channel. Onboard the experimental, New York-built *General Moultrie*, the brothers operated Charlestonian Nathaniel Lebby's hydraulic suction dredge. They removed 190,000 cubic feet of silt from the channel over a two year period, opening up the harbor for larger steamers. After the Eason brothers deepened the channel shipbuilding slowly expanded. By 1860, Charlestonians operated two shipyards, three dry-docks and two marine railways. These facilities, particularly the dry-docks built by the Eason brothers and the Marsh family, served as the backbone for both new construction and requisite repairs.[7]

South Carolinians also had raised armed vessels throughout America's previous antebellum conflicts. In the American Revolution South Carolina operated its own state navy. While the allure of privateering drove local efforts, Charlestonians commissioned two official warships: the *Beaufort* and the 14-gun brigantine *Hornet*. In the early national period, the city built vessels for the burgeoning U. S. Navy, most notably the frigate *John Adams*. Launched by shipbuilder Paul Pritchard on June 5, 1799, the *John Adams* carried thirty cannon and participated in both the Quasi-War with France and the Barbary Wars. During the War of 1812, the Pritchard and Shrewsbury shipyards raised two privateers, the *Decatur* and *Saucy Jack*. Armed with fewer than twenty cannon apiece, they enjoyed success against British merchant traffic. The experiences of the *John Adams*, *Saucy Jack*, and other locally built privateers demonstrated Charleston's

established wartime construction lineage, evidence that the *Daily Courier* later trumpeted when it inaugurated the Ladies Gunboat Fund.[8]

Charleston in other words possessed the requisite shipbuilding pedigree and also maintained a substantial industrial infrastructure. According to the 1860 census, Charlestonians owned and operated forty-six different manufacturers within its borders. These including six lumber mills, five machinery shops, five brick houses, five turpentine distilleries, four carriage houses, two black smiths, an oil maker, two woodworkers, and a saddling firm. Charleston boasted a manufacturing capitalization of $1,448,000 in 1860, the third largest within the Confederacy behind Richmond and New Orleans. These figures were actually down from the mid-1850s. A series of fires had consumed ten businesses between 1856 and 1859. This included three foundries, a railway car manufacturer, a cordage factory and a lumber mill. Fire had significantly constricted Charleston's industrial output on the eve of the Civil War.[9]

Charleston's artisans experienced a similar downturn. Charleston's forty-six surviving industrial facilities employed 946 workers, of whom 38 were women. Nearly half of these mechanical men worked in either the machine shops or car factories. Charleston held the largest concentration of mechanics within South Carolina, but the city suffered substantial losses in the decade before the Civil War. In 1848, about 1,900 artisans worked within Charleston's shops. Newly arrived immigrants helped fill the gaps left from these departed artisans. Ira Berlin and Herbert Gutman argued foreign workers comprised the city's second largest labor pool in 1860 behind Charleston's enslaved population. Despite these new opportunities for immigrant workers the low country suffered a net loss of nearly 1,000 artisans in the decade prior to the Civil War.

Charleston's industrial losses therefore extended beyond the destruction of local workshops and factories.[10]

Despite these losses, surviving industries provided shipbuilders a working foundation for large-scale naval construction. Outside of their dredging operation, James Eason and Brother manufactured steam engines, railway locomotives, and military ordnance. Archibald Cameron's firm employed between 125 and 140 men at his works. He produced steam engines, boilers, saw mills, and castings, amongst other items. While not as large as Eason or Cameron, Archibald McLeash operated his own foundry in Charleston, with a wheelwright and casting shop within his works. These three provided Charleston's shipbuilders with much of the essential machinery and manufactured parts for ironclad procurement.[11]

New railroad construction further supplemented Charleston's industrial capabilities with tracks that linked the South Carolina port with interior cities and rail lines. During the decade preceding the Civil War, railroads increasingly connected people and places throughout the country, but perhaps nowhere more so than the antebellum South, a region struggling to catch up to the northeast with a mixture of private and public funding. In the 1850s alone, the South built over 8,300 miles of new track, which translated into about 75 percent of the Confederacy's total railroad mileage at the start of the Civil War. Increased rail access transformed South Carolina and the South in the 1850s. By 1860, South Carolina had a total of 147 railroad junctions and depots, the fourth most of all southern states. More importantly, 68.8 percent of South Carolina's population lived within fifteen miles of one of those junctions or depots, the highest percentage of any state that joined the Confederacy. This meant those who transported

cotton, timber, or other raw products within South Carolina had relatively easy access to the iron horse. The South as a whole spent $128 million on railroad expenditures prior to the Civil War, much of it generated through state governments. South Carolina railroad development occurred in part through the South Carolina General Assembly. In 1845, legislators allowed the South Carolina Railroad (SCRR) to build a railroad bridge across the Savannah River to Augusta, which linked the SCRR with their Georgia counterparts and bypassed their Hamburg terminus. The SCRR completed the bridge by 1853, connecting them to Georgia's burgeoning rail network.[12]

As railroads penetrated the southern interior and linked cities, towns, and other rail lines, they brought increased communication and trade and strengthened existing ties to slavery. Most southern rail companies built their tracks with slave laborers. They usually rented slaves from local planters either in exchange for payment or railroad stock, and provided local elites with a personal stake in the railroad's success. In North Carolina, supporters of the fledgling North Carolina Railroad advocated selling stock at reduced prices to those who gave their slaves for use as labor. The SCRR owned ninety slaves in Charleston, and it previously held around two hundred and forty slaves in Edgefield District on their 1840 payrolls.[13]

Charleston personally witnessed this railroad growth. Three railroad companies connected Charleston with the South Carolina interior for passenger and freight traffic on the eve of the Civil War. Inaugurated in 1827, the SCRR ran to Columbia with spur access to the Charlotte and South Carolina Railroad. The newer Northeastern Railroad coupled Charleston and Wilmington through their junction with the Wilmington and Manchester railroad near Darlington, South Carolina. The Charleston and Savannah

Railroad, finished just weeks before South Carolina seceded, linked those ports through a coastal track. Smaller intra-state railroads such as the Greensville and Columbia, Spartanburg and Union, Laurens, Cheraw and Darlington, and the Kings Mountain lines further crisscrossed the South Carolina landscape and supplemented the existing state network.[14]

There were limits to Charleston's transportation growth, however. Local planters notably used their political influence to keep the railroads from reaching the commercial wharfs that dotted the downtown landscape along the Cooper River. Developers of the Charleston & Savannah Railroad ignored appeals from Charleston city council members and taxpayers to build their terminus within Charleston proper. They instead terminated the tracks across from Charleston near Steinmeyer's Point on the Ashley River. Forgoing requests for a bridge across the Ashley and the merger of their tracks with the Northeastern Railroad, the company lugged their products and passengers via steamboat from Steinmeyer's Point into Charleston proper. While initially economical, it deprived the city of a direct rail link across the Ashley River and denied commercial interests an opportunity for creating an incoming rail hub in one area. This later would mean that when cannon, timber, or engines arrived via rail, Confederate shipbuilders and industrialists required haulers for transporting these goods into their Charleston shops. In wartime Charleston, Henry Williams regularly carried raw materials and finished products from the railroad depots on the city outskirts to shipyards along the Cooper River.[15]

Combined with the shipyards and dry docks, Confederate naval officers nonetheless possessed a sound platform when they commenced ironclad procurement

after Fort Sumter. Early Confederate setbacks instead hindered their efforts. The captures of New Orleans, Memphis, Norfolk, and Pensacola by May 1862 deprived Mallory and the Confederate Navy of pre-war navy yards as well as the ships, materials, and resources lost at these locations. Mallory moved his operations inland in response. He established marine machinery shops in Columbus, Georgia and Charlotte, North Carolina, as well as ordnance manufacturing in Atlanta, Selma, Charlotte, and Richmond. Of the surviving businesses, only three produced 2" iron plate: Tredegar Iron Works in Richmond, Scofield & Markham Iron Works in Atlanta, and Shelby Iron Company in Columbiana, Alabama.[16]

Inland resettlement shielded naval industries from Union coastal offensives but left shipbuilders at the mercy of the Confederate rail system. Major issues plagued Confederate railroads throughout the war. The antebellum South had not used a uniform rail gauge, which meant troops and freight could not quickly move across different rails. South Carolina's tracks all operated on 5'6" gauge, which meant that timber and other wares arrived unimpeded in Charleston if railcars were available and the lines were clear. Interstate transport suffered more. Guns manufactured at the Tredegar Iron Works in Richmond and shipped to Charleston for the ironclad *Charleston* had to be transferred three different times due to track variances in Virginia and North Carolina. Cannon built at the Selma Iron Works in Selma, Alabama for the *Columbia* required at least one steam transport and one rail change before their guns reached Charleston. In addition to these gauge issues, Confederate authorities could not provide adequate maintenance, spare parts or rolling stock, or an effective centralized coordinating body.[17]

The Confederate Navy moreover cannibalized lightly used rail spurs so that they could use the T-rails to armor the ironclads. T-rails proved a valuable source for military contractors when they could not easily obtain iron plate. In New Orleans for example, E. C. Murray purchased 500 tons of railroad iron from the Vicksburg & Shreveport railroad for shielding the *Louisiana*. Army engineers in Charleston meanwhile used rail iron when they worked on a chain obstruction to stretch across the harbor in late 1862. The hunt for T-rails showed the primacy and scarcity of iron amongst Confederate shipbuilders. As a result of all these factors, the Confederate rail system deteriorated and disintegrated through the war. Confederate shipbuilders found their shipments delayed for a variety of reasons, including lack of trains, not enough personnel, or army troop transfers or shipments that claimed transport priority over naval goods.[18]

* * *

Throughout the war, three people coordinated Confederate naval construction in Charleston. As noted previously, Capt. Duncan Ingraham returned to his native Charleston from the Ordnance Bureau in November 1861 to oversee and inaugurate warship construction for the Confederate Navy. Shipbuilder Francis M. Jones initially contracted with Mallory for four vessels in 1862, and farmed out contracts to shipwrights James Marsh and Kirkwood & Knox. In 1864 he completed the ironclad *Columbia*. Jones also supported Lee with his expertise when the latter officer built his torpedo boat. The South Carolina State Gunboat Commission finally selected industrialist James Eason as their project manager. Eason built both the *Chicora* and *Charleston* under contract to the

South Carolina Gunboat Commission before they were sold back to the Confederate Navy. These three men drove ironclad production in Charleston. Other builders though made their shipyards available for construction, most notably James Marsh and Kirkwood & Knox. Marsh worked on two ironclads, including the *Palmetto State*. Kirkwood & Knox built three wooden gunboats and at least one of the two unfinished ironclads. All of them needed, sought, and scrounged for the requisite timber, machinery, iron plate, and guns that they required so their men could build these weapons of war. Local paymasters further supported Charleston shipwrights as they provided the financial fuel that sparked these projects to life.[19]

Confederate shipbuilders faced a crowded and competitive construction pipeline throughout the war. The sheer number of projects presented challenges. In November 1861, Kirkwood & Knox started three wooden gunboats. These were followed in March-April 1862 with the ironclads *Chicora* and *Palmetto State* from the Confederate Navy and the South Carolina state government. Through the summer and fall, army builders under Dr. Langdon Cheves attempted to construct a chained boom obstruction to prevent enemy vessels from entering the harbor while work continued on the two ironclads. In October, Eason started the *Charleston* for the South Carolina Government. Work commenced on three additional ironclads in 1863, further clogging the construction pipeline. Combined with Lee's torpedo boat and the *David*, six major projects were simultaneously underway at one point in 1863. Although the ironclads all neared completion by April 1864, pressure for new materials continued. As noted above, the *David* sparked a torpedo boat craze from army engineers and independent contractors including *David* builder Capt. Theodore Stoney.

With multiple concurrent projects underway, Confederate shipwrights first of all required time. If Confederate defenders could not keep the Union military from capturing Charleston, then the city would go the way of New Orleans and Memphis, key ports that fell with their warships half finished. As a Confederate coastal port, Charleston remained susceptible to enemy attack throughout the war. Union forces launched their first campaign against Charleston's incomplete defenses in May 1862, but the setback at Secessionville on June 16 halted that offensive. The importance of Secessionville cannot be overstated; the Confederate victory ensured Charleston did not suffer the same fate of New Orleans, Memphis, and their incomplete ironclads. The Union defeat bought Confederate shipwrights valuable months as another attempt was not made on Charleston for over nine months. By the time Du Pont launched his April 1863 monitor assault against Ft. Sumter, the ironclads *Chicora* and *Palmetto State* steamed inside Charleston Harbor as Beauregard's operational reserve.

As for material, historians have rightly fixated on iron when discussing Confederate ironclad procurement, but the acquisition of timber actually emerged as their first priority. Practically all Confederate ships depended on wood for their hulls and frames. Tracing lumber shipments thus not only reveals who built new ships but also when they began.

Shipbuilders normally utilized dried, seasoned woods when they built maritime hulls. This ways the casings retained their integrity when they faced prolonged exposed to salt water and other elements. Given the urgent nature of these projects, however, the builders did not have the time to allow the wood to dry before they sent wooden planks towards the shipyards. Shipyards instead relied upon freshly-cut timber, known as

unseasoned or "green" wood. Green wood contracts as moisture is expelled. The unfortunate reliance on unseasoned timber subsequently and invariably would result in warped hulls soon after these ships entered service. This issue plagued Confederate warships throughout the war but as it will be discussed in the next chapter leakage problems particularly plagued the Charleston Squadron.[20]

In the end, however, speed and necessity trumped any long-term ramifications. Charleston shipbuilders swiftly placed advertisements for green timber in the Charleston newspapers when ironclad construction ramped up. On March 22, 1862, Marsh requested five different types of timber for the *Palmetto State,* as well as available ship carpenters, axmen, and hewers. One month later, Ingraham placed new calls on Marsh's behalf in both the *Mercury* and *Daily Courier* for over 33,700 feet of White Oak planks. Ingraham then issued new timber ads in August. Marsh independently pursued his own sources, sending agent William Bird into the South Carolina countryside in September 1862. For seventy days, he surveyed and shipped timber to Marsh's shops.[21]

Marsh and Ingraham's advertisements mostly proved successful. Purveyors began feeding the shipyards' constant appetite for any and all lumber. Local contributors such as William Lucas, L. J. Bennett, G. N. Ott, and J. F. Addison immediately supplied Marsh and Ingraham with timber for the *Palmetto State*. The SCRR transported wood for Marsh and Kirkwood & Knox throughout 1862 and 1863, and the two yards contracted with Addison and John Jennings for additional supplies throughout 1863. Hauler Henry Williams carried their wares from railroad depots belonging to the Northeastern Railroad and SCRR, ensuring that the laborers and industrialists had the necessary supplies for crafting the hulls once the timber arrived via rail.[22]

All in all, South Carolina businesses and railroads sent a minimum of 2.5 million cubic feet of oak, pine, and other types of lumber to Charleston for ironclad construction. The Navy Department's timber purchases, depicted in Table 4.1, reveal a limited glimpse into local consumption. Surviving pay vouchers do not note Eason's acquisitions when he built the *Charleston* and *Chicora*, but only mention incoming planks and pieces that Marsh and Kirkwood & Knox received for the *Palmetto State* and the two unfinished *Milledgeville* ironclads. Even with these omissions, one can see that Navy-sponsored construction peaked in 1863. At that height, Charleston shipbuilders received over 2.1 million cubic feet of timber. Nearly two-thirds of all 1863 purchases originated from Jennings and Addison. Their shipments slowed after August 1863 due to a re-allocation of resources, a downward trend that continued into 1864. The Charleston Station only received 83,272 cubic feet of timber earmarked for new construction. August 1863 thus marked a permanent alteration in arriving lumber for Navy-sponsored procurement.

Table 4.1: Known Timber Arriving in Charleston for Confederate Naval Construction, 1862-1864

Year	Cubic Feet of Timber	Railcars of Timber from South Carolina Railroad
1862	446,141	64
1863	2,113,195	82
1864	83,272	unknown

Source: Data adapted from Pay Vouchers in Reels 1 and 28, Subject File of the Confederate States Navy, 1861-1865 (National Archives Microfilm Publication M1091), Records of the Naval Records Collection of the Office of Naval Records and Library (RG 45), National Archives Building, Washington, D.C.
Note: Does not include timber used on the ironclads *Chicora* or *Charleston*, built for the South Carolina Gunboat Commission by James Eason.

Several factors contributed to the timber reduction after August 1863. Shipbuilders had made rapid progress on Charleston's final three ironclads. Secretary Mallory's November 30, 1863 Congressional report revealed that Charleston possessed "three ironclad steam sloops under construction—one receiving her armor and

machinery, the others advancing rapidly." Mallory's April 30, 1864 update noted that the "rapidly advancing" *Milledgeville*-class ironclads only required iron plating, while the future CSS *Columbia* readied for service. Mallory's report insinuates that Marsh and Kirkwood & Knox finished their wooden frames no later than April 1864. Since the shipbuilders only required iron place for their casemates, they did not need additional wood stockpiles in their shipyards.[23]

Charleston shipwrights also re-directed timber towards repairs for already operational warships. Local industrialists and businesses submitted 133 different pay vouchers throughout the war. These surviving receipts show that the ships spent more and more time within local dry docks as the war progressed. The *Palmetto State* for example spent most of the second half of 1864 laid up for two major repairs. Local shipwrights could not launch new projects since they needed to increasingly divert resources towards keeping the existing warships in service.[24]

The primary reason for the timber downturn in Confederate Navy yards, however, was non-Navy maritime construction. In August 1863, Charleston businessman John Fraser's placed a bounty on any blockader sunk off Charleston Harbor. Nearly two months after Fraser's announcement, the *David* seriously damaged the USS *New Ironsides* on October 5. As noted in the previous chapter, The *David*'s successful sortie sparked private companies towards building similar craft for themselves and the army, including *David* co-owner Capt. Theodore Stoney. The Confederate Navy did not directly participate in the torpedo boat craze. Tucker did remark in February 1864 that two torpedo boats were underway for the navy, but evidence of these craft do not appear otherwise within surviving records. This suggests state or independent contractors were

responsible for those projects. Navy engineer James Tomb notably remarked by April 1864 the army possessed three boats built "by a company" for their use while the navy operated the independently built *David*. The loss of timber only appeared in the ledgers of navy paymasters.[25]

While timber shipments plummeted amongst Confederate naval constructors in the final year of the war, the search for iron, particularly iron bars and plate for armoring warships, remained a constant concern. Iron scarcities plagued shipbuilders throughout the war and as noted above, delayed ironclads from entering service in a timely fashion, if they ever did reach completion at all. In Richmond, the Tredegar Iron Works never received enough quality iron ore from local mines. William Still notes that, "the vast Richmond works [Tredegar], capable of consuming annually between 20,000 and 24,000 long tons of pig iron, never had as much as 8,000 tons during any year of the war." Tredegar simply could not keep up with demand from their military and railroad contracts required as the Confederacy's largest foundry. This forced Anderson to accept inferior grades of pig iron into his shops, which in turn impacted the quality of Brooke rifles manufactured in 1863 and 1864. Shipbuilders in Savannah as early as 1862, meanwhile, had seized any available iron for their projects regardless of ownership. This sparked letters from Georgia businessmen to President Davis for the return of their metal. Davis expressed regret over the situation on July 31, 1862, but rejected their request. Davis believed the navy's annexation of these materials represented Savannah's best interests and wrote, "land defenses can be built without iron, but it is indispensable for plated boats."[26]

Charleston shipbuilders required substantial stockpiles of iron at all times. Eason consumed 500 tons of iron when he armored the *Chicora*, and the *Charleston* used upwards of 600 tons. On November 25, 1864, the South Carolina Marine Battery Commission reported "the absence of the requisite materials" deterred any further state-sponsored projects. Local iron deficiencies prevented the completion of the two *Milledgeville*-class ironclads, as they required 800 tons of iron to cover their casemates. It was not a problem unique to Charleston. Confederate shipwrights faced a total iron shortfall in November 1864 of 4,230 tons for twelve different ironclads scattered throughout Confederate ports.[27]

Charleston officials devoted significant time towards locating scarce iron supplies wherever possible. Ingraham deployed agents Jason G. Holmes and Edmund Yates throughout South Carolina and Georgia in April and May 1862 in order to locate sufficient iron for the *Palmetto State*. The South Carolina Executive Council additionally pushed Richmond on June 24 to ship iron plates so Eason could finish the *Chicora*. Lee sent his own agent along the Cooper River for iron in late 1862 and 1863, hunting for iron scraps that he could then recycle on his torpedo boat. The iron quest, in other words, consumed all entities within Confederate Charleston.[28]

The Confederate Navy luckily found a company in Atlanta that manufactured and supplied local shipwrights with two-inch thick iron plate: Scofield & Markham, otherwise known as the Atlanta Rolling Mill. On April 17, they initially provided Ingraham with 272,412 pounds of iron plate 14 feet in length and eight days later sent an addition 522 plates. In a May 14 letter, Scofield and Markham reminded Mallory that, "we have over 150 tons of plates drilled & ready for shipping & now there is over 175

tons ready." Three days later, Mallory paid the Atlanta firm $32,640 for 196 tons of their rolled iron. This represented nearly half the requisite iron for armoring a *Richmond*-class ironclad, as Eason used 500 tons on the *Chicora*. Scofield & Markham eventually received iron from the Navy and provided Mallory's ironclads their own source for iron plate outside the overwhelmed and undersupplied Tredegar Iron Works. Ingraham even sent Asst. Engineer C. H. Levy from Charleston to Atlanta on August 18, 1862 to ensure Scofield rolled the armor to their specifications.[29]

Local shipwrights needed more than iron plate, as they required iron in all forms. Records of the South Carolina Railroads and those from hauler Henry Williams hint at the amount of iron shipbuilders and supporting businesses consumed during 1862. On June 18, for example, Ritchie provided Williams with $233.00 for "transporting from depots and other places, shaft and iron plates, spikes, for the gunboat building." Most of what he hauled arrived via the SCRR. Between April 5 and October 13, 1862, the railroad shipped sixteen boxcars of iron plating, 484 loose plates, 1,172 pieces of round iron, 3,039 iron bars, 4,515 iron bolts, ten tons of pig iron, and 100 kegs and 2,586 loose iron spikes for naval use. Local builders received additional metal reinforcements from John Fraser and Company in July 1862 as well as the Southern Express Company in March 1864.[30]

Charleston's industrialists readily accepted the incoming iron into their shops so they could craft their wares for the prospective warships. James Eason, Archibald McLeash, Archibald Cameron, and Edwin Bull all operated key workshops and foundries that supported naval procurement. They forged, made, or acquired key components and then sent them on to the Navy Department. Most of the state records for the *Chicora* and

Charleston have been destroyed, but surviving receipts note how these industrialists manipulated iron to support Charleston's ironclads. McLeash for example made tools, hooks, washers, and nuts and bolts for the warships. These small items included the bolts to fasten the steam propeller onboard one of the unfinished ironclads, crafting chisels, and the hammock hooks so that the crew could live and sleep while onboard. While McLeash's contributions appear minimal, his manufactures kept the ironclads and their machinery together.[31]

Edwin Bull and Archibald Cameron contributed more substantial support. Bull for example provided Marsh with two copper bilge pumps and mounting brackets that kept water out of the *Palmetto State* on September 30, 1862. He also sent installation crews Archibald Cameron's Cameron & Company meanwhile worked on both the *Palmetto State* and Lee's torpedo boat prior to a December 1862 fire. He built the *Palmetto State*'s boilers throughout the summer of 1862, refurbished the ship's secondhand steam engine, and manufactured the ship's metal flooring. These projects highlight both the versatility of these firms and their industrial capabilities to support the city's multiple shipbuilding projects.[32]

James Eason operated the city's most valuable and important foundry, however. Located at the corner of Columbus and Nassau, his shops previously built heavy machinery and he proved a reliable industrial partner throughout the war. Eason first built the *Chicora* and *Charleston* for the South Carolina Gunboat Commission, and his shops later assisted in the creation of both the *Columbia* and *Ashley*. Surviving bills from 1864 hint at how Eason materially assisted in local shipbuilding. In April 1864, he acquired a hydraulic press for the Navy and billed them for two steam engines, one boiler, a smoke

pipe, a cast propeller, shaft and appropriate fixtures. Later that year he manufactured four inch wrought iron shutters for the *Columbia's* casemate as well as placed iron bars on the casemate itself. Eason additionally built or acquired a complete steam engine for the Navy, including pumps, boiler, propeller, shaft, copper piping, smoke stack, and fittings. Eason possibly purchased the engine from the Columbus Naval Iron Works, but his pre-war dredging of Maffitt's Channel demonstrated his workers could easily acquire, refurbish, or even build steam engines.[33]

The work of these industrialists extended beyond shipbuilding. The Charleston Squadron recycled Cameron's scrap iron and repurposed it for other uses in Georgia. Both Cameron and Eason regularly engaged in ordnance work since both shops could rifle existing cannon and produce munitions. Cameron & Company for example manufactured 7" elongated shot and shell for Brooke rifles onboard the squadron ironclads. Eason crafted the levers, pins, and casting sockets for the spar torpedo installed onboard the *Chicora* in March 1863. Four months later Eason's shops forged three bands to reinforce a 6.4 inch Brooke and in June 1864 started assembling complete naval gun carriages, most likely for the *Columbia*. Between ordnance and shipbuilding contracts, Eason and Cameron kept their shops busy supplying South Carolina and Confederate customers with essential war material.[34]

Charleston's businesses met nearly all the needs of local shipwrights, in other words. Their foundries produced munitions, light machinery, and metalwork for the warships. Blacksmiths such as McLeash and Bull manufactured the literal nuts and bolts that held the ship together, as well as provided skilled laborers that installed their products. Other local interests including James Brandt and the Charleston Gaslight

Company sold local shipbuilders pitch, tar, and gas. Haulers carried freight cars of timber, iron plate, cannon and propellers. Timber had to flow in from the countryside, however, in significant quantities from independent contributors and the tracks of the South Carolina Railroad. Despite local resources and their foundries, Charleston could not manufacture all of the requisite items for their ironclads, either. They specifically depended on shops scattered throughout the Confederacy for three major items: Brooke rifles, new steam engines and related marine machinery, and iron plate for armoring the casemate.[35]

As previously noted only two locations in the Confederacy forged new naval cannon: the Tredegar Iron Works in Richmond and the Selma Iron Works in Selma, Alabama. Tredegar served as the primary foundry for army, navy, and railroad purveyors throughout the Confederacy. The Selma Iron Works meanwhile first produced their own cannon in June 1863 under the leadership of Brooke protégé Cmdr. Catesby ap. R. Jones. After he received Brooke's gun sketches, Jones supplied Confederate ironclads from Mobile to Charleston with Brooke rifles and smoothbore cannon.[36]

Both Tredegar and Selma armed Charleston from their foundries. Anderson shipped Charleston three pieces on August 16, 1862, including two 42-pounder Brooke rifles. On April 8, 1863, Gun #1751, a 7 inch single-banded Brooke Rifle, appeared within the Tredegar Order Books for Commodore D.N. Ingraham in Charleston, presumably for the *Charleston.* Once Selma began production, Jones's cannon also rolled towards South Carolina. On September 8, 1864, Jones placed gun #74, a 7 inch Brooke rifle, on the steamer *Coquette* bound for Charleston via Montgomery. Jones then shipped

two Dahlgrens on November 16, 1864. The Charleston Squadron required cannon from the two foundries to provide firepower for their warships.[37]

Charleston's shipbuilders and industrialists also depended upon major Confederate factories for heavy marine machinery. While Eason and others in Charleston produced boilers and could repair existing power plants, they ultimately could not craft new steam engines that could successfully power the ironclads and also keep up with their other commitments. As previously mentioned in Chapter 2, early ironclads borrowed engines from existing steamers, and Charleston's early warships were no different. Both the *Chicora* and *Palmetto State* repurposed used tugboat engines; the *Chicora* from the steamer *Aid*, and the *Palmetto State* from the ex-privateer *Lady Davis*. Independently built ships required similar scrounging. Lee's torpedo boat used the tug *Barton*'s steam plant, and the *David* acquired an engine from the Northeastern Railroad. These older engines could not handle the additional weight from the armored casemates and keep the ships moving at adequate speed. Later ironclads therefore needed brand new steam engines that could produce additional power. The Confederate Navy also required facilities that could manufacture heavy maritime machinery. Under orders from Mallory, Chief Eng. William P. Williamson expanded the Confederate Navy's industrial and manufacturing capabilities in late 1862. By the end of the war, the Navy operated the Shockhoe works in Richmond, a marine engineering factory in Charlotte, North Carolina, and the Columbus Naval Iron Works in Columbus, Georgia. Shockhoe became a key Richmond factory, and the Charlotte works provided propeller shafts and engine parts from their inland facilities.[38]

Arguably the most important machine shop arose in Columbus, a pre-war center for Georgia's cotton industry. Under the direction of Lt. Augustus McLaughlin and Chief Eng. James Warner, the Columbus Naval Iron Works emerged as the Confederate Navy's primary source for new steam engines. Situated on the Chattahoochee River bordering Alabama and Georgia, her location proved ideal when Mallory and Williamson relocated key industries to the Confederate interior. Throughout the second half of the war, Columbus manufactured power plants for the *Columbia* and at least six additional Confederate ironclads. When their projects reached completion, Warner sent engineers throughout the Confederacy to install their engines and machinery. He dispatched Chief Eng. Virginius Freeman for example to Charleston as an adviser, and an A. Ravenscroft expedited the transport of machinery in October 1863. Underscoring the importance of the Columbus factory, William Still remarked, "What the navy could accomplish along the coast… often hinged upon the status of Warner's work in Columbus."[39]

Charleston's shipbuilders required new cannon and steam engines from outside companies, but in a pinch they could also repurpose used tugboats or existing artillery. What they could not locate—and what emerged as the biggest detriment towards completing Confederate ironclads—was armor plate. Anne Kelly Knowles asserted that the southern iron works only possessed one-fourth of the national industrial output of iron ore on the eve of the Civil War. Although southern foundries shared many similar technologies with the North, they had not built factories and furnaces on the scale of their Union counterparts, nor had the supplies for keeping the existing furnaces operating at peak capacity. Eason received iron in various forms from Tredegar in 1861 but these contracts ended by late 1862. Scofield and Markham's emergence meanwhile aided

Charleston's shipbuilders. The Atlanta firm also provided iron plate for other Confederate ironclads in July 1862, including the *Fingal,* a blockade runner Savannah industrialists converted into the ironclad *Atlanta.* This meant Charleston's ironclads faced competition from every Confederate naval squadron.[40]

When Charleston shipbuilders could obtain their requisite machinery and raw materials, they swiftly finished their vessels. Eason's *Chicora* launched four months after receiving the contract from the South Carolina gunboat commission, demonstrating how quickly such craft could be launched. More often, iron scarcity and transportation difficulties significantly delayed the production of these items and their arrival in Charleston. Tredegar and Selma suffered from serious problems that impacted cannon production throughout the war. Anderson's works dealt with four major issues as the war progressed: decreasing supplies of pig iron, competition among the army, navy, and railroad companies for contracts and available resources, skilled labor shortages and the rail transport of his products.[41]

The Selma Iron Works experienced similar difficulties. Iron shortages in February 1864 resulted in only three finished cannon from Jones's foundries. Six months later, on August 20, Jones wrote Chief H. A. Ramsay at the Charlotte Naval Station, noting, "we are about to send three VIII-inch guns to Charleston, one for General Jones and two for the *Columbia*. We have no screws or iron to make them from. Will you please have screws made and sent to Charleston for them?" Jones informed John Brooke in a separate telegram that same day that the *Columbia* cannon would be shipped "as soon as the railroads are repaired," but reminded Brooke, "Quartermasters and railroads will not transport guns without stringent orders from Richmond." In September, Jones reluctantly

told Flag Officer E. Farrand in Mobile that they could not expedite the shipment of his cannon due to the unwillingness of steamboat captains to haul the cannons due to their perceived weight.[42]

Transport issues further plagued foundry operators and shipbuilders, but the overarching iron deficiency experienced throughout the Confederacy presented no simple remedy. While awaiting armor for the ironclad *Muscogee* in Columbus, McLaughlin wrote on November 15, 1864, "I have no idea what steps will be taken by the Department to furnish the iron." Charleston's completion of the *Palmetto State*, *Charleston,* and *Columbia* was delayed due to these shortages, and the two *Milledgeville*-class ironclads remained unfinished for the same reason. Even Eason's *Chicora* had felt the pinch from inadequate supplies. Eason informed Mallory in June 1862 that he had no iron available within his shops and he could complete his work quicker if the iron plate arrived. Iron shortages impacted every Charleston ironclad. How does one make an ironclad without iron?[43]

Beauregard's army-supported projects also felt the iron shortage. Unlike ironclads, which required four to five hundred tons of iron and hundreds of thousands of tons of lumber for the hull, Lee's torpedo boat required a fraction of these materials. Cameron & Company, whom Lee hired for metal working, requested sixty tons of regular cast iron bars, ten tons of iron bars for iron bolts, and smaller amounts of sheet iron and copper for the required foundry work. The seventy tons of iron Cameron required represented roughly one sixth of the iron Eason utilized when he covered the *Chicora's* casemate with two-inch rolled plate. Lee requested 18,500 feet of oak, 10,000 pounds of ¾ inch iron plating, 10,000 pounds of various spikes, and four tons of coal to build his

torpedo boat from Ingraham on November 8, 1862. The 18,500 cubic feet of wood Lee needed represented less than 1 percent of the known timber brought in for the ironclads in 1863! In a side by side comparison, Lee and Beauregard's argument that the torpedo boat requiring significantly less materials than the ironclads rang true.[44]

Lee still faced difficulty with acquiring materials in a timely fashion, particularly the iron. When Lee wrote Ingraham on November 8, Ingraham swiftly responded that he could not spare any iron, as what he had was earmarked for the ironclads. Lee remained suspicions and claimed the Navy did not want to cooperate, but Ingraham in fact had good reasons for hoarding his remaining stores. Four days prior to Lee's letter, Beauregard ordered Ingraham to turn over upwards of three hundred pieces of plating for use by the army in building harbor obstructions. Thus, when Lee asked for immediate cooperation, Ingraham had already yielded all the surplus iron in his possession. Ingraham further provided inter-service assistance when he provided Lee with bar iron. Lee reported on December 22, 1862 that Ingraham's aid satisfied his immediate construction needs and he hoped to secure Navy-earmarked boiler plates from Richmond. Lee's iron agents located twenty-five tons of scrap iron along the Cooper River, but proved insufficient. On March 10, 1863, Inspector Gen. Alfred Roman blamed the problems of Lee's material shortages on the Navy, arguing that building four gunboats simultaneously was completely illogical and accused Navy officials of not cooperating with Lee's project. Roman readily blamed the Navy for Lee's problems but Ingraham took steps towards aiding the torpedo boat. He handed Lee sufficient iron in December 1862, and in February 1863 concentrated his resources on finishing the most advanced ironclad, the future *Charleston*. In doing so, Ingraham actually streamlined Charleston's

congested pipeline. Lee in short ran into the same pitfalls that plagued shipbuilders throughout the Confederacy: acute iron shortages. As Beauregard stated on March 26, 1863, "I can but express my regret again that the one [torpedo boat] being constructed here cannot be finished at once for want of iron-plates."[45]

Construction of the army engineers' boom chain between Fort Sumter and Sullivan's Island over the course of 1862 further drained limited iron supplies and faced similar setbacks. On August 28, 1862, Pemberton asked Alfred Ravenel, President of the Northeastern Railroad Company, for more cooperation regarding the regular supply of iron and timber from the railroad. Pemberton ordered the timber cut to build the obstruction, but the wood required rail transport from Ravenel's company. The Northeastern also did not provide project manager Dr. J. R. Cheves, enough iron rails to weigh down and protect the obstruction. This forced Cheves to locate granite rocks from Columbia and iron chains as a substitute. Cheves's obstruction, which took nearly a year to build and maintain, cost upwards of $185,000 as of December 15, 1862. If Cheves finished the project by the end of February 1863 it would have cost an additional $93,000. These figures put the minimum cost of the boom at $278,000. Cheves's boom eventually stretched across Charleston Harbor, although it is unclear how much of a deterrent it actually provided.[46]

Even when industrialists located iron, quality issues further delayed construction and increased their costs. Gen. Daniel Harvey Hill and others blamed the destruction of four Tredegar Cannon during the Peninsula Campaign on defects due to poor iron quality. In Selma, Catesby Jones noted that iron received on March 14, 1864 proved unsuitable for cannon forging. Manufacturing costs at Tredegar skyrocketed as both the price of

material and inflation increased over the course of the war. At the beginning of 1862, cannons cost Tredegar around seven cents a pound. Within a year they doubled to fourteen cents a pound, and in January 1864 the price of cannon stood at over forty cents per pound. These expenses were then passed onto shipbuilders in Charleston and throughout the Confederacy. Gun #1841, a Brooke Rifle for the Charleston Squadron, cost Duncan Ingraham about twenty cents a pound on August 20, 1863. Less than six months later, Tredegar charged the Charleston-based Colonel Haddy fifty cents a pound for two Brookes made on April 28, 1864. Quenching the iron thirst became an increasingly expensive proposition that impacted both the speed and price of Confederate ironclads.[47]

* * *

Labor at times proved an additional hurdle shipwrights and industrialists had to overcome. Throughout the war Confederate shops could draw upon different labor sources including white artisans, free blacks, enslaved workers, immigrants, and reassigned military personnel. Despite the different options many shops had trouble securing sufficient labor throughout the war. Both the Tredegar Iron Works and Selma Iron Works suffered constant mechanic shortages that limited production. Anderson first employed slaves within his foundry in 1842, and L. Diane Barnes notes on the eve of the Civil War he had 80 slaves amongst the 780 workers employed throughout the Tredegar complex. During the Civil War he increased the numbers of enslaved workers at his foundry but conscriptions and desertions removed his skilled personnel from his shops.

He pleaded with Malloy and others government officials to return his men from military service but received little assistance. Limitations at Selma meanwhile prevented Jones from expanding operations. He notified Brooke on May 14, 1864, "Had my applications for mechanics been granted the rolling mill would have been in operation last fall, and it would have rolled iron enough for all our vessels…the rolling mill is not yet in operation." Desertions also directly hindered Jones' operations and prompted Mallory to claim on November 5, 1864 that Selma's labor quandary represented "a serious drawback" to the Confederate war effort.[48]

Charleston experienced comparable problems. Army officers depended upon enslaved workers to build many of the region's fortifications. South Carolina guidelines allowed Ripley and other officers to seize a quarter of slaves from individual slave owners between the ages of sixteen and fifty. These officers however faced resistance from upcountry planters reluctant to turn over their slaves for military use and Gov. Milledge Bonham, who delayed recruitment efforts in 1863. These hindrances directly impacted fortification construction. While Lee and the Engineers received 2,225 slaves between August 9, 1862 and February 21, 1863, constant rotations restricted the available workers at any given time to only a few hundred workers. This prompted Beauregard's Chief of Staff Thomas Jordan in February 1863 to directly lobby slave owners for 3,000 slaves so that the army could finish building Beauregard's Charleston fortifications. The army experience also meant Charleston industrialists could not depend upon a single source for their workers.[49]

Charleston shipwrights ultimately drew upon a diverse labor pool that included local artisans, free blacks, slaves, military personnel, and mechanical specialists from

throughout the Confederacy when they built the ironclads. Army soldiers proved an especially key resources during the opening phases of ironclad procurement within wartime Charleston. Between July 9 and September 6, 1862, Pemberton received thirty-two separate requests from Ingraham and Eason to detail surplus soldiers on special assignment within naval shipyards and foundries. These men included John Breedlove, who owned a timber mill, and James M. Addison, whose family provided Charleston shipyards with large quantities of fresh timber. Pemberton received harsh criticism from his contemporaries over troop withdrawals along the South Carolina coast, but he readily supported maritime procurement and shifted soldiers when Ingraham and Eason requested assistance.[50]

Surviving documents from when Marsh built the *Palmetto State* hint at the use of these different groups in 1862. Mixed labor gangs under Addison chopped some of the *Palmetto State*'s timber. Artillerists from the Culpepper Works Battery were detailed in late July to work as house carpenters within Marsh's shipyard. Mechanics from Bull's workshop installed copper bilge pumps onboard the unfinished ironclad. Building the ironclads therefore required the cooperation of all local labor resources including civilian and military workers.[51]

Although the city's diverse workforce aided with naval procurement, Marsh's surviving payrolls directly reveal who physically built the *Palmetto State* between May and October 1862. Table 4.2 notes how many men Marsh's payrolls held and Table 4.3 depicts the composition of this workforce. At his height Marsh weekly employed over two hundred men within his shipyard. Based on stated pay rates on the rolls themselves black workers comprised nearly 60 percent of Marsh's workforce. The nature of the

payrolls do not allow for a determination whether these workers were free blacks or enslaved. What is clear is that Marsh depended upon black labor to build the *Palmetto State*. This is further supported by payrolls from William Bird, who operated one of the city's dry docks. Pay rates from his workers suggest nearly all of his twenty-eight workers were black. These findings support Bernard Powers' arguments that black labor predominantly built the Charleston ironclads.[52]

Table 4.2: Total Workers on Marsh's Shipyard Payrolls by Month, May 15 to November 1, 1862

Month	Total Employees	Average Per Week
May	149	74.5
June	359	89.75
July	647	161.75
August	898	179.6
September	736	184
October	1081	216.2

Source: Data compiled from Payrolls No. 1 to No. 24, May 22, 1862-November 1, 1862, from E-652, Payrolls of Civilian Employees at Confederate Shore Establishments, May 1861-December 1864, Box 2, Folder 2, RG 45, NARA.
Note: May only contained two pay periods, while August and October both contained five pay periods.

Table 4.3: Marsh's Workforce Depicted by Race, May-October 1862

Month	Total Workers on Payrolls	White Labor	Percentage of workforce (%)	Black Labor	Percentage of workforce (%)
May 1862	149	78	52.35	71	47.65
June 1862	359	117	32.59	242	67.41
July 1862	647	227	35.09	420	64.91
August 1862	890	382	42.54	508	57.46
September 1862	736	367	49.87	369	50.13
October 1862	1081	487	45.05	594	54.95
Total	3862	1658	42.93	2204	57.07

Source: Data compiled from Payrolls No. 1 to No. 24, May 22, 1862-November 1, 1862, from E-652, Payrolls of Civilian Employees at Confederate Shore Establishments, May 1861-December 1864, Box 2, Folder 2, RG 45, NARA.

As previously discussed, Beauregard's arrival and the launch of additional naval projects stretched local resources, including labor. Surviving shipyard payrolls from June 1863 demonstrate how the increased maritime construction from the ironclads and torpedo boats thinned local workforces. While Marsh had upwards of two hundred men employed in September and October, he only had fifty-seven workers in mid-June. This represented a thirty person drop from the previous year, when Charleston faced imminent threats from Union forces on James Island. Fellow shipbuilder Kirkwood & Knox's payrolls only had seventy-five personnel over the same June 1863 time period. Although both projects were at the early stages of completion, the two builders had fewer total workers on their payrolls than Marsh actively employed for most of the *Palmetto State* project. The increased completion from multiple concurrent projects meant that shipyards could no longer easily concentrate workers as Marsh had when he finished the *Palmetto State* in September 1862. This also explains Beauregard and Lee's actions marshalling Eason's workers away from the state-backed ironclad to build the army-championed torpedo boat in December 1862.[53]

This problem extended beyond local shipyards in the second half of the war. Surviving payrolls from the Charleston Station ordnance shop between January 1863 and December 1864 suggest that local industrialists could not retain their remaining mechanics. In the Charleston Station ordnance shop, gun carriage superintendent J. W. Nicholas regularly managed between six and thirteen workers. These workers included expert gun carriage manufacturers and riggers, as well as unskilled laborers. Nicholas experienced a complete turnover of personnel over the second half of the war. Not a single worker who appeared in the January 1863 station rosters remained by October

1864. It is unclear why these men departed, but Nicholas provided regular raises in an attempt to entice his workers to remain within his shops. By October 1864, expert mechanics received $10.00 a day and unskilled laborers earned $7.50 towards the end of the war. This represented a $6.00 pay increase for artisans and over $4.00 for general workers within a two year period. Nicholas was not the only shop that used financial incentives to keep key personnel. Anderson also attempted similar methods at Tredegar but could not retain essential employees. This suggests labor represented a second surging cost for shipwrights in the second half of the war.[54]

There are multiple reasons as to why Nicholas could not keep his workers. Charleston's proximity to the front lines probably forced Beauregard and others to impress local mechanics for emergency service. During the Morris Island Campaign, Nicholas saw three of his then seven gun carriage makers leave his shop. It is unclear why these men departed but a simple assumption would be that Beauregard required their service in the fortifications. This occurred to personnel within the Richmond Naval Ordnance Department during the 1864 Overland Campaign. Many of Brooke's key mechanics spent much of the summer firing shells on the front lines rather than manufacturing them, and he could not get replacements from Mallory or other officials. Desertions could have also impacted staffing at the Charleston Station. The Selma Iron Works suffered from unauthorized departures in August 1864. Jones believed his deserters fled to Mobile or other shops but local officials would not aid in his search. Mallory established special calls for the 110 mechanics Jones required but this also did not refill his shops with the experienced personnel. Finally, other industrialists simply could have hired away Nicholas's mechanics. The limited surviving payrolls preclude a

detailed comparison with Eason, Cameron, Marsh, or other local businesses to see if Nicholas' workers ended up in other Charleston machine shops.[55]

Regardless of the reason, Charleston's labor situation meant that local shipyards increasingly took longer to build warships at the war progressed. Whereas Marsh could concentrate nearly two hundred men within his shipyard in September 1862 as the sole project underway, he could only employ a quarter of those men nine months later. The ironclads and torpedo boats launched within Charleston demanded substantial workforces. Ingraham, Beauregard, and Charleston industrialists drew upon all available personnel within South Carolina, but this sometimes proved not enough. Local shipwrights received assistance from expert mechanics shipped in from the Columbus Naval Iron Works and Richmond Naval Ordnance Department. Ingraham even turned to sailors from the *Palmetto State* in October 1864 when they were the only ones available to install cannon onboard the *Columbia.* The inability for Nicholas to keep gunsmiths within the Charleston Station Ordnance Shop and the experiences of workshops in Selma and Richmond suggest labor represented yet another problem naval industrialists faced throughout the Civil War.[56]

* * *

The final expenses of the Charleston ironclads reflected the increasing difficulty of acquiring iron and transporting goods on the crumbling Confederate rail networks as well as surging labor payrolls towards the end of the war. South Carolina Gunboat Commission Chairman J. K. Sass reported on December 9, 1862 that the *Chicora* cost

$277,000—$23,000 less than the $300,000 budgeted by the South Carolina Executive Committee. About fifteen months later, Sass reported to the Marine Battery Commission the final price of the ironclad *Charleston*—$460,297.27, exclusive of iron plates and armaments. This represented a near $200,000 price increase from the *Chicora*, without accounting for the cannon or iron plating. Inflation, labor costs, and increased material prices all affected the total. If one included iron prices and cannon manufacturing, the *Charleston*'s cost about doubled the *Chicora* completed just eighteen months prior.[57]

These clearly increasing costs, combined with the amount of resources consumed by ironclad construction, partly fueled Beauregard's pursuit of the torpedo boat. He mentioned on several occasions that Lee could build his ships with significantly fewer resources and at one-third the cost of the ironclads. The increasingly prohibitive cost of ironclads shows that Beauregard's economic arguments has substantial merit. But the torpedo boat's requirements meant its construction suffered from the same problem as the ironclads: iron plate scarcity. This explains why it took nearly ten months until Lee's ship entered service in August 1863, and even then the *Torch* did not resemble Lee's original design. Lee blamed the changes on local naval builders. He claimed in July 1863 they forced upon the *Torch* iron plate and other modifications he did not originally envision. Lee's iron problems ultimately influenced later torpedo boat designs. Many of Stoney and Lee's later *David*-type torpedo boats incorporated an absolute minimum of iron plate so they would not suffer the same delays as Lee's original concept or the fate of the two partially completed *Milledgeville*-class ironclads.[58]

* * *

Charleston shipbuilders eagerly consumed any arriving timber and iron within their works and manufactured most of what the shipbuilders required. They produced tools, bolts, pipes, boilers, and many of the metal workings that could outfit an ironclad gunboat. The foundries operated by Eason, McLeash, Cameron, and Bull produced items for shipbuilding and ordnance throughout the war, highlighting both the capabilities and versatility of Charleston industrialists. These materials simultaneously revealed local limitations. The sharp downturn in timber earmarked for construction in 1864 showed that the navy did not envision any further projects. Charleston industrialists and shipbuilders instead turned towards building *Davids* for the army while maintaining what the navy already had on duty. While Eason and Cameron could rifle existing cannons in Charleston and manufacture ordnance for these weapons, they did not have the capability of locally producing heavy artillery themselves. No local shops also possessed the wherewithal of rolling two-inch armor for the casemates or new steam engines for the ironclads. Charleston's shipbuilders as a result depended on businesses throughout the Confederacy for producing these items and shipping them via rail.

Two over-riding issues plagued and delayed the completion of these and all ironclads throughout the war: iron scarcity and transportation difficulties. Shortages of enough quality iron delayed Tredegar and Selma from casting cannons for the Charleston Squadron and other requisite materials. Transportation delays prevented the arrival of iron ore to Selma and other foundries and hindered the shipping of completed goods to anxious Confederate shipbuilders. These deficiencies, particularly the rolling of iron plate, impacted every major naval construction project within Charleston, and prevented

the *Ashley* and Ironclad #6 from entering service. Once the iron plate and other mechanical parts finally arrived via rail, the shipwrights and industrialists could complete their work.

Building Charleston's ironclads thus required the marriage of local businesses with crucial materials from throughout the Confederacy. As Charleston had most but not all of the requisite industrial capacity for manufacturing everything within the city, her shipbuilders depended on foundries like the Selma Iron Works for their remaining supplies. When these businesses failed in securing enough iron or had issues transporting their products, the delays and additional costs were passed onto the local shipbuilders. Securing the raw goods and manufactured metals for the ironclads represented only half of the battle for building ironclads. Local entrepreneurs who sold the navy timber needed gangs for cutting the wood, men to work in their foundries, and ship carpenters raising these ships from the ground up. Whether surplus army hands, leftover laborers, or enslaved blacks, all available labor was required for building their ironclads. Shipbuilders found themselves in competition for skilled labor with other military businesses and departments, and manpower issues proved as great a factor on the Confederate war effort as their iron plate deficiencies.

These problems though did not end once Charleston's warships finally entered service. Whether ironclad, torpedo boat, or any other craft, Confederate warships required significant upkeep throughout the war to keep their craft operational. This placed an increasingly important burden not only on the builders to finish their steamers but also on the sailors and soldiers who operated them. In Charleston, responsibility eventually fell on the shoulders of the Charleston Squadron, and it was their mission to

ensure Charleston remained in Confederate possession despite the increasing number of monitors and blockaders poised outside the harbor.

Chapter 5

The Charleston Squadron in Action: Confederate Naval Operations

On July 30, 1862, James Reid Pringle Ravenel asked his sister Julia, "Have you seen the gunboats they are each of great interest to us up here." Under construction along the Cooper River, the Charleston ironclads provoked curiosity and inquiry from both Union and Confederates alike. Threatened by material scarcity and an ever-present Union army and naval squadron outside the city limits, laborers within James Eason's shops and James Marsh's shipyard proceeded uninterrupted. The *Palmetto State*'s October 10, 1862 baptismal marked the culmination of a multi-month construction campaign that linked policy, manpower, and material for the singular goal of maritime defense. Arming Flag Officer Ingraham with badly needed modern warships, the *Chicora* and *Palmetto State* represented the city's first steps towards a wholly organic and functional naval squadron.[1]

Previous chapters have examined various aspects of the naval procurement process in Charleston, including construction strategy, civilian fundraising, and logistics. Despite political conflict, editorial complaint, and acute resource shortages Eason, Marsh and Ingraham steadily propelled the Confederate Navy toward their favored ironclads. By the end of the war, the Charleston Squadron consisted of four ironclads, the torpedo boat *David,* various steamers and assorted small craft. Flag Officers Duncan Ingraham and John Tucker established nightly pickets of local waterways and guarded against any Union incursions through continual ironclad and small boat operations. Although tedious in nature, these missions served as the springboard for larger and more substantial operations that moved beyond the mundane to tasks that brought sailors throughout the

Charleston region under the auspices of local defense. Ships and sailors carried out offensive and defensive assignments throughout the war that protected both the harbor and local fortifications. The ironclads successfully attacked the blockaders outside Charleston on January 31, 1862 and temporarily scattered the Union steamers. They evacuated Confederate soldiers from Morris Island, saved Fort Sumter from capture, and served as Beauregard's emergency reserve in case the monitors bypassed the outer fortifications. Ironclads actively participated in harbor operations that furthered Confederate operations in South Carolina.[2]

Confederate maritime defenses did not solely rest on their ironclads and weapon systems crafted throughout the war. This chapter argues that even more than new technologies, well-trained and disciplined sailors made the real difference. Although the Confederate Navy did not participate in torpedo boat procurement, they controlled the *David* when the torpedo boat damaged the *New Ironsides* on October 5, 1863. When not on the *David,* local sailors seeded local waterways with obstructions and conducted rowboat attacks against the blockaders. Navy personnel manned Fort Johnson on James Island as an auxiliary infantry brigade in July 1864 and repulsed a Union assault. Judging the Charleston Squadron solely on their ironclads and their activities, in other words, misses most of the story. The city's ships *and* sailors proved an invaluable asset for South Carolina and Confederate officials throughout the war.

* * *

Charleston quickly emerged as a military target after the war began in its harbor. The birthplace of rebellion, her importance was magnified after Abraham Lincoln announced a blockade of the Confederate coastline on April 19, 1861. Less than 800 miles from Bermuda and about 500 miles from the Bahamas, Charleston offered blockade runners a key port with rail connections deep into the Confederate interior. The first blockader arrived off Charleston on May 11. By late autumn, Welles and his staff sought a southern base for tightening the blockade. As noted in Chapter 1, an expedition led by Flag Officer Samuel Du Pont captured Port Royal, South Carolina, on November 7. About halfway between Savannah and Charleston, Port Royal offered Du Pont an open harbor for replenishing his ships without returning to New York. It also provided Union officials a forward base for operations against both Charleston and Savannah. After Du Pont's success, Union land and sea forces launched five combined campaigns against Charleston in June 1862, April 1863, July 1863, July 1864, and February 1865. While Union forces never fully cracked Charleston's defensive lines, they repeatedly threatened both the city and her protectors. Charleston required both strong fortifications and modern warships, but as the previous chapters have demonstrated this was much easier said than done.[3]

The Charleston Squadron did not officially exist until May 19, 1862, when Mallory gave Ingraham increased oversight over South Carolina waterways. At the onset of the war, two different entities had protected Charleston Harbor: the South Carolina Coast Police and the Naval Department of South Carolina and Georgia. Formed when South Carolina seceded in December 1860, the Coast Police armed a handful of converted steamers and tugboats with one or two cannon. Command rotated between a

variety of officers including Ingraham and Capt. H. J. Hartstene. Only one ship participated in the Fort Sumter bombardment: an armored floating battery. Built by Capt. John Hamilton, it fired five hundred shells in anger at the Union-held fort.[4]

Six weeks after Sumter, Gov. Francis Pickens disbanded his state navy on May 27. Maritime defenses then fell on the shoulders of the nascent Confederate Navy. Mallory placed Charleston into the Department of South Carolina and Georgia with Georgia Navy commander Flag Officer Josiah Tattnall in charge. Under Tattnall's watch Kirkwood & Knox shipyards inaugurated the three wooden gunboats in Charleston, but as mentioned in Chapter 1, he focused efforts on Savannah. Tattnall's "squadron," cobbled from the South Carolina and Georgia State navies, stood outside Port Royal on November 7, 1861, but failed in the wake of Du Pont's numerical and material superiority. The squadron spilt after Port Royal, with Lt. John Rutledge taking the steamers *Huntress* and *Lady Davis* to Charleston. At that point the only way Confederate forces could throw back any assault on the city rested in coastal fortifications. Ingraham's arrival and the separation of Charleston and Savannah into their own squadrons in April 1862 allowed both Ingraham and Tattnall to focus on their respective commands.[5]

The loss of Port Royal as well as Memphis and New Orleans though highlighted the necessity of finished ironclads in vulnerable coastal ports. Enter the *Chicora* and *Palmetto State*. Their October 1862 completion provided Ingraham with modern if underpowered warships for Charleston Harbor. *Richmond*-class ironclads, they were designed primarily for harbor defense rather that disrupting blockades. Despite strategic questions between Ingraham, Beauregard, and others over future projects, the squadron slowly expanded. Two additional ironclads augmented their strength in 1863 and 1864 in

the *Charleston* and *Columbia*, while the tender *Indian Chief* served as the receiving ship for incoming sailors and material. Two other vessels briefly joined the squadron in 1863. Confederate soldiers on the Stono River captured the steamer *Isaac Smith* on January 30, 1863, after shore batteries disabled the warship. Renamed the CSS *Stono*, she served for less than six months before her conversion into a blockade runner. The squadron also impressed the blockade runner *Juno* for temporary service. Small boat flotillas served as outer pickets and performed other duties as requested. The navy received the *David* from her builders and operated the torpedo boat from October 1863 onwards. Squadron vessels ranged in size from the 220 foot *Columbia* to self-propelled rowboats.

The Charleston Station directly supported and supplemented the local squadron's mission. After his relief as Flag Officer in March 1863, Ingraham served as Commodore for the Charleston Station and headed shore-based operations. This was not uncommon in the Confederacy. Throughout 1863 Mallory bypassed veterans like Josiah Tattnall and French Forrest for younger, more aggressive officers. Forrest, Tattnall and Ingraham retained nominal appointments as station commodores while Tucker and others such as Lt. William Webb in Savannah received squadron commands. Although seemingly marginalized, Ingraham still contributed greatly to the squadron's success. Naval stations provided the logistical and operational support necessary for Tucker's ironclads to remain supplied and her sailors upright. Surviving payrolls show that the Charleston Station employed 102 personnel between land and ship based facilities. This included dry docks, ordnance shops, and even a naval hospital.[6]

While the station provided logistical support, constant training and discipline amongst squadron personnel ensured operational success. Signal Officer Augustine T.

Smythe of the *Palmetto State* remarked on August 30, 1863, "when the alarm is given we must be up & dressed, our hammocks stowed away below, (and) we ready for duty in five minutes….we never 'turn in' of a night without expecting & preparing to be called up at any moment." The drive for preparation came straight from Ingraham and Tucker. Lt. James H. Rochelle, who previously served under Tucker in Virginia, observed, "Tucker maintains a very severe discipline but is always ready, he will never be caught unprepared unless it be from causes beyond his control." Junior officers carried forward this ethos. *Palmetto State* executive officer Lt. William H. Parker regularly conducted evacuation drills, for example, which required the men to escape from their assigned port window or hatch within sixty seconds of the command "clear the ship." Enacted prior to general quarters, the drill ensured crew alertness before they entered combat. Parker especially drove home these drills after a fire burned on the *Palmetto State* adjacent to the ship's magazine. Since the magazine held the ship's shells and ammunition, any fire there could detonate the explosives and swiftly destroy the ironclad. Within fifteen minutes, Parker's crew contained and extinguished the blaze. Their efforts speak to both the experience and training of the sailors onboard. Lesser crews might not have contained the fire as quickly, resulting in significant damage, if not the total destruction of the *Palmetto State*.[7]

Experienced sailors also supplemented freshly organized crews when new ships entered the squadron. In November 1864, *Columbia* executive officer C. D. McBlair, requested reinforcements for his green crew when storms approached. Luckily for McBlair, the Charleston Squadron featured a plethora of expert officers and sailors, notably Ingraham and Tucker. Charleston's ironclad captains demonstrated similar

experience. Comd. Isaac N. Brown was the ex-captain of the *Arkansas*. Lt. Alexander Warley had captained the ironclad *Manassas* and was a veteran of the New Orleans fighting. Rochelle commanded multiple vessels in the James River and Charleston Squadrons. Tucker and Ingraham also oversaw the three junior officers who unleashed torpedo boat warfare against the blockaders: Lt. William H. Parker, Lt. William T. Glassell, and Engineer James H. Tomb. The Charleston Squadron, in short, possessed more than enough veteran officers and sailors for the safe and effective deployment of their resources.[8]

Throughout the war only two Navy-operated warships suffered significant damage while underway in Charleston Harbor: the submarine *Fish Boat* and the ironclad *Columbia*. After Beauregard brought the *Fish Boat* from Mobile on August 14, 1863, he seized the submarine and turned the craft over to Lt. John Payne of the *Chicora.* Payne drew his eight-man crew from the ironclads and began training onboard the submersible but soon experienced tragedy. While towed by the steamer *Etowah* on August 29, a wake from a passing boat swamped the *Fish Boat*. Payne and two others escaped before she sank, but five others died. Beauregard removed Payne from command and raised the *Fish Boat* from the harbor floor. He then entrusted the submarine to part-owner Horace Hunley and Mobile-based army officers. Repaired, the *Fish Boat* resumed operations before the ship again sank on October 15. During diving tests under the squadron tender *Indian Chief*, the submarine did not re-surface Divers found the *Fish Boat* with all hands dead, including Hunley himself. Beauregard reluctantly once more resurrected the *Fish Boat*, and gave her to ex-crew member army Lt. George Dixon. By now renamed the *H. L. Hunley*, Dixon recruited a third crew from unassigned naval personnel onboard the

Indian Chief and drilled his men across from Charleston in Mount Pleasant, South Carolina. His sailors survived their training but in her successful attack against the USS *Housatonic* on February 17, 1864, the *Hunley* sank with no survivors. The *Hunley* cost Beauregard and Tucker twenty-three men between August 1863 and February 1864, a heavy price for the destruction of a single Union steamer.[9]

The *Columbia's* incapacitation in January 1865 also hindered Tucker's squadron. While undergoing tests in the harbor, the ironclad rammed a submerged ship. Despite no fatalities onboard and the best efforts of local mechanics, the wrecked warship remained inoperable until the city's abandonment in mid-February. The loss of the *Columbia* and the *Hunley* share at least one common culprit: inexperience. Untrained sailors staffed both warships, and their unfamiliarity in their new environments resulted in their destruction. Yet these were the only squadron ships sunk through the war, a record that highlights the premium Tucker and others placed on training throughout the war.

* * *

After the crews became familiar with their ironclads, life onboard the vessels quickly settled into regular routines. The Charleston Squadron primarily performed nightly harbor patrols against incursions by the Federal South Atlantic Blockading Squadron. As previously noted, the army deployed static defenses throughout the harbor including boom obstructions and torpedoes and the Charleston Squadron provided active countermeasures. Tucker's October 11, 1863 orders depict the routine duties and expectations for their nightly patrols. Those selected first reported to the squadron tender

Indian Chief and then the flagship *Charleston.* There, the senior officer present provided the men their assignments. At dusk, the guard boats left for their assigned locations. Tucker placed one boat off the shoals between Fort Johnston and Fort Sumter, while others steamed near Fort Sumter and Fort Moultrie. If at any point they spotted an enemy craft entering the harbor, the pickets raised the alarm with both lamp and rifle. At least one ironclad supported these nightly patrols, while guard boats drew their crews from other ironclads and those on special assignment.[10]

Most nights the pickets returned without incident, but they sometimes engaged in minor skirmishes, particularly during the Morris Island Campaign. On August 4, 1863, Lts. Warley and Payne captured a Union barge and ten sailors observing positions on James Island with support from infantry of the 25th South Carolina. The next evening, a Union launch from the USS *Wabash* attacked the converted steamer *Juno*, manned by Lt. Philip J. Porcher, Eng. James Tomb and nine others. Despite calls for surrender from the Union craft, Porcher rammed the enemy and forced their capitulation. Although the *Wabash*'s boat outgunned and outmanned the *Juno*, Porcher's experience and decisiveness saved his crew. After the battle, Tomb heard the captured coxswain exclaim, "this comes from having an officer who gets you into trouble and can't get you out."[11]

In contrast to the tedium of patrolling, the squadron ironclads only directly engaged the blockaders once, on January 31, 1863. After the *Chicora* and *Palmetto State* entered service in late 1862 the Charleston populace desired action. On January 28, 1863, for example, the *Daily Courier* published an angry letter from "A. Mariner," who exclaimed, "why is it that so much material, gallant officers and men…should be wasted in doing nothing…." Parker's memoirs suggested the sailors' themselves contemplated

action throughout January when he wrote, "by January 1863, the vessels being ready, we commenced to think of making some demonstration." The final decision was up to his superiors, however. Beauregard's post-war writings implied that he provided the impetus for the attack. He wrote, "the time to do it, I suggested, was before the threatened arrival of the Federal monitors. Commodore Ingraham agreed with me, and immediately ordered the attack." Beauregard biographers Alfred Roman and T. Harry Williams cast Beauregard as the sole motivator, but Ingraham had likely already considered such actions.[12]

Whatever the motivation or the parties involved in making the decision, Ingraham boarded the *Palmetto State* and sailed with the *Chicora* against the blockaders on the night of January 30-31, 1863. The sailors had painted their ships a blue-gray to make them less visible in the early morning light, and coated their casemate shield in a slush. Alongside the ironclads, civilian steamers filled with prize crews made their way towards the harbor mouth in case the ironclads captured any vessels. Those ships remained near Fort Sumter, however. This dictated how Ingraham fought the battle. After the two ironclads crossed the bar during full tide at 4:00 am, they would be stranded outside the Harbor for twelve hours until the tide returned. If something befell the two warships, their only hope for survival was to make for Fort Moultrie on Sullivan's Island. Otherwise, they would be trapped without reinforcements.[13]

Luckily for Ingraham, the blockaders' most powerful warships were stationed elsewhere that evening. In January 1863, Flag Officer Du Pont commanded three armored craft: the monitors *Montauk, Passaic*, and the oceangoing *New Ironsides*. All three arrived in Port Royal by January 21, 1863. Upon its arrival Du Pont immediately

deployed the *Montauk*. On January 27, it bombarded Fort McAllister near Savannah, but her slow rate of fire inflicted little damage. While Du Pont broke in the *Montauk*, the *Passaic* and *New Ironsides* remained at Port Royal. This left only eleven wooden steamers and side-wheel paddleboats outside the Charleston bar. None of them possessed the armored plating that rendered their hulls impervious to rifled cannon fire. This placed the blockaders at a significant disadvantage when they engaged the Confederate armorclads.[14]

As the clock ticked towards 5:00 AM, the steamers closest to Charleston, the *Mercedita* and *Keystone State*, bore the brunt of the Confederate onslaught. Ingraham's flagship *Palmetto State* rammed the *Mercedita* and fired a shot from the forward Brooke rifle into her boiler. Disabled, the *Mercedita* soon surrendered, but without the auxiliary steamers and extra sailors Ingraham could not capture the craft. Ingraham could only request that the sailors not take up arms until properly exchanged. Tucker's *Chicora* meanwhile engaged the side-wheel steamer *Keystone State*. The *Chicora* crippled the *Keystone State* when a shot pierced her boiler. The wounded *Keystone State* lowered her colors, but her captain soon realized that she still possessed steam power. With only one operational side-wheel, the *Keystone State* escaped from the *Chicora*. Both ironclads then sought additional targets. They briefly engaging three other blockaders at long range, but could not inflict further damage. At 8:00 AM, the warships steamed towards Fort Moultrie and anchored under their protective cannon. Once high tide returned at 4:00 PM, the ironclads crossed the bar and returned as conquering heroes.[15]

Beauregard quickly capitalized on the morning's success. That afternoon, he and Ingraham announced that Confederate forces had lifted the blockade on Charleston. If

European forces recognized this proclamation, then the Union fleet would have to formally re-announce and establish their position. This would provide Confederate blockade runners a great opportunity to bring into Charleston much needed materials without enemy molestation. Courting European support, Beauregard even brought French and Spanish consuls out from Charleston so they could witness the Union exodus while the British ventured in their own craft. Despite Beauregard's proclamation, the scattered wooden blockaders slowly returned within sight of Charleston as the day progressed. Neither President Lincoln not any European power officially recognized it, thwarting his political maneuver and kept the blockade firmly in place.[16]

Ingraham's victory off Charleston thus ultimately mirrored the *Virginia*'s exploits during the first day of the Battle of Hampton Roads. In both locales, Confederate naval officers unleashed iron-plated warships against wooden-hulled advisories and swiftly demonstrated the superiority of armored steamers and rifled cannon in combat. In Ingraham's case, the Brooke rifles significant damaged the *Mercedita* and *Keystone State*, echoing what the *Virginia* did against the *Congress*, *Cumberland* and *Minnesota* in March 1862. But as in Hampton Roads, the battle off Charleston Harbor also significantly exposed the ironclads' weaknesses. Their deep draft meant that they could only steam across the bar at high tide. The underpowered engines prevented the *Chicora* from catching a crippled *Keystone State* as a second Confederate prize. Ingraham's ironclads also only enjoyed temporary naval supremacy. Within hours of the Confederate victory, Du Pont ordered the *New Ironsides* to Charleston. Much as the *Monitor* neutralized the *Virginia* after her arrival on March 9, 1862, the presence of the *New Ironsides* and additional monitors off Charleston Harbor as of February 1, 1863 ensured

that any future sojourns from Ingraham's ironclads met an armored welcoming committee.[17]

Three months after Ingraham's ironclads temporarily scattered the blockaders, Du Pont's monitors attempted a long-anticipated attack against Charleston Harbor. After months of political pressure from Welles and others Du Pont gathered nine armored ships. These included the *New Ironsides*, multiple monitors, and the *Keokuk*, a double-turreted ship. In preparation for just such an attack, Beauregard designed a multi-tiered defense which incorporated all Confederate weaponry in Charleston. Army officers stretched the boom obstruction from Fort Sumter to James Island and seeded the harbor with locally made torpedoes. All of the fortifications surrounding Charleston Harbor, including Fort Johnson, Fort Moultrie, and Fort Sumter, received additional ammunition and artillerists. Beauregard finally placed the ironclads *Chicora* and *Palmetto State* inside the harbor between Fort Johnson and Fort Ripley. The squadron stood ready as Beauregard's operational reserve, in case Du Pont's monitors steamed past the forts.

As it turned out, Du Pont's squadron never penetrated the inner harbor. Led by the *Weehawken,* the ironclads steamed single file towards Fort Sumter on April 7, 1863. Their slow rate of fire meant the monitors only threw 139 shells against the Charleston battlements, only slightly damaging the nearby Fort Sumter. Charleston's artillerists fired 2,209 shells in response and achieved a near 24 percent accuracy with 520 direct hits. Notably, Confederate gunners damaged two monitors. A third, the *Keokuk*, sank the next day after being hit ninety times. Du Pont pursued a second engagement despite the heavy damage but his commanders persuaded him from this course of action.[18]

As the operational reserve, the Charleston Squadron made no direct contribution towards this achievement. The failed assault was a clear-cut victory for Beauregard and the army gunners manning the Charleston batteries. The Union setback also highlighted the limitations of the monitors against fixed fortifications due to their slow rate of fire and restricted maneuverability. Indeed Du Pont could have easily lost two additional monitors during the battle if the Confederate defenders had better luck. The monitor *Weehawken,* stationed at the head of the assault, had placed on its bow a torpedo catcher that supposedly collected and detonated mines before they impacted against the monitors. During the battle the catcher instead damaged the *Weehawken* when a snagged torpedo exploded beneath her. The *New Ironsides* meanwhile parked itself over an electric torpedo connected by wire to a land-based detonator. Confederate personnel at Fort Moultrie desperately tried detonating the torpedo but a cart had severed the connection on the beach. Du Pont suffered further insult after the battle when a Confederate salvage team led by Adolphus W. La Coste raised two eleven-inch cannon from the *Keokuk* while the *Chicora* provided protection.[19]

Du Pont's failure represented his last contribution as commander of the South Atlantic Blockading Squadron as his failures reverberated against him in Washington. Initially replaced by Rear Adm. Andrew Foote, the sudden death of that officer placed noted inventor John Dahlgren in charge. Dahlgren arrived on station on July 6, 1863 and within two weeks launched the Morris Island Campaign. Unlike the April attack, during which Du Pont acted alone, Dahlgren's ironclads supported Maj. Gen. Quincy Gillmore's land offensive. Gillmore wanted control of Morris Island because he could then bombard both Ft. Sumter and Charleston proper with long-range batteries from her shores. He first

besieged both Morris Island and Fort Sumter on July 18, 1863. Over the next six weeks he wore down their defenses through prolonged land and sea based artillery bombardments. By September 7, Beauregard had evacuated the remaining Confederate forces on Morris Island, and federal artillery fire significantly weakened Sumter's exterior walls. Gillmore and Dahlgren asked for Sumter's surrender, but Beauregard's response, ferried under a flag of truce by Lt. Robert J. Bowen of the *Palmetto State,* simply stated, "Inform Admiral Dahlgren that he may have Fort Sumter when he can take and hold it."[20]

The Charleston Squadron actively participated in Confederate defensive efforts throughout the Morris Island Campaign. As he had in April, Beauregard initially informed Tucker that he viewed the ironclads as key components of the city's inner defenses and held them back in case of emergency. But as the summer progressed Beauregard wanted more offensive operations. He asked Tucker on July 18 if he could arm the steamer *Juno* and other craft with spar torpedoes for attacking Dahlgren's monitors, and also debated sailing fireships into their midst. Beauregard finally deployed the Charleston Squadron. At first he wanted ironclads stationed near Cumming's Point on Morris Island so that they could support defensive posts at Battery Gregg and Battery Wagner. Tucker and Ingraham recommended an alternative. Tucker sent Lt. W. G. Dozier with two small boats off Cumming's Point so the crews could communicate with Confederate emplacements on Morris Island and kept the ironclads behind Fort Sumter. As noted earlier, Tucker's squadron-staffed pickets captured and defeated Union launches on August 4 and 5, their first active engagement in the Morris Island Campaign. Throughout August Tucker's sailors remained on high alert. Signal Officer Smythe

acknowledged these tensions on August 30, 1863 when he wrote, "we never 'turn in' of a night without expecting & preparing to be called up at any moment."[21]

The squadron's greatest contributions came in early September. On the evening of September 6-7, Tucker's ships evacuated the Confederate defenders from Morris Island. Small craft removed the soldiers from danger while the ironclads protected their escape. Union patrols captured three boats, including a launch from the *Chicora*, along with forty-six sailors and soldiers. Despite these losses, Smythe believed that their withdrawal was "in the highest degree successful."

Two days later, Dahlgren attacked Fort Sumter without army assistance. By September, constant pounding from Gillmore and Dahlgren's land and sea based artillery had opened significant breaches in Sumter's walls. Gillmore already had planned an amphibious landing to take advantage of Sumter's increasing deficiencies. Dahlgren believed his sailors could easily storm the fort and more importantly wanted sole credit for capturing Sumter. Meanwhile, against Beauregard's wishes, Tucker had placed an ironclad near Sumter every night. On September 8 the *Chicora* received this assignment. That afternoon *Chicora* duty officer Lt. Clarence Stanton observed and intercepted communications from Dahlgren's flagship. These messages requested that each blockader dispatch one boat for the upcoming attack. Stanton then notified Tucker. It was this alert that prompted Fort Sumter commander Maj. Stephen Elliott's reinforcement. As night fell, Tucker placed the *Chicora* only a few hundred yards from Sumter's landing. At 1:00 AM on September 9, 450 men landed outside Sumter. Their arrival beat the Charleston Squadron to general quarters, but the *Charleston* and *Palmetto State* were not needed. Pre-sighted batteries on James and Sullivan's Islands effectively fired at the invaders.

The *Chicora* moreover was in a position to fire grape and canister into the landing parties. Her gunners immediately pinned down the Union sailors and helped to force their surrender. Combined with Sumter's remaining fire power and Elliott's reinforcements, Charleston's protectors overwhelmed the Union invaders. Confederate defenders suffered no casualties and captured 125 prisoners, multiple small craft, and various flags and other paraphernalia.[22]

The ironclads thwarted a second attempt against Sumter on November 20, 1863 when the *Charleston* forced the withdrawal of fifteen Union barges. Despite these achievements the ironclads usually remained rooted inside Charleston Harbor. Tucker recognized their deficiencies when he wrote on April 1, 1863, "we can only cross the bar at high water, consequently must remain out…in short time the enemy could bring up his ironclads from the Edisto, and might prove rather too many guns to us." Two months later, *Palmetto State* engineer William Wald iterated similar concerns. Both had good reason for their hesitation. In June 1863 the *New Ironsides* steamed off Charleston proper while five monitors sat twenty miles away in the Edisto River. If Tucker sortied against the *New Ironsides*, Dahlgren's monitors would trap the Charleston Squadron outside the bar before the tide returned. Tucker remained unmoved by Beauregard's protestations and would not sacrifice his ironclads when outgunned and outnumbered.[23]

When Tucker did not re-engage the blockaders, Beauregard turned to the experimental torpedo. Historian and ex-Charleston Squadron member J. Thomas Scharf believed that Charleston possessed "an excess…of impetuous daring in the service which could only find exercise in adventures outside of the routine of warfare." Lee attached spar torpedoes to a canoe and conducted experiments on their viability as an offensive

weapon. On March 13, 1863, Lee successfully detonated a thirty-pound spar torpedo six feet below the surface against an abandoned hull. After the test, *Chicora* watch officer Lt. William Glassell expressed interest in leading torpedo attacks against the blockaders. Ingraham remained skeptical. As previously mentioned he had previously witnessed failed torpedo experiments while in charge of the Bureau of Ordnance in 1861. He further rejected torpedo boat proposals in 1862 over apprehensions with their survivability in combat. Ingraham subsequently vetoed both Glassell's offer and command of a multi-boat force given Glassell's junior rank. In response, Glassell correctly asserted that Ingraham did not believe in "new-fangled notions," which the spar torpedo represented.[24]

Beauregard in contrast championed Glassell's initiative and provided him with Lee's rowboat armed with a fifty-pound spar torpedo. On the night of March 18, 1863, Glassell and five others rowed out and engaged the steamer *Powhatan*. One of his rowers panicked near the blockader and dropped their paddle. The frightened reaction prevented him from reaching the *Powhatan* and prematurely ended the attack. While their initial sortie proved unsuccessful, the potential existed for further torpedo attacks provided they could locate sufficient sailors and ships.[25]

Officials in Richmond meanwhile designed a larger naval offensive. Lt. William Webb arrived from Wilmington on February 19, 1863 with reinforcements and odd orders from Mallory. Webb's orders proposed a combined operation of rowboats armed with spar torpedoes and sailors stationed on nearby steamers. The sailors would board the monitors in groups of ten while the rowboats provided cover. Once on deck, the landing parties would cover the smokestacks and pilothouse with wet blankets. Deprived of ventilation, they would smoke out the sailors and capture the monitors. With orders in

hand, sailors under Webb and Dozier trained for the attack throughout February and March. Onboard the *Palmetto State,* Parker witnessed their preparation and observed, "it was not at all uncommon to see a sailor rolling down to his boat, where they were called for exercise, with a quid of tobacco in his cheek and a torpedo slung over his back; and when it is recollected that each torpedo had seven sensitive fuses…it can readily be believed that we gave him a wide berth."[26]

Although Mallory's February 19 orders emphasized capturing the Union monitors, on March 23 Webb informed Dozier that their primary effort would be the spar torpedo assault. For Webb, the boarding parties represented only a secondary contingency if the rowboat attacks failed. After Du Pont's failed April 7 sortie Beauregard also wanted to unleash the rowboats against the wounded monitors. He believed that the torpedo boats should attack in pairs after they departed from Cumming's Point near Morris Island. Upon ramming their torpedoes into the monitors, the boats would make for the nearest shoreline or return towards Cumming's Point. Operating under the new plan Tucker placed Parker from the *Palmetto State* in charge and gathered fifteen boats near the steamer *Stono*. On April 12, Tucker boarded the *Stono* before the ships departed and informed Parker the monitors had already departed for Port Royal or the Edisto River. Without any monitors outside the harbor, Tucker postponed their attack. Parker readily welcomed the cancellation. His rowboats were half-filled with water, and staffed with inexperienced crews. When he showed Tucker his deteriorating craft, Tucker's agreed with Parker's assessment that the torpedo boat attack "would have been a forlorn hope."[27]

Parker and Glassell soon pursued additional torpedo boat engagements. After they discovered Union monitors in the Edisto River, the two led a six-boat expedition comprised of squadron sailors and veterans from the *Powhatan* attack. Departing on May 10, army tugs towed the rowboats from the Ashley River to the North Edisto River through the intercoastal rivers that littered the South Carolina coastline. Parker and Brig. Gen. Johnson Hagood coordinated a combined engagement on the Edisto if the torpedo boats destroyed the monitors on May 12. As in April though Parker never received the opportunity. On May 11 the boats rowed into Bohicket Creek. That evening, one of Glassell's veterans jumped overboard. An enemy monitor picked up the deserter and leaked intimate knowledge about Confederate torpedo operations. With operational secrecy blown, Parker abandoned the attack. He placed the boats on mule-pulled wagons and hauled them towards the Stono with full colors flying.[28]

Torpedo boat assaults resumed amidst the Morris Island Campaign in August with an added financial incentive. John Fraser offered a bounty of $100,000 on August 13 if anyone sank the *Wabash* or *New Ironsides* and $50,000 for every destroyed monitor. One week after Fraser's offer, Lee's torpedo boat, the *Torch*, entered service under the command of Capt. James Carlin of the Confederate Navy. Carlin engaged the *New Ironsides*, but her used steam engine malfunctioned. Without her propulsion plant, he had to abandon his attack just yards from the blockaders. Regardless of these repeated failures, the continued interest in torpedo attacks showed squadron personnel desired activities that interrupted the monotony of daily harbor patrols.

The only successful torpedo boat attack against an ironclad thus occurred during the *David*'s maiden voyage on October 5, 1863. Armed with a sixty-five pound spar

torpedo, the *David* operated under Glassell's command with support from *David* builder and first officer Capt. Theodore Stoney as well as squadron engineer James Tomb. On October 5, Tomb and Glassell departed Charleston without Stoney and reached the *New Ironsides* around 8:30 PM. They rammed the spar torpedo into the *New Ironsides* six and a half feet beneath the surface. The resulting explosion caved in part of the ironclad's hull but also sent up a geyser of water that put out the torpedo boat's engines and jammed her steering. Glassell believed the *David* was sinking and ordered her abandonment. He and one other escaped but the two were soon picked up by a nearby blockader. Tomb also jumped overboard, but saw the *David* remained afloat. Tomb climbed back onboard and along with the pilot restarted the engine. The two returned to Charleston and found that the *David* had sustained minor harm from small arms fire but otherwise emerged relatively unscathed. The torpedo damage eventually forced the *New Ironsides* away from Charleston for repairs and Dahlgren realized what Charleston's defenders had built. He sensed the immense potential of the *David* with her low profile, speed, control, and explosive payload from the spar torpedo. Dahlgren, himself an expert inventor and weapons innovator, believed the Navy could no longer ignore torpedo warfare and recommended they immediately study these weapons for their own benefit.[29]

As previous discussed the *David's* successful attack sparked a wave of torpedo boat construction in Charleston. Stoney's Southern Torpedo Boat Company as well as army engineers all built craft for their own use while the Charleston Squadron operated the *David*. The resulting "torpedo-boat fever" in late 1863 and 1864 though did not achieve success. One reason is that Stoney and others did not have the trained crews for these vessels. The builders also could not locate sufficient materials to keep their ships

floating above water. As a result the men on board often met with abject failure. An April 1864 aborted attack also shows the shoddiness of these later torpedo boats. At this point the city had four operational torpedo boats; Tomb captained the *David* while the army controlled the other three. The four received orders on April 6 to destroy monitors stationed in the Edisto River. Upon reaching Mosquito Island, the army ships could not continue. Hull leakage prompted the return of two army boats towards Charleston while the third ran aground and sank. Now alone, the *David* unsuccessfully attacked the steamer *Wabash*. This was not the only missed chance by the *David* in early 1864. Between March 4 and 6 1864, Tomb twice tried engaged the warship *Memphis* in the North Edisto River. The first attempt on March 4 suffered due to malfunctioning ballast tanks, and during the second engagement the torpedo detonators failed after Tomb smashed his weapon two different times into the *Memphis*'s hull.[30]

The *Hunley's* sinking of the *Housatonic* on February 17, 1864 represented the sole army success, but even the *Hunley* revealed many of the same problems that plagued torpedo boat operators throughout the war. Beauregard twice raised the *Hunley* off the bottom of Charleston Harbor before Dixon assumed command. Although Dixon was in charge, he selected surplus sailors from onboard the *Indian Chief* to fill the remaining eight spots onboard. He trained the *Hunley's* third crew for over two months in Mount Pleasant across from Charleston on the Cooper River before they entered combat. After they departed Charleston in the early evening, Dixon attacked the closest blockader, the steamer *Housatonic*. Dixon successfully detonated a spar torpedo against the *Housatonic*'s hull. The explosion destroyed the *Housatonic* but the *Hunley* never returned to Charleston. Both Craig Symonds and Tom Chaffin have recently outlined many of the

scenarios behind why the *Hunley* possibly sank. Regardless of the reason, the submersible sank for a third and final time.[31]

Throughout these attacks, the ingenuity and daring expressed by Tomb, Glassell, and others could not overcome substantial mechanical failures onboard. Their rapid construction with unseasoned timber led to hull leakage when it warped and shifted due to prolonged water exposure. The used engine used onboard the *Torch* and *David* also contributed to their ineffectiveness. The torpedo boats built by the Southern Torpedo Company and other independent entities for the army could not sustain operational capabilities due to these construction flaws, since only the *David* saw prolonged service. Even the *David* suffered from constant mechanical issues. She partially flooded during her successful attack on the *New Ironsides*. When she rammed the *Memphis* in March 1864 she suffered a partial failure of her ballast tanks and damaged the smokestack. Durability became a crippling weakness for all of Charleston's torpedo boats.

* * *

Although participation in torpedo boat attacks emerged as a key alternative for harbor patrols, the Charleston Squadron engaged in other activities throughout the war. They helped seed the harbor with locally produced torpedoes from Gray, Rains, and other army manufacturers. While squadron personnel did not release these weapons themselves, they protected the soldiers and engineers who requested their support in these operations. After Rochelle arrived in Charleston in September 1863 to organize a small boat flotilla, Tucker informed him, "You will also afford all the protection in your power

to General Rains." Tucker's orders encouraged inter-service cooperation and also demonstrated the importance of deploying maritime obstructions. On December 28, 1863, John T. Elmore borrowed Launch No.1 from Rochelle so he could placing torpedoes in the Stono River. Rochelle again supported army operations on September 20, 1864. Now captain of the *Palmetto State*, he furnished an armed expedition of three launches filled with upwards of fifty men and six officers as cover when Capt. Fraser Matthews of the Confederate Engineers deployed torpedo mines between Sullivan's Island and Ft. Sumter. While Rochelle did not place a torpedo in the water, squadron sailors supported their deployment throughout Charleston's waterways.[32]

Torpedo warfare engaged many in the Charleston Squadron, but the adventure of blockade running also intrigued bored personnel. Officers eyed the recently acquired CSS *Stono*, the converted steamer captured on January 30, 1863 by Confederate land batteries on the Stono River. Although the Confederate Navy assumed control, sailor George Shyrock and others believed the craft possessed no military value. Eventually Mallory agreed about the *Stono*'s limited capabilities. In spring 1863 local officials prepared the *Stono* as a government controlled blockade runner under the command of Lt. Warley from the *Palmetto State*. Warley relished the mission since it provided him a chance to break the monotony of daily harbor patrols. Before he departed he received orders to Richmond to appear at a court of inquiry investigating New Orleans's capture. Rochelle subsequently replaced Warley onboard and took the *Stono* out on June 5. Rochelle's blockade running career lasted only hours. Spotted leaving Charleston, Rochelle ran aground and wrecked near Ft. Moultrie trying to evade the blockaders. Confederate

salvage crews saved much of the outgoing cotton and other freight onboard but the steamer could not be salvaged.

The *Stono*'s destruction though did not dissuade others in the squadron from pursuing blockade running on the side. Mallory refused Lt. George Bier's resignation when he desired adventure onboard an outgoing blockade runner in June 1863. The steamer *Juno* also drew significant attention. Originally a blockade runner, the Charleston Squadron pressed it into military service as an auxiliary patrol boat during the Morris Island Campaign. Although her crew captured a launch from the *Wabash* she possessed minimal military value. In 1864 the *Juno* resumed blockade running. Re-christened the *Helen*, she departed Charleston on March 9 with 220 bales of navy-owned cotton. The *Helen* drew her thirty-man crew from throughout the Charleston Squadron, including Porcher, who served as captain, and Acting Master Charles Tucker, Flag Officer Tucker's son. The *Helen* successfully evaded the blockade when she left Charleston, but on her second day out sank in a heavy storm with only two survivors.[33]

The routine inaction of the ironclads, combined with events elsewhere, nonetheless weighed upon the minds of many sailors in the squadron. On June 17, 1863, Cmdr. William Webb took the ironclad *Atlanta* out of Savannah but ran into the monitors *Nahant* and *Weehawken*. The subsequent fight lasted only minutes before Webb had to surrender. Writing three days after the *Atlanta*'s capitulation, engineer William Wald summed up the mood of many when he called Charleston a place of "solitude and desertion." Wald also noted the loss of morale when he referred to his fellow sailors as being at "the very least ebb now." By the end of the Morris Island campaign, however, spirits had rebounded as the squadron produced some positive results. On July 31,

Mallory forwarded Ingraham a letter from the French Government, thanking Ingraham for assistance rendered to the H I M S *Renaudin*, a steamer that grounded in Sullivan's Pass. The actions by Warley and the *Juno* in capturing Union launches, combined with the *Chicora*'s disruption of the Union landing on Fort Sumter, bolstered the squadron to the point where a newly arrived officer in late September commented that the squadron was in a "very efficient condition." At their lowest point just two months prior, the squadron's success in the Morris Island Campaign refueled their spirits for the rest of the war.[34]

* * *

Between October 1862 and February 1864, the ironclads and sailors of the Charleston participated in different operations throughout Charleston. These included nightly harbor patrols, battles against South Atlantic Blockading Squadron, torpedo boat operations, and blockade running. For many Civil War historians, the Charleston story ends after the *Hunley* sank the *Housatonic* with only a brief coda when the military evacuated Charleston in February 1865. James Rochelle's surviving letters help fill this historiographical gap. These documents not only reveal the key problem throughout 1864 that plagued squadron officers but also two new duties that Tucker assigned his sailors.

Prior to his command of the *Palmetto State*, Rochelle dedicated over twenty years of his life towards naval service. Born on November 1, 1826 in Virginia, he first received an appointment as an acting midshipman on September 9, 1841. A near twenty-year veteran, Rochelle sided with his native state when Virginia seceded and resigned his

appointment. Initially part of the Virginia Navy, he soon received a parallel position in the Confederate Navy at the rank of Lieutenant. He served as Capt. John R. Tucker's first officer on the gunboat *Patrick Henry* during the Battle of Hampton Roads before he received his own command onboard the gunboat *Nansemond* in the James River Squadron. Rochelle spent 1863 shuttling between Charleston and the James River Squadrons. He first replaced Warley onboard the *Stono* in June then returned to Richmond for most of the summer. He received a permanent assignment to Charleston in September when he organized a small boat squadron for harbor operations. On April 2, 1864 Rochelle received command of the *Palmetto State,* which he held until Charleston's evacuation in February 1865.[35]

Rochelle's letters powerfully reveal the increasing mechanical breakdowns Tucker's ironclads suffered throughout 1864, curtailing potential defensive operations. Given that the Engineering Department barely kept their torpedo boats afloat and the first ironclads featured untreated timber and used machinery, it is not surprising deficiencies emerged within the squadron. Rochelle's *Palmetto State* in particular faced significant leakage issues and boiler malfunctions from excessive use. On May 25, squadron engineers recommended the installation of new connections and flutes onboard the *Palmetto State*. After local mechanics crafted the requisite parts, squadron engineers believed that the ironclad required about eight weeks to complete all the repairs. Despite the severity of these problems, it took months for Charleston's shops to manufacture the boilers. Rochelle visited local foundries on July 7 to hasten production, but only on September 1, over three months after the initial survey, did the *Palmetto State* enter dry dock. Although the engineers quickly removed the boilers, the *Palmetto State* spent over

a month laid up before squadron engineers discovered a second major issue. On December 1, Chief Eng. J. J. Davey and First Lieutenant W. E. Evans of the *Charleston* rendered the ship's galley unusable due to prolonged heat exposure. The two recommended that the galley be condemned and another supplied in its place, which Tucker swiftly approved. By the end of 1864, the *Palmetto State* could only protect Charleston's dry docks.[36]

These issues extended beyond the *Palmetto State.* Every Charleston ironclad required substantial repairs throughout the war. The *Charleston* suffered leakage issues from untreated timber. While laid up in dry dock, McLeash repaired her decks. Bull also performed similar work on the *Chicora*. In March 1864, Eason repaired the *Chicora's* steam vales and donkey pump, which pumped water into the steam engine. The *David* also required significant upkeep. Eason's mechanics inspected her used steam engine, placed a new patch on the boiler, and serviced the smokestack. As noted in a previous chapter, Charleston businessmen submitted a minimum of 133 different pay vouches throughout the war for repairs on the Charleston Squadron, and most of these came in 1864. The increasing maintenance came from the byproduct of green-timber construction, used machinery, and the wear from daily harbor patrols.[37]

With the *Palmetto State* and other squadron ironclads increasingly laid up with repairs in 1864, Tucker reassigned his sailors as needed on different assignments. On September 3, for example, he transferred five from the *Palmetto State* for duty in Wilmington, North Carolina. He then seconded six more for service in the ordnance department on September 19. Rochelle provided the brand-new CSS *Pee Dee*, a gunboat built on the Pee Dee River near Georgetown, South Carolina, with three veterans to

augment her green crew. As noted in Chapter 4, Ingraham requested thirty sailors on October 10 so they could install cannon onboard the *Columbia*. Tucker maximized his available resources even with his ironclads requiring additional maintenance. [38]

This unfortunately also meant keeping a vigilant watch against deserters and preventing escapees from reaching Union lines. Desertion emerged as an increasing problem in the Confederate military throughout 1864. Many historians have addressed the flight of Confederate soldiers from the front lines, but the navy also suffered. Concerns over sailors abandoning their posts prompted the Office of Orders and Detail in Richmond to order all naval commanders to adopt on October 25, 1864 "the most stringent measures to stop desertions from the Navy." In response, Tucker ordered that vessels on nightly patrols place watch officers fore and aft to more easily observe their sailors and prevent their escape. He had good reason to worry. Charleston's coastal position meant his men could easily reach enemy lines and share vital intelligence about the squadron and their operations. On September 7, *Chicora* sailor Charles Harris notably jumped overboard while on patrol and swam to Morris Island. A forced conscript, Harris provided explicit details about the *Chicora* and the current status of the Charleston Squadron after he reached Union lines, right down to the amount of bread and beef sailors received as a daily ration.[39]

Harris was not the only deserter from the Charleston Squadron in the second half of 1864. Tucker sought additional deterrents and soon turned to the outbound blockade runners. He believed that inspecting all outgoing blockade runners provided additional protection against escaping sailors. On May 11, 1864, he informed his ironclad commanders that if they had any deserters, they should search all departing ships for

escapees. Yet written orders did not appear for another two months until he notified Rochelle on July 11, "the upper gunboat will overhaul all blockade runners going to sea examining the vessel closely to prevent any persons unauthorized from leaving the Confederacy. The officer overhauling will make his report alongside the flagship issued immediately after executing such duty." The flight of three sailors from the flagship *Charleston* on August 7 sparked new manhunts from squadron personnel, including officer-led examinations onboard all Charleston steamers. These searches soon became commonplace. If a ship wished to run the blockade, they notified Tucker before their departure. Tucker's ship captains then sent a junior officer and inspected the ship for any unauthorized personnel. Only after Tucker's men completed their task did the ship receive approval to attempt their escape. Tucker's October 3, 1864 orders reflected this practice. He notified Rochelle, "I am informed that the steamer *Kate Gregg* will attempt to go out tonight, possibly the other boats may attempt it also. You will be pleased to send an officer onboard the *Kate Gregg* at an early hour, and the other vessels if necessary, to overhaul her." Rochelle received at least twelve separate inspection requests between August and December 1864. These notifications covered at least thirteen ships, but only five departed on the night of their inspection. Using figures compiled by Stephen Wise, this represented about a quarter of the ships that successfully escaped Charleston. The surviving letters do not indicate why Rochelle received these assignments, but Tucker's July 11, 1864 memorandum suggests patrol locations influenced their dispersal.[40]

Perhaps the most important duty conducted by the Charleston Squadron in 1864 did not involve any ships whatsoever. In June, Tucker deployed his sailors as an auxiliary

Naval Infantry Brigade to bolster Confederate defensive lines on James Island. He ordered that his commanders select fifty men from their ships and provided infantry training, in case they were needed during the upcoming Union offensive. When Union forces attacked Confederate lines on James Island in late June and July 1864, Tucker officially organized the Naval Battalion on June 29 and pulled men from throughout the squadron for infantry service. Under Tucker's mandate Rochelle armed seventeen men from the *Palmetto State* with small arms and ammunition and landed them at Fort Johnson on July 2. The Naval Battalion reinforced Fort Johnson's defenses throughout the first week of July with 375 men under Lt. William G. Dozier. While on James Island, they helped repulse attacks on July 4 and at Battery Pringle on July 5. Fort Johnson commander Col. J. A. Yates thanked Tucker the day after the attack on Battery Pringle and proclaimed, "I am much obliged to you for the men sent last night. Do let me have all the men you can spare to-night and every night in the future until our troops sent from this post to the west lines are sent back to use." Rochelle's men landed at Fort Johnson throughout early July, while others from the *Palmetto State* manned the Sumter guard boat. Tucker's sailors therefore protected Charleston's land and sea approaches in the second half of 1864.[41]

* * *

After Gen. William T. Sherman took Savannah in December, he rested for a month before his soldiers marched into South Carolina. While Sherman remained in Georgia, Dahlgren and the Union kept up pressure against the Confederates. In doing so,

he lost one of his valuable monitors. On January 15, 1865, the *Patapsco* ran into a mine off Charleston and promptly sank with 62 of the 105 officers and crew onboard. Despite this setback, Dahlgren's blockaders prevented the Charleston Squadron and their underpowered warships from any possible escape. At this point Tucker could only count upon the *Charleston* and *Chicora.* The *Columbia* had suffered irreparable damage when she ran aground in January and the *Palmetto State* remained laid up with repairs. Fortifications on James Island blocked any direct assault from the coast, but could not prevent Sherman from taking Charleston via an interior campaign. This was a viable threat. During the American Revolution, the British captured Charleston from the rear after their ships penetrated and sealed off the harbor. When Sherman finally moved into South Carolina in early February, Charleston's demise seemed imminent.[42]

Sherman's march through the South Carolina interior rather than coastal conquest prompted Charleston's evacuation. On February 14, 1865 Beauregard informed Hardee that he should immediately abandon Charleston. Sherman's forces had entered Orangeburg, South Carolina, and with the continued advance Beauregard felt it prudent that their men should retreat northward. Hardee's illness prompted Beauregard to assume command of all forces in South Carolina and the city's evacuation on February 16. The next night, the city's remaining soldiers destroyed what they could before they departed Charleston. They burnt large piles of cotton stacked in public squares, destroyed a Blakely gun on the Battery, and blew up Battery Bee and the Northeastern Railroad Depot. While Charleston burned, the Confederate Navy scuttled their ironclads. Navy officers used twenty tons of gunpowder on the *Charleston* and lesser amounts on the remaining ironclads. Some reports claimed smoke in the shape of a palmetto tree formed

over the former ladies gunboat as the *Palmetto State* smoldered. As the sailors marched towards Richmond and Wilmington, the torched ironclads marked the end of the Confederate Navy in Charleston.

The next morning, the monitor *Canonicus* fired two shots at Ft. Sumter. When the fort did not reply, the sailors assumed that they abandoned the city. The race to be the first Union force into Charleston commenced. Soldiers from the 52nd Pennsylvania infantry, Third Rhode Island Artillery, and the 21st U. S. Colored Troops raced towards downtown in small boats, while craft from the *Canonicus* and *Gladiolus* steamed in despite the torpedo threat and occupied Charleston. Confederate torpedoes continued to plague Union steamers, however, even after Charleston's abandonment. The steamer *Bibb* sank on March 17, 1865 after she hit a torpedo while conducting surveys on the Charleston bar The *Massachusetts* also struck an underwater obstruction near the *Patapsco* wreck but escaped damage when the weapon did not detonate. After a careful inspection, Dahlgren's sailors discovered nine surviving *Davids* and seventy-seven torpedoes of various types throughout Charleston Harbor and the surrounding rivers. Dahlgren raised the *Columbia*, and towed her north as a prize. These surviving ships and torpedoes represented the remains of Charleston's naval defenses.[43]

The experiences of the Naval Battalion helped Charleston's naval officers after they evacuated the city on February 17, 1865. For the final two months of the war, Charleston's sailors served as auxiliary infantry. Rochelle led a detachment of sailors to Wilmington, North Carolina, where they temporarily anchored the Confederate right flank along the Cape Fear River. Soon after their arrival, Gen. Braxton Bragg abandoned Wilmington on the night of February 21-22. Rochelle then served as commandant of

midshipman for the Confederate States Naval Academy. When Confederate leadership evacuated Richmond in early April, the Naval Academy guarded the Confederate Treasury from Richmond to Abbeville, South Carolina. After army remnants assumed the protection detail, Mallory dismissed Rochelle and the other Academy officers. Tucker meanwhile brought the Naval Battalion to Richmond, where his 300 sailors manned the fortifications at Drewry's Bluff along the James River. Tucker's Naval Battalion held until April 3, after the James River Squadron burned their ships. Tucker's sailors joined Gen. Robert E. Lee's rearguard march towards Appomattox, and participated in the Battle of Sayler's Creek on April 6. Stationed on the Confederate right flank, the sailors fought in Gen. Custis Lee's division until they were compelled to surrender.[44]

* * *

Throughout its existence, the men of the Charleston Squadron and her predecessors were heavily involved with local defensive operations. Sailors manned the ironclads and guard boats that performed nightly harbor patrols. Tucker's men inspected outgoing blockade runners for any escapees, and formed a naval infantry battalion. Although the Squadron suffered from increasing mechanical defects and desertions, the sailors carried out any and all assignments from Flag Officers Ingraham and Tucker.

The various ironclad and torpedo boat operations throughout the war allow for a side-by-side comparison into their military effectiveness against the South Atlantic Blockading Squadron. Despite the motivation provided by Beauregard and the resources devoted towards building these ships throughout the second half of the war, the torpedo

boat in all of its iterations at most made a minimal contribution towards the local Confederate war effort. Beauregard's attempted monopolization of supplies, coupled with the failures of both the Army crews and the mechanical parts onboard these ships, rendered these experimental craft ineffective. If one includes the *Hunley*, all torpedo boat attacks only hit two Union blockaders: the steamer *Housatonic* and the *New Ironsides*. None of the army-staffed craft reached the Union blockaders. Although Army Lt. Dixon commanded the *Housatonic* when the submersible destroyed the *Housatonic*, Dixon relied upon squadron sailors to outfit the *Hunley*. This meant only navy-crewed vessels inflicted damage upon Dahlgren's warships. The ironclads, limited with their larger draft and worn machinery, achieved similar results in their sole engagement against the blockaders; they temporarily captured one steamer and crippled a second. The ironclads inflicted similar numerical damage as the vaulted torpedo boat.[45]

The ironclads moreover provided proven but limited offensive and defensive capabilities, as demonstrated when the *Chicora*'s repulsed the Fort Sumter landings. The threat of torpedo boat attacks placed fear in the minds of Union blockaders, but torpedoes themselves enjoyed their greatest effectiveness seeded throughout Charleston's watery approaches. Torpedo mines sank two vessels, including the monitor *Patapsco*, and damaged four other launches, transports, and the monitor *Weehawken*. Charleston's numerous fortifications inflicted significant punishment amongst the Union ironclads in April 1863, but their cannon only destroyed the *Keokuk.* From a strictly destructive perspective, the torpedo emerged as the Confederate military's best maritime defensive weapon throughout the war, but the ironclads proved their most versatile. Serving in both offensive and defensive roles, they held cannon that overwhelmed wooden steamers,

landing parties, and carried spar torpedoes after mid-1863. Although underpowered and mechanically faulty, the ironclads provided Beauregard and others the versatility neither the torpedo boat nor fortifications possessed.

Craig Symonds argued that despite the potential of the torpedo boats, they did not change the balance of power in Charleston. Symonds rightly blamed the problem on inter-service rivalries between different military branches over control of the program and the inability to find suitable machinery. While Confederate officials fought over the allocation of construction resources, by 1864 every new naval project originated outside of Navy jurisdiction. The shoddy quality of the Army and civilian built boats, coupled with their inexperienced crews, directly led towards their ineffectiveness. The only successful spar torpedo detonations against an enemy craft came from the *David*, manned by experienced Navy officers, and the *Hunley*, which succeeded after two fatal wrecks due to the extensive training of the sailors pulled from the *Indian Chief* by Army Lt. George Dixon. Had Beauregard and his successors placed the torpedo boats under Navy control, perhaps the torpedo boat attacks would have had a greater chance at inflicting damage on the blockaders.[46]

The ironclads nonetheless similarly suffered. Although the vessels demonstrated slightly more durability than the torpedo boats, they experienced substantial mechanical breakdowns. When Charleston fell in February 1865 Tucker only possessed two operational ironclads in the *Charleston* and *Chicora* if Dahlgren ran past the forts. The *Palmetto State* patrolled the Charleston dry docks and the recently finished *Columbia* sat disabled after she ran aground. The two *Milledgeville*-class ironclad remained in their shipyards awaiting iron plating that would never arrive due to the chronic iron scarcity

that plagued all shipbuilders. Tucker, Ingraham, and Beauregard had to rely upon outside craft to supplement the Charleston Squadron. The *Juno*, *Hunley*, and *David* all originated outside Charleston and these vessels inflicted damage upon Dahlgren's blockaders in 1863 and 1864. Shipbuilding issues not only diminished the impact of torpedo boat warfare within Charleston but also all Confederate naval operations within Charleston.

Ultimately the Charleston Squadron overcame policy conflicts, shipbuilding delays, and diminished operational capabilities and made significant contributions towards protecting Charleston Harbor. Her sailors manned the ironclads and torpedo boats that launched the attacks that inflicted damage upon the blockaders, and also served as an auxiliary infantry force that protected Fort Johnson in July 1864. The ironclads and patrol boats sat near Fort Sumter on their patrols while the sailors inspected outgoing blockaders for deserters. The training provided by Flag Officers Tucker and Ingraham ensured that only minimal accidents occurred under their watch, although when they occurred they were almost catastrophic in nature. Without the ironclads, Fort Sumter could have easily fallen on September 9, 1863, and without the sailors Beauregard's vaulted torpedo boats would not have inflicted the minimal damage on the blockaders. Combined with the static fortifications and the employment of watery obstructions, the Charleston Squadron ensured that the Union military never conquered the birthplace of secession while Confederate sailors and soldiers occupied their positions.

Conclusion

In 2009, Ross Thomson articulated the idea of the Civil Was as "the continuity of innovation." He looked at the process of technological growth and focused on three key developments: shoe mechanization, firearms, and petroleum. Thomson believed that pre-war industrial capabilities sustained Union innovations while a weaker industrial base stunted similar developments in the Confederacy. His argument rests upon the belief that the number of people involved in mechanical and technology-based industries facilitated wartime innovation.[1]

Thompson's idea can be applied to Confederate Charleston. Throughout the Civil War, Confederate military officers and Charleston civilian entrepreneurs continually devised new weapons, machines, and strategies in their four-year quest to keep the South Atlantic Blockading Squadron out of Charleston Harbor. Beauregard, Ingraham, Tucker and others constantly experimented with new weaponry and warships throughout the war. These included the ironclad, the Brooke rifle, underwater mines, torpedo boats, and the submersible *Hunley*. Most of these ideas had their genesis pre-war developments, but the machines and munitions crafted within Charleston directly impacted the Confederate war effort. Charleston also witnessed experimentation from the South Atlantic Blockading Squadron through the monitors, the one-off oceangoing ironclad *New Ironsides* outside the city, and the "torpedo catcher" utilized during the failed April 1863 monitor bombardment of Ft. Sumter.

From all of these weapons the Confederate Navy quickly decided on the casemate ironclad. These armored warships became Mallory's first priority as he built a navy from scratch. Established shipyards in Confederate cities and ad hoc facilities along rivers such

as the Neuse River in North Carolina built these craft. Although interest peaked after the Battle of Hampton Roads in March 1862, armored warships enjoyed substantial support throughout the war. John Porter's November 1864 report on Confederate naval construction noted twelve of the twenty-two projects underway within southern shipyards were ironclads. The casemate ironclad remained the dominant design amongst Confederate naval shipbuilders.[2]

South Carolinians provided limited support to Mallory's preferred design, however. Sue Geltzer only submitted her March 1, 1862 letter to start a gunboat subscription after the Charleston *Daily Courier* printed a series of pro-navy articles the previous week. The subsequent Charleston Ladies Gunboat Fund gathered subscriptions, conducted fundraisers, and organized patriotic concerts throughout South Carolina over a relatively brief ten-week period. The declaration of martial law soon curtailed gunboat fundraising in May since the newspapers had to focus attention on military events rather than ironclad contributions. South Carolina women only raised about $30,000, about ten percent of the total cost of an 1862 ironclad. Attempts at resurrecting a gunboat raffle one year later received minimal support. Gunboat fundraising sparked intense but ultimately brief desire amongst the South Carolina populace.[3]

Local shipbuilders also looked beyond the ironclad. As Ingraham and the South Carolina Gunboat Commission launched two armored warships in Charleston, others stepped forward with experimental submarine batteries in March and June 1862. Although these designs were rejected, the South Carolina Executive Council demonstrated a willingness to consider maritime alternatives provided one could locate sufficient resources. Interest in ironclad alternatives intensified after Beauregard returned

in September 1862. Beauregard repeatedly criticized the armored steamers and their limitations in combat. He instead wanted resources shifted towards Francis Lee's torpedo boat, a weapon he believed that could damage the iron-plated blockaders stationed outside Charleston Harbor. The search for ironclad alternatives launched independent projects within Charleston throughout 1862 and 1863. The *David*'s successful detonation of a spar torpedo against the *New Ironsides*' hull on October 5, 1863 sparked a wave of torpedo boat construction from independent businessmen and army engineers. Confederate Navy shipbuilders still worked on ironclads, but the army and independent interests increasingly pursued torpedo based weaponry. By 1864, torpedo boats numerically surpassed ironclads as the city's most sought after naval design.[4]

With the different ships and fortifications in Charleston how should Confederate officers have best secured the city's maritime defenses? Beauregard's 1861 goal to reinforce and supplement existing harbor batteries was a good first step. Charleston's cul-de-sac entrance allowed the harbor batteries to concentrate their firepower on incoming ships, unlike Port Royal, whose harbor mouth was too wide to prevent its capture in November 1861. Local fortifications also shielded squadron ironclads such as when the *Chicora* and *Palmetto State* sat underneath the guns of Fort Moultrie on January 31, 1863 until high tide allowed the ironclads to safely cross the bar. These defenses throughout the war proved their merit on multiple occasions throughout the war. Embattlements on James Island prevented the city's capture in June 1862 when they repulsed a Union assault at Secessionville. The failed offensive from Benham and Du Pont provided shipwrights time to finish the first two ironclads and Beauregard months to augment his defenses after he returned in September 1862. Beauregard's harbor fortifications then

demonstrated their strength on April 8, 1863 when they inflicted heavy damage on the seemingly impenetrable monitors. Union forces lastly highlighted their importance when the Morris Island Campaign targeted Battery Wagner and Ft. Sumter. The army fortifications still required naval support if they were to keep the South Atlantic Blockading Squadron outside the harbor.

It was the Confederate casemate ironclad that provided the Charleston Squadron with both an offensive and defensive capability. Local shipyards finished the city's first two ironclads, the *Chicora* and *Palmetto State* in 1862. They provided Ingraham and Tucker the requisite armored vessels for a successful maritime defense. The ships easily dispersed their wooden hulled adversaries on January 31, 1863 and unlike the torpedo boats also protected Fort Sumter and other batteries from further harbor incursions. Torpedo mines built by M. M. Gray, Gabriel Rains, and other army officers within Charleston further increased the danger to federal blockaders and monitors penetrating the outer harbor. By late 1863, the combination of strong harbor fortifications, ironclads, and torpedo obstructions turned Charleston Harbor into an impregnable fortress.

Charleston ultimately possessed the requisite tools for a successful defense but its defenders could not decide on how to best deploy their resources. The single greatest problem they faced throughout the entire war was an uncoordinated naval procurement program. Squadron officers, army engineers, state officials, and independent contractors all considered and launched multiple simultaneous shipbuilding projects throughout the war. The congested construction pipeline initially yielded the *Chicora* and *Palmetto State*, but further saturation from all involved parties delayed local projects that required increasingly scarce resources, especially iron plate. Beauregard's insistence on the

torpedo boat further muddled proceedings in November and December 1862. This brought about conflict between Lee and both the South Carolina Gunboat Commission and Charleston Squadron over labor and iron. Ingraham willingly provided assistance when he was able to but in Beauregard's mind local officials needed to funnel all available resources towards Lee's project. Beauregard rightly suggested consolidating resources, but only under the auspices of his torpedo boat. Relations over the torpedo boat thawed after Beauregard's departure and Tucker's promotion but by then independent shipwrights and army engineers had assumed most torpedo boat construction within the city.

What then should they have done? The use of green timber and worn machinery rendered the *Palmetto State* inoperable by late 1864 and would have left the overworked *Chicora* as the Charleston Squadron's sole operational ironclad. Charleston therefore required at least three ironclads to limit stress on the *Chicora* and *Palmetto State*'s worn machinery. Charleston shipwrights should have had at least one ironclad under construction throughout the remainder of the war. This could have allowed industrialists to utilize new steam engines from the Columbus Naval Iron Works and minimize strain on the city's increasingly scarce iron supplies. James Eason's experience building the *Chicora* and *Charleston* for the South Carolina Gunboat Commission meant that he served as a logical choice to continually build ironclads. Eason did in fact perform such a role within Charleston. After he finished the *Charleston* he assisted F. M. Jones with the *Columbia* in 1864 and the unfinished *Ashley*. Charleston's ironclad construction program depended upon Eason's foundry and mechanics.

While Eason concentrated on additional ironclads, the city's other shipyards could have focused on repairs and torpedo boat construction. Indeed if both James Marsh and Kirkwood & Knox had turned towards the torpedo boat after October 1862, Charleston would have possessed both suitable ironclads and adequately built torpedo boats Beauregard, Ingraham, and Tucker could then have unleashed them against the federal blockaders.

Charleston's continuity of innovation would have persisted under the auspices of the Confederate Navy. The *David* and *Hunley* demonstrated the potential of locally launched torpedo boat assaults, but shoddy construction from Stoney and army engineers crippled these potential weapons. When taken alongside the inexperienced personnel that operated these boats, most torpedo assaults met with failure before they reached their targets. The operational history of the Charleston Squadron demonstrated that the best possible chance for any maritime success rested with navy-operated vessels.

Local leadership and army-navy rivalries prevented this optimal scenario from playing out within Confederate Charleston. Beauregard's aggressive support towards the torpedo boat kept torpedo boat construction under army jurisdiction until November 1864. Rather than asking if Mallory would have local builders inaugurate these craft, Beauregard sent Lee to Richmond to secure navy support and supplies. Ingraham's conservative outlook also hindered naval experimentation. He dismissed the viability of the torpedo boat after he witnessed a failed experiment near Richmond in 1861, and rejected similar endeavors in 1862 and 1863. He provided some material support towards Lee's torpedo boat but his earlier experiences limited his involvement. Ingraham's successor Tucker proved more open towards ironclad alternatives. Under Tucker's watch

he and then departmental commander William Hardee proposed a naval board comprised of squadron torpedo experts to consider torpedo boat designs. The two though did not originate such a plan until November 1864, three months before Confederate forces evacuated Charleston. This prevented the torpedo boat board from having any notable impact on construction and naval operations.

The South Carolina state government also directly impacted naval policy and operations. Pickens' rapid disposal of steamers from the South Carolina coast police in mid-1861 deprived the city of possible assets. The *Juno*'s actions during the Morris Island Campaign demonstrated the viability of auxiliary steamers to supplement local ironclad patrols. The continued presence of one or two of these converted warships could have partially mollified the construction problems that plagued the city in 1862 and 1863 since Beauregard could then have used them rather than rowboats to try and attack the blockaders. The state also embarked on its own ship construction program through the creation of the South Carolina Gunboat Commission. Although they successfully built two of the city's four ironclads, they represented a fourth voice in the city's congested construction pipeline along with the navy, army, and independent consortiums such as the Ravenel-Ebaugh-Stoney partnership.

Material shortages directly impacted all of the maritime projects launched within Charleston. Both the ironclad and torpedo boat needed iron in various forms throughout their construction, resources Confederate industrialists did not possess. By November 1864 Confederate shipbuilders required 4,230 tons of iron plate to armor twelve partially finished warships in seven different locations The torpedo boats built by Lee and Stoney required substantially less iron but they similarly suffered. The insatiable iron thirst

delayed the construction of every Charleston warship. Construction difficulties extended beyond iron plate. Machinery shortages forced local shipbuilders to turn towards worn engines for the early warships. The urgent need for modern warships dictated local shipbuilders utilize recently cut timber for the hulls. The undried wood warped and shifted after prolonged exposure within Confederate waterways and resulted in hull leakage and other malfunctions onboard. This stripped Confederate warships of any durability. Army-built torpedo boats could not remain afloat. The *Palmetto State* increasingly spent time within local dry docks throughout 1864 due to mechanical defects. Charleston's maritime procurement policy not only impacted the construction process but the long-term viability of all local warships.[5]

The sailors of the Charleston Squadron overcame these and other issues throughout the Civil War and successfully protected Charleston Harbor against the federal monitors and blockaders offshore. Nightly patrols kept craft from penetrating the inner harbor and guarded Fort Sumter against invasion. These men served as sailors, soldiers, customs inspectors, and escorts for torpedo deployments. They carried out a series of attacks against the blockaders involving rowboats, torpedo boats, steamers, ironclads, and even a submersible. Squadron personnel overcame the conflicting procurement strategies, increasingly rundown warships and an ever strengthening enemy to prevent Charleston's capture. Charleston only fell on February 17, 1865 due to military evacuation rather than enemy conquest. The Charleston Squadron overcame material shortages and policy conflicts to successfully complete locally built ironclads. In doing so, the sailors of the Squadron protected Charleston Harbor with these warships until the

final months of the war and ensured the Confederate Navy “had done well its part” within the South Carolina low country.[6]

Appendix

Compiled List of Major Gunboat Contributions in 1862 Charleston Newspapers

Name/Group	Newspaper	Date Published	Contribution	Value
"Little Hennie"	*Daily Courier*	March 12	Two vases	$100
Elias B. Scott	*Daily Courier*	March 12	15 bales short staple cotton	$446.22 net proceeds after sold by William Gregg
"A Columbus Firm"	*Daily Courier*	March 13	Two Confederate Bonds	$100
Ladies Soldiers Relief Association	*Daily Courier*/*Mercury*	March 13	Contribution	$350
Mrs. A. P. S.	*Daily Courier*	March 14	Collection in Laurens, SC	$105.90
L. B. Haynes	*Daily Courier*	March 18	Cash	$100
"An Officer"	*Mercury*	March 21	Pay account for one month	$140
Holcomb's Legion	*Mercury*	March 21	Funds Collected	$1,967
Group Contribution	*Daily Courier*	March 21	From Branchville, SC	$110
C. H.. DeLormne	*Daily Courier*	March 22	One Bale of Cotton	Unstated
Steamer *Aid*	*Daily Courier*	March 22	Conditional Fundraising Pledge	$5,000 (unlikely ever donated)
A Daughter of Carolina	*Daily Courier*	March 24	Three vases	$100
P. H. Allen	*Daily Courier*	March 26	Five bales of Cotton	Unstated sale price
J. L. Gantt, Esq.	*Daily Courier*	March 26	Ladies' Contributions in Summerville, SC	$158.00
Octavia H. Moses	*Daily Courier*	March 26	Ladies' Contributions in Sumter, SC	$142.00

E. Mackay	*Daily Courier*	March 26	Contribution	$100
Edmund Ruffin	*Daily Courier*	March 28	Contribution	$500
Ladies	*Mercury*	March 28	From Allendale, SC	$125
Unstated	*Daily Courier*	March 29	Gold brooch set with five diamonds	$250
Miss F. Moork,	*Daily Courier*	March 29	From Coffin & Pringle	$100
Third patriotic Concert	*Mercury*	March 31	Net Proceeds	$522
Two Patriotic Concerts	*Mercury*	March 31	Combined Net Proceeds	$827.50
Gunboat Fair	*Mercury*	April 2	Net Proceeds, Lawtonville, SC	$111
Normal School Charleston	*Daily Courier*	April 2	Contributions from pupils	$100
Ladies	*Daily Courier*	April 3	Contribution from Yorkville, SC	$295
J. W. D.	*Daily Courier*	April 4	Proceeds from raffles of palmetto caps	$111
J. H. McIver	*Mercury*	April 7	Contribution from ladies in Cheraw, SC	$134.50
Adams, Frost, & Co.	*Daily Courier*	April 10	Net Proceeds from selling eight bales of cotton	$267.62
Ladies in Aiken, SC	*Daily Courier*	April 10	Proceeds from fair hosted by the Tea Party of the Ladies of Aiken	$181.00
Edward Mazyck	*Daily Courier*	April 10	Contribution	$100
Mechanics Bank, Augusta, Georgia	*Mercury*	April 11	One percent of capital stock	$5,000 (pledged)
Marion Men	*Mercury*	April 11	Contribution from men in Combahee, SC	$132.25

Martha Calhoun	*Daily Courier*	April 11	Contribution from ladies in Combahee, SC	$437
Citizens	*Daily Courier*	April 11	Contribution from Flat Rock, NC	$100
Ladies	*Daily Courier*	April 12	Contribution from Stateburg, SC	$100 and a piece of silver
Young Ladies	*Daily Courier*	April 14	Proceeds of a music festival	$100
Dr. James M. Burgess	*Mercury*	April 15	Two bales of cotton	Unknown
A. E. C.	*Daily Courier*	April 15	Contributions from ladies in Greenwood, SC	$125.35
P. W. Chick	*Daily Courier*	April 17	Bale of Cotton	Unknown
A Lady	*Daily Courier*	April 17	Contributions from ladies in Orangeburg, SC	$112.00
T. P. Lide	*Daily Courier*	April 18	One Bale of Cotton	Unknown
Mrs. Curtis Rhodes	*Daily Courier*	April 18	One Bale of Cotton	Unknown
Mr. S. B. Dewitt	*Daily Courier*	April 18	One Bale of Cotton	Unknown
Maggie D. Hill	*Daily Courier*	April 18	One Bale of Cotton	Unknown
Ann B Hill	*Daily Courier*	April 18	One Bale of Cotton	Unknown
Lon S Hill	*Daily Courier*	April 18	One Bale of Cotton	Unknown
C. McL. L.	*Daily Courier*	April 18	Collection from Society Hill, SC	$187
M. A. Huggins	*Daily Courier*	April 18	Five Bales of Cotton	Unknown
"S. J. H."	*Daily Courier*	April 18	Combined Proceeds	$112
Sumter Watchman	*Daily Courier*	April 21	Contribution	$110
Miss Clermont Gaillard	*Daily Courier*	April 23	Collection raised in Berkeley, SC	$164.20

Company 1, 12th Regiment SCV	*Daily Courier*	April 24	Collection raised at Camp Merrimac	$112
Ladies	*Daily Courier*	April 25	Collection raised in Unionville, SC	$110
Lt. J. P. Stoheck	*Daily Courier*	April 29	Collection from the Marion Artillery	$162.70
Group of individuals	*Daily Courier*	April 29	Contribution	$141
Cadet President J. S. Dutart	*Daily Courier*	May 2	Contribution from Citadel Academy, Charleston	$112
Dr. Joseph Palmer	*Daily Courier*	May 3	Net Proceeds of sale of five bales cotton	$470.80
Johnson Riflemen	*Daily Courier*	May 3	Contribution from officers and soldiers	$277
J. A. Bass	*Daily Courier*	May 3	Contribution	$100
Mrs. W. A. Latta	*Daily Courier*	May 3	Contribution	$100
Oak Grove Academy	*Mercury*	May 5	Students' Contribution	$101.05
Kate Eichelberger	*Daily Courier*	May 8	Set of Pearls	$350.00
James. L. Ganett	*Daily Courier*	May 8	Proceeds from fair held by Juvenile Sewing Society in Summerville, SC	$200
Hutton & Freligh	*Daily Courier*	May 9	Value of Subscriptions to *Southern Monthly*	$200
Ladies of Currytown	*Daily Courier*	May 12	Group Contribution	$149
Charleston Military Hall	*Daily Courier*	May 14	Net Proceeds from Tableau Vivants	$650.48
E. S. Themson	*Mercury*	May 19	Bale of Cotton	Unknown
A. R. Taber	*Mercury*	May 19	Bale of Cotton	Unknown

A. Frederick	*Mercury*	May 19	Bale of Cotton	Unknown
Miss H. M. Bane	*Mercury*	May 19	Bale of Cotton	Unknown
Mrs. and Miss Deveaux	*Mercury*	May 19	Bale of Cotton	Unknown
Martha S Harleston	*Daily Courier*	May 26	Group Contribution from Mars Bluff, SC	$158.50
Mrs. Peter P. Palmer	*Daily Courier*	June 19	Bale of Cotton	$104.00

Source: Data adapted from Charleston *Daily Courier*, March 3-June 30, 1862; Charleston *Mercury*, March 3-June 30, 1862.

Notes

Introduction

[1] James H. Rochelle, *Commonplace Book of James Rochelle*, 161, Rochelle Family Papers, Section 5, VHS.

[2] John Johnson, *The Defense of Charleston Harbor, Including Fort Sumter and the Adjacent Islands, 1863-1865* (Charleston: Walker, Evans and Cogswell, 1890), 3-5; E. Milby Burton, *The Siege of Charleston, 1861-1865* (Columbia: University of South Carolina Press, 1970); Stephen R. Wise, *Gate of Hell: Campaign for Charleston Harbor, 1863* (Columbia: University of South Carolina Press, 1994); *Glory*, directed by Edward Zwick (TriStar Pictures, 1989), Blu-Ray (Sony Pictures, 2013); Luis F. Emilio, *A Brave Black Regiment: The History of the Fifty-Fourth Massachusetts Volunteer Infantry 1863-1865* (Cambridge: Da Capo Press, 1995); Russell Duncan, *Where Death and Glory Meet: Colonel Robert Gould Shaw and the 54th Massachusetts Infantry* (Athens: University of Georgia Press, 1999); Martin H. Blatt, Thomas J. Brown, and Donald Yacovone (eds)., *Hope and Glory: Essays on the Legacy of the 54th Massachusetts Regiment* (Amherst: University of Massachusetts Press, 2009).

[3] Stephen Wise, *Lifeline of the Confederacy: Blockade Running During the Civil War* (Columbia: University of South Carolina Press, 2008); Patrick Brennan, *Secessionville: Assault on Charleston* (Campbell, California: Savas Publishing, 1996); Tom Chaffin, *The H. L. Hunley: The Secret Hope of the Confederacy* (New York: Hill and Wang, 2010; 2008); R. Thomas Campbell, *The CSS H.L. Hunley: Confederate Submarine* (Shippensburg, PA: White Mane Publishing, 1999); H. David Stone, Jr., *Vital Rails: The Charleston & Savannah Railroad and the Civil War in Coastal South Carolina* (Columbia: University of South Carolina Press, 2008); C. L. Bragg, Gordon A. Blaker, Charles D. Ross, Stephanie A. T. Jacobe, and Theodore P Savas, *Never for Want of Powder: The Confederate Powder Works in Augusta, Georgia* (Columbia: University of South Carolina Press, 2007).

[4] William Still, *Confederate Shipbuilding* (Columbia: University of South Carolina Press, 1987; Athens: University of Georgia Press, 1969); William Still, *Iron Afloat: The Story of the Confederate Armorclads* (Columbia: University of South Carolina Press, 1988); Raimondo Luraghi, *A History of the Confederate Navy* (Annapolis: Naval Institute Press, 1996); Gary Joiner, *Mr. Lincoln's Brown Water Navy: The Mississippi Squadron* (Lanham, Maryland: Rowman & Littlefield, 2007); William Roberts, *Civil War Ironclads: The U. S. Navy and Industrial Mobilization* (Baltimore: Johns Hopkins University Press, 2002). Other relevant and recent works that touch upon the subject include Spencer Tucker, *Blue and Gray Navies: The Civil War Afloat* (Annapolis: Naval Institute Press, 2006); James McPherson, *War on the Waters: The Union and Confederate Navies, 1861-1865* (Chapel Hill: University of North Carolina Press, 2012).

[5] Maxine Turner, *Navy Gray: Engineering the Confederate Navy on the Chattahoochee and Apalachicola Rivers* (Macon, Georgia: University of Mercer Press, 1999; Tuscaloosa: University of Alabama Press, 1988), 155, 177, 187, 205, 208; John Coski, *Capital Navy: The Men, Ships, and Operations of the James River Squadron* (Campbell: Savas Beatie, 2005). Other relevant books that address tangentially industrial efforts and naval development include but are not limited to Charles Dew, *Ironmaker to the Confederacy: Joseph R. Anderson and the Tredegar Iron Works* (New Haven: Yale University Press, 1966); Frank Vandiver, *Ploughshares into Swords: Josiah Gorgas and Confederate Ordnance* (College Station: Texas A&M University Press, 1994; University of Texas Press, 1950); Larry J Daniel and Riley W. Gunter, *Confederate Cannon Foundries* (Union City, Tennessee: Pioneer Press, 1977); Maurice Melton, *The Best Station of Them All: The Savannah Squadron, 1861-1865* (Tuscaloosa: University of Alabama Press, 2012).

[6] Drew Gilpin Faust, *Mothers of Invention: Women of the Slaveholding South in the American Civil War* (Chapel Hill: University of North Carolina Press, 1995), 23-26, 28-30, 266; Paul Lockhart, "The

Confederate Naval Squadron at Charleston and the Failure of Naval Harbor Defense," *American Neptune* 44, No. 4 (1984): 257-275; Ibid, 260; *Charleston Daily Courier*, March 3, 1865. Lockhart would have benefited from a wider source reading. He attributes the Ladies Gunboat Fund's origin to "an unknown lady" and credits the *Daily Mercury* with starting the fund, yet his footnotes clearly states he drew upon the *Charleston Daily Courier* for this information. Had he looked at the *Daily Courier* more closely, he would have realized that the March 3 newspaper contained the name of the "unknown lady," Summerville, South Carolina native Sue Geltzer. The accounts that he drew upon for the *Palmetto State*'s christening in October 1862 moreover prominently featured Geltzer. This represented two opportunities to bring "the unknown lady" into the light through sources he culled. Source issues aside, Lockhart's article nonetheless provides a start for further research, covering leadership and tactics but also technology and social issues as well. In *Mothers of Invention*, Drew Gilpin Faust focused on the *Charleston Mercury* for her source of information regarding the Ladies Gunboat Fund.

[7] Still, *Iron Afloat,* 112-127; Craig Symonds, *The Civil War at Sea* (Santa Barbara: Praeger, 2009); Francis J. Do Coin, "Assailing Satan's Kingdom: Union Combined Operations at Charleston," Craig Symonds (ed), *Union Combined Operations in the Civil War* (New York: Fordham University Press, 2012), 74-86; Luraghi, *A History of the Confederate Navy*, 50-52, 208-210, 246-249, 255-263, 304-5. Outside of the aforementioned books multiple publications have recently emerged from the History Press, which specializes in local and regional histories geared towards popular audiences. The downside of these books is that they possess a minimum of scholarly citations. This makes tracking down quotations and evidence within these books a difficult proposition.

[8] Charleston *Daily Courier*, February 27-March 3, 1862; Charleston *Mercury*, October 13, 1862; Walter J. Fraser Jr., *Charleston! Charleston!: The History of a Southern City* (Columbia: University of South Carolina Press, 1989);W. Scott Poole, *South Carolina's Civil War: A Narrative History* (Mercer: Mercer University Press, 2005), 130; Vanessa McNamara, "*19th Century Women's Benevolent Works in Charleston South Carolina*." MA Thesis, 2007, College of Charleston; Sara Eye Burrows, "'Left to our Fate': South Carolina Women During the Civil War and Reconstruction," Ph.D Diss., 2008, University of South Carolina; Margaret Carr, "The Ladies Gunboat CSS *Palmetto State*" *UDC Magazine* (October 2005): 34-37; Faust, *Mothers of Invention*, 28.

[9] Contract between J. M. Eason and James Chesnut, April 17, 1862, James Chesnut Papers, SCL; *Report of Evidence Taken Before a Joint Special Committee of Both Houses of the Confederate Congress, to Investigate the Affairs of the Navy Department* (Richmond, 1864), 448.

[10] Stephen Mallory, *Report of the Secretary of the Navy, November 5, 1864* (Richmond: 1864), 39-40.

Chapter 1

[1] Charleston *Mercury*, November 30, 1860. For works looking at South Carolina and secession see Lacy K. Ford, *Origins of Southern Radicalism: The South Carolina Upcountry, 1800-1860* (New York Oxford University Press, 1991); Stephanie McCurry, *Masters of Small Worlds: Yeoman Households, Gender Relations, and the Political Culture of the Antebellum South Carolina Low Country* (New York: Oxford University Press, 1997).

[2] Luraghi, *A History of the Confederate* Navy, 10-12; Craig L. Symonds, *The Civil War at Sea*, 8-10; Joseph T. Dunkin, *Confederate Navy Chief: Stephen R. Mallory* (Columbia: University of South Carolina Press, 1987), 62-83; Kurt Hackemer, *The U. S. Navy and the Origins of the Military-Industrial Complex* (Annapolis: Naval Institute Press, 2001), 22-27, 50-58. This was the first attempt at modernizing the Navy in the 1850s. The Navy received authorization for five new steam sloops in 1857, including the USS *Brooklyn* and USS *Hartford*. Both warships played a major role in Civil War naval operations.

[3] Luraghi, *A History of the Confederate Navy*, 13; Durkin, *Confederate Navy Chief: Stephen R. Mallory*, 134-148.

[4] John Coski, *Capital Navy*, 5-14. James H. Rochelle, *Life of Rear Admiral John Randolph Tucker* (Washington, D.C.: Neale Publishing, 1903), 9-15; Rochelle, *Commonplace Book of James Rochelle*, 192-194, Rochelle Family Papers, VHS; Melton, *The Best Station of them All*, 22-25.

[5] Rebecca Matzke, *Deterrence Through Strength: British Naval Power and Foreign Policy Under Pax Britannica* (Lincoln: University of Nebraska Press, 2011), 39-43.

[6] Frank J. Merli, *Great Britain and the Confederate Navy, 1861-1865* (Bloomington: Indiana University Press, 2004), 5-7; Matzke, *Deterrence Through Strength*, 52-63.

[7] *Official Records of the Union and Confederate Navies in the War of Rebellion (Washington, D.C., 1894-1914)*, II, 2: 67-69 (hereafter cited *ORN*); William N. Still, "Confederate Naval Strategy: the Ironclad," *Journal of Southern History* 27, No. 3 (August 1961): 331; Pay Warrants 58-61, 67-68, 71, 73, 74, and 85, *Register of Navy Pay Warrants, March 26, 1861-March 30, 1865*, RG 365, National Archives, College Park, Maryland. Mallory was not dissuaded by these initial failures. Mallory funneled an additional $1.5 million in early 1862 through the offices of Fraser, Trenholm & Company towards further European pursuits. These efforts eventually yielded the British-built commerce raiders *Florida*, *Georgia*, *Alabama*, and *Shenandoah*, which ravaged the Union merchant fleet from mid-1862 onward.

[8] John Majewski, *Modernizing a Slave Economy: the Economic Vision of the Confederate Nation* (Chapel Hill: University of North Carolina Press, 2009), 90, 129-130; Anne Kelley Knowles, *Mastering Iron: The Struggle to Modernize an American Industry, 1800-1868* (Chicago: University of Chicago Press, 2013), 187-9.

[9] John M. Brooke, "The Plan and Construction of the 'Merrimac,'" from Robert U. Johnson and Clarence C. Buel, eds., *Battles and Leaders of the Civil War* (New York: The Century Company, 1887-1888), I: 715-717; George M. Brooke, Jr., ed., *Ironclads and Big Guns of the Confederacy: The Journal and Letters of John M. Brooke* (Columbia: University of South Carolina Press, 2002), 22-25; Symonds, *The Civil War at Sea*, 21-23; Luraghi, *A History of the Confederate Navy*, 111-119.

[10] *ORN*, II, l 2:152, 779-780; Still, *Confederate Shipbuilding*, 10-11; Chester G. Hearn, *The Capture of New Orleans, 1862* (Baton Rouge: Louisiana State University Press, 1995), 73-79; Luraghi, *History of the Confederate Navy*, 125. The Western theater witnessed further naval experiments on both sides in 1861. In the North, James Eads and Samuel Pook designed and built the *City*-class ironclads, a group of riverine armored ships that formed the western gunboat flotilla. These vessels participated in Union offensives on the Mississippi and inland Confederate rivers beginning with Fort Henry and Donelson in February 1862. In New Orleans, shipbuilders placed an iron ram and armor onboard the tug *Enoch Train* and converted her into the CSS *Manassas*. Armed with one cannon, the *Manassas* was the first completed Confederate armored warship. Tennessee shipwrights also started the *Eastport* along the Tennessee River. The partially completed ironclad was captured by Union gunboats on February 7, 1862. The *Eastport* entered service later in 1862 as part of the Union western flotilla. The *Manassas* and *Eastport* are typically treated separately from the construction of the *Virginia, Mississippi, Louisiana, Tennessee*, and *Arkansas*.

[11] *ORN*, II, 1:550-552. 756, 760-761,779-783; Hearn, *The Capture of New Orleans, 1862*, 72-79.

[12] Brooke, *Ironclads and Big Guns of the Confederacy*, 22-25, Symonds, *The Civil War at Sea*, 21-23.

[13] Stephen R. Taafee, *Commanding Lincoln's Navy: Union Navy Leadership During the Civil War* (Annapolis: Naval Institute Press, 2009), xii.

[14] Isaac N. Brown, "The Confederate Gunboat *Arkansas*," *Battles and Leaders of the Civil War*, III: 371-378; Symonds, *The Civil War at Sea*, 130-145.

[15] Symonds, *The Civil War at Sea*, 17, 36-37; Melton, *The Best Station of them All*, 62; Still, *Iron Afloat*, 79-80; Coski, *A Capital Navy*, 26-27.

[16] Brooke to Warley, January 4, 1863, Subject File of the Confederate States Navy, 1861-1865 (National Archives Microfilm Publication M1091), Reel 7, Records of the Naval Records Collection of the Office of Naval Records and Library (RG 45), National Archives and Records Administration, Washington, D.C. (hereafter cited as M1091, NARA); Still, *Iron Afloat*, 94-95. Still rightly noted Confederate shipbuilders commonly built their casemate ironclads with a flat-bottom hull although others experimented with different concepts.

[17] Brooke, *Ironclads and Big Guns of the Confederacy*, 22-25; Still, *Iron Afloat*, 96-97; Rochelle to Minor, September 30, 1863, Minor Family Papers, Section 11, VHS.

[18] Brooke, *Ironclads and Big Guns of the Confederacy*, 22-25; Still, *Iron Afloat*, 96-97; Pay & Muster Roll, CSS *Palmetto State*, Quarter Ending June 30, 1863, T829, Miscellaneous Records of the U.S. Navy, 1789-1925, Reel 17, Record Group 45, NARA.

[19] Still, *Iron Afloat*, 100-104.

[20] Brooke, *Ironclads and Big Guns of the Confederacy*, 44-45; Brooke XI inch smoothbore cannon drawings, M1091, Reel 10, NARA; Catesby ap. R. Jones, Drawing of Brooke 6.4-inch and 7-inch rifles, M1091, Reel 10, NARA; Brooke to Jones, June 8, 1863, M1091, Reel 37, NARA; Van Zandt to Brooke, June 1, 1864, M1091, Reel 37, NARA.

[21] Drawing of Brooke Shells for 6.4-inch rifles and 7-inch rifles, M1091, Reel 10, NARA.

[22] Symonds, *The Civil War at Sea*, 15-18; Luraghi, *History of the Confederate Navy*, 55-62; Dew, *Ironmaker to the Confederacy*, 44-45, 115-119; Brooke, *Ironclads and Big Guns of the Confederacy*, 35-37, 44-45.

[23] Maxine Turner, *Navy Gray*, 159; Coski, *A Capital Navy*, 63-74; William N. Still, *The Confederate Navy: The Ships, Men, and Organization, 1861-1865* (Annapolis: Naval Institute Press, 1997), 55, 76-78; Mallory, *Report Submitted by the Confederate Secretary of the Navy*, 9, 44-45; Brooke, *Ironclads and Big Guns of the Confederacy*, 135, 195-198; *ORN*, II, 2:547-552; Seddon to Jones, August 24, 1864, M1091, Reel 37, NARA; Jones to Higgins, September 13, 1864, M1091, Reel 37, NARA.

[24] *ORN*, I, 13: 617; Tucker to Mitchell, April 1, 1863, Section 4, John K. Mitchell Papers, VHS; Augustine T. Smythe to Margaret Smythe, October 5, 1863, Augustine T. Smythe Papers, SCHS; Rochelle to Minor, August 4, 1864, Section 11, Folder 66, Minor Family Papers, VHS; Rochelle to Minor, September 30, 1863, Section 11, Folder 66, Minor Family Papers, Section 11, VHS. Rochelle recalled that Lt. Alexander Warley was temporarily removed on September 30, 1863 from his command on the *Palmetto State* due to being "broken down under the confinement and discomfort of an ironclad."

[25] Luraghi, *A History of the Confederate Navy*, 235-241; Timothy S. Wolters, "Electric Torpedoes in the Confederacy: Reconciling Conflicting Histories," *Journal of Military History* 72, No. 3 (July 2008), 770-771.

[26] Milton F. Perry, *Infernal Machines: The Story of Confederate Submarine and Mine Warfare* (Baton Rouge: Louisiana State University Press, 1965), 3-28; Coski, *Capital Navy*, 112-127; Scharf, *History of the Confederate States Navy*, 750-769; Luraghi, *A History of the Confederate Navy*, 239-243; Wolters, "Electric Torpedoes in the Confederacy," 772-774. Wolters' article sums up much of the historiographical debate over who deserves credit for torpedo deployment within the Confederate military, touching upon historians form J. Thomas Scharf's *History of the Confederate Navy* through recent analysis

from Luraghi and others. Wolters's analysis includes both secondary and primary sources, and builds off the historiographical questions Luraghi raised in *A History of the Confederate Navy*.

[27] *ORN*, I, 16:412-413; Luraghi, *A History of the Confederate Navy*, 235-245; Herbert M. Schiller (ed)., *Confederate Torpedoes: Two Illustrated 19th Century Works with New Appendices and Photographs* (Jefferson, North Carolina: McFarlane Press, 2011), 4-7, 25-29; Wolters, "Electric Torpedoes in the Confederacy," 770-773.

[28] *ORN*, I, 15:699-701; Luraghi, *A History of the Confederate Navy*, 181-216.

[29] Gideon Welles, *Report of the Secretary of the Navy In Relation to Armored Vessels* (Washington: Government Printing Office, 1864), 1-3; William H. Roberts, *Civil War Ironclads, 12-15*; Hearn, *The Capture of New Orleans, 1862*, 74-76.

[30] Welles, *Report of the Secretary of the Navy*, 4-7; Roberts, *Civil War Ironclads*, 16-17

[31] Welles, *Report of the Secretary of the Navy*, 10; Roberts, *Civil War Ironclads*, 18-24.

Chapter 2

[1] Charleston *Daily Courier*, October 13, 1862; Charleston *Mercury*, October 13, 1862.

[2] Charleston *Daily Courier*, October 13, 1862.

[3] Faust, *Mothers of Invention*, 28.

[4] Poole, *South Carolina's Civil War*, 130; Faust, *Mothers of Invention*, 28.

[5] P. C. Coker III, *Charleston's Maritime Heritage, 1670-1865* (Charleston: CokerCraft Press, 1987), 7-9; Jack Bass and W. Scott Poole, *Palmetto State: The Making of Modern South Carolina* (Columbia: University of South Carolina Press, 2009), 23; Emma Hart, *Building Charleston: Town and Society in the Eighteenth-Century British Atlantic World* (Charlottesville: University of Virginia Press, 2009), xvi-xxiii, 178-187. Frederick Ford, *Census of the City of Charleston, South Carolina, For the Year 1861* (Charleston: Evans and Cogswell, 1861), 9.

[6] *Manufactures of the United States in 1860: Compiled from the Original Returns of the Eighth Census* (Washington: United States Census Office, 1865), 553; Ford, *Census of the City of Charleston, South Carolina, For the Year 1861*, 8-10; Michael P. Johnson and James Roark, *Black Masters: A Free Family of Color in the Old South* (New York: W. W. Norton & Company, 1984), 173-178. For a detailed breakdown on Charleston's antebellum workforce see Ira Berlin and Herbert Gutman, "Natives and Immigrants, Free Men and Slaves: Urban Workingmen in the Antebellum American South," *The American History Review* 88, No. 5 (Dec. 1983): 1181-1185.

[7] Bernard Powers, *Black Charlestonians: A Social History, 1822-1885* (Fayetteville: University of Arkansas Press, 1994), 48, 62-66; Michael P. Johnson and James Roark, *Black Masters: A Free Family of Color in the Old South* (New York: W. W. Norton & Company, 1984), 169, 173-178, 184-187 265-269; David Gleeson, *The Green and the Gray* (Chapel Hill: University of North Carolina Press, 2012), 23-24; James Eason, Report on the Petition of Charleston Mechanics to the Committee on the Colored Population, January 21, 1861, S165015, 1861, 00090, SCDAH.

[8] David Detzer, *Allegiance: Fort Sumer, Charleston, and the Beginning of the Civil War* (New York: Harcourt, Inc., 2001), 2-7; Johnson, *The Defense of Charleston Harbor*, 9-20. For information about the British capture of Charleston in 1780 see Carl Borick, *A Gallant Defense: The Siege of Charleston, 1780* (Columbia: University of South Carolina Press, 2012).

[9] Coski, *A Capital Navy*, 82; Melton, *The Best Station of them All*, 119; Scharf, *History of the Confederate States Navy*, 726-727.

[10] Debra Reddin van Tuyll, "Knights of the Quill: A Brief History of the Confederate Press," in David B. Sachsman, S. Kittrell Rushing, and Roy Morris, Jr. (eds)., *Words at War: The Civil War and American Journalism* (West Lafayette, Indiana: Purdue University Press, 2008), 145-146; William C. Davis, *Rhett: The Turbulent Life and Times of a Fire-Eater* (Columbia: University of South Carolina Press, 2001), 505-506.

[11] Charleston *Mercury*, February 5, 1862, March 5, 1862; Charleston *Daily Courier*, February 5-6, 1862; Charleston *Daily Courier*, February 11, 1862; Charleston *Mercury*, March 5, 1862; Fraser, *Charleston! Charleston!*, 257-258.

[12] Charleston *Daily Courier*, December 12-14, 1861.

[13] Charleston *Daily Courier*, December 17, 1861; Charleston *Mercury*, December 27, 1861; Charleston *Mercury*, January 7, 1862; Charleston *Mercury*, January 22, 1862; Fraser, *Charleston! Charleston!*, 253-254.

[14] Charleston *Mercury*, January 8, 1862; William C. Davis, *Rhett: The Turbulent Life and Times of a Fire-Eater* (Columbia: University of South Carolina Press, 2001), 468-469, 474-475.

[15] Charleston *Daily Courier*, February 25-26, 1862.

[16] Charleston *Daily Courier*, February 27, 1862; Charleston *Daily Courier*, March 13, 1862.

[17] Charleston *Daily Courier*, March 3, 1862.

[18] 1860 U.S. census, Charleston County, South Carolina, population schedule, Charleston Ward 3, p. 251 dwelling 93, family 89, Theo and Josephine Cordes; digital image, Ancestry.com, accessed August 18, 2013, http://ancestory.com; Charles Cauthen (ed)., *Journals of the South Carolina Executive Councils of 1861 & 1862* (Columbia: South Carolina Archives Department, 1956), 88, 94; Charleston *Mercury*, February 27, 1862; Fraser, *Charleston! Charleston!*, 255-258.

[19] Mauguerite Couturier Steedman, *The Ladies Build a Gunboat* (Charleston: Sandlapper, 1968), 1; 1860 U.S. census, Colleton County, South Carolina, population schedule, St. Pauls Parish, p. 357,Thos & Sarah Gelzer; digital image, Ancestry.com, accessed August 18, 2013, http://ancestry.com.

[20] Charleston *Daily Courier*, March 3 1862.

[21] Ibid., March 4, 1862.

[22] Charleston *Mercury*, March 6, 1862; Charleston *Daily Courier*, March 5-8, 1862.

[23] William C. Davis, *Rhett: The Turbulent Life and Times of a Fire-Eater* (Columbia: University of South Carolina Press, 2001), 487, 503-504; Charleston *Mercury*, March 10-14, 1862.

[24]Charleston *Daily Courier*, March 5, 1862, Charleston *Mercury*, March 15, 1862; Charleston *Mercury*, March 17, 1862, March 31, 1862; Edward Harleston Edwards to his mother, March 25, 1862, Edward Harleston Edwards Papers, SCL.

[25] Charleston *Daily Courier*, March 3, 1862; Charleston *Daily Courier*, March 24, 1862.

[26] Tom Moore Craig (ed)., *Upcountry South Carolina Goes to War: Letters of the Anderson, Brockman, and Moore Families, 1853-1865* (Columbia: University of South Carolina Press, 2009), xiii-xv, xviii, 78-81; Charleston *Daily Courier*, April 4, 1862; Charleston *Daily Courier*, April 10, 1862.

[27] Charleston *Daily Courier*, April 4, 1862; Charleston *Daily Courier*, April 10, 1862; Charleston *Daily Courier*, April 16, 1862.

[28] Charleston *Daily Courier,* April 10, 1862.

[29] Charleston *Daily Courier*, March 6, 1862; Charleston *Daily Courier*, March 8, 1862; Charleston *Daily Courier*, March 10, 1862; Charleston *Mercury*, March 19, 1862. The *Daily Courier* informed their readers how these and other raffled were to be performed. The newspaper and other local businesses hosted the initial raffles. Readers could purchases raffle chances at these shops or directly mail the *Daily Courier* money for a ticket. Once the raffle was completed (say for example two hundred tickets) a raffle date was announced and would be conducted. In one contained they numbered the entrants in the order that they were received. In the second box they placed one hundred and ninety-nine blanks and one prize in the second box. They would then randomly draw one from each box in tandem until the prize slip was drawn.

[30] Charleston *Daily Courier*, March 17, 1862; Charleston *Daily Courier*, March 22, 1862; Charleston *Daily Courier*, March 25, 1862; Charleston *Daily Courier*, April 10, 1862; Charleston *Daily Courier*, April 16-17, 1862; Charleston *Daily Courier,* April 23, 1862; Charleston *Daily Courier,* May 7, 1862; Charleston *Mercury*, April 15, 1862.

[31] Charleston *Mercury*, March 19-21, 1862; Charleston *Mercury*, March 31, 1862; Charleston *Mercury,* April 10, 1862; Charleston *Mercury*, April 22-24, 1862; Charleston *Daily Courier*, April 10, 1862; Charleston *Daily Courier,* April 14, 1862; Charleston *Daily Courier*, May 12, 1862.

[32] Beverly Gordon, *Bazaars and Fair Ladies: The History of the American Fundraising Fair* (Knoxville: University of Tennessee Press, 1998), 30-31; Charleston *Daily Courier*, May 8, 1862; Columbia *South Carolinian*, April 10-11, 1862.

[33] Charleston *Daily Courier*, March 24-25, 1862.

[34] Charleston *Daily Courier*, April 2, 1862; Charleston *Daily Courier*, April 21, 1862; Charleston *Daily Courier*, May 7, 1862; Gordon, *Bazaars and Fair Ladies*, 96; Jeanie Attie, "Warwork and the Crisis of Domesticity in the North," in Catherine Clinton and Nina Silber (eds)., *Divided Houses: Gender and the Civil War* (New York: Oxford University Press, 1992), 247-259. For a more detailed look into the USSC and Union benevolence fairs, see Gordon, *Bazaars and Fair Ladies*, 59-116; Jeanie Attie, *Patriotic Toil: Northern Women and the American Civil War* (Ithaca: Cornell University Press, 1998); Nina Silber, *Daughters of the Union: Northern Women Fight the Civil War* (Cambridge: Harvard University Press, 2005); Judith Ann Giesberg, *Civil War Sisterhood: The U.S. Sanitary Commission and Women's Politics in* Transition (Boston: Northeastern University Press, 2000); Lacy K. Ford, *Origins of Southern Radicalism: The South Carolina Upcountry, 1800-1860* (New York Oxford University Press, 1991); Stephanie McCurry, *Masters of Small Worlds: Yeoman Households, Gender Relations, and the Political Culture of the Antebellum South Carolina Low Country* (New York: Oxford University Press, 1997).

[35] Charleston *Daily Courier*, May 3, 1862; Charleston *Daily Courier*, May 9, 1862; Charleston *Daily Courier*, August 16, 1862; Logbook, May 6, 1862, Marine School Ship Lodebar, SCL; Edmund Drago, *Confederate Phoenix: Rebel Children and Their Families in South Carolina* (New York: Fordham University Press, 2008), 92-93; Gordon, *Bazaar and Fair Ladies*, 97-99. While substantial in the scope of this fundraiser, this paled in comparison to a Columbia bazaar held in January 1865 that raised $350,000 for wounded soldiers.

[36] Charleston *Daily Courier*, August 29, 1862.

[37] Davis, *Rhett: The Turbulent Life and Times of a Fire-Eater*, 505-506.

[38] Charleston *Mercury*, April 2, 1862; Charleston *Mercury*, April 17, 1862; Charleston *Mercury*, April 24, 1862; Charleston *Mercury*, April 29, 1862; Charleston *Mercury*, May 3, 1862; Charleston *Mercury*, May 28, 1862.

[39] Charleston *Mercury*, March 21, 1862.

[40] Frank Byrne, *Becoming Bourgeois: Merchant Culture in the South, 1820-1865* (Lexington: University Press of Kentucky, 2006), 131-135.

[41] James Huston, *Calculating the Value of the Union* (Chapel Hill: University of North Carolina Press, 2003), 28.

[42] Charleston *Daily Courier*, March 20, 1862; Charleston *Daily Courier* March 24-27, 1862; Charleston *Daily Courier*, April 16, 1862.

[43] Faust, *Mothers of Invention*, 28-29.

[44] Mallory to Yeadon, August 18, 1862, Richard Yeadon papers, SCL; Charleston *Daily Courier*, August 29, 1862.

[45] Charleston *Daily Courier*, October 3, 1862; Charleston *Daily Courier*, December 9, 1862; Symonds, *The Civil War at Sea*, 156.

[46] Charleston *Daily Courier*, October 3, 1862; Charleston *Daily Courier*, October 11, 1862; Charleston *Daily Courier*, October 13, 1862; Charleston *Mercury*, October 13, 1862.

[47] Maxwell Orvin, *In South Carolina Waters, 1861-1865*, (Charleston: Nelson's Southern Printing & Publishing, 1961), 91, 96; Tomb, *Memoirs*, 30, James Tomb Memoirs, SHC; Charleston *Daily Courier*, May 7, 1863; Charleston *Daily Courier*, June 7, 1863.

[48] Charleston *Daily Courier*, June 15, 1863; Charleston *Daily Courier*, June 19, 1863; Charleston *Daily Courier*, June 25, 1863. When Yeadon unsuccessfully resurrected the Ladies Gunboat Fund in June 1863 South Carolinians instead supported aid for New Orleans refugees. Both the *Daily Courier* and *Mercury* championed the relief effort. Daniel Ravenel noted South Carolinians raised $37,667.60 between June 6 and June 23 for their Louisiana brethren. This meant New Orleans relief raised more money in three weeks than the Ladies Gunboat achieved in seven months of fundraising throughout the state.

[49] Charleston *Daily Courier*, May 6, 1862; Charleston *Daily Courier*, May 22, 1862; Charleston *Daily Courier*, July 19, 1862; Charleston *Daily Courier*, August 20, 1862.

[50] Charleston *Daily Courier*, October 13, 1862.

[51] Charleston *Daily Courier*, October 13, 1862; Charleston *Daily Courier*, December 19, 1862, March 13, 1863, April 29, 1863, May 7, 1863; George Rable, *Civil Wars: Women and the Crisis of Southern Nationalism* (Champagne: University of Illinois Press, 1991), 105; Drago, *Confederate Phoenix*, 95-99.

Chapter 3

[1] Charleston *Mercury*, August 10, 1861; Charleston *Mercury*, March 6, 1862; Davis, *Rhett: The Turbulent Life and Times of a Fire-Eater*, 506.

[2] Charleston *Mercury*, November 29-30, 1860; Charleston *Mercury*, December 2, 1860; Charleston *Mercury*, December 20, 1860; Coker III, *Charleston's Maritime Heritage, 1670-1865*, 182-184.

[3] Charleston *Mercury*, December 18, 1860; Pickens report, December 20, 1860, Coast Police Accounts and Vouchers Files, Folder 1, SCDAH; Detzer, *Allegiance*, 93-96, 108-122. The South Carolina legislature elected Francis Pickens as governor on December 16, and assumed the governorship the next

day. When South Carolina published their secession ordinance, Pickens had been governor for less than 100 hours.

[4] Charles Cauthen (ed)., *Jouranls of the South Carolina Executive Councils of 1861 & 1862* (Columbia: South Carolina Archives Department, 1956), 6, 16, 23, 530; *Journal of the Convention of the People of South Carolina, Held in 1860, 1861, and 1862, Together with the Ordinances, Reports, Resolutions, Etc.,* (Columbia, S.C.: R. W. Gibbes, 1862), 528.

[5] Melton, *The Best Station of them All,* 1-7, 13-20; Luraghi, *A History of the Confederate Nation,* 5-7; Cauthen, *Journals of the South Carolina Executive Councils*, 61.

[6] Cauthen, *Journals of the South Carolina Executive Councils,* 8, 13; W. M. Lawton to F. Pickens, January 10, 1861, Francis W. Pickens Papers, Rubenstein Library, Duke University, Durham, North Carolina.

[7] T. Harry Williams, *P. G. T. Beauregard: Napoleon in Gray* (Baton Rouge: Louisiana State University Press, 1955), 9-33, 38, 96-112. On September 11, 1847, Beauregard successfully lobbied Scott, his top subordinates, and his fellow engineers to shift their attack against Mexico City from the south. This allowed for a direct attack but traversed swamps where Scott's soldiers could not maneuver if Santa Anna's men opened fire from the heights, to the west, which provided greater roads but meant they would have to capture the strong fortress of Chapultepec. Within six days of Beauregard's suggestion, Scott stood in Mexico City as its conqueror. Beauregard's attitude and belief in that he was already right though sometimes ran him afoul of fellow military officers and politicians. This included President Davis after the Battle of First Bull Run in July 1861.

[8] Alfred Roman, *The Military Operations of General Beauregard* (New York: Da Capo Press, 1994), I:35-40; Burton, *The Siege of Charleston, 1861-1865,* 62-65.

[9] Burton, *The Siege of Charleston*, 62-65; Earl J. Hess, *Field Armies and Fortifications in the Civil War: The Eastern Campaigns, 1861-1864* (Chapel Hill: University of North Carolina Press, 2005), 242; Jennifer Zoebelein, "Charleston's Forgotten General: Roswell Sabine Ripley" (MA thesis, College of Charleston, 2008), 23-26.

[10] Burton, *The Siege of Charleston*, 78-93; Zoebelein, "Charleston's Forgotten General," 25-27.

[11] Burton, *The Siege of Charleston*, 92-98; Browning, *Success is All That was Expected*, 95-97.

[12] Brennan, *Secessionville*, 55-73; Burton, *The Siege of Charleston, 1861-1865,* 92-114; Du Pont to Fox, May 25, 1862, Robert Means Thompson and Richard Wainwright (eds)., *Confidential Correspondence of Gustavus V. Fox, Asst. Secretary of the Navy, 1861-1865* (New York: Naval History Society, 1918), I:120-127.

[13] Roman, *The Military Operations of General Beauregard*, II: 436-437; Johnston, *The Defense of Charleston Harbor*, 18-22. During the Ladies Gunboat Fund, one contributor raffled off a framed picture of Beauregard and gained thirty-six dollars. This picture represented the only known military portrait received or raffled during the height of South Carolina's gunboat fever and spoke to Beauregard's popularity within the state. For more information about the specific donation see Charleston *Daily Courier*, April 24, 1862.

[14] *ORN*, II, 1:325-6, 332-3, 342, 345-6.

[15] Charleston *Daily Courier*, August 26, 1861; Charleston *Mercury*, August 26, 1861; Robert Browning Jr., *Success is All that was Expected: The South Atlantic Blockading Squadron During the Civil War* (Washington: Brassey's, 2002), 19-20.; Mark Weitz, *The Confederacy on Trial: The Piracy and Sequestration Cases of 1861* (Lawrence: University Press of Kansas, 2005), 21-32.

[16] Craig Symonds, *Lincoln and His Admirals,* (New York: Oxford University Press, 2008), 37-47; Hearn, *The Capture of New Orleans, 1862*, 37-45. Symonds clearly depicts the legal and other ramifications from Lincoln's April 19, 1861 blockade declaration, including the international reaction from Great Britain.

[17] Symonds, *Lincoln and His Admirals*, 43-45; Weitz, *The Confederacy on Trial*, 78, 84-94, 161-162, 185-190, 195-198.

[18] Stephen Wise, *Lifeline of the Confederacy*, 46-55. Welles divided the Atlantic and Gulf Coasts into four separate areas: North Atlantic Blockading Squadron, the South Atlantic Blockading Squadron, the East Gulf Blockading Squadron, and West Gulf Blockading Squadron. Both Charleston and Savannah fell within the jurisdiction of the South Atlantic Blockading Squadron.

[19] Symonds, *The Civil War at Sea*, 64-65.

[20] Charleston *Mercury*, February 20, 1861.

[21] Dwaye to Pickens, November 4, 1861, Coast Police Report Files, Folder 2, SCDAH; Journal Entry, April 14-17, 1862, *Lodebar* (Marine School Ship) Records, 1850-1866, SCL; Cauthen, *Journals of the South Carolina Executive Council*, 72. Maxwell Orvin believed the *Petrel* did serve as a blockade runner. He argued that the departed Charleston on July 27, 1861, but was quickly discovered and destroyed by the USS *St. Lawrence*. He noted the *Petrel's* crew was subsequently captured by the *St. Lawrence* and were released from federal custody on August 8, 1862. Advertisements from March 1862 depict the schooner *Petrel* for sale in Charleston, however, and the Marine School Logs clearly note in April that they transferred operations from the *Lodebar* to the *Petrel*. For more information on other local blockade runners see Maxwell Orvin, *In South Carolina Waters, 1861-1865* (Charleston: Nelsons' Southern Printing and Publishing, 1961), 71-79.

[22] Melton, *The Best Station of them All*, 24-25.

[23] Ingraham to Lt. Wilburn B. Hall, April 21, 1862, Area File 8, Reel 414, Area File of the Naval Records Collection, 1775-1910 (National Archives Microfilm Publication M625), Records of the Naval Records Collection of the Office of Naval Records and Library (RG 45), National Archives Building, Washington, D. C.; Still, *Iron Afloat*, 81; Melton, *The Best Station of Them All*, 63, 142.

[24] John Cunninghan, "Committee on the Military, Report Rejecting a Resolution to Finance an Iron Clad Gunboat and Ram, December 12, 1861," SCDAH; Charleston *Mercury*, March 6, 1862; *Journal of the Convention of the People of South Carolina*, 313-314.

[25] *Journal of the Convention of the People of South Carolina*, 313-314, 612; Cauthen, *Journals of the South Carolina Executive Council*, 92, 117.

[26] *Report of Evidence Taken Before a Joint Special Committee of Both Houses of the Confederate Congress, to Investigate the Affairs of the Navy Department* (Richmond: 1864), 448; Cauthen, *Journals of the South Carolina Executive Council*, 123; Charleston *Daily Courier*, March 3, 1862.

[27] *Journal of the Convention of the People of South Carolina*, 612; Charleston *Daily Courier*, April 20, 1862; Mallory to Yeadon, August 12, 1862, Richard Yeadon Papers, SCL.

[28] *Journal of the Convention of the People of South Carolina, 612-613*; Cauthen, *Journals of the South Carolina Executive Councils*, 139; Contract between J. M. Eason and James Chesnut, April 17, 1862, James Chesnut Papers, SCL.

[29] Ingraham to Chesnut, March 31, 1862, S390008, Item 003, SCDAH.

[30] Cauthen, *Journal of the South Carolina Executive Council*, 213-214.

[31] Cauthen, *Journal of the South Carolina Executive Council*, 213-214, 248, 251; Charleston *Daily Courier*, October 13, 1862; Committee on the Military, Report and Resolutions Favoring a Plan to Purchase a Shot Proof Vessel of War with Details on tis Design, the Use of a Torpedo Boat and How the State Would Finance its Cost," SCDAH; John Johnson to his sister, August 26, 1862, John Johnson Papers, 1862-1906, SCHS.

[32] Beauregard to Tucker, September 24, 1862, Letters Sent, Department of South Carolina, Georgia, and Florida, 1862-1863, War Department Collection of Confederate Records, Record Group 109, National Archives and Records Administration, Washington, D.C. (hereafter cited as Letters Sent, Department of South Carolina, Georgia, and Florida, 1862-1863, RG 109, NARA); Jordan to Tucker, September 28, 1862, Letters Sent, Department of South Carolina, Georgia, and Florida, 1862-1863, RG 109, NARA; Beauregard to Ingraham, October 1, 1862, Letters Sent, Department of South Carolina, Georgia, and Florida, 1862-1863, RG 109, NARA; Beauregard to Pickens, October 8, 1862, Letters Sent, Department of South Carolina, Georgia, and Florida, 1862-1863, RG 109, NARA.

[33] Beauregard to Pickens, October 8, 1862, Letters Sent, Department of South Carolina, Georgia, and Florida, 1862-1863, RG 109, NARA.

[34] Beauregard to Pickens, October 8, 1862, Letters Sent, Department of South Carolina, Georgia, and Florida, 1862-1863, RG 109, NARA; Beauregard to Sass, October 11, 1862, Letters Sent, Department of South Carolina, Georgia, and Florida, 1862-1863, RG 109, NARA; Beauregard to Cooper, October 13, 1862, Letters Sent, Department of South Carolina, Georgia, and Florida, 1862-1863, RG 109, NARA; *The War of the Rebellion: A Compilation of the Official Records of the Union and Confederate Armies* (Washington, DC, 1880-1901), I, 14:672. (hereafter cited as *ORA*).

[35] *ORA*, I, 14:672.

[36] Beauregard to Sass, October 11, 1862, Letters Sent, Department of South Carolina, Georgia, and Florida, 1862-1863,War Department Collection of Confederate Records, Record Group 109, NARA; Special Order 191, October 13, 1862, Special Orders, Department of South Carolina, Georgia, and Florida Record Book, September 1862-December 1862, RG 109, NARA.

[37] *ORA*, I, 14: 670-672, 719; Beauregard to Cooper, October 13, 1862, Letters Sent, Department of South Carolina, Georgia, and Florida, 1862-1863, RG 109, NARA; Cauthen, *Journal of the South Carolina Executive Council*, 272, 290.

[38] Jordan to Harris, November 17, 1862, Letters Sent, Department of South Carolina and Georgia Letterbooks, 1862-1863, RG 109, NARA; Smith to Preston, November 18, 1862, Letters Sent, Department of South Carolina and Georgia Letterbooks, 1862-1863, RG 109, NARA; O'Brien to Eason, November 19, 1862, Letters Sent, Department of South Carolina and Georgia Letterbooks, 1862-1863, RG 109, NARA; Smith to Eason, December 22, 1862, Letters Sent, Department of South Carolina and Georgia Letterbooks, 1862-1863, RG 109, NARA; Special Order #251, Charleston, South Carolina, 1862, Special Orders, Department of South Carolina, Georgia, and Florida, September 1862-December 1862, RG 109, NARA. Beauregard to Sass, January 15, 1863, Letters Sent, Department of South Carolina and Georgia Letterbooks, 1862-1863, RG 109, NARA; Coski, *Capital Navy*, 89-110; Luraghi, *A History of the Confederate Navy*, 277; Still, *Iron Afloat*, 82, 116-117, 168-170,191-192; Symonds, *The Civil War at Sea*, 27-29.

[39] *ORA*, I, 14:906-7; *ORA*, I, 15:699-701; G. T. Beauregard, Remarks Related to Ironclad Gunboats, November 14, 1863, G. T. Beauregard Papers, 1862-1863, Library of Virginia, Richmond, Virginia.

[40] Williams, *Beauregard: Napoleon in Grey*, 28-33, 38.

[41] Scharf, *History of the Confederate States Navy*, 750-753; Luraghi, *A History of the Confederate Navy*, 246-247; Isaac N. Brown, "Confederate Torpedoes in the Yazoo," *Battles and Leaders of the Civil War*, 3:580. Prior to his arrival in Charleston, Isaac Brown commanded the ironclad *Arkansas* on the Yazoo and Mississippi Rivers. Brown also had under his control in Mississippi a local torpedo bureau staffed by Zedediah McDaniel and Francis M. Ewing. These men built underwater emplacements and other infernal machines when they mined the Yazoo River. In Charleston, Brown captained the Charleston Squadron flagship *Charleston*.

[42] Ebaugh to Campbell, October 4, 1892, William H. Campbell Papers, SCHS; Burton, *The Siege of Charleston, 219;* Ebaugh to Campbell, January 31, 1893, William H. Campbell Papers, SCHS; P. G. T. Beauregard, "Torpedo Service in the Harbor and Water Defenses of Charleston," *Southern Historical Society Papers* 5:152. Most primary sources from the time period, including Gabriel Rains' *Torpedo Book* and Beauregard and William Glassell's papers in the Southern Historical Society Papers on the *David* placed the length of the *David* in the twenty-five to thirty foot range. Burton, Luraghi, and Symonds however cited her size as fifty-four feet.

[43] Chaffin, *The H. L. Hunley*, 67-71; *ORN*, II, 1:399-400.

[44] Chaffin, *The H. L. Hunley*, 78-97.

[45] Ibid., 104-109, 112-117.

[46] *ORN*, I, 15:229-231.

[47] *ORN*, I, 15:710, 719.

[48] *ORN*, I, 16:459; *ORN*, II, 2:745; *ORA*, I, 28.2:504. 535, 573-4; *ORA*, I, 35.1:546-549.

[49] *ORN*, I, 16:410, 463; James Tomb, *Confederate Memoirs*, 48-50, 99-101, James Hamilton Tomb Papers #723, Southern Historical Collection, Louis Round Wilson Special Collections Library, University of North Carolina at Chapel Hill (hereafter cited as James Tomb Papers, SHC).

[50] *ORN*, I, 15:732-733; *ORN*, II, 2:745; Mallory, *Report of the Secretary of the Navy*, 38-40.

Chapter 4

[1] *ORA*, I, 14:514-517, 523-524.

[2] Mallory, *Report of the Secretary of the Navy*, 39.

[3] Tomb, *Confederate Memoirs*, 60-65, James Tomb Papers, SHC; *ORN*, I, 16:463.

[4] Pay Voucher #145 to James Eason, May 9, 1864, M1091, Reel 1, NARA; Paul Silverstone, *Warships of the Civil War Navies* (Annapolis: Naval Institute Press, 1989), 208.

[5] William Still, "Facilities for the Construction of War Vessels in the Confederacy," *Journal of Southern History* 31, No. 3 (August 1965): 289-293.

[6] Coker III, *Charleston's Maritime Heritage*, 46-47, 171-174; Testimony of James Marsh, U.S. Congress, 1st Session, 1833-34, House Report, No. 541, p. 19, May 13, 1833, Jane and William Pease Collection, Avery Research Center, College of Charleston.

[7] Commissioners for the Examination and Improvement of Charleston Harbor, Report on the Dredging of the Harbor, Recommending Deepening a Second Channel to Improve Shipping and Trade, SCDAH; Commissioners Appointed to Improve the Maffitt or Sullivan's Island Channel in Charleston

harbor, Report on the Success of the Contract with James M. and Thomas D. Eason to Dredge the Channel, SCDAH; Commissioners to Improve the Port of Charleston, Final Report, December 8, 1859," SCDAH; Coker, *Charleston's Maritime Heritage*, 185; Marsh Family Vertical File, Vertical File 30-04, SCHS. The Marsh family were Charleston's most notable antebellum shipwright. James Marsh Sr. first arrived in Charleston in 1798 as a foreman on the *John Adams*

[8] Coker, *Charleston's Maritime Heritage*, 86-89, 136-143; 162-168.

[9] *Manufactures of the United States in 1860: Compiled from the Original Returns of the Eighth Census* (Washington: United States Census Office, 1865), 553; Ernest Lander, "Charleston: Manufacturing Center of the Old South," *The Journal of Southern History* 26, No. 3 (August 1960): 331-332; Ernest Lander, "The Iron Industry in Ante-Bellum South Carolina," *The Journal of Southern History* 20, No, 3 (August 1954), 354-355.: Lander argued that the destruction of these shops represented a loss of between $250,000 and $300,000, or twenty percent from their 1855 capitalization.

[10] *Manufactures of the United States in 1860: Compiled from the Original Returns of the Eighth Census* (Washington: United States Census Office, 1865), 553; Frederick A. Ford, *Census of the City of Charleston, South Carolina, For the Year 1861* (Charleston: Evans & Cogswell, 1861), 9; Berlin and Gutman, "Natives and Immigrants, Free Men and Slaves: Urban Workingmen in the Antebellum American South,"1181-1187. Ernest Lander, "Manufacturing in South Carolina, 1815-1860," *The Business History Review* 28, No. 1 (Mar. 1954): 62; Lander, "Charleston: Manufacturing Center of the Old South," *Journal of Southern History* 26, No. 3 (Aug. 1960): 337, 341; Leonard Price Stavisky, "Industrialism in Ante Bellum Charleston;" *The Journal of Negro History* 36, No. 3 (Jul. 1951), 319.

[11] Lander, "Charleston: Manufacturing Center of the Old South," 332-333.

[12] William G. Thomas, *The Iron Way: Railroads, the Civil War, and the Making of Modern America* (New Haven: Yale University Press, 2011), 26-28, 216; Scott Nelson, *Iron Confederacies: Southern Railways, Klan Violence, and Reconstruction* (Chapel Hill: University of North Carolina Press, 1999), 20-23; Tom Downey, *Planting a Capitalist South: Masters, Merchants, and Manufacturers in the Southern Interior, 1790-1860* (Baton Rouge: Louisiana State University Press, 2006), 200-202.

[13] Alan Trelease, *North Carolina Railroads, 1849-1871 and the Modernization of North Carolina* (Chapel Hill: University of North Carolina Press, 1991), 21-22; Thomas, *The Iron Way*, 19-24; Aaron Marrs, *Railroads in the Old South: Pursuing Progress in a Slave Society* (Baltimore: Johns Hopkins University Press, 2009), 4-11; Downey, *Planting A Capitalist South*, 97; Kenneth Noe, *Southwest Virginia's Railroad: Modernization and the Sectional Crisis* (Urbana: University of Illinois Press, 1994), 43.

[14] William G. Thomas, "Historical GIS: The 1840-1845-1850-1861-1870 Railroad System in America, State, and National KML Files," Railroads and the Making of Modern American, http://railroads.unl.edu/resources (accessed November 18, 2013); Henry Gourdin to Robert Gourdin, December 7, 1853, in Philip N. Racine (ed)., *Gentlemen Merchants: A Charleston Family's Odyssey, 1828-1870* (Knoxville: University of Tennessee Press, 2008), 251.

[15] Racine, *Gentlemen Merchants*, xvi; Stone, *Vital Rails*, 36-39.

[16] Still, *Confederate Shipbuilding*, 31-46.

[17] Stone, *Vital Rails*, 48-49; John E. Clark, Jr., *Railroads in the Civil War: The Impact of Management on Victory and Defeat* (Baton Rouge: Louisiana State University Press, 2001), 21, 30-31.

[18] Robert C. Black III, *Railroads of the Confederacy* (Chapel Hill: University of North Carolina Press, 1953), 295; Still, *The Confederate Navy*, 98.

[19] Perry, *Infernal Machines*, 62; *Report of Evidence Taken Before a Joint Special Committee of Both Houses of the Confederate Congress to Investigate the Affairs of the Navy Department* (Richmond: Geo. P Evans, & Company, 1864), 448-449, 462-463; Contract #17, Register of Civil, Military, and Naval Contracts March 1861-November 1864, Book 68, Record Group 365, National Archives, College Park, MD. Most of these early contracts have been re-printed in *ORN*, II, 1.

[20] Rochelle to Minor, August 9, 1864, James H. Rochelle Papers, David M. Rubenstein Rare Book & Manuscript Library, Duke University, Durham, North Carolina (hereafter cited as James H. Rochelle Papers, Rubenstein Library).

[21] Charleston *Daily Courier*, March 22, 1862; Charleston *Mercury*, March 22, 1862; Charleston *Daily Courier*, April 22, 1862; Charleston *Daily Courier*, August 6, 1862; Charleston *Mercury*, April 22, 1862; Pay Voucher #120 to William Bird, January 30, 1863, M1091, Reel 1, NARA.

[22] Pay Voucher #76 to William Lucas, June 23, 1862, M1091, Reel 1, NARA; Pay Voucher #78 to J F Alderson, June 23, 1862, M1091, Reel 1, NARA; Pay Voucher to J F Alderson, July 22, 1862, M1091, Reel 1, NARA; Pay Voucher #199 to G. N. Ott, August 14, 1862, M1091, Reel 1, NARA; Pay Voucher to the South Carolina Railroad, January 8, 1863, M1091, Reel 28, NARA; Pay Voucher to South Carolina Railroad, April 30, 1863, M1091, Reel 28, NARA; Pay Voucher to South Carolina Railroad, September 26, 1863, M1091, Reel 28, NARA; Pay Voucher to South Carolina Railroad, March 4, 1864, M1091, Reel 28, NARA; Pay Vouchers #4, #5, and #7 to H. Williams, January 1, 1863, M1091, Reel 1, NARA; Pay Voucher #50 to H. Williams, January 19, 1863, M1091, Reel 1, NARA; Pay Voucher #196 to H. Williams, March 1, 1863, M1091, Reel 1, NARA; Pay Vouchers #53 and #55 to J. F. Addison, January 23, 1863, M1091, Reel 1, NARA; Pay Voucher to J. F Addison, August 21, 1863, M1091, Reel 1, NARA; Pay Voucher #169 to John Jennings, May 14, 1863, M1091, Reel 1, NARA; Pay Vouchers #377 and #378 to John Jennings, September 29, 1863, M1091, Reel 1, NARA; Pay Voucher #169 to John Jennings, August 14, 1863, M1091, Reel 1, NARA.

[23] *ORN*, I, 15:697, 732; Mallory, *Report of the Secretary of the Navy*, 39.

[24] Pay Voucher to Archibald McLeash, February 13, 1864, M1091, Reel 8, NARA; Pay Voucher #66 to Archibald McLeish, October 14, 1864, M1091, Reel 8, NARA; Pay Voucher to Edwin Bull, January 25, 1864, M1091, Reel 8, NARA; Pay Voucher to J. M. Eason & Brother, April 6, 1864, M1091, Reel 8, NARA.

[25] *ORA*, I, 28.2:525, 573-574; Tomb, *Memoirs*, 99-100, James Tomb Papers, SHC.

[26] Still, *Confederate Shipbuilding*, 48; *ORA*, I, 14:590-591.

[27] Marine Battery Commission Report, November 25, 1864, SCDAH.

[28] Pay Voucher #16 to Jason G Holmes, May 17, 1862, M1091, Reel 1, NARA; Pay Voucher #6 to Edmund L. Yates, May 12, 1862, M1091, Reel 1, NARA; Cauthen (ed)., *Journals of the South Carolina Executive Councils of 1861 & 1862*, 211; *ORA*, I, 14:694, 719. These searches extended beyond iron to other metal as well. Confederate Ordnance Officer W. G. Eason placed an advertisement in both the *Daily Courier* and *Mercury* on March 14, 1862 to locate surplus lead.

[29] Pay Voucher to Scofield and Markham, May 7, 1862, M1091, Reel 1, NARA; Scofield & Markham to Mallory, May 14,1 862, M1091, Reel 1, NARA; Mallory to Scofield, May 17, 1862, M1091, Reel 1, NARA; Pay Voucher, Scofield & Markham, January 10, 1863 and May 16, 1863, M1091, Reel 1, NARA; Ingraham to Levy, August 18, 1862, M1091, Reel 1, NARA.

[30] Pay Voucher #64, June 18, 1862, M1091, Reel 1, NARA; Pay Voucher #174, August 6, 1862, M1091, Reel 1, NARA; Pay Voucher to Henry Williams, September 1, 1862, M1091, Reel 28, NARA; Pay Voucher #5, January 1, 1863, M1091, Reel 1, NARA; Pay Voucher, South Carolina Railroad, January 8, 1863, M1091, Reel 28, NARA; Pay Voucher, South Carolina Railroad, April 30, 1863, M1091, Reel 28,

NARA; Pay Voucher #271, September 4, 1862, M1091, Reel 1, NARA; Pay Vouchers, Southern Express Company, March 2 and May 2, 1864, M1091, Reel 28, NARA. Williams hauled scrap iron from Cameron & Company to the South Carolina Railroad Depot. The SCRR then shipped the iron towards Augusta, Georgia. This had previously occurred on July 31, 1862, when 7,140 bars of railroad iron departed Confederate naval suppliers in Charleston towards Augusta. The iron might have been shipped to Atlanta so Scofield & Markham could manufacture 2" iron plate.

[31] Pay Voucher #47 to Archibald McLeash, June 12, 1862, M1091, Reel 1, NARA; Pay Voucher #123 to Archibald McLeash, August 11, 1864, M1091, Reel 7, NARA; Pay Voucher #126 to Archibald McLeash, August 11, 1864, M1091, Reel 1, NARA.

[32] Pay Voucher #260, September 26, 1862, M1091, Reel 1, NARA; Pay Vouchers #119 and #120, December 5, 1862, M1091, Reel 1, NARA; Pay Voucher #510, October 26, 1862, M1091, Reel 1, NARA; Pay Voucher to E. Bull, October 25, 1862, M1091, Reel 1, NARA; Pay Voucher to E. Bull, February 11, 1863, M1091, Reel 10, NARA; Pay Voucher #520 to Cameron & Company, October 22, 1862, M1091, Reel 1, NARA; Pay Voucher #278 to Cameron & Company, September 5, 1862, M1091, Reel 1, NARA; Pay Voucher #23 to Cameron & Company, October 31, 1862, M1091, Reel 1, NARA.

[33] Johnson & Roark, *Black Masters*, 266-267; Pay Voucher #9 to J M Eason & Brother, March 20, 1863, M1091, Reel 7, NARA; Pay Voucher #269 to J. M. Eason, December 9, 1863, M1091, Reel 7, NARA; Pay Voucher #145 to J. M. Eason, May 9, 1864, M1091, Reel 1, NARA; Ingraham to Myers, November 25, 1863, M1091, Reel 1, NARA; Pay Vouchers to J. M. Eason & Brother, April 26, 1864, M1091, Reel 1, NARA; Pay Voucher #338 to J. M. Eason, September 19, 1864, M1091, Reel 1, NARA; Pay Voucher #342 to J. M. Eason & Brother, September 20, 1864, M1091, Reel 7, NARA; Pay Vouchers #175 and #176 to J. M. Eason, November 10, 1864, M1091, Reel 1, NARA.

[34] Pay Voucher #5 to H. Williams, January 1, 1862, M1091, Reel 28, NARA; Pay Voucher #130 to Cameron and Company, November 30, 1862, M1091, Reel 1, NARA; *ORA*, I, 14:671; Pay Voucher #9 to J. M. Eason, March 20, 1863, M1091, Reel 7, NARA; Pay Voucher #213 to J. M. Eason, November 18, 1864, M1091, Reel 7, NARA; Pay Voucher #192 to J. M. Eason, August 20, 1863, M1091, Reel 10, NARA; Pay Voucher #193 to J. M. Eason, August 20, 1863, M1091, Reel 10, NARA; Pay Voucher #15 to J. M. Eason, July 6, 1864, M1091, Reel 10, NARA; Pay Voucher #42 to J. M. Eason & Brother, October 7, 1864, M1091, Reel 10, NARA; Pay Voucher #109 to H. Williams, October 16, 1862, M1091, Reel 10, NARA; Pay Voucher #29 to James M. Eason, February 16, 1863, M-346, Reel 272, Confederate Papers Relating to Citizens or Business Firms, 1861-1865, Record Group 109, NARA; Pay Voucher to James Eason & Brother, August 21, 1863, M1091, Reel 10, NARA.

[35] Pay Voucher #53 to J. Brandt, June 14, 1862, M1091, Reel 1, NARA; Pay Voucher #160 to J. Brandt, August 2, 1862, M1091, Reel 1, NARA; Pay Voucher #295 to Burke & Hatch, March 14, 1864, M1091, Reel 8, NAB; Pay Voucher #174 to Burke & Hatch, March 4, 1863, M1091, Reel 8, NARA; Pay Voucher #20 to Charleston Gaslight Company, January 6, 1863, M1091, Reel 1, NARA; Pay Voucher #77 to Charleston Gaslight Company, April 23, 1863, M1091, Reel 1, NARA; Pay Voucher #96 to Charleston Gaslight Company, April 24, 1863, M1091, Reel 1, NARA.

[36] Dew, *Ironmaker to the Confederacy*, 127-129, 132; Brooke to Jones, June 8, 1863, M1091, Reel 37, NARA.

[37] Hudgins to Anderson, August 16, 1862, Box-Folder 180, Series V, Tredegar Iron Works Records, 1801-1957, Business records collection, The Library of Virginia, Richmond, Virginia (hereafter cited Series V, Tredegar Records, LVA); Sales Book, Foundry, November 1860-November 1868, page 320, 322, 332. 357, Sales Book, Box-Folder 184, Series V, Tredegar Records, LVA; Order for Duncan Ingraham, July 23, 1864, Sales Book, Box-Folder 184, Tredegar Records, LVA; Ingraham to Guy, September 9, 1863, M1091, Reel 10, NARA; Jones to Gonzalez, September 8, 1864, M1091, Reel 37, NARA; Jones to Maury, December 1, 1864, M1091, Reel 37, NARA; Gun Order for Ingraham, November 16, 1864, Volume 6, Letters Sent by the Naval Gun Foundry and Ordnance Works at Selma, Alabama, Record Group 45, NARA.

[38] Still, *Confederate Shipbuilding*, 38-39; Still, "Facilities for the Construction of War Vessels in the Confederacy," *Journal of Southern History* 31, No. 3 (August 1965), 297-298; Scharf, *History of the Confederate Navy*, 687-96; Silverstone, *Warships of the Civil War Navies*, 238, 240; Still, *The Confederate Navy: The Ships, Men, and Organization, 1861-1865* (Annapolis: Naval Institute Press, 1997), 66, 77-78.

[39] Still, *Confederate Shipbuilding*, 38; Maxine Turner, *Navy Gray*, 158-159, 164, 166.

[40] Anne Kelley Knowles, "Labor, Race, and Technology in the Confederate Iron Industry," *Technology and Culture* 42, No. 1 (Jan. 2001): 4-5; Pay Voucher to Scofield & Markham, August 1, 1862, M1091, Reel 1, NARA; Dew, *Ironmaker to the Confederacy*, 176-178, 265-268, 278.

[41] Dew, *Ironmaker to the Confederacy*, 238-241; L. Diane Barnes, *Artisan Workers in the Upper South: Petersburg, Virginia, 1820-1865* (Baton Rouge: Louisiana State University Press, 2008), 108, 164-165

[42] *ORN*, II, 2:547-552. Jones to Brooke, March 2, 1864, M1091, Reel 37, NARA; Jones to Ramsay, August 20, 1864, M1091, Reel 37, NARA; Jones to Brooke, August 20, 1864, M1091, Reel 37, NARA; Jones to Pettit, September 22, 1864, M1091, Reel 37, NARA; Jones to Brooke, August 15, 1864, M1091, Reel 37, NARA; Jones to Farrand, September 26, 1864, M1091, Reel 37, NARA.

[43] McLaughlin to Jones, November 15, 1864, M1091, Reel 37, NARA; *ORA*, I, 14:844.

[44] *ORA*, I, 14:664-665, 694, 719, 1017-1018; Perry, *Infernal Machines*, 67-68.

[45] *ORA*, I, 14:686-687; Symonds, *The Civil War at Sea*, 159.

[46] *ORA*, I, 14:600, 616-7, 722.

[47] Jones to Brooke, March 14, 1864, M1091, Reel 37, NARA; Jones to Hunt, June 15, 1864, M1091, Reel 37, NARA; Dew, *Ironmaker to the Confederacy*, 179-181, 221; Foundry Sales Book, 1860-1867, 332-362, Box-Folder 184, Series V, Tredegar Records, LVA.

[48] Dew, *Ironmaker to the Confederacy*, 238-241; L. Diane Barnes, *Artisan Workers in the Upper South: Petersburg, Virginia, 1820-1865* (Baton Rouge: Louisiana State University Press, 2008), 108, 164-165; Anne Knowles, *Mastering Iron: The Struggle to Modernize an American Industry, 1800-1868* (Chicago: University of Chicago Press, 2013), 187-189; Jones to Brooke, May 14, 1862, M1091, Reel 37, NARA. For different perspectives on southern labor in the late antebellum period and during the Civil War, see Berlin and Gutman, "Native and Immigrants, Free Men, and Slaves: Urban Workingmen in the Antebellum American South; Barnes, *Artisan Workers in the Upper South;* John Majewski, *Modernizing a Slave Economy: the Economic Vision of the Confederate Nation* (Chapel Hill: University of North Carolina Press, 2011); David Gleeson, *The Green and the Gray: The Irish in the Confederate States of America* (Chapel Hill: University of North Carolina Press, 2013; Michael D. Thompson, *Working on the Dock of the Bay: Labor and Enterprise in an Antebellum Southern Port* (Columbia: University of South Carolina Press, 2015). The Shelby Iron Company also faced labor shortages. Dependent upon slave labor, Shelby's managers searched for workers in Alabama, Mississippi, and Tennessee with mixed results. They even faced charges from Lt. P. L. Griffiths in Talladega, Alabama, who believed Shelby's managers did not properly report hires and even harbored a deserter. For more information on Shelby's labor situation see Knowles, "Labor, Race, and Technology in the Confederate Iron Industry," 17; Knowles, *Mastering Iron*, 199-203.

[49] *Journals of the South Carolina Executive Councils of 1861 and 1862*, 105; W. Scott Poole, *South Carolina's Civil War: A Narrative History*, 53-54; Drew Gilpin Faust, *James Henry Hammond and the Old South: A Design for Mastery* (Baton Rouge: Louisiana State University Press, 1982), 368-370; Charles Cauthen, *South Carolina Goes to War, 1860-1865* (Columbia: University of South Carolina Press, 2005), 147-149, 164-177; *Journal of the Senate of South Carolina, Being the Sessions of 1862* (Columbia:

Charles Pelham, 1863), 10-11, 42-43; List of Slaves Received to Work on Fortifications at Charleston, South Carolina, E-672, Inventory of the Naval Records Collection of the Office of Naval Records and Library, Record Group 45, NARA, Washington, DC. The slave shortages prompted Beauregard's chief of staff Thomas Jordan to directly lobby slave owners for 3,000 slaves in February 1863. For more information see Racine, *Gentlemen Merchants*, 570-571; *Journal of the Senate of South Carolina, Being the Sessions of 1863* (Columbia: Charles Pelham, 1863), 10-11, 42-43; Cauthen, *South Carolina Goes to War*, 164-177.

[50] Ingraham to Pemberton, July 15, 1862, Department of South Carolina and Georgia Collection, Eleanor S. Brockenbrough Archives, Museum of the Confederacy, Richmond, Virginia (hereafter cited as Brockenbrough Archives, MOC); Ingraham to Pemberton, August 26, 1862, Department of South Carolina and Georgia Collection, Brockenbrough Archives, MOC; Eason letters, Department of South Carolina and Georgia Collection, Brockenbrough Archives, MOC; Ingraham to Pemberton, September 2, 1862, Department of South Carolina and Georgia Collection, Brockenbrough Archives, MOC; Ingraham to Pemberton, September 3, 1862, Department of South Carolina and Georgia Collection, Brockenbrough Archives, MOC; Wise, *Gate of Hell*, 12-18; *ORA*, I, 14: 504-505, 508-509, 513-519.

[51] Payrolls #1 to #24, Marsh's Shipyard, May 22-November 1, 1862, E-652, Box 2, Folder 2, NARA; Pay Voucher #17 to Joseph Addison, May 19, 1862, M1091, Reel 1, NARA; Pay Voucher #120 to E. Bull, November 29, 1862, M1091, Reel 1, NARA; Ingraham to Pemberton, July 25, 1862, Department of South Carolina and Georgia Collection, Eleanor S. Brockenbrough Archives, Museum of the Confederacy, Richmond, Virginia; Pay Voucher to Smith & Broadfoot, October 30, 1863, M1091, Reel 8, NARA.

[52] Payrolls #1 to #24, Marsh's Shipyard, May 22-November 1, 1862, Payrolls of Civilian Employees at Confederate Shore Establishments, E-652, May 1861-December 1864, Box 2, Folder 2, RG 45, NARA (hereafter cited E-652, RG 45, NARA; Powers, *Black Charlestonians*, 62-66; Payroll #16, Men Employed at Dry Dock, April 30, 1863, E-652, Box 2, Folder 2, RG 45, NARA.

[53] Payroll #15, Marsh's Shipyard, August 30, 1862, E-652, Box 2, Folder 2, NARA; Payroll #19, Marsh's Shipyard, May 9, 1863, E-652, Box 2, Folder 2, NARA; Payroll #23, Marsh's Shipyard, June 6, 1863, E-652, Box 2 Folder 2, NARA; Payroll #25, Marsh's Shipyard, June 20, 1863, E-652, Box 2, Folder 2, NAB; Payroll # 93, Kirkwood & Knox Shipyards, July 1, 1863, E-642, Box 2, Folder 2, NARA.

[54] Payrolls, Charleston Naval Ordnance Gun Carriage Shop, January 1863-December 1864, E-652, Box 2, Folder 2, NARA; Dew, *Ironmaker to the Confederacy*, 238-241.

[55] Payroll #91, Naval Ordnance Gun Carriage Shop, July 13, 1863, E-652, Box 2, Folder 2, NARA; Payroll #385, Naval Ordnance Gun Carriage Shop, September 26, 1863, E-652, Box 2, Folder 2, NARA; Brooke, *Ironclads and Big Guns of the Confederacy*, 135, 195-198; Jones to Farrand, August 22, 1864, M1091, Reel 37, NARA; Jones to Brooke, November 17, 1864, M1091, Reel 37, NARA; *ORN*, II, 2:547-552. Jones was not the only Alabama factory that experienced these issues. The Shelby Iron Company depended upon slave labor but faced competition from local recruiters such as P. L. Griffiths. Griffiths brought forth charges against Shelby in June 1863 for not properly reporting hires and even harboring a military deserter. For more information about Shelby's wartime labor problems see Knowles, "Labor, Race, and Technology in the Confederate Iron Industry," 17; Knowles, *Mastering Iron*, 199-203.

[56] Minor to Guy, August 8, 1862, M1091, Reel 10, NARA; Ingraham to Guy, September 9, 1863, M1091, Reel 10, NAB; Turner, *Navy Gray*, 158-159; Ingraham to Tucker, October 10, 1864, James H. Rochelle Papers, Rubenstein Library; Tucker to Rochelle, October 10, 1864, James H. Rochelle Papers, Rubenstein Library; Tucker to Rochelle, October 12, 1864, James H. Rochelle Papers, Rubenstein Library. Industrial and ordnance shops in Augusta, Georgia also drew upon all available labor to keep producing small-arms cartridges and gunpowder. This included fifty-eight women employed at the Augusta Arsenal in July 1861 and thirty-nine soldiers within the Government Foundry and Machine Shop in October 1864. Rains also organized a local defensive battalion staffed by his workers to keep them within Augusta. For

more information about the Confederate Powder Works in Augusta, Georgia and whom Rains employed see Bragg, *Never For Want of Powder*, 23-25, 102, 137-138, 184-186.

[57] Charleston *Daily Courier*, December 9, 1862; Scharf, *The Confederate States Navy*, 671; Luraghi, *A History of the Confederate Navy*, 209; Report of J. K. Sass, March 25, 1864, M1091, Reel 1, RG 45, NARA. There is some dispute about the price of the *Chicora.* Although Sass's December 9 report in the *Daily Courier* placed the price at $277,000, J. Thomas Scharf pegged the cost at $262,892 in his book *The Confederate States Navy*. Luraghi cited Scharf's figures when he wrote *A History of the Confederate Navy* and further claimed the *Palmetto State* cost slightly more. Scharf does not make clear though where and how he determined this figure. Although Scharf's work is considered a primary source for many historians, Sass's report as re-printed in the *Charleston Daily Courier* provides a more accurate account. Sass headed the South Carolina Gunboat Commission which contracted with Eason to build both the *Chicora* and *Charleston*. Once Eason completed these ironclads they were turned over to the Confederate Navy. Navy paymasters then provided financial compensation once final settlement was reached with Eason and the state Gunboat Commission.

[58] Lee to An. J. Beauregard, July 25, 1863, Bank of Charleston Collection, 1179.00, SCHS; Lee to An. J. Beauregard, July 28, 1863, Bank of Charleston Collection, 1179.00, SCHS.

Chapter 5

[1] J. R. Pringle Ravenel to Julia Ravenel, July 30, 1863, Ravenel Family Papers, 1748-1886, 1130.02.01, SCHS.

[2] *ORA*, I, 14:672.

[3] Browning, *Success is all That Was Expected*, 8-18, 23-41.

[4] Melton, *The Best Station of them All*, 62-67, 142; Orvin, *In South Carolina Waters, 1861-1865*, 18, 23, 26.

[5] Melton, *The Best Station of them All*, 62-67, 79-87.

[6] Payroll of Charleston Naval Hospital, Third Quarter 1863, T829, Miscellaneous Records of the U.S. Navy, 1789-1925, Reel 166, Record Group 45, NARA (hereafter cited as T829, Reel 166, NARA); Payroll #386, Officers & Employees on Station, Charleston, SC, July 1 1863-September 30, 1863, T829, Reel 166, NARA.

[7] Augustine T. Smythe to Margaret Smythe, August 30, 1863, Augustine T. Smythe Papers, 1853-1918, 1209.03.02.04, SCHS; James H. Rochelle to George Minor, September 30, 1863, Minor Family Papers, Folder 66, Section 11, VHS; *Charleston Mercury*, December 17, 1862; William H. Parker, *Recollection of a Naval Officer, 1841-1865* (Annapolis: Naval Institute Press, 1985), 304, 312-313. This was not the first time Mallory tried removing veteran officers from their posts. Prior to the Civil War, he pushed to create a reserve list while in the House of Representatives in 1854. The reserve list removed older, non-contributing senior officials from ship and squadron commands and replaced them with younger talent. The 1854 reserve list initially included Maury's name given his long time work at the Depot of Charts and Instruments, the forerunner to the US Naval Observatory, rather than front-line service.

[8] C. McBlair to James H. Rochelle, November 13, 1864, James H. Rochelle Papers, Rubenstein Library; Francis Bradlee, *A Forgotten Chapter in Our Naval History: A Sketch of the Career of Duncan Nathaniel Ingraham* (Salem: The Essex Institute, 1923), 5-16; Rochelle, *Life of Rear Admiral John Randolph Tucker*, 21-22; John M. Stickney, *Promotion or the Bottom of the River: The Blue and Gray Naval Careers of Alexander F. Warley, South Carolinian* (Columbia: University of South Carolina Press, 2012); Coski, *Capital Navy*, Rochelle to Rev. J. William Jones, August 23, 1886, *Commonplace Book of James Rochelle*, 166, Rochelle Family Papers, Section 5, VHS).

[9] Chaffin, *The H. L. Hunley*, 139-140, 150-151; G. T. Beauregard, "Torpedo Service in the Harbor and Water Defenses of Charleston," *Southern Historical Society Papers* 5 (April 1878), 153-154; Perry, *Infernal Machines*, 100; Augustine T. Smythe to Margaret Smythe, August 29, 1863, Augustine T. Smythe Papers, SCHS.

[10] Tucker to Rochelle, October 11 and 22, 1863, James Rochelle Papers, Rubenstein Library; Smythe to his mother, August 8, 1863, Augustine T. Smythe Papers, SCHS; Scharf, *History of the Confederate Navy*, 702-3; Rochelle, *Life of Rear Admiral John Randolph Tucker* (9-15; Mitchell to Rochelle, September 6, 1863, James Rochelle Papers, Rubenstein Library.

[11] *ORN*, I, 14:426-7, 747-8; Scharf, *History of the Confederate Navy*, 695; James Tomb, *Memoirs*, 43-44, James Tomb Papers, SHC.

[12] Charleston *Daily Courier*, January 28, 1863; Burton, *The Siege of Charleston, 1861-1865*, 126-127; Luraghi, *A History of the Confederate Navy*, 209; Scharf, *History of the Confederate States Navy*, 674-677; Parker, *Recollection of a Naval Officer*, 314; G. T. Beauregard, "The Defense of Charleston," in *Battles & Leaders of the Civil War* (New York: The Century Co., 1887-1888), IV: 6-7; Roman, *The Military Operations of General Beauregard*, II: 56-57; Williams, *P. G. T. Beauregard: Napoleon in Gray*, 173-174.

[13] Parker, *Recollections of a Naval Officer*, 313-4; Orvin, *In South Carolina Waters*, 118; Still, *Iron Afloat*, 118-119.

[14] *ORN*, I, 13:553.

[15] Parker, *Recollection of a Naval Officer*, 315-316; Burton, *The Siege of Charleston*, 127; *ORN*, I, 14: 577-581, 585-586, 616, 619-620.

[16] *ORN*, I, 13:617; Still, *Iron Afloat*, 124-125.

[17] *ORN*, I, 13:623.

[18] Ibid., I, 15:110.

[19] Burton, *The Siege of Charleston*, 146-148; Scharf, *History of the Confederate States Navy*, 686-687.

[20] *ORA*, I, 28:123; Johnson, *The Defense of Charleston Harbor*, 152-153; Smythe to Jane Adger, September 8, 1863, Augustine T. Smythe Papers, SCHS; Symonds, *The Civil War at Sea*, 164-169.

[21] *ORN*, I, 14:725, 728, 735-736, 745-746; Smythe to Margaret Smythe, August 30, 1863, Augustine T. Smythe Papers, SCHS.

[22] *ORA*, I, 28:123-125; Johnson, *The Defense of Charleston Harbor*, 152-153, 160-164; Smythe to Jane Adger, September 8, 1863, Augustine T. Smythe Papers, SCHS; Smythe to Margaret Smythe, September 9, 1863, Augustine T. Smythe Papers, SCHS; *ORN*, I, 14:630-640; Scharf, *A History of the Confederate Navy*, 699-702.

[23] Smythe to Margaret Smythe, November 20, 1863, Augustine T. Smythe Papers, SCHS; Tucker to Mitchell, April 1, 1863, John K. Mitchell Papers, 1862-1865, Section 4, VHS; Wald to Minor, June 20, 1863, Minor Family Papers, Section 11 (W-Y), VHS.

[24] Perry, *Infernal Machines*, 72-73; William T. Glassell, "Reminiscences of Torpedo Service in Charleston Harbor," *Southern Historical Society Papers* 4, No. 5 (November 1877): 226-227.

[25] Glassell, "Reminiscences of Torpedo Service in Charleston Harbor," 226-228; Parker, *Recollection of a Naval Officer*, 332.

[26] Scharf, *History of the Confederate States Navy*, 687-689.

[27] Parker, *Recollections of a Naval Officer*, 333-335; Scharf, *History of the Confederate States Navy*, 687-690.

[28] Perry, *Infernal Machines*, 68-74; Parker, *Recollection of a Naval Officer*, 336-341.

[29] Tomb, *Memoirs*, 34-37, James Tomb Papers, SHC; Beauregard, "Torpedo Service in the Harbor and the Water Defenses of Charleston," *150*-152; Glassell, "Reminiscences of Torpedo Service in Charleston Harbor," 229-233; *ORN*, I, 15:13-14.

[30] Tomb, *Memoirs*, 42-44, James Tomb Papers, SHC, UNC; Symonds, *The Civil War at Sea*, 176-177; Chaffin, *The H. L. Hunley*, 187-191, 239-260.

[31] The *Hunley* sat outside Charleston until divers discovered the wreck in April 1995. Raised on August 8, 2000, she has undergone constant conservation work in North Charleston, SC. Historians and archaeologists have painstakingly study the ship's final hours and the sailors that piloted the hand-powered submersible on her infamous voyage. Chaffin published some early findings in his book *The H. L. Hunley*. As of January 2015, scientists and archeologists have exposed nearly three quarters of the hull from the sediment and sand that collected around it. Similar work is currently underway on the turret of the *Monitor* and those trapped when the vessel sank on December 31, 1862 at the Mariners' Museum in Newport News, Virginia.

[32] Tucker to Rochelle, September 16, 1863, James H. Rochelle Papers, Rubenstein Library; Elmore to Rochelle, December 28, 1863, Rochelle Family Papers, VHS; Tucker to Rochelle, September 20, 1864, James H. Rochelle Papers, Rubenstein Library. As noted in Chapter 3, Rains was one of the Confederacy's top proponents of torpedo warfare. He built different underwater obstructions throughout 1863 in Charleston Harbor.

[33] Shyrock to Minor, April 30, 1863, Minor Family Papers, Section 11S, VHS; Stickney, *Promotion or the Bottom of the River*, 136-137; Wald to Minor, June 20, 1863, Minor Family Papers, Section 11 (W-Y), VHS; Wise, *Lifeline of the Confederacy*, 132-133.

[34] Wald to Minor, June 20, 1863, Minor Family Papers, Section 11 (W-Y), VHS; *ORN*, I, 14, 736-7; Rochelle to Minor, September 30, 1863, Minor Family Papers, Section 11 (R), VHS.

[35] Stickney, *Promotion or the Bottom of the River*, 137; Mitchell to Rochelle, September 6, 1863, James. H. Rochelle Papers, Rubenstein Library; Scharf, *History of the Confederate Navy*, 702-3; Rochelle, *Life of Rear Admiral John Randolph Tucker*, 9-15.

[36] Rochelle to Mino, August 9, 1864, James H. Rochelle Papers, Rubenstein Library; Freemen, Tombs, and Daney to Tucker, May 25, 1864, James H. Rochelle Papers, Rubenstein Library; Tucker to Rochelle, July 7, 1864, James H. Rochelle Papers, Rubenstein Library; Tucker to Rochelle, August 29, 1864, James H. Rochelle Papers, Rubenstein Library; Tucker to Rochelle, August 30, 1864, James H. Rochelle Papers, Rubenstein Library; H. A. Burns to Rochelle, October 4, 1864, James H. Rochelle Papers, Rubenstein Library; Pearson to Rochelle, November 30, 1864, James H. Rochelle Papers, Rubenstein Library; Report of Evans, O'Neil, and Davey to Tucker, December 2, 1864, James H. Rochelle Papers, Rubenstein Library.

[37] Pay Voucher to Archibald McLeash, February 13, 1864, M1091, Reel 8, NARA; Pay Voucher #66 to Archibald McLeish, October 14, 1864, M1091, Reel 8, NARA; Pay Voucher to Edwin Bull, January 25, 1864, M1091, Reel 8, NARA; Pay Voucher #120 to J. M. Eason, March 12, 1863, M1091, Reel 8, NAB; Pay Voucher to J. M. Eason & Brother, April 6, 1864, M1091, Reel 8, NARA.

[38] Tucker to Rochelle, September 3, 1864, James H. Rochelle Papers, Rubenstein Library; Tucker to Rochelle, September 17, 1864, James H. Rochelle Papers, Rubenstein Library; Circular, Flag Ship Charleston, September 19, 1864, James H. Rochelle Papers, Rubenstein Library; Ingraham to Tucker, October 10, 1864, James H. Rochelle Papers, Rubenstein Library; Tucker to Rochelle, October 10, 1864, James H. Rochelle Papers, Rubenstein Library; Tucker to Rochelle, October 12, 1864, James H. Rochelle Papers, Rubenstein Library.

[39] James McPherson, *For Cause and Comrades: Why Men Fought in the Civil War* (New York: Oxford University Press, 1997), 158-162, 164-178; Kenneth Noe, *Reluctant Rebels: The Confederates Who Joined the Army After 1861* (Chapel Hill: University of North Carolina Press, 2010), 171-190; Jason Phillips, *Diehard Rebels: the Confederate Culture of Invincibility* (Athens: University of Georgia Press, 2007), 76-115; Joseph Glatthaar, *General Lee's Army: From Victory to Collapse* (New York: Free Press, 2009), 408-420; General Order, Office of Orders and Detail, October 25, 1864, James H. Rochelle Papers, Rubenstein Library; General Order, October 28, 1864, James H. Rochelle Papers, Rubenstein Library; *ORN*, I, 15:677-678.

[40] General Order, Flag Ship Charleston, May 11, 1864, James H. Rochelle Papers, Rubenstein Library; Tucker to Rochelle, July 11, 1864, James H. Rochelle Papers, Rubenstein Library; Isaac Brown to Rochelle, August 7, 1864, James H. Rochelle Papers, Rubenstein Library; Tucker to Rochelle, October 3, 1864, James H. Rochelle Papers, Rubenstein Library; Brown to Rochelle, August 7, 1864, James H. Rochelle Papers, Rubenstein Library; Tucker to Rochelle, August 20, 1864, James H. Rochelle Papers, Rubenstein Library; Tucker to Rochelle, August 22, 1864, James H. Rochelle Papers, Rubenstein Library; Tucker to Rochelle, August 24, 1864 James H. Rochelle Papers, Rubenstein Library; Tucker to Rochelle, September 9, 1864, James H. Rochelle Papers, Rubenstein Library; Tucker to Rochelle, October 3, 1864, James H. Rochelle Papers, Rubenstein Library; Tucker to Rochelle, October 3, 1864, James H. Rochelle Papers, Rubenstein Library; Tucker to Rochelle, October 26, 1864, James H. Rochelle Papers, Rubenstein Library; Tucker to Rochelle, October 27, 1864, James H. Rochelle Papers, Rubenstein Library; Tucker To Rochelle, November 19, 1864, James H. Rochelle Papers, Rubenstein Library; Tucker to Rochelle, December 16, 1864, James H. Rochelle Papers, Rubenstein Library; Tucker to Rochelle, December 20, 1864, James H. Rochelle Papers, Rubenstein Library; Stephen Wise, *Lifeline of the Confederacy*, 257-8; Tucker to Rochelle, July 11, 1864, James H. Rochelle Papers, Rubenstein Library.

[41] General Order, June 15, 1864, James H. Rochelle Papers, Rubenstein Library; *ORN*, Series 1, 15:744,750; General Order, June 29, 1864, James H. Rochelle Papers, Rubenstein Library; Tucker to Rochelle, July 2, 1864; Tucker to Rochelle, July 3, 1864, James H. Rochelle Papers, Rubenstein Library; Scharf, *History of the Confederate States Navy*, 702-704; Tucker to Rochelle, July 3, 1864, James H. Rochelle Papers, Rubenstein Library; Tucker to Rochelle, July 6, 1864, James H. Rochelle Papers, Rubenstein Library.

[42] Symonds, *The Civil War at Sea*, 178; Luraghi, *A History of the Confederate Navy*, 336; *ORA*, I, 47.1:1016.

[43] *ORA*, I, 47.2:1180; *ORN*, I, 16:252, 295-6, 339, 379; Symonds, *The Civil War at Sea*, 179; Burton, *The Siege of Charleston*, 320-322.

[44] Rochelle, *Life of Rear Admiral John Randolph Tucker*, 52-54; James Rochelle, *Journal of James H. Rochelle*, 193-196, Rochelle Family Papers, Section 4, VHS.

[45] Although Army Lt. Dixon commanded the *Hunley* when the submersible destroyed the *Housatonic*, Dixon drew his men

[46] Symonds, *The Civil War at Sea*, 174.

[1] Ross Thomson, "The Continuity of Innovation: The Civil War Experience," *Enterprise & Society* 11, No. 1 (March 2010): 128-165.

[2] Mallory, *Report of the Secretary of the Navy*, 37-40.

[3] Charleston *Daily Courier*, March 3, 1862; Charleston *Daily Courier*, December 8, 1862.

[4] Ingraham to Chesnut, March 31, 1862, S390008, Item 3, SCDAH; Cauthen, *Journal of the South Carolina Executive Council*, 213-214; Scharf, *The Confederate States Navy*, 671; Luraghi, *A History of the Confederate Navy*, 209.

[5] Mallory, *Report of the Secretary of the Navy*, 40.

[6] Rochelle, *Commonplace Book of James Rochelle*, 161, Rochelle Family Papers, Section 5, VHS.

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