

C.S.S. GEORGIA  
ARCHIVAL STUDY

*Federate Ironclad*  
*Defences of*  
*Savannah*  
*Ram Just Launched*  
*off Ft. Jackson*





# CSS Georgia: Archival Study

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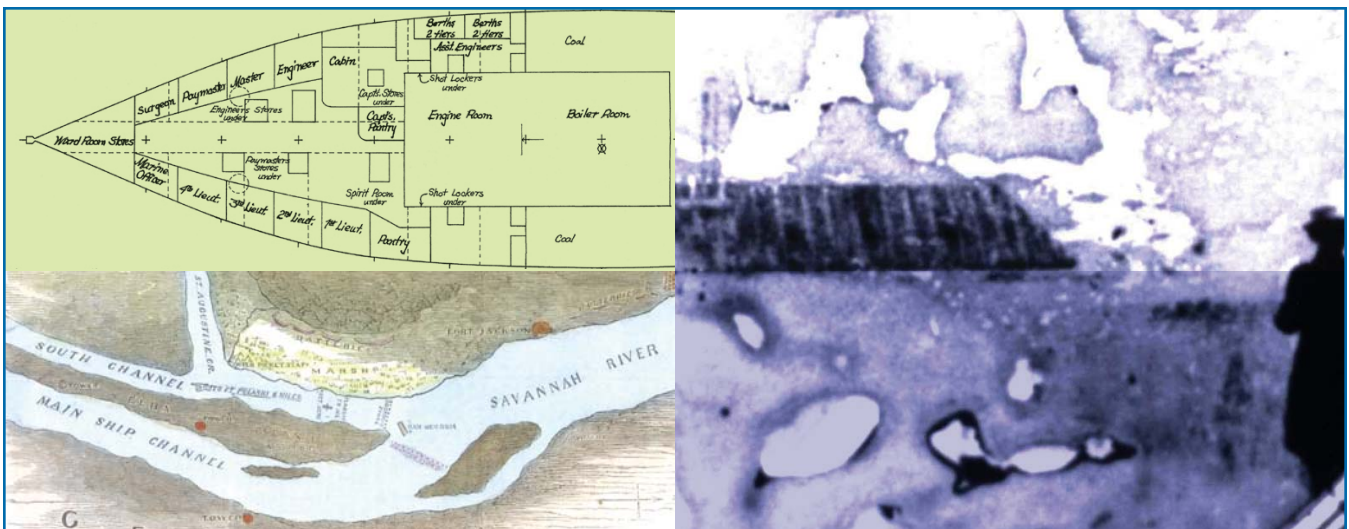
  
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# Table of Contents

Introduction	1
Part One: Historical Context	3
The Setting: Geography of the Savannah Area	3
Pre-War Economic Developments, 1810-1860	5
Changes in Warfare, 1810-1860	6
Initial Development of Confederate Navy, 1861 – March 1862	8
Confederate Navy Reorganization, 1862-1863	17
Josiah Tattnall and the Beginnings of the Savannah Squadron, Early 1861	20
War Comes to Savannah, November 1861 – April 1862	23
Impetus for <i>Georgia</i> : The Ladies Gunboat Association	28
Construction of <i>Georgia</i> , March – October 1862	32
The Placement of <i>Georgia</i> , Late 1862	34
The Savannah Station and Squadron, 1862-1864	36
Fall of Savannah, December 1864	39
Part Two: CSS <i>Georgia</i> - Research Themes	41
Planning and Construction	41
1. Individuals and Organizations Involved in Fund-Raising	41
2. Evidence for Conception of Construction Plans for the Vessel; Background and Skill of Those Involved and an Estimate of How Long They Worked on the Project	45
3. Evidence for the Location of the Construction Site, the Site Where the Engine and Machinery Were Installed, and a Description of These Facilities	48
4. The Organizations, Military Units, and Individuals Involved in Constructing the Vessel and its Machinery, their Skills, and the Amount of Time Spent	51
5. The Ship's Architecture and Layout, Equipment Distribution, etc.	55
6. The Origin and Design of the Machinery (Engine And Boiler), Equipment and Tools That May Have Been on Board for Ship Maintenance	63
7. The Origin and Quality of Materials Used in Construction, Specifically Timber and Railroad Iron	68
8. A. Description of the Vessel	71
Manning and Outfitting	76
1. Officers With Their Ranks and Periods of Service on the Vessel, Brief Biographies of the Officers, Their Training and Military Careers, Manning of the Vessel	76

2. Military Units and Names of Individual Crew Members Who Served, Showing Their Ranks, Job Titles, and Periods of Service	79
3. The Vessel's Ordnance	79
4. Changes in Ordnance Over Time	80
5. Possible Origins of Major Pieces of Ordnance with Identifying Marks	81
6. Typical Military Equipage for the Officers and Crew of the Confederate Navy Including Typical Clothing Items and Food	83
<b>Operation and Maintenance</b>	<b>86</b>
1. Overview of Operations With Day-To-Day Description, Detail of Campaigns Involving The Vessel and Her Officers	86
2. Operations (Engine Problems, Grounding) That Might Have Physically Altered the Boat or its Contents.	90
<b>The Sinking</b>	<b>90</b>
1. Disposition Planning: Why Scuttling Was Preferred and How It Was Achieved	90
2. Condition of Evacuation of the Crew and Materials Taken With Them as well as Materials Left Behind	91
<b>Salvage Operations</b>	<b>91</b>
1. Nineteenth-Century Operations	91
2. Twentieth-Century Operations	94
<b>Summary</b>	<b>97</b>
<b>References Cited</b>	<b>99</b>

## List of Figures

Figure 1. Artist's Conceptions of CSS <i>Georgia</i>	2
Figure 2. USGS Savannah, GA.-SC. Quadrangle of the Lower Savannah River Showing Its Creeks and Islands as well as the Location of CSS <i>Georgia</i>	4
Figure 3. A View of CSS <i>Virginia</i> in Section	12
Figure 4. Illustrations of Dahlgren Gun, Brooke Rifle and Pounder Rifle as well as Ammunition	14
Figure 5. Richmond Class Ironclad in Plan and Section	18
Figure 6. Diamond Hull Ironclad in Plan and Section	19
Figure 7. Detail from an 1862 Federal Map of the Savannah Region Made by Lt. Wilson	26
Figure 8. 1862 Map of Fort Jackson Showing Hand Illustrations of the Locations of Obstructions in the Savannah River.	35
Figure 9. Boutelle 1865 Map of Fortifications Near Fort Jackson	36
Figure 10. Map of Confederate Naval Facilities in Savannah (Still 1997)	48
Figure 11. Cooper 1856 Map of Savannah Showing the Eastern Wharves	49

Figure 12. Hogg 1868 Map of Savannah	50
Figure 13. CSS <i>Georgia</i> , drawn December, 1862	56
Figure 14. CSS <i>Georgia</i> . Illustration from Harper’s Weekly, February 14, 1863 and December 1862	56
Figure 15. CSS <i>Georgia</i> . Illustration from Frank Leslie’s Illustrated Newspaper, February 21, 1863	57
Figure 16. CSS <i>Georgia</i> , erroneously labeled <i>Atlanta</i> . Illustration from Frank Leslie’s Illustrated Newspaper, March 14, 1863	57
Figure 17. John L. Porter’s 1861 Harbor Defense Ironclad	59
Figure 18. Illustration of a Rice Barge, a Potential Prototype for <i>Georgia</i> ’s Hull	60
Figure 19. CSS <i>Mississippi</i> , designed by Asa and Nelson Tift, 1861	61
Figure 20. CSS <i>Louisiana</i> , designed by E. C. Murray, 1861	61
Figure 21. CSS <i>Savannah</i> Berth Deck Plan Superimposed Over the Hold Plan	63
Figure 22. CSS <i>Macon</i> Berth Deck Plan and Machinery Spaces	63
Figure 23. Boulton and Watt Steam Engine in Profile	64
Figure 24. Illustrations of the Bell Crank Engine, Crosshead Engine and Walking Beam Engine	65
Figure 25. Section, Railroad T-iron, from the CSS <i>Georgia</i>	71
Figure 26. A Photograph Believed to be of CSS <i>Georgia</i>	74
Figure 27. Holcombe’s Reconstruction of CSS <i>Georgia</i>	75
Figure 28. Illustration Showing the Removal of Obstructions from the Savannah River	92
Figure 29. Gilmore and Ludlow 1871 Map Showing the Location of <i>Georgia</i>	93
Figure 30. U.S. Army Corps of Engineers, Savannah District, Map Showing the Location of <i>Georgia</i>	95

## List of Tables

Table 1. Known Members of the Ladies Gunboat Committee (Association) of Savannah	41
Table 2. Sub-Committee Heads and Members around <i>Georgia</i>	43
Table 3. 1863 Inventory of Guns of <i>Georgia</i>	79
Table 4. List of Large-Gun Ammunition on Board CSS <i>Georgia</i> , July 17, 1863	81
Table 5. Georgia Ordnance Stored in Savannah, July 17, 1863	81
Table 6. Guns and Ordnance on CSS <i>Georgia</i>	82
Table 7. List of Small Arms on Board <i>Georgia</i> , July 17, 1863	83
Table 8. List of Provisions on Board <i>Georgia</i> , July 17, 1863	84



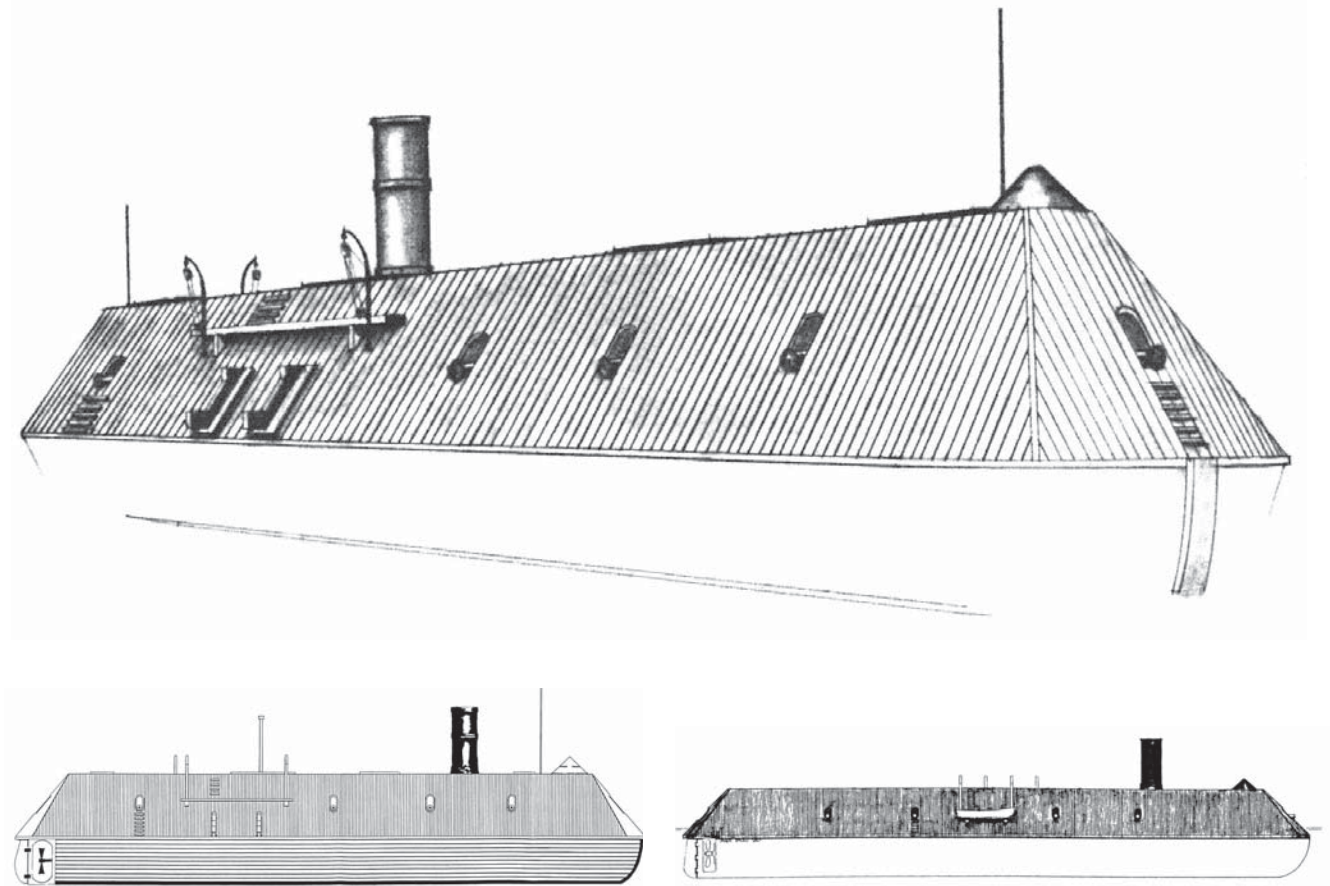


# Introduction

CSS *Georgia*, a Confederate ironclad constructed in Savannah in 1862 and scuttled in the Savannah River two years later, was virtually forgotten for over a hundred years. It was “rediscovered” in 1968, when a pipeline dredge working for the U.S. Army Corps of Engineers struck the remains of the vessel in 20 feet of water north of Fort Jackson (Lawson 1978a, Pt. 2:13; Garrison et al. 1980:4). The wreck site, located three miles below Savannah and 11 miles above the mouth of the river, is adjacent to the main navigation channel of the Savannah River (Design Memorandum 1983:I-1). Now listed on the National Register of Historic Places, CSS *Georgia* is identified as possibly one of the 10 most significant wreck sites in U.S. waters. The significance of the site has led to discussions about stabilizing the wreck, and possibly raising it, as well as planning for mitigation of adverse impacts to the wreck that may result from future dredge activities.

Archaeological mitigation at *Georgia* site would have the potential to answer some basic questions about life on a Confederate ironclad. Unlike other ironclads of the Savannah Squadron, *Georgia* was not blown up or burned prior to sinking. As a result, the potential for the recovery of material possessions on board the vessel is great. Such a project would offer unique challenges as well. Compared to many other ironclads from the Civil War, relatively little is known about *Georgia* (Figure 1; Garrison et al. 1980: front; U.S. Army Corps of Engineers, c. 1985; Design Memorandum 1983). It is one of the few ironclads for which plans have not been found, and are not likely to be found (Babits 1993:30). Although it was constructed in Savannah virtually by committee, the size of the vessel is in dispute, with lengths ranging from 260 to 150 feet, and beam widths ranging from 50 to 60 feet (Garrison et al. 1980:24). Modern sounding equipment tends to support a length closer to the 150-foot range, but the measurements of the wreck are simply not known (Judy Wood, personal communication, 2002). There are three Civil War era engravings of *Georgia*, and no two agree as to its size and appearance. The only surviving photograph is of poor quality and questionable attribution. All of which suggests that relatively little is known about a wreck site identified as one of the most significant in the nation.

To help pull together information on *Georgia*, New South Associates of Stone Mountain, Georgia, has conducted an archival study of the vessel for the Savannah District of the U.S. Army Corps of Engineers. Together with materials gathered over the past 35 years, New South has gathered additional data from the U.S. Army Military History Institute in Carlisle, Pennsylvania, and the University of Texas at Austin. Other locations visited as part of this archival investigation included the National Archives in College Park, Maryland; the Virginia Historical Society in Richmond; the Southern Historical Collection at the University of North Carolina at Chapel Hill; Tulane University in New Orleans; the Dun & Bradstreet Collection at the Baker Library, Harvard University; and the University of Texas at Austin. Also included were historical resources in the city of Savannah itself: the Georgia Historical Society and the Coastal Heritage Society, including Old Fort Jackson. From these sources, the project historians gathered a wide range of materials on many aspects of the vessel. Research was conducted by Mark Swanson of New South Associates and Robert Holcombe of the National Civil War Naval Museum under the direction of Mary Beth Reed of New South Associates.



**Figure 1. Artist's Conceptions of CSS *Georgia* (from Garrison et al. 1980)**

This work would not have been possible without help from a number of researchers. This includes Judy Wood, archaeologist with the U.S. Army Corps of Engineers, Savannah District. Ms. Wood has coordinated cultural resource work in the Savannah District for many years, with a concentration on *Georgia* for much of that period. She provided the researchers with copies of prior reports, planning documents, copies of relevant documents she has collected over the years and recommendations on sources relevant to *Georgia* research. Robert Holcombe, curator and historian at the National Civil War Naval Museum in Columbus, Georgia, served as a consultant to the research team and as a report co-author, but above and beyond his contractual responsibilities, Mr. Holcombe, an expert on the ships of the Confederate and Federal navies, helped guide the course of this study. Another person vitally important to this project has been Thomas Callahan, long-time Savannah resident and researcher into the lives of the officers and men who served on *Georgia*. Much of raw data provided by Mr. Callahan is provided in Appendices 5 and 6 to this report. Leanna Boychenko of Harvard assisted in the research at the Baker Library. Finally, the staffs of the repositories cited above assisted the research team in their investigations.

This report is divided into two parts. Part One presents the historical context for *Georgia*. Part Two presents a catalog of *Georgia*-related research themes, organized numerically, that were targeted in the Scope of Work for detailed treatment.

# Part One: Historical Context

## The Setting: Geography of the Savannah Area

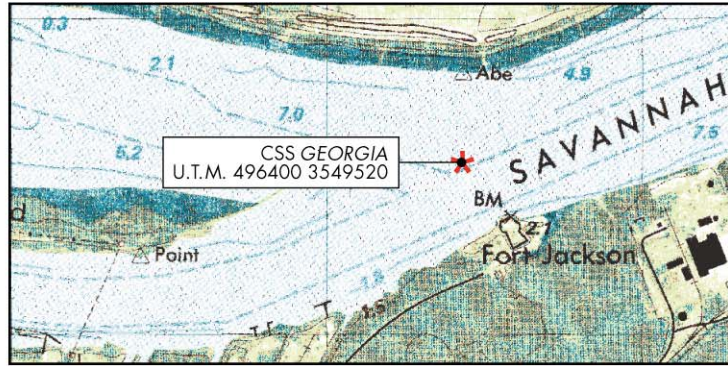
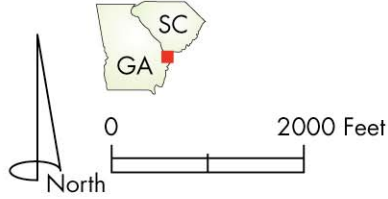
Savannah, located on the south shore of the Savannah River, is situated 14 to 15 miles from the open sea. From Savannah to the Atlantic Ocean, the river is dotted with islands, the largest of which are Hutchinson's, Fig, Elba, Bird, Long, and Cockspur. Between Fig and Elba are three small islands adjacent to the north shore and opposite Fort Jackson. The mouth of the river, called "Tybee Roads," is bounded by Tybee Island on the south shore, Turtle Island on the north shore, and Cockspur Island in between.

Like most coastal waters in the South, the lower course of the Savannah River is marked by sandbars that shift with river currents, not to mention storms and hurricanes. To compound this problem, the embayment formed by the coastline of South Carolina and Georgia results in a considerable tidal fluctuation, usually around eight feet. In the lower Savannah River, tide is often a greater force than the river itself. As a result of these factors, navigation in the lower Savannah River is a potentially hazardous affair.

Even though the city of Savannah is situated on a bluff 50 feet above the river, most of the lands between the city and the sea are low and marshy, riven by meandering tidal streams that form alternate channels to the coast. While these alternates do not compare with the Savannah River, they still provide serviceable navigation channels, especially at high tide. The greatest of these alternates is the Wilmington River, a tidal stream that connects with the Savannah River on the south bank, opposite Elba Island, four miles below the city. At the ocean end, Wilmington River opens onto Wassaw Sound, an embayment formed by Tybee Island to the north, and Skidaway Island to the south. Another alternate route is the Vernon River, which connects with the Wilmington River about half way along its course. At the ocean end, the Vernon River empties into Ossabaw Sound, located between Skidaway and Ossabaw islands. Ossabaw Sound also serves as the mouth of the Ogeechee River, which parallels the Savannah River about 15 miles to the south. While the Ogeechee is hardly an ideal avenue to Savannah, its northern tributaries have often been considered a backdoor to the city (Lawrence 1961:20-21).

All of the waterways mentioned above are located in Georgia on the south side of the Savannah River. There are others on the north side of the river in South Carolina. Just like the coast of Georgia, marshy islands separated by tidal streams mark the southern coast of South Carolina. One of these, known as Mud Creek or Mud River, connects with the Savannah River immediately downstream from Elba Island. Mud Creek then connects to Wright River. Thanks to a man-made channel known as Wall's Cut, Wright River connects to New River, which then empties into Port Royal Sound, one of the finest natural harbors in the South (Lawrence 1961:43). As a result of these connections, there is not only a direct route to Savannah by way of the river; there is also almost a natural intracoastal waterway between the mouth of the Ogeechee and Port Royal, a distance of 40 miles. Fortifications around Tybee Roads can address the threat of naval attack at the mouth of the Savannah River. They do nothing to protect the other waterways, all tied to the Savannah River well above Cockspur Island (Figure 2).

Figure 2. USGS Savannah, GA.-SC. Quadrangle of the Lower Savannah River Showing Its Creeks and Islands as well as the Location of CSS Georgia



## Pre-War Economic Developments, 1810-1860

In the early years of the nineteenth century, Savannah was a small community, whose economic and commercial interests did not expand far beyond the coastal plain. It may have been the largest city in Georgia, but Georgia itself was small, with settlements basically limited to the coast and the south bank of the Savannah River. The interior was still held by powerful Indian groups, primarily the Cherokee and the Creek.

By contrast, in 1860, Savannah was one of the largest and most opulent cities in the South, a transition that took place in the half-century before the Civil War. During those years, Savannah went from a coastal town, dependent on rice, to a thriving port with ties throughout Georgia and around the globe. Although rice was still important on the eve of the war, Savannah's more diverse economy was now based on a foundation of cotton and the plantation.

Georgia expanded with "King Cotton," and the planters that grew the cotton were the focus of antebellum Savannah. Savannah's so-called "Golden Age" (1830-1860) was fueled by rice and cotton, and steadily rising land prices. Rice was still prominent on the sea islands, but it was cotton that really put a stamp on the city. By 1860, Savannah's cotton exports to Europe and the North were exceeded only by New Orleans and Mobile (Griffin 1963:22-25).

The development of Savannah would not have been possible without tremendous strides in transportation. The first of these was the rise of steamboats. From tentative beginnings in the early 1800s, steam-driven ships soon became the norm along the Savannah River and in transatlantic commerce. By the early 1850s, there were 27 steamboats plying the waters around Savannah. The number had been reduced to about 20 by 1860, but this was only due to competition from railroads (Griffin 1963:35).

Just as the steam engine improved water transportation, it also made possible the railroad, which first became popular in the 1830s. Charleston was one of the first Southern cities to recognize the potential of the new mode of transportation, and the economic threat posed by the South Carolina port spurred local business interests to tie Macon and central Georgia with the port of Savannah. This led to the development of the Central of Georgia Railroad, planned and constructed between 1833 and 1843. The Central of Georgia, and its spur lines, tied Savannah to the cotton-growing center of the state, around Macon and the new state capital at Milledgeville. Another line, the Savannah, Albany and Gulf Railroad, tied Savannah to the south central portions of the state (Griffin 1963:34). By the 1850s, even the rival ports of Charleston and Savannah were connected by rail (Griffin 1963:36-38).

Even though cotton, and to a lesser degree, rice, dominated the economy of Savannah, there was room for other commercial operations. Lumber was a popular commodity, bested only by cotton and rice. Usually stacked on both sides of the river above Savannah, lumber was commonly cured for about a year before it was ready for local construction or export abroad (Griffin 1963:25-26). Another important but relatively unheralded pursuit was market gardening, widely practiced on the outskirts of Savannah. Market gardening in Savannah and Chatham County was the most important operation of its kind in the entire state. Further, down the economic scale, there was some sugar from the sea islands, and cattle from the pine barren areas of southeastern Georgia (Griffin 1963:26-27).

Commercial and industrial operations developed in the wake of cotton and agriculture, but usually at a lag. In the early 1800s, commercial operations like banking were more likely to be found in Charleston than Savannah. This changed, though, with the rise of “factors,” which brokered cotton, rice, lumber, and other local products. This in turn led to an influx of banking firms. Georgia’s first state bank, Planter’s Bank of Savannah, was opened in 1810. This was followed by the Bank of the State of Georgia, with main offices in Savannah. By the eve of the war, there were 10 banks in the city, with branches and connections all over the state (Griffin 1963:31-34).

Not far behind the development of commercial interests was the development of manufacturing. On the eve of the Civil War, there were a total of 38 manufacturing establishments of all kinds in Chatham County, worth a total of around \$1 million, more than any other county in the state. The most important of these establishments were mills for rice and lumber, but there were machine shops as well, spurred by the rise of steamships and railroads. The total number of employees involved in local manufacturing was listed as 674 (Griffin 1963:27).

As agricultural and commercial interests grew, so did the city’s population. In 1810, Savannah had a population of 5,215. By 1840, that number had more than doubled to 11,214 roughly split between free whites and enslaved African-Americans. There was a small, but relatively prominent, population of free blacks as well. During the 1840s, Savannah’s population grew by over a third, to 15,312, and much of this was due to immigration from Ireland. In the years before the Civil War, Irish immigrants, mostly employed as laborers, were concentrated in the eastern section of the city (Griffin 1963:18-20). By 1860, Savannah’s population had grown to 22,292, which consisted of 13,875 whites, 7,712 slaves, and 705 free blacks. The population of Chatham County reached 31,043, evenly split between white and black. Out of the total white population of the county, a full 30 percent were foreign-born, and most of these were Irish (Griffin 1963:20-21; Lawrence 1961:4).

As the city grew, so did concern for its protection. The War of 1812 demonstrated the inadequacy of the nation’s coastal defenses. In the years that followed, fortifications were erected at key points along the coast. Savannah, as one of the South’s fastest growing major ports, would see a growth in the presence of the military. The first of these projects was Fort Jackson, located on the south bank of the Savannah River. Three miles below the city, it was just above the tidal streams that entered the river channel from the north and south (Lawrence 1961:20).

One of the largest forts built after the War of 1812 was Fort Pulaski, constructed on Cockspur Island at the mouth of the Savannah River. Begun in 1829 under the supervision of Robert E. Lee, a military engineer just out of West Point, Pulaski was a pentagonal brick fort, with walls 25 feet high and 7.5 feet thick. Although Lee was called to other assignments in 1831, work on the fort continued until its completion in 1847 (Griffin 1963:61; Gillmore 1988:9; Lattimore 1961:7). At that time, the United States was again at war, this time with Mexico. Fifteen years later, the massive brick fort would get its baptism of fire in the American Civil War.

## Changes in Warfare, 1810-1860

During the nineteenth century, there were at least five great military innovations in naval warfare: steam power, shells (exploding ordnance), screw propellers, rifled guns, and iron armor (Milligan 1965:29). All were used in the Civil War, but none was

invented during that conflict, not even ironclads. Contrary to popular opinion, armored vessels did not begin with the Monitor and Merrimack. They began seven years earlier, in the Crimean War.

The earliest of the five developments was steam power for ships. From rather tentative beginnings in the early 1800s, steam became increasingly common for all sorts of water transportation in the 1820s. Initially, steam power meant paddlewheel propulsion. For this reason, steam was slow to be accepted for military use because of the highly vulnerable position of the paddlewheels, either on the sides or at the stern. One of the first steamboat designs to get around this problem called for a single paddlewheel between two connected hulls (Still 1997:40). A better solution was the development of the screw propeller in the late 1830s. With a completely submerged propulsion system, the propeller was not only less vulnerable but took up less space. This innovation guaranteed the acceptance of steam propulsion on U.S. Navy ships (Still 1997:41).

Another innovation was the use of shells, specifically exploding shells. Up until the 1820s, naval guns were almost always loaded with solid shot, usually in the form of round iron cannon balls. Even though exploding ordnance had been around for centuries, it was considered too dangerous to store on wooden vessels. By the 1820s, improvements in the manufacture of shells made them safe enough for ship use, and it was quickly discovered that explosive shells could truly destroy a wooden ship, in a way that solid shot rarely could (Holcombe 1997:41). Almost immediately, wooden ships faced another threat with the development of rifled cannon, capable of throwing explosive shells further and with greater force than ever before. Soon the search was on for ways to protect ships from increasingly lethal gunfire.

The Crimean War (1853-1856) was the first test of many of these new developments in naval warfare. Off Sinope, on the Black Sea, Russian ships firing explosive shells virtually destroyed a Turkish squadron, and this brought Britain and France into the conflict. Russian forts at Sevastopol, again firing shells, seriously damaged the wooden ships of the allied powers. The French were soon experimenting with iron armor to go over wooden ships, which led to steam-powered floating batteries clad with four-inch iron plates. The British followed suit, and the new iron vessels performed well against Russian fortifications (Milligan 1965:29; Holcombe 1997:42). The Russians also experimented with sand forts, which held up better than masonry against rifled fire.

The Crimean War saw the rise of rifled guns and ironclad ships. Wooden vessels were now obsolete, even though almost all of the world's ships were still made of wood. Rifled guns firing shells became state of the art, whether on water or on land. Masonry forts, even those designed according to the most advanced precepts, were equally out of date. In 1857, France constructed the world's first sea-going "ironclad" vessel. Called *Gloire*, it had a wooden hull plated with 4.5 inches of iron. Britain followed with an even bigger ironclad ship, HMS *Warrior* (Garrison et al. 1980:9-10). By the end of 1860, Britain and France together had 10 ironclads, and by the outbreak of the Civil War, there were an estimated 50 ironclad ships either built or under construction in Europe (Roberts 2002:9; Holcombe 1997:42).

The American Civil War brought all of these innovations front and center. It was the greatest conflict in the Western world in the hundred years between the Napoleonic Wars and World War I, and it contained tactical elements of both. Napoleon's aggressive tactics were gospel at West Point, and the first years of the war reflected that background. Those tactics, combined with rifled guns, led to casualty rates so high that the war ended in trenches just like those in Europe 50 years later.

## Initial Development of Confederate Navy, 1861 – March 1862

The Southern Confederacy was put together in a remarkably short period of time. After years of increasing discord between the Northern and Southern states over tariffs and the overarching issue of slavery, the election of Abraham Lincoln in 1860 presaged the beginning of the Civil War. Lincoln and the new Republican Party opposed the expansion of slavery in the territories, and opposed slavery in principle, perhaps more strongly than any previous chief executive. Lincoln carried the free states in the north but was swept into office only by the split of the Democratic Party into Northern and Southern fragments, each running their own candidate. The “Cotton South,” stretching from South Carolina to Texas, pulled solidly behind John Breckinridge and the Southern Democrats. Like most cities tied to cotton, Savannah voted overwhelmingly for Breckinridge. After Lincoln’s victory, most Breckinridge supporters called for secession.

After South Carolina seceded in late December of 1860, the states from Georgia to Louisiana followed suit in January, joined by Texas in February. In January, Alabama issued an invitation to the other seceded states to send representatives to Montgomery to form a governing compact. In February, the representatives created a “confederate” government, with a new constitution, and a new president, Jefferson Davis of Mississippi.

The Navy Department was created by act of the Confederate Congress on February 21, 1861. Davis appointed Stephen Mallory Secretary of the Navy that same day. Even though Congress did not establish the Confederate Navy itself until March 16, Mallory began work almost immediately (Eicher 2001:140; Still 1971:6). He had a daunting task, and, unlike many of Davis’ other appointees, Mallory was suited to the job.

Stephen Russell Mallory was born in 1813 to American parents living in Trinidad, and was raised in Key West. Familiar with the sea and with politics, Mallory was elected to the U.S. Senate from Florida in 1851. Two years later, he became chairman of the U.S. Naval Affairs Committee, and learned much of the inner workings of the country’s naval establishment. Although Mallory did not favor secession, he resigned his Senate seat and cast his lot with the South after Florida left the Union (Still 1971:6; Durkin 1954).

In February of 1861, the Confederate Navy was virtually non-existent. It could claim a total of 10 vessels armed with 15 guns. The vessels included four captured revenue cutters and a side-wheeler under repair at Pensacola (Still 1971:7). The vessels were small, wooden, and virtually no threat to the formidable U.S. Navy. At first, there were few means for improving the situation. Out of the 10 U.S. Navy yards at that time, only the small one in Pensacola was located in the first round of seceded states.

After Ft. Sumter surrendered and Lincoln called for troops to put down the rebellion, another tier of Southern states, led by Virginia, began to secede in April. For the Confederate Navy, this meant the acquisition of a second and much bigger navy yard, Gosport, located near Norfolk (Still 1987:23). The Gosport Navy Yard was one of the best in the country and its capture by Virginia troops in April of 1861 was a major boon to the Confederacy. The yard contained a number of vessels, including one capital ship, the frigate USS *Merrimack*, a 3,200-ton screw-propelled steamer built in Boston seven years earlier. It had only been partially burned by departing U.S. Navy personnel. Just as important were the yard’s 1,198 heavy guns and 60,000 pounds of gunpowder, suitable for both the army and navy. These were cannons of various calibres, but most



were "32-pounders" (firing 32-pound shot). Also included were many "nine-inch" (diameter) Dahlgren guns, some of the best ordnance in the pre-war navy. All, however, were muzzle-loaded smoothbore cannon. Despite changes in naval warfare in the previous decade, the U.S. Navy still preferred smoothbore cannon for its wooden ships (Still 1965:299-303; 1971:9-10; 1997:64-65).

Gosport was not the only boon to the Confederate Navy. Just as important was Richmond's Tredegar Iron Works, by far the most important iron-working facility in the South. At the beginning of the war, it was the Confederacy's only rolling mill, and was capable of producing railroad iron, machinery, armor plate, and cannon. Tredegar was supplied with iron ore from the Appalachians. In fact, in 1861, most of the Confederacy's iron production and iron-working facilities were located in Virginia, and this was a major factor in the decision of the new government to relocate its capital to Richmond in May of 1861. The Confederate Navy Department did not really get organized until it settled into its new quarters at Richmond's Mechanics Institute, converted to government use in June and July of 1861 (Still 1971:3).

The Confederate Navy Department was organized into four bureaus: Orders and Detail, Provisions and Clothing, Medicine and Surgery, and Ordnance and Hydrography. The first bureau issued the orders passed down to naval personnel, and dealt with many other aspects of personnel. The second was responsible for clothing and food, the third, for medical treatment. The fourth and last was responsible for all guns, powder, and shells required for the service. Other aspects of the service not elevated to formal bureaus included the Confederate States Marine Corps, the Office of Chief Naval Constructor, and Engineer-in-Chief (Still 1971:7; Wells 1971; Eicher 2001:141-142).

The nerve center was Orders and Detail. In late 1861 to early 1862, this bureau was commanded by Captain Franklin Buchanan, who would later serve as the first commander of CSS *Virginia* (Eicher 2001:141). From a purely military point of view, the most important was Ordnance and Hydrography. Responsible for shells, gunpowder, and cannons, this was the aggressive arm of the Confederate Navy. It was also responsible for obtaining the materials needed to produce these items. Duncan M. Ingraham was the first chief of this bureau, but he was soon replaced by George Minor, who served from May 1861 to March 1863. Minor was responsible for much of the success of Ordnance and Hydrography. By the time Minor was replaced by John Brooke in March of 1863, there were naval ordnance works all over the Confederacy (Still 1965:299; 1987:40; Eicher 2001:141). This, however, would only come later. In the first year of the war, the Confederate Navy relied heavily on the material captured at Gosport, both for guns and powder (Still 1965:299-303).

Answerable to navy headquarters in Richmond were the various regional centers, usually based at the largest ports. Among these were Norfolk, Charleston, Savannah, Mobile, and New Orleans (Still 1965:286). The "mosquito fleets" found at each of these ports were identified as squadrons. Savannah, being one of the major ports of the Confederacy had its own command, known as the Savannah River Squadron (Eicher 2001:142). It was at the squadron level that the navy got down to the brass tacks of ships, captains, and crews.

During the Civil War, the commanding officer of a naval yard or base was called a "port captain." The ranking officer for a group of ships was referred to as a "commodore" or "flag officer." While either a captain or a lieutenant could command a ship, the commanding officer of any ship, regardless of rank, was referred to as "captain" or "commander." Commanders of small ships were often called masters or commandants (Eicher 2001:138).

Some 247 U.S. Navy officers resigned their commissions and went south (Roberts 2002:13). Enlisted men were not allowed to do this, nor is there any indication that they wanted to. As a result, the Confederate Navy had a surfeit of senior officers, and a dearth of ships and crews. By the end of the war, there were only some 100 captains, commanders and lieutenants employed in the Confederate Navy, and this number was too many for the positions available. In an attempt to get around the bottleneck posed by seniority, the Confederate "Provisional Navy" was established in May of 1863. This allowed the Department to move qualified officers into critical commands without jeopardizing the rank of senior officers in the regular Navy (List of Navy Officers, n.d.; Eicher 2001:140).

A more serious problem was the lack of serviceable ships, weapons, and support facilities. With the Confederacy's limited number of navy yards and shipwrights, Mallory knew that the South could never match the North in numbers, whether it was ships, crews, or weapons. The Confederate Navy's only chance was to rely on the latest technological innovations. For Mallory this meant rifled guns and ironclads to counterbalance the greater numbers of smoothbore cannon and wooden ships in the U.S. Navy (Still 1997:64; Roberts 2002:13, Holcombe 1980:1).

Mallory was in a position to address this issue directly, since naval construction did not operate through a bureau, but was controlled by the Secretary himself. Mallory had a number of subordinate positions created to help him perform this duty. These included a chief naval constructor, John L. Porter, and chief engineers John M. Brooke and William P. Williamson. These in turn had assistants, who inspected naval construction all around the Confederacy (Still 1965:289-290).

There were three different financial arrangements used in Confederate naval construction. The first was work done in navy yards under the direct supervision of the Navy Department. The second was private construction directed by agents of the Navy Department; and the third was done in private yards under contract. Direct work was done at Norfolk, Pensacola, and New Orleans, until those cities fell to Union forces in 1862. Most work, however, was accomplished under contract at private yards (Still 1965:290-291), and this appears to have been the case in Savannah.

The construction of wooden vessels was a difficult task for the Confederacy. The construction of ironclads posed problems of much greater magnitude. Even so, Mallory was determined to obtain ironclad vessels as quickly as possible. Even in Montgomery, the Secretary of the Navy told the Congressional Chairman of Naval Affairs that, "I regard the possession of an iron-armored ship as a matter of the first necessity." At that time, it was clear that Mallory hoped to buy such a vessel in Europe (Official Record, Navies, Series 2, Vol. 2, pp. 67-69; Still 1987:8).

On May 10, before the government left Montgomery, the Confederate Congress appropriated \$2 million for the purchase of ironclad vessels in Europe (Still 1997:51-52). Two days before, Mallory met with the man who would become his most successful agent in Britain, James D. Bulloch. Mallory gave Bulloch wide latitude in the purchase of ironclads, as well as the purchase or construction of other ships and supplies. Within days, Bulloch was in Canada and on route to London and Liverpool, where he began his remarkable mission of procuring ships for the Confederacy (deKay 2002:6-79).

Bulloch was also a navy supplier. His early purchases included, "cloth or cassinette pants, shoes, cloth jumpers, woolen socks, cloth round jackets, blankets, duck pants, blue cloth caps, blue flannel overshirts, pea jackets, blue flannel undershirts,

barnsley sheeting frocks, blue flannel underdrawers, and black silk neckerchiefs." Most of these items made it into the Confederacy (Kennington 1994).

Bullock's shipbuilding operation began in June and July of 1861, with the construction of two wooden ships by the Liverpool firms of William C. Miller and Sons and Birkenhead Iron Works. To get around British neutrality laws, the story went out that the vessels were destined for Italy. This led to *Oreto*, launched in March of 1862, and *Number 290*, launched in May of 1862 as *Enrica*. *Oreto* would become CSS *Florida*, while *Enrica* became CSS *Alabama* (deKay 2002:21-33, 42-79, 143). The success of these vessels led to the construction or purchase of other vessels, which preyed on the huge and largely unprotected U.S. merchant marine. By the end of the war, there were 12 such vessels that operated as commerce raiders. The most successful of the lot were *Alabama*, *Florida*, and *Shenandoah*, the last bought to replace *Alabama*, sunk by USS *Kearsarge* off the coast of France in 1864 (deKay 2002:207, 242). One of these 12 was the "other" CSS *Georgia*, which operated as an open-sea cruiser. Originally known as *Japan*, this cruiser was purchased for the Confederacy in early 1863 and was responsible for nine captures on the Atlantic. Eventually determined to be unsuited to its mission, the first *Georgia* was sold before the end of the war (Still 1997:50-51).

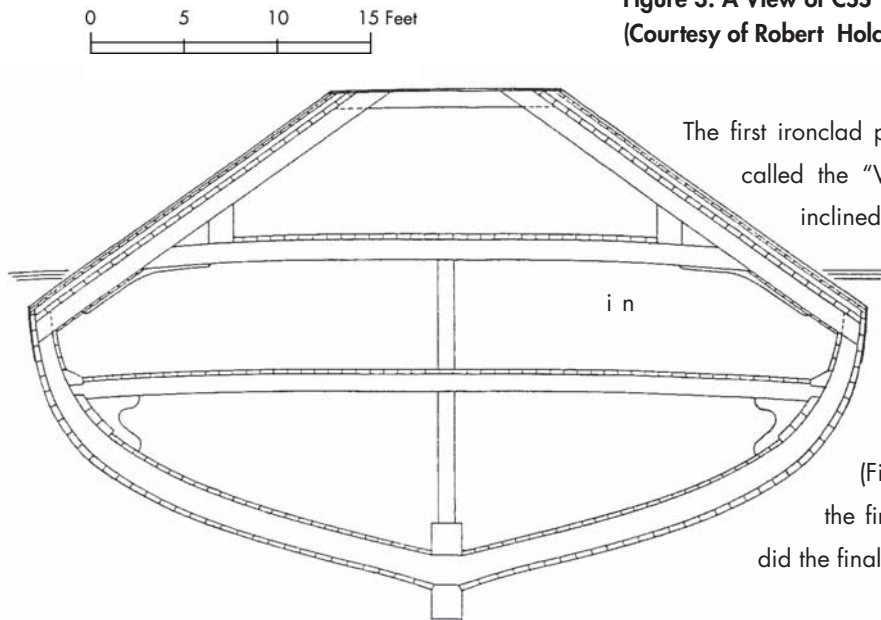
By 1863, it became difficult for Confederate agents to build or purchase warships of any kind, as the British government, at U.S. insistence, became more vigilant about this violation of its neutrality laws. It should be pointed out that all of the ships obtained by Bulloch and others were wooden vessels. At no point did any Confederate agents succeed in obtaining armored ships in Britain (only in late 1864 did the Confederates obtain the ironclad ram CSS *Stonewall*, built in Bordeaux, France: Neyland 2005). Under Bulloch's supervision, the Laird Works near Liverpool began construction on two ironclads for the Confederacy in 1862, but the British government seized them in September of 1863. After this, the construction of four ironclads was initiated in France, but these too were never completed. Confederate agents never succeeded in purchasing previously constructed ironclads (deKay 2002:118, 159-165, 206).

Early on, it was clear that the Confederacy would have a difficult time getting ironclad ships from Europe (Still 1961:331; 1971:10-12; Garrison et al. 1980:11). By June of 1861, Mallory came around to the idea that primitive ironclads could be manufactured locally. As he told Jefferson Davis many months later, "Such vessels as the English frigate *Warrior*, whose cost has exceeded \$5 million, and as the French sloop *Gloire*, which cost about \$2 million, can not be constructed in this Confederacy" (Official Record, Navies, Series 2, Vol. 2, p. 152). The Confederacy could, however, produce a more primitive ship, similar to what the French did in the Crimean War, and this was exactly what Mallory and the Confederate Navy Department began to do in the summer of 1861.

In early June, Mallory had a series of meetings with Lt. John Mercer Brooke, John L. Porter, and William P. Williamson on the efficacy of constructing ironclad vessels in the Confederacy. Both Brooke and Porter submitted ironclad designs. Brooke, a chief engineer with considerable experience in naval ordnance, favored the construction of large vessels that could challenge the Federal blockade on the open sea. Porter, the Chief Naval Constructor, leaned toward smaller, simpler vessels suitable for harbor defense (Garrison et al. 1980:2, 11-12). In the first year of the war, Mallory leaned toward Brooke's preference for larger vessels. As a result, Brooke drew up some of the first plans for Confederate ironclads (Still 1971:12).

John Brooke, the Confederacy's foremost expert on naval ordnance, was greatly interested in ironclads in 1861 and early 1862 (Still 1987:40). He worked up the first plans for an ironclad in June, with the help of naval constructor John L. Porter and chief engineer William P. Williamson (Still 1997:51-52). These plans called for wooden vessels with sloping "casemates," or armored coverings. Located above the main deck, the casemate was designed to protect the guns and the wooden ship itself (Still 1971:13-14).

**Figure 3. A View of CSS *Virginia* in Section**  
(Courtesy of Robert Holcombe)



The first ironclad plans, prepared in June of 1861, have been called the "Virginia class." This class of ironclads had inclined casemates, relatively light tonnage, and in theory at least, were capable of operating in shallow waters. Ironically, the plans had to be modified to construct the first ship of this class, CSS *Virginia*, converted from the pre-war frigate USS *Merrimack*, left at Gosport (Figure 3). Both Brooke and Porter worked up the final plans for *Virginia*, and it was Porter who did the final drawings (Still 1961:332-333).

CSS *Virginia* was just an example of the irregularities encountered in early ironclad construction. Most of *Virginia* class vessels constructed during the first year of the war were not standardized, and were built with the materials and laborers at hand. This led to wide variation in size and shape. In addition to *Virginia*, these improvised vessels included *Tennessee*, *Louisiana*, *Mississippi*, and *Arkansas*. The only thing they shared in common was size. All were large, formidable-looking vessels. Many were over 200 feet in length (Garrison et al. 1980:15; Holcombe 1980; Still 1987:10-12).

*Virginia* will be discussed in greater detail below, but it is useful to discuss the characteristics of other vessels constructed that first year. *Louisiana* and *Mississippi* began construction in New Orleans in the summer of 1861. Both vessels had a simple design, and were almost completely angular in shape (Holcombe 1980:5). *Mississippi* had a length of 160 feet, a width at the beam of 58 feet, and a draft of 14 feet. *Louisiana* was much larger, with a length of 264 feet and beam of 62 feet (Melton 1968:63-64). *Mississippi* had a casemate covered with three-inch iron plates, as well as three propellers powered by its engines (Garrison et al. 1980:25-26; Scharf 1894:268-269). Due to labor problems and machinery delays, neither vessel was completed before New Orleans came under attack in April of 1862. Pressed into service, *Louisiana* was destroyed in action below New Orleans. The Confederates themselves burned the unfinished *Mississippi* when New Orleans fell at the end of the month (Still 1971:45-60).

*Arkansas* and *Tennessee* were also begun in the summer of 1861. They were built in Memphis, with plans and specifications prepared by John Porter. In a unique configuration, *Arkansas's* casemate had almost vertical sides; only the ends were angled, at 35 degrees (Garrison et al. 1980:29; Scharf 1887:553-554; Holcombe 1980). The unfinished *Tennessee* was lost

with the fall of Memphis, but the unfinished *Arkansas* was towed down the Mississippi and up the Yazoo River to Greenwood and then Yazoo City. There it was completed in time to attack a combination of Federal fleets above Vicksburg, in July of 1862. *Arkansas* was one of the few Confederate ironclads successful in combat. Even so, mechanical problems ensured that its life was short (Still 1971:62-63).

One reason for slow construction and poor machinery was the primitive state of Southern industry at the beginning of the war. In every instance when the Confederate Navy needed iron, there were problems. There were not enough rolling mills to produce the iron plate or the naval guns, and there were never enough marine engines. Considering the serious nature of these problems, it is remarkable that ironclads were built at all. And no problem was as persistent as the need for iron plate.

Throughout 1861, Confederate naval authorities tested iron plate to determine which thickness and position was most likely to deflect enemy shells. It was soon determined that iron armor had to be at least four inches thick, set onto casemate walls angling 36 degrees or less, for maximum success (Garrison et al. 1980:16). These tests also determined that solid plate fared better than "laminated plate." Since no mill in the South could produce solid plate, laminated plate— rectangular iron strips, bolted together— had to suffice.

The first laminated plate was only one-inch thick. In early 1861, no iron mill in the South, including Tredegar, was capable of rolling two-inch plate, much less four. By the end of the war, only three mills could produce two-inch plate. Tredegar was the first to cross this threshold in September of 1861. The second was the Scofield and Markham Iron Works in Atlanta, also known as the Atlanta Rolling Mill, which turned out two-inch plate as early as December of 1861. Owned and operated by native-born Northerners and Union sympathizers, the Atlanta Rolling Mill consistently dragged its feet in filling production orders. Soon, the Confederate government became directly involved in the process, resulting in the Shelby Iron Company in Columbiana, near modern Birmingham, Alabama. Shelby Iron could produce two-inch plate by 1863 (Still 1965:294; 1987:25, 34-35; Dyer 1999:77-79). As a result of these foundries, most ironclads were outfitted with two layers of two-inch plate. The inner layer was usually laid horizontally; the outer layer, vertically. By the end of the war, some ironclads had three layers of two-inch plate (Still 1971:96-98).

Another problem was simply getting enough iron. The extraction and processing of iron required an industrial infrastructure that barely existed in the pre-war South. In 1860, most of these facilities were located in Virginia, with iron from the mountains brought to the foundries of Richmond. In the first year of the war, these Virginia facilities were paramount to the war effort. Later, additional facilities were created in north central Alabama, which also had good iron deposits, but it was too little too late. At no time, and at no location, could the Confederacy produce all the iron it needed for the navy (Still 1971:144; 1987:48, 55).

Because of the perpetual bottleneck in iron production, the Confederate Navy often resorted to stopgap measures in obtaining iron armor. And the most common of these measures was the use of railroad iron. As a result of the expansion of railroads through the South in the years before the war, local railroad companies often had stocks of extra railroad iron, known as "T-rails," for laying new tracks or repairing old ones. The preferred method for using railroad iron for vessel armor was to melt it down to form plates. Mallory described this kind of plate to North Carolina governor Zebulon Vance, when the secretary

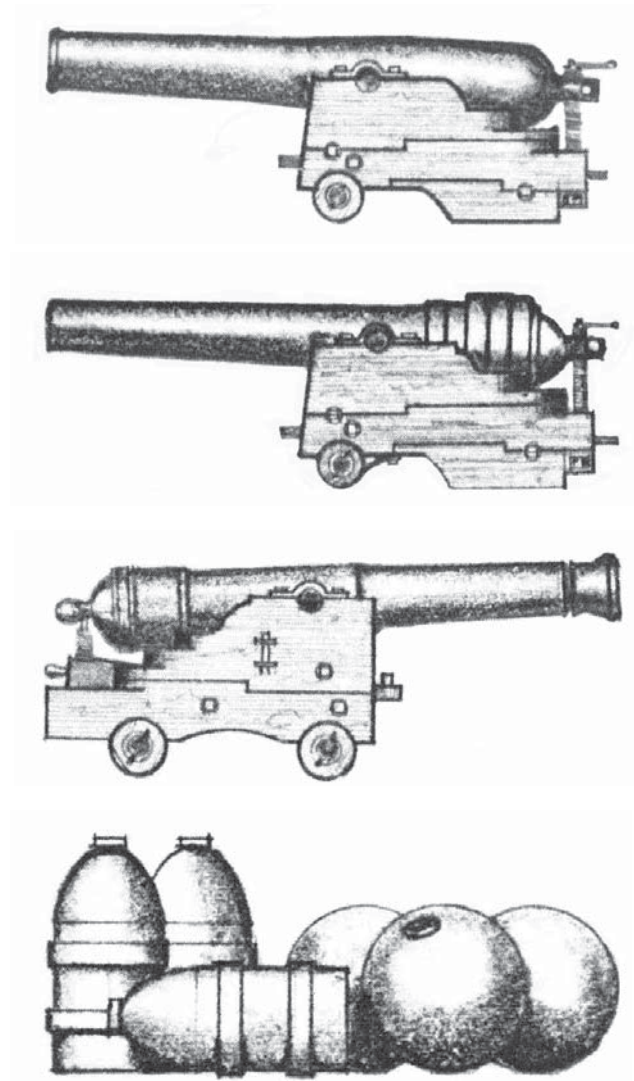
requested railroad iron on November 4, 1862. The T-rails, he said, would be fashioned into slabs two inches thick, seven inches wide, and 10 feet long. Such plates could then be put on the casemate in two courses (Official Record, Navies, Series 1, Vol. 8:844; Still 1987:50).

An even simpler use of railroad iron was to apply the T-rails themselves, unmodified, directly to the casemate (Garrison et al. 1980:16). While not as effective as plate, it had the advantage of speed, since the iron did not have to return to the foundry to be rolled. This method of armor was used on *Arkansas*, *Louisiana*, and *Missouri* (Still 1971:98; Garrison et al. 1980:16; Robert Holcombe, personal communication, January 28, 2003). It was also the method that would be used on CSS *Georgia*. Without a doubt, it was the most primitive form of iron armoring, but it was effective. *Arkansas*, after all, used this method, and it was one of the most successful of all Confederate ironclads.

While armor production was the greatest logistical problem for the Confederate Navy, the development of naval guns posed its own set of problems. At the beginning of the war, the U.S. Navy's standard armament was the nine-inch, smoothbore Dahlgren gun (Still 1971:22, 32). Created by Captain John A. Dahlgren, this gun was a fixture on Federal ships throughout the Civil War (Figure 4). Despite advances in the development of rifled cannon during the 1850s, many naval experts believed that smoothbore shells worked better against wooden ships than rifled shells (Still 1997:65). For this reason, the U.S. Navy was slow to abandon its smoothbores. The much smaller Confederate Navy did not have that luxury. With iron at a premium, it had to concentrate on the production of rifled cannon (Still 1971:104).

This being the case, the Confederate Navy was fortunate to have Lt. John M. Brooke. An ordnance expert with an interest in ironclads, Brooke would later serve as the head of the Navy's Bureau of Ordnance and Hydrography (Still 1971:12). In 1861, however, his primary contribution was the design and manufacture of "Brooke guns." These became the standard of the Confederate naval service and some of the best ordnance produced on either side of the Civil War (Still 1997:65; Kennington 1994). These guns had their beginnings in the summer of 1861, when Mallory ordered Brooke to design a seven-inch rifled cannon for use on CSS *Virginia*. Brooke designed his gun in two versions: 7-inch diameter and 6.4 inch diameter (Still 1971:104; 1987:40-41).

**Figure 4. Illustrations of Dahlgren Gun, Brooke Rifle, and Pounder Rifle as well as Ammunition (U.S. Army Corps of Engineers, ca. 1985)**



The distinctive feature of the first Brooke guns was the wrought-iron band placed around the breech. This band was put on the cannon barrel while the band was still hot. The band then shrank into a tight fit as it cooled, a technique first perfected by Robert Parrot before the war. This innovation increased cannon safety by strengthening the powder chamber at the breech, allowing the gun to fire the heavier charges required by rifled shells. Whereas Parrot used one band, Brooke was soon experimenting with two and even three. Later, Brooke also made an 8-inch version of the rifled gun, as well as 11-inch and 12-inch smoothbore cannons (Still 1971:104; 1987:40-41; 1997:65). The 6.4 and 7-inch rifles, however, remained the staples of the Confederate service (Figure 4; Still 1987). To man these guns required an optimum crew of 17 men, and a minimum crew of eight (Kennington 1994).

Even though the Confederacy was generally successful at producing naval guns, the production of marine engines, or engines of any sort, was more problematic. In fact, engineering proved to be the Achilles' heel of the service. Unlike iron plate and even cast iron cannon, marine engines required finely tooled equipment, mechanical finesse, and a trained workforce that were rarely available in the Southern states. On the eve of the war, there were only five foundries that made marine engines at all: Nobles Foundry in Rome, Georgia; Leeds Company and Clarke Foundry in New Orleans; Skates and Company in Mobile; and Shockoe Foundry in Richmond. Like everywhere else in the Confederacy, they were soon overwhelmed by the amount of work pushed their way, and they suffered from the general iron shortage. William P. Williamson, the Confederate engineer-in-chief, was usually forced to rely on used machinery for his ship engines, and these were almost always inadequate for heavy ironclads (Still 1965:288; 1987:25; 1997:66).

The main focus of the first year of the Confederate Navy was a futile attempt to purchase ironclad vessels abroad, and the construction of large but relatively primitive ironclads at home. Among the ironclads constructed in the Confederacy, however, none was more important than *Merrimack*. After moving to Richmond in May of 1861, the Confederate Navy Department spent the next eight months preoccupied with the development of CSS *Virginia*, formerly *Merrimack*. This was not necessarily a fault, since the technical advances that resulted from this work benefited other areas of the Confederate Navy. Still, the Navy Department was fixated on this project, which was a showcase for the Navy.

The transformation of the wooden *Merrimack* into the ironclad *Virginia*, was perhaps the largest single operation of the Confederate Navy Department (Still 1971:18-25). It certainly monopolized the department from the summer of 1861 to early March of 1862, when *Virginia* had its famous duel with USS *Monitor*. It was not a coincidence that this development occurred in Virginia. With the Confederacy's limited iron working facilities in the first year of the war, and with fierce competition from the army for use of Southern railroads, the navy had its hands full just coordinating work on *Virginia* in Richmond and Norfolk (Still 1987:31-32; 1971:41-42).

On Mallory's orders, work on *Merrimack* began on July 11, 1861, initiating the first period of ironclad construction in the Confederacy. Not only was it the first to begin construction, but also the *Merrimack* hull, 262 feet, 9 inches long, made it one of the largest ever built. John Porter was placed in charge of construction, and William Williamson was detailed to fix the machinery. John Brooke, in Richmond, supervised the preparation of the armor and the guns at Tredegar (Still 1971: 4-25; 1997:52; Roberts 2002:13). The armor Porter constructed was a basic shell or casemate, which henceforth became the norm in Confederate ironclads, due to its simplicity. The casemate, at the base, had a length of 170 feet. The sides of the casemate were angled at around 35 to 36 degrees from horizontal. Both casemate ends were rounded (Still 1971:24-25;

1997:52). *Porter's* casemate was much smaller than the hull, but even so the hull was virtually submerged by the time the iron plating was attached.

The preparation of the iron plate was perhaps the most difficult part of construction. Originally, the iron covering was going to be three layers of one-inch iron, comprised of plates eight feet long, with various widths, all rolled from railroad iron. Tredegar was already capable of producing one-inch plate, and the holes needed for attaching the plate could be punched at the factory. Ordnance tests soon determined that one-inch plate was insufficient. The plates themselves had to be thicker, and Tredegar was not able to turn out two-inch plate until September. Tredegar retooled specifically for *Virginia*, but the machinery available could not punch the thicker plates. They had to be drilled, which took more time and money. Tredegar worked on the new plates from October 1861 to February of 1862, by which time *Virginia* had two layers of two-inch thick iron plating. The first layer of plating was laid horizontally while the second, was laid vertically. Spaces were left for the 14 gunports, four to a side and three at each end (Still 1971:19-25; 1987:34-35; 1997:52).

Under Brooke's direction, Tredegar also worked on armament for *Virginia*. Brooke designed the four rifled cannon cast in the fall of 1861. These were the 6.4-inch and 7-inch caliber rifled "Brooke guns" made specifically for *Virginia*, and later used elsewhere. These supplemented the six 9-inch smoothboore Dahlgrens recovered from Gosport and placed on the broadsides (Still 1971:22; 1997:52).

One problem Tredegar could not fix was the engine. Rescued and refurbished from *Merrimack*, the engine and the steering mechanism were inadequate for the much heavier ironclad (Still 1971:24-25). Despite Williamson's best efforts, it was apparently not possible to obtain a better machine, or to make a new one.

Despite these problems, CSS *Virginia* was a formidable vessel when it finally left Gosport on March 8, 1862, under the command of Commodore Franklin Buchanan with Lt. Catesby Jones serving as ordnance and executive officer. Agonizingly slow, it headed straight across the mouth of the James River towards the Federal ships moored around Ft. Monroe and Newport News. Two were destroyed before the day was out: *Cumberland* and *Congress*. That very night, however, the Union's answer to *Virginia* arrived from New York, and it would fight the Confederate ironclad to a standstill the following day, March 9 (Current 1998:651; Roberts 2002:22-24).

The nemesis of *Virginia* was USS *Monitor*, designed and built by John Ericsson, beginning in the fall of 1861. A much smaller vessel than the Confederate ironclad, *Monitor* had a relatively shallow draft. Even though rapid construction required that it use "laminated armor," it was a solid iron vessel. Among its many unusual features were a low freeboard and a large rotating turret that contained two guns (Roberts 2002:15-19). Even though the two vessels looked completely mismatched, *Monitor* held its own against *Virginia* in a firefight that lasted four hours. By the end of the day, both vessels returned to their respective sides for repairs. The encounter was never repeated, even though there would be a number of stand-offs in early April (Current 1998:651).

The events of March 8 and 9, 1862, stressed the importance of ironclads and rifled guns in naval warfare. The U.S. Navy began a program to construct more ironclads based on Ericsson's design; appropriately, enough called "monitors" (Roberts



2002:22-24). By the end of the war, these ironclad steamers had replaced sailing ships as the first class vessels of the U.S. Naval Register (Eicher 2001:137).

The impact of the ironclad fight was just as great, if not greater, in the South. Just days later, on March 17, the Confederate House passed a resolution that the Navy should construct more ironclads, and Jefferson Davis was authorized to suspend further construction of wooden vessels (Garrison et al. 1980:12-13). The reaction was even more spectacular in the beleaguered coastal edges of the Confederacy, where land defenses were undermanned and the threat of Federal naval attack was great (Still 1961:331-332). Here, ironclads were perceived as the only means for turning the tide of war, which, by early 1862, was clearly running against the Confederacy. It just so happens that *Georgia* was constructed immediately after the duel between *Monitor* and *Merrimack*, when there was talk of clearing the seas of Federal ships. By the time it was finished, the Confederate Navy had settled into a more difficult period, when the theater of action was limited to inland rivers.

### Confederate Navy Reorganization, 1862-1863

The first half of 1862 was a series of disasters for the Confederacy. This included the loss of Kentucky and most of Tennessee, almost all of the Mississippi River, including Memphis and New Orleans, the largest city in the South. Similar losses occurred along the Atlantic coast, in Virginia, the Carolinas, Georgia, and Florida. The situation was not stabilized until the summer of 1862, when Robert E. Lee, now in command of the Army of Northern Virginia, defeated McClellan and secured the existence of the Confederacy in Virginia, and more active campaigning improved Confederate positions in the west. Even so, most of the losses that occurred in the first half of the year proved to be permanent. This was particularly true in the coastal areas, where there were not enough men and ships to reverse the course of the war.

This led to a reorganization of the Confederate Navy, now basically landlocked and faced with limited options. The permanent loss of the larger ports and former Navy yards, and the effective blockade of remaining ports like Charleston and Savannah, led the Navy to concentrate on smaller, more decentralized facilities, located on smaller rivers. The goals of these new yards were less ambitious. Less was said of putting to sea and routing the enemy than simply defending what was left. With this in mind, new yards were established in Richmond, Edward's Ferry, Whitehall, Columbus, Selma, Montgomery, Oven Bluff, Yazoo City and Shreveport. Some of these places were virtually unknown before the war, and many were little more than open fields (Still 1971:89-94).

With the loss of so much seacoast, ordnance depots also had to be relocated inland, to cities like Richmond, Charlotte, and Atlanta. Facilities in Richmond were designed to serve the Navy's needs in Virginia and North Carolina; Charlotte was to supply Charleston and Savannah, while Atlanta would provide for Mobile and the Gulf (Still 1965:302-303). The Charlotte Navy Yard was established in May of 1862 after the loss of Norfolk (George Buckner Minor Collection, Virginia Historical Society). With slimmer chances of receiving arms from abroad, there was a greater emphasis on ordnance production at home, all of which led to acute transportation problems (Still 1965:291, 300). Given the difficulties, it is amazing that any Confederate ships were produced during this period.

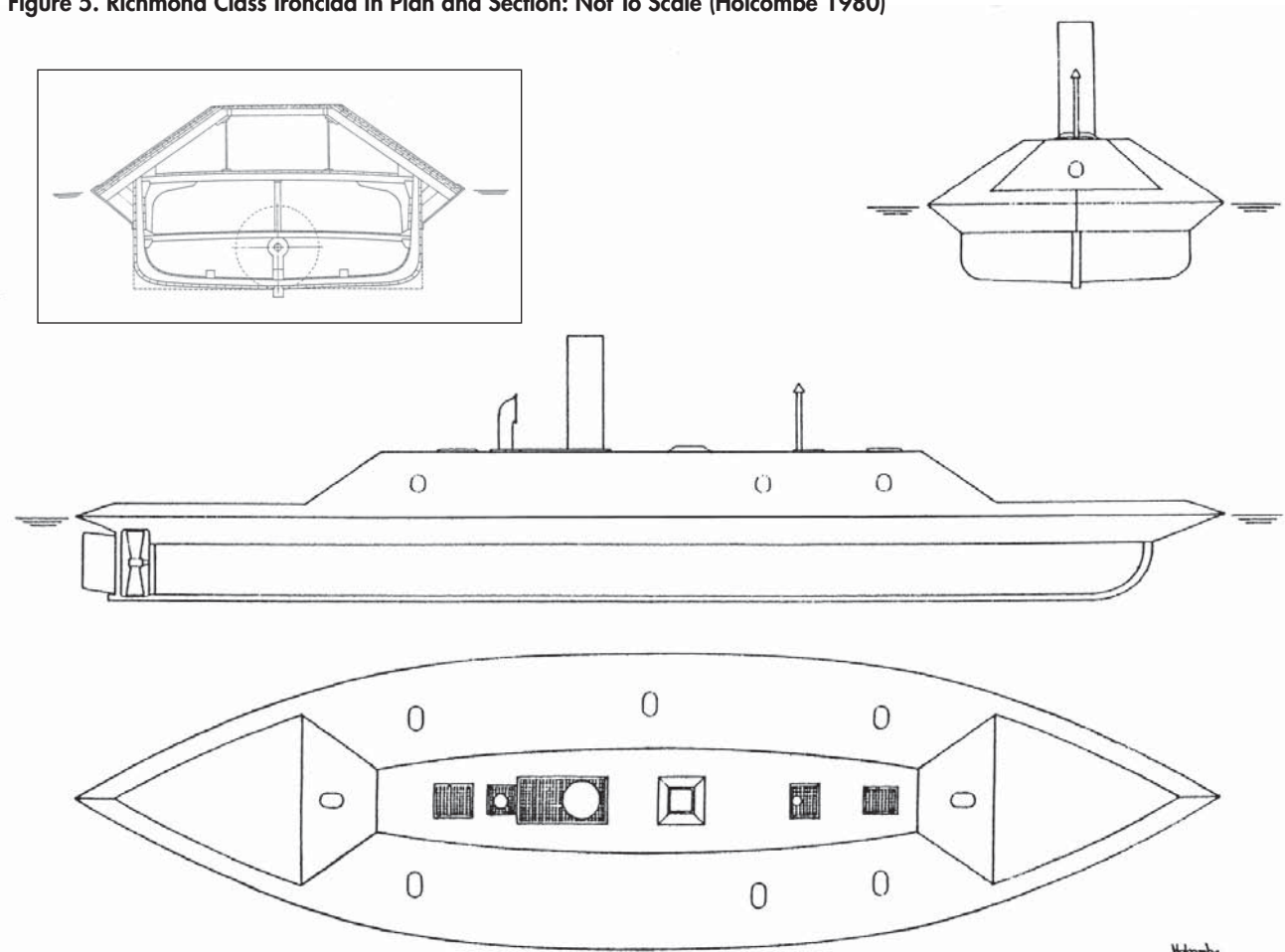
After the loss of *Merrimack/Virginia* and other large ironclads in 1862, the Confederate Navy made a renewed effort to construct more ships. Most of these new vessels were ironclads. It has been estimated that after the spring of 1862, four out

of the five ships built in the Confederacy were ironclad gunboats (Still 1971:79-80, 144 1987:15, 34; Lawson 1971:5). By now it was an accepted fact that only ironclads could have an impact on the Federal Navy, still overwhelmingly comprised of wooden vessels. The difference this time around was that the new ironclads were smaller, both because their theaters of operation would be more restricted, and because iron remained difficult to obtain.

Despite the obvious advantages of the "monitors," made completely of iron and with rotating turrets, the Confederacy was forced to stick with wooden vessels and iron casemates (Davis 1975:165-166). There were, however, attempts to streamline the construction of the new and smaller vessels. This resulted in the development of two basic classes of ironclads, the Standard Hull Classes, which usually meant the Richmond Class and the Diamond Hull Classes (Holcombe 1980:20-21; Still 1997:54-55).

Standard Hulls, and its most popular variant, the Richmond Class, were designed by John L. Porter, the Confederate Navy's Chief Naval Constructor. These types were shaped more like regular vessels, with a round bilge, a keeled hull, and a "built on" knuckle at the water line (Figure 5). They were also designed for single-screw propulsion (Holcombe 1980:3, 10-13; Still 1997:54-55). In particular, the Richmond Class had slightly sloped floors for better run-off. All had casemates built onto the hull and were armed with four guns; the two at each end were pivot-mounted (Figure 5). One of the most notable features was

**Figure 5. Richmond Class Ironclad in Plan and Section: Not To Scale (Holcombe 1980)**



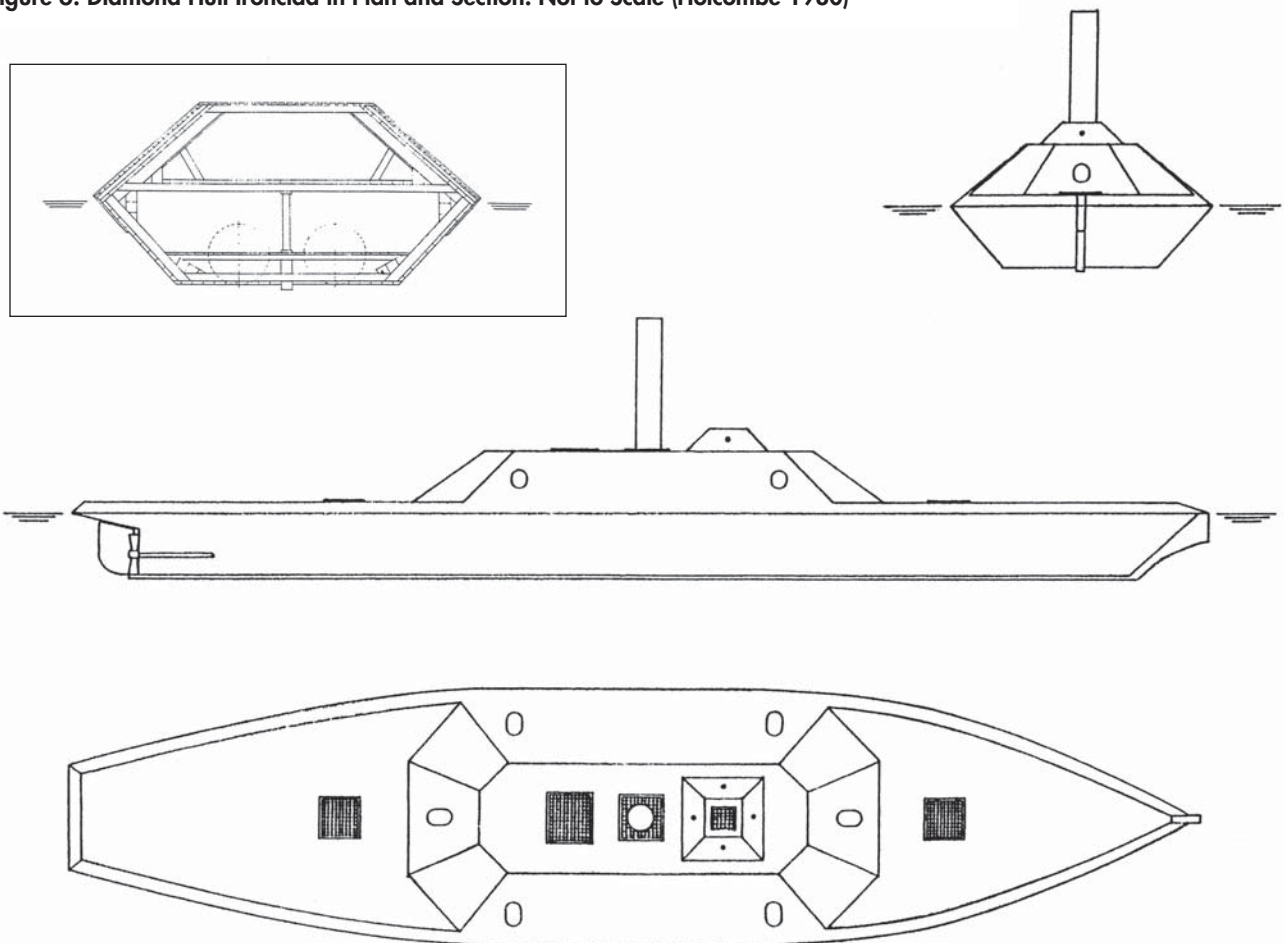
Holcombe

the standard size. The Richmond Class and the other Standard Hull Classes measured around 150 feet in length, 34 feet at the beam, and were designed for an 11-foot draft. Between 1862 and the end of the war, at least 20 ironclads of this type were either finished or under construction (Still 1997:54; Still 1971:94-96).

The second type of Confederate ironclad was the Diamond Hull Class (Figure 6). This was a more simplified design appropriate for rural shipyards, where experienced shipbuilders might be in short supply. This class took its name from the cross-section shape of these boats, which resembled a six-sided diamond. These boats had no keel and a perfectly flat bottom. The sides of the hull flared out from base, with no attempt to round off the angle. Because of the flat bottom, these vessels were designed for two screw propellers to aid in steering. They also had a shallow draft, between 8 and 10 feet, ideal for small inland rivers. The most famous of this type of vessel was CSS *Albemarle*, which played a crucial role in the seizure of Plymouth, North Carolina, in April of 1864 (Still 1971:94-96; 1997:54-55; Holcombe 1980:13-14).

Given the difficulties in iron production, transportation, and manpower in the final years of the Confederacy, it is not surprising that the government was forced to step in to manage, if not outright control, this facet of the economy. In 1862, essential laborers were exempted from the draft, but soon even this loophole did not provide enough workers. By 1864, such workers

**Figure 6. Diamond Hull Ironclad in Plan and Section: Not to Scale (Holcombe 1980)**



were simply drafted so that they could be allocated directly to mines and foundries. Even so, the workers were too few and had to be supplemented with the labor of free and enslaved African-Americans (Still 1987:67-69).

With more navy yards and increased production, there was a search for additional sources of iron. This led directly to the development of new production facilities in Virginia and the lower South, especially in Alabama. It has been estimated that 15 new blast furnaces were established during this period in Virginia, which already had the pre-war infrastructure to support the development. Remarkably, 13 new furnaces were established in Alabama (Still 1987:48, 55). Iron fields were developed in and around Briarfield, and much of this iron ended up at the Selma Naval Works, taken over by the government and run under the direction of Lt. Catsby R. Jones (Still 1965:301). After the war, General Dabney Maury, Confederate commander in Mobile, stated that Briarfield iron was some of the best in the world, and that Brooke guns produced at Selma could handle even the heaviest charges (Melton 1968:204).

This iron development in Alabama spread over into Georgia. The Schofield and Markham Iron Works, often called the Atlanta Rolling Mill, received this iron. Due to the Unionist sympathies of the owners, Lewis Schofield and William Markham, the plant failed to produce to full capacity. After the government threatened to seize the mill, it was sold in 1863 to the Charleston firm of Trenholm and Frazier (Dyer 1999:77-80, 343). Another iron mill was the Columbus Naval Iron Works, begun in 1862 in Columbus, Georgia (Still 1997:68; Turner 1988 appendices). The Naval Iron Works could produce cannon, shot, shells, steamboilers, and iron plate (Evans 1999:159). It was in the process of constructing a rolling mill for two-inch plate when the war ended (Holcombe, personal communication, April 8, 2003). There was even an ironworks operation in Savannah, the "Engineer Department Iron Works," run by Edward Gottheil, commissioned to construct "torpedo boats" (Emory University Special Collection No. 110, Box 2, Folder 8, Item 1008).

Despite the spread of iron-working facilities in the Confederacy, there were still shortages of iron due to transportation problems. Rolling mills were often idle for lack of raw material (Still 1965:296-297). The Navy contributed to its own problem by competing with railroads for the use of available T-iron (Still 1987:78). For some, the whole development of the ironclads was a waste of limited resources. The military commander in Wilmington, Major General William Whiting, discussing the Navy's use of iron, had occasion to state that, "so far the gunboats have caused more trouble, interfered more with government business and transportation, been bound up more and accomplished less than any part of the service" (Still 1971:153).

### Josiah Tattnall and the Beginnings of the Savannah Squadron, Early 1861

South Carolina was the first state to secede, on December 20, 1860. Before the month was out, Mississippi, Alabama, and Florida held state elections for delegates to secession conventions, scheduled to meet in January of 1861. In early January, Georgia held similar elections. Savannah elected three secessionists to the convention. After considerable wrangling, the convention voted Georgia out of the Union on January 19, 1861 (Lawrence 1961:10). Among the local leaders favoring that move were Captain Francis Bartow, Alexander R. Lawton, and Col. Henry R. Jackson, names that would figure in Civil War Savannah (Griffin 1963:52-55).

Even before formal secession, the state government made plans to seize Fort Pulaski. The raid was approved by Governor Joseph Brown, and planned by Henry Roote Jackson, then a member of the governor's staff. On January 3, Col. Alexander

Lawton and a local citizens militia assembled at the wharf at the foot of Broad Street, boarded the U.S. sidewheeler *Ida*, and steamed downriver to Tybee Roads to seize the fort from its Federal caretakers (Lawrence 1961:12; Lattimore 1961:13-14). The fort was found to be in bad repair and short of ordnance, with only 20 32-pounder cannons and a small amount of powder. The Georgia troops worked to correct these problems and establish a telegraph line between the fort and Savannah (Griffin 1963:64-70).

In January and February, the State of Georgia sought to buy arms in New York, which were seized by local police before they could be shipped. Governor Brown retaliated by seizing all ships owned by New York firms then at port in Savannah, which led New York authorities to retaliate in turn. At this time, Governor Brown's agent in New York was Gazaway B. Lamar, a native Georgian and president of the Bank of the Republic (Scharf 1894:623; Griffin 1963:101-102). Lamar was soon pressured out of his position in New York and would move to Savannah. There, he would play a key role in the construction of *Georgia*.

During this period, there was a scramble to put together military units of all kinds, for service on both land and sea. There were at least nine volunteer companies formed in Savannah alone, all under the command of Col. Lawton. Among these were pre-war militia groups like the Chatham Artillery and the Savannah Volunteer Guards. Newly established groups included the Georgia Hussars, the Republican Blues, and the Irish Jasper Greens (Lawrence 1961:16-18).

On January 21, 1861, just two days after Georgia left the union, the state secession convention created the Georgia State Navy. As a result, the "Savannah Squadron" predated the Confederacy itself, which was not organized until the following month (Kennington 1994; Griffin 1963:72-74). Almost before it had ships, the new squadron had a commander. In February, Commodore Josiah Tattnall resigned his commission in the U.S. Navy and tendered his services to the state of Georgia. On February 28, 1861, Governor Joseph Brown appointed him commander of the state's naval forces. His first flagship was the paddlewheel *Everglade*, 122 feet in length, purchased in Savannah for \$40,000. With the addition of two smoothbore cannon, *Everglade* was re-christened *Savannah* on April 28, 1863. After the construction of the ironclad *Savannah*, this ship would be renamed again, becoming *Oconee* (Emory University Special Collections No. 110, Box 1, Folder 4, Item 38). The Georgia Navy thus began with three small wooden ships, *Savannah*, *Sampson*, and *Resolute* (Still 1989:2-3; Lawson 1971: ii, 1; Lawrence 1961:23).

Now virtually unknown, Josiah Tattnall III was a renowned figure in his day, and not just in naval circles. Sixty-six when Governor Brown made him head of the Georgia Navy, Tattnall was nearing the end of an illustrious career that had literally taken him around the world in the service of the United States Navy. Even though Tattnall had hardly spent any time at all in the city of his birth, his family had been tied to Savannah for three generations. In the 1760s, his paternal grandfather, also named Josiah, had married into the Mulryne family, which allowed him to inherit the Bonaventure Estate a few miles south of the city. The grandfather returned to Britain with the outbreak of the American Revolution, but his son, Josiah Jr., returned to America and fought with the Patriots. This enabled him to re-acquire part of Bonaventure. Josiah Tattnall III was born there on November 9, 1795. With the death of his father in 1804, the nine-year old orphan was shipped off to relatives in England. Returning to Savannah in 1811, Josiah Tattnall III became a midshipman in April of 1812, on the eve of the War of 1812. Serving on the frigate *Constellation*, he helped repulse a British landing party at Craney Island off Norfolk in the Chesapeake Bay, June 22, 1813 (Jones 1878:1-9; Scharf 1894:628 footnote).

After the war, Tattnall was promoted to lieutenant and assigned to the frigate *Macedonian*. In the following years, he served in the south Pacific, as well as in the Mediterranean, Caribbean, and Gulf of Mexico. Promoted to commander in 1838, he was put in charge of the Boston Navy Yard. During the Mexican War, he served on *Spitfire*, seeing action at Vera Cruz and Tuxpan. Afterwards, he was stationed in the Great Lakes before being sent to East Asia. In 1857 he was made commander of the U.S. East India Squadron, and two years later assisted British and French fleets in the attack on Chinese forts at the mouth of the Pei-ho River. As a neutral coming to the assistance of the British, Tattnall declared that "blood is thicker than water," a remark that made him famous back home. He was with the detachment that brought the first Japanese ambassadors to the United States, and he was in New York when Georgia seceded in January of 1861. Even though Tattnall opposed secession and had been away from Georgia for most of his life, he felt honor-bound to serve his state. He resigned his U.S. Navy commission on February 21, 1861. Within days he was made commander of the state navy based in Savannah (Jones 1878:23-130; Scharf 1894:628 footnote; Still 1971:36; 1989:2; Lattimore 1961:16; U.S. Naval War Records Office 1931).

In late March, the Georgia Navy was formally folded into the Confederate Navy, and Josiah Tattnall became a Confederate Navy captain. He was in charge of naval defenses in Georgia and South Carolina for most of 1861 and into 1862. After a brief interval as commander of CSS *Virginia*, he would return to Savannah as commander of naval defenses of Georgia, and end his naval career as commander of the Savannah Station, from 1863 to December of 1864 (U.S. Naval War Records Office 1931).

At the beginning of the war, Tattnall was quite popular throughout the South. His appearance in Richmond in June of 1861 was worthy of comment in the local paper, which remarked on his coolness under fire, as well as his rescue of British seamen at the mouth of the Pei-ho (*Richmond Daily Enquirer*, June 26, 1861: "Federal Fleetness: Commanders Tatnall (sic) and Ingraham"). Two of the first volunteer companies formed in Savannah, the "Tattnall Guards" and "Tattnall Rangers," were named in his honor (Lawrence 1961:17-18; Georgia Historical Society: Tattnall Rangers, Collection No. 1165). Later in the war, however, he would fall out of favor, both with the public and with Confederate naval authorities. He was actually demoted in 1863 from "commander afloat" to a land position as station commander. This demotion was for a perceived lack of action. It was also unwarranted. Tattnall's service with the Georgia Navy and the Confederate Navy was an exercise in frustration. He simply did not have the means to take on the much larger Federal fleet.

By spring of 1861, Tattnall's fleet had grown to six vessels that had been either seized or bought by the state or by Confederate naval authorities. These included the following: *Savannah*, *Sampson*, *Resolute*, *Bonita*, *Ida*, and *Lady Davis* (Kennington 1994). *Savannah*, formerly *Everglade*, had been constructed in New York in 1856, and was Tattnall's first flagship. The primary function of *Resolute* was to serve Savannah. *Lady Davis*, formerly *James Gray*, became Tattnall's new flagship after it was purchased in Charleston on May 7, 1861 (Lawson 1971:1-2; Still 1989:2-3).

The transfer of Georgia ships and troops to confederate authorities was not a smooth one. Georgia's secession convention ratified the state's entry into the Confederacy on March 16, 1861, and on March 30, the vessels and crews of the Georgia Navy were turned over to confederate authorities (Griffin 1963:72-74; Kennington 1994). Even so, it took a while to sort things out. With the start of the war in April and the transfer of the Confederate capital in May, matters remained unsettled for a number of months.

This was particularly true for Georgia state troops. For at least a year into the war, until the passage of the first Confederate conscription act on April 16, 1862, there were two armies in Savannah, one comprised of state troops and the other, confederate troops. As early as April of 1861, Alexander R. Lawton was made brigadier general and appointed the first Confederate commander of the Savannah District, with Fort Pulaski serving as the focus of his forces (Lawrence 1961:19). In 1861, when volunteer forces were streaming to the front in Virginia, Governor Joseph Brown often refused to allow state troops to leave, even though many left anyway. As early as November of 1861, Georgia troops in Savannah were under the command of Brig. General George P. Harrison. In late 1861 or early 1862, Henry Roote Jackson replaced Harrison. The two parallel commands, Confederate and state, often overlapped, a problem compounded by interference from the governor himself (Lawrence 1961:27; Griffin 1963:111-113).

### War Comes to Savannah, November 1861 – April 1862

In early November of 1861, a large Federal fleet under the command of Samuel Du Pont appeared in the waters off Port Royal Sound, South Carolina. With 15 warships and 36 transports, as well as 12,000 troops, commanded by Thomas W. Sherman (commonly referred to as “the other Sherman”), it would be one of the largest Federal expeditionary forces of the war. With the exception of the much smaller Hatteras landing two months earlier, it was also the first.

The destination of the Federal expedition was an open secret. As a result, Commander Tattnall and his mosquito fleet were on hand to do what they could. At that time, Tattnall’s flagship was the wooden steamer *Savannah*, commanded by Second Lieutenant J. N. Maffitt. Other ships included *Resolute*, commanded by J. Pembroke Jones; *Sampson*, under J. Kennard; and *Lady Davis*, under J. Rutledge (Jones 1878:135; Lawrence 1961:34-35). This small fleet sparred with eight ships from the Federal fleet on November 5. Outgunned and outclassed, Tattnall’s smaller fleet was forced to retire, with minimal losses on either side (Kennington 1994).

The Savannah Squadron was not the only Confederate force outclassed at Port Royal. The small forts located on either side of Port Royal, Forts Walker and Beauregard, were not equipped to repulse Du Pont’s fleet. John Maffitt, commander of *Savannah*, had earlier offered suggestions for the improvement of Port Royal’s defense. These included spreading cannon along the shore, rather than leaving them concentrated in the forts. He also suggested converting a captured ship, *A. B. Thompson*, into a floating ironclad battery and anchoring it in the middle of Port Royal Sound, to increase the effectiveness of Confederate fire. Neither of these suggestions was implemented (Lawrence 1961:35; Lawson 1978a, Pt. 1, p. 3).

On November 7, DuPont’s warships formed an elliptical circle in the middle of Port Royal and poured fire into Forts Walker and Beauregard simultaneously (Lawrence 1961:34-35). The guns of the forts were soon silenced and the Federal fleet and troops advanced on Beaufort. Within days, the Federals had a lock on the South Carolina Sea Islands, and Hilton Head was established as a new Federal naval base and army headquarters. Forced south, Tattnall’s fleet was soon restricted to the Savannah River.

The Federal advance against Port Royal was an excellent move. Port Royal was not only poorly defended; it was also an excellent harbor, one of the best in the South. It was also an ideal springboard for operations against Charleston to the north,

or Savannah to the south. Federal naval forces could threaten both cities simultaneously. Even though the Federals were more interested in capturing Charleston, Savannah was far from safe, as its citizens were well aware.

In early November, the Confederate command in Savannah and the surrounding area was in the midst of a shake-up, made all the more messy by the debacle at Port Royal. Fresh from West Virginia and what was perhaps his worst military failure, Robert E. Lee arrived to assume command of the coastal areas of South Carolina and Georgia. Setting up headquarters at Coosawatchie, South Carolina, along the railroad line between Savannah and Charleston, Lee only had enough troops to hold the line, and even that had to be retracted. Lee's plan was to hold onto Charleston and Savannah, even if that required stripping troops from other more lightly populated coastal areas (Lawrence 1961:39-41; Lattimore 1961:19-20).

Lee's arrival roughly coincided with that of General Henry Roote Jackson, who had also served in western Virginia and had impressed Lee as a competent commander. A native of Savannah, Jackson also attracted the attention of Governor Joseph Brown. At Brown's request, Jackson had resigned his commission in the Confederate Provisional Army to return to Savannah and head up the state troops quartered around Savannah (Lawrence 1961:120). As a result of this arrangement, Savannah found itself defended by Tattnall's small fleet, Alexander Lawton's Confederate forces, and Georgia state troops under the command of Henry Jackson— all fitfully under the command of General Lee.

It was during this period, on November 12-13, 1861, that *Fingal*, a British-made ship purchased for the Confederate government by James Bullock, made it into Savannah. It was the last major ship to elude the ever-tightening Savannah blockade, and it was carrying one of the biggest shipments of munitions ever to reach the Confederacy: 10,000 British Enfield rifles, one million ball cartridges, two million percussion caps, 3,000 cavalry sabers, 1,000 carbines (short rifles) with cutlass bayonets, 1,000 rounds of ammunition per carbine, 500 revolvers and appropriate ammunition, two large rifled cannon and gear, two smaller rifled cannon and gear, 400 barrels of cannon powder, and medical supplies (Lattimore 1961:22; Myers 1984:150-151; Melton 1968:169; Scharf 1894:639).

Also on board was James Bulloch himself, as well as another Confederate agent serving in Britain, Edward C. Anderson. As Anderson noted in his diary, *Fingal* first landed at Fort Pulaski, where the news was wired ahead to Savannah. Tattnall's ships then steamed down river to accompany the blockade-runner for the journey into Savannah. *Fingal* and its cargo were a welcome sight.

Troops cheered as we passed Fort Jackson, garrisoned by the blues at the time under my brother, and with Jake Read's company of regulars. I smiled as I looked at the guns on the parapet. They were mounted on two logs placed parallel with each other, with the truncions (?) of the cannon supported upon them. They could never have been fired without jumping off into the area of the fort. As we neared the Eastern Wharves, we fired two guns to announce our approach and at three o'clock on Wednesday, November 14th, we dropped our anchor abreast of the City near the foot of Whittaker Street.... I found the people of Savannah frightened to death by the capture of Port Royal: indeed there was good reason for them to be so, for there was really nothing to prevent the Yankees from... coming straight into the city. The arrival of the *Fingal* restored confidence to everybody. People seemed to think that because she was an iron vessel, she was an ironclad, and that she could bid defiance to the entire wooden Navy of the United States,



whereas she had been built at Glasgow for the peaceful trades to the Orkneys, and until we purchased her had never had mounted on her anything heavier than a small signal fog gun. Fortunately for us, the enemy shared in the delusion of our people and kept their vessels well aloof from the Savannah River (Anderson 1861-1864, Vol. 5, pp. 147-148).

Bulloch would later return to England, by way of Wilmington (deKay 2002:33-43), but Anderson, after a brief trip to Richmond, would return to become commander of the Savannah River artillery batteries. *Fingal* stayed as well. By the time it tried to leave, in December, the Federals were tightening the screws on both Savannah and its most exposed outpost, Fort Pulaski. On December 23, 1861, a final attempt to escape by way of Wilmington River also failed (Kennington 1994).

On November 24, 1861, little more than a week after *Fingal* arrived in port, a Federal force landed at Tybee to begin the process of sealing off Savannah (Lawrence 1961:40). Tattnall and his squadron went down river two days later to engage the Federal ships at Tybee Roads. Even though they chased the blockading ships out to sea, Tattnall's fleet returned to the city and the blockaders returned to their stations (Lawson 1971:2). By the end of the year, the Federals were well entrenched on Tybee Island (Griffin 1963:118-121).

The Federal occupation of Tybee created a panic in Savannah. Believing an attack was imminent, many citizens fled into the interior (Lattimore 1961:19). Even though there was no attack, the panic spurred the Confederate defenders into developing a second line of defense above the sea islands. Along the Savannah River, this meant more batteries around Fort Jackson.

As the Confederates worked to increase their defenses around Fort Jackson, the Federals slowly tightened the screws on Fort Pulaski. This was met with fitful and largely ineffective resistance from Josiah Tattnall's squadron. On December 26, 1861, Tattnall's flagship *Savannah*, together with *Resolute*, under Commander Jones, *Sampson* under Commander Kennard, *Ida*, and *Bartow*, steamed down river to attack the Federal blockaders at Tybee Roads. Tattnall's squadron soon retired, and the Federals were back in position. Soon afterwards, the Federals considered sinking a "stone fleet" comprised of old whaling ships, loaded down with stone, off Tybee Roads to form a barrier to navigation. Only a few of these ships went down, and in the end, the Federals decided that control of Tybee was sufficient to block Confederate commerce (Scharf 1894:630-631; Jones 1878:143; *Daily Morning News*, December 31, 1861).

The Confederate retraction to Fort Jackson allowed the Federals to explore the sea islands and other potential avenues into Savannah—avenues that could bypass Fort Pulaski. These were particularly attractive at the end of 1861 and the beginning of 1862, when the defenses around Savannah were not yet fully established. One of the first Federal exploring parties was led by a Lt. Wilson of the U.S. Army Corps of Engineers, which specifically sought to locate and possibly remove Confederate obstructions in Wright Creek, on the north side of the Savannah River. Later Federal explorations concentrated on the south side of the river, which led to the "discovery" of St. Augustine Creek-Wilmington River and Wassaw Sound (Scharf 1894:631-632). By early 1862, the Federals were well aware of the lay of land and waterways, as indicated in one of Wilson's maps (Figure 7).

An early Federal plan for taking Savannah called for an operation down Wall's Cut, an artificial channel that connected Port Royal harbor with Wright and Mud rivers. Confederate obstructions there were removed by the Federals by early January



**Figure 7. Detail from an 1862 Federal Map of the Savannah Region Made by Lt. Wilson**

1862. General Thomas Sherman, Federal district commander, wanted to assault Savannah using this route before the defenses around Fort Jackson could be improved. Du Pont, however, was not keen on the plan, since he considered Wall's Cut too small for large-scale naval operations (Griffin 1963:133-134). The assault never materialized.

In January and February of 1862, Confederates continued their work around Fort Jackson, and along the edge of the sea islands. Work on the river centered around Battery Cheves, located on the small island opposite Fort Jackson (Lawson 1971:3). This battery contained 32-pounders salvaged from the Gosport Navy Yard. The Confederates also prepared fire rafts, designed to repel an invasion, and these were located near Fort Jackson as well (Jones 1878:143-144). At the same time, work parties under the command of General Jackson began building earthworks on the west side of St. Augustine Creek and Wilmington River, from Causton's Bluff in the north, to Thunderbolt and beyond in the south (Myers 1984:198-199).

To make this defense more formidable, Robert E. Lee worked to coordinate both Confederate and Georgia state troops. On January 3, 1862, Lee wrote Henry Jackson that one of his responsibilities was to train state troops, and make them available to General Lawton, "if necessary" (Lee 1862). One month later, Lee pulled Confederate batteries from as far away as St. Simons and Jekyll islands to bolster Savannah's defense. On February 18, Lee asked Edward C. Anderson to assume the command of the construction and ordnance work on the batteries around and immediately below Fort Jackson (Anderson 1861-1864).

While all this was going on, Tattall's ships were the only lifelines to the Confederate defenders in Fort Pulaski. On January 28, 1862, Tattall's convoy, comprised of the flagship *Savannah*, *Resolute*, *Sampson*, *Ida*, *Bartow*, and a scow carrying six months provisions, came under fire from Federal ships stationed above Pulaski. After running past the guns, Tattall sent the supplies on to the fort, while his main ships returned to engage the Federals. *Sampson* was hit as a result of this action.

Afterwards, the Federals constructed shore batteries above Pulaski to seal off the fort (Myers 1984:189; Scharf 1894:633-636; Jones 1878:143-144).

One month later, Tattnall made plans for an all-out assault on the Federal batteries at Venus Point and Oakley Island, above Fort Pulaski. A council of war to discuss this issue was convened on February 28, 1862, and included Lieutenants Commanding John Rutledge, J. S. Kennard; J. Pembroke Jones, O. F. Johnston, William P. A. Campbell; and Philip Porcher, all of the Navy; and Major Edward C. Anderson of the artillery. This group reported to Tattnall that the mission was unlikely to succeed. When Tattnall made plans for an assault anyway, Lee personally interceded, reminding Tattnall that if the attack failed, the city of Savannah would be laid open to Federal attack (Scharf 1894:636; Jones 1878:145-147). Tattnall abandoned the mission and no further attempts were made to re-supply Fort Pulaski, which was left to its fate (Lattimore 1961:22-23).

The Confederate garrison at Fort Pulaski was effectively sealed off from Savannah by late February of 1862 as a result of Federal batteries erected on Jones and Bird islands, Venus Point and other points along the river (Lawrence 1961:45-47; Kennington 1994). Even so, the 385-man garrison, under the command of Charles Olmstead, had supplies for six months and could afford to wait. The Federals would not give them that chance (Griffin 1963:145). In December 1861, General Sherman ordered siege guns (Lattimore 1961:22). Work on the gun batteries began in January, and ordnance began to arrive on Tybee Island in February (Gillmore 1988:11-23).

The siege of Fort Pulaski was placed under the command of Brig. General Quincy A. Gillmore. Gillmore set up batteries on the high ground of Tybee Island, between one and two and half miles away from the fort. Considering the distance, Gillmore decided that the best way to reduce the fort was with rifled cannon (Lattimore 1961:25-28; Griffin 1963:141-142). As Gillmore himself stated later, breaches in comparable forts, using smoothbore cannons, were only possible at a distance of no more than 500 to 700 yards. To reduce Pulaski, the batteries would be between 1,650 and 1,740 yards away from the target (Gillmore 1988:42-46).

If Gillmore thought that rifled cannon could do the trick, he was in the minority. The perceived wisdom of the day had it that no cannon could breach masonry walls at that distance. Pulaski was considered a strong fort, and Lee, who had helped construct Pulaski years before, told Olmstead that the Federals “will make it pretty hot for you with shells [from Tybee]... (but) they cannot breach your walls at that distance” (Griffin 1963:140). Lee did not remain in the area long enough to see his prediction proved wrong. In early March, he was called back to Richmond to serve as Jefferson Davis’ military advisor (three months later, he would assume command of the Army of Northern Virginia). General Thomas Sherman, who had misgivings about the rifled cannon, wouldn’t see it either; on March 31, 1862, David Hunter succeeded him as head of Federal forces on Hilton Head (Lattimore 1961:29).

The bombardment of Fort Pulaski commenced on April 10 and continued into the following day. Gillmore used a combination of mortars, columbiads, and rifled cannon, but only the latter proved effective. On April 11, with the southeast angle of the fort crushed and the powder magazine exposed, Olmstead surrendered the fort and its garrison (Lawrence 1961:60). Savannah was stunned. While many attributed the disaster to treachery, cooler heads recognized that it was the end of an era. As General George Mercer put it, “the whole system of warfare is revolutionized; brick is no longer of any avail; we must have iron forts and ironclad ships” (Griffin 1963:146).

And ironclads they would have. In Savannah, one was already under construction by the time Fort Pulaski fell. CSS *Georgia* was begun in the short time between the appearance of the *Merrimack/Virginia* on March 8, and the fall of Fort Pulaski in April. This is the story of the state's first ironclad, also known as "the Ladies' Gun Boat."

### Impetus for *Georgia*: The Ladies Gunboat Association

Most of the money that went into *Georgia* was raised by the local "Ladies Gunboat Association," and the connection is not as surprising as it first appears. Long before the war, Savannah's women played a major role in the city's philanthropic activities, and this activity was carried over into the war effort. Just days after the bombardment of Ft. Sumter, the ladies of Savannah were making cartridges for muskets and cannons, in addition to the more traditional shirts and bandages. One of these groups met "at General Lawton's residence every morning from half-past nine to two o'clock." A similar group met at Dr. Kollock's. The local ladies also organized a "military fair" in May of 1861 to raise thousands of dollars for soldiers and their families. Similar organizations were the Ladies Savannah Association in Aid of the Military, the Soldiers' Independent Relief Association, the Ladies State Military Association, as well as the more traditional Ladies Knitting Society. Savannah women also served as nurses, through the Ladies Military Association for the Relief of Sick and Wounded Soldiers. In November 1861, they also helped establish Bartow Hospital, named for Francis Bartow, the prominent local lawyer killed at Bull Run. Remarkably, this work was not limited to whites; some free black women were also involved (Griffin 1963:199-208; Myers 1984:51, 64).

When gunboat construction became popular in early 1862, the women of Savannah assumed this cause as well. The idea, however, did not begin in Savannah. First started in New Orleans in late 1861, the idea of "ladies' gunboat associations" spread from New Orleans to Mobile, and then to the Atlantic ports of Charleston and Savannah (Still 1997:85-87; Lawson 1978a, Pt. 1:8). Recent losses in the war fanned their popularity. The most impressive Federal advances made to date had been made by the Navy: Hatteras, Port Royal, eastern North Carolina, even the investment of Ft. Pulaski. Worse was set to come with the fall of New Orleans in late April. Small wonder that the Confederates rejoiced as *Merrimack/Virginia* neared completion in early 1862. *Virginia* and similar ironclads were seen as secret weapons that could reverse the tide of war.

With Fort Pulaski invested and Savannah itself virtually under siege, a letter from two South Carolina women, identified simply as "Mary Ann" and "Ella," raised the first storm of activity. Published in the *Savannah Republican* on March 6, 1862, just days before the duel between *Monitor* and *Merrimack*, the letter suggested that the local community begin construction of a gunboat. The money, the letter suggested, could be raised by local citizens, via a collection committee. The money could be collected from all over the state. It even offered the names of individuals who might serve on the steering committee in Savannah, as well as leading citizens in other cities to whom funds could be sent (Lawson 1978a, Pt. 1:6-7; Melton 2002:10).

This letter spurred a great amount of activity, for the next open letter in the paper was dated March 11, just days after *Merrimack/Virginia* sank two Federal ships and then fought *Monitor* off Newport News. The letter announced the first meeting of the Savannah Ladies Gunboat Association, scheduled for noon that day at the house of Mrs. Stoddard (*Savannah Republican* March. 11, 1862; Lawson 1978a, Pt. 1:7). The 22 members were also listed. The list of names is presented in the second part of this report.

An auxiliary to the Ladies Gunboat Association, and almost as important, were the prominent Savannah men delegated to collect the funds and oversee the construction of the gunboat. Called at various times the treasurers, the commissioners, or “the steering committee,” depending on the task at hand, this group was responsible for getting the ironclad vessel built. Much about what we know about *Georgia* comes from letters written by members of this group.

The initial March 6 letter mentioned three candidates for what the two South Carolina women called a “steering committee:” Judge Edward J. Harden, Richard R. Cyler, president of the Georgia Central Railroad, and Gazaway B. Lamar, president of the Bank of Commerce (Lawson 1978a, Pt. 1:6-7; Melton 2002:10). By March 11, at least two treasurers had been appointed: Lamar and John Stoddard (*Savannah Republican* March 11, 1862). Soon there were five: Gazaway B. Lamar, John Stoddard, Hiram Roberts, Robert Lachlinson, and Francis Sorrel (*Southern Recorder*, July 15, 1862; Melton 2002:10). The most active of the five members appear to have been Lamar, Stoddard, and Sorrel, and in later months these three are usually the only ones listed as treasurers (Lamar et al., March 28, 1862; *Augusta Chronicle and Sentinel*, October. 21, 1862).

Relatively little is known about most of the five members of the steering committee, and this is particularly true of Sorrel (or Sorrell), Lachlinson (or Lachlison), and Stoddard. According to the Dun and Bradstreet records, Francis Sorrell had been in business long before 1847. With a reputation for wealth and honesty, he retired from business life in the late 1850s (Dun and Bradstreet Collection, Francis Sorrell:54). In the 1860 population census, Francis Sorrell was listed as a 65-year old merchant, born in the West Indies and a resident of Savannah. He was clearly a wealthy man, with \$55,000-worth of real estate, and another \$60,000 in personal estate possessions. He appeared to have been a widower; the four other people in his household were probably his sons and daughters.

Robert James Lachlison was an engine machinist. He owned a foundry as early as 1847 and had a reputation as a steady businessman throughout the 1850s (Dun and Bradstreet, R. Lachlison:30). In 1860, Robert Lachlison was listed as a 56-year old engineer and millwright born in Lancashire, England. His wife Maria was also born in England. There were nine other people in the household. Lachlison’s real estate was valued at \$19,000 with personal property, at \$30,000.

John Stoddard was a prominent planter on Daufuskie Island in South Carolina. Even before March of 1862, Federal-raiding parties had ransacked his plantation, forcing him to move to Savannah. John Stoddard was listed as a wealthy man in the Dun and Bradstreet records, but only in real estate. He did not appear to have considerable business ties outside of his land holdings (Dun and Bradstreet, J. Stoddard:242).

More is known about Hiram Roberts. Born in South Carolina in 1806, Roberts moved to Savannah at an early age and worked as a clerk in the dry-goods store of Waring and Company, before going into business for himself with at least two different partners. According to Dun and Bradstreet, Roberts started out in the wholesale dry goods business. He had a reputation as a steady businessman and had an excellent credit rating. Around 1850 he served as collector for the port of Savannah. By this time, Hiram Roberts was considered very wealthy, with landholdings and a number of slaves. In 1854, he was elected president of Merchants and Planters Bank, and in that capacity was instrumental in starting the Atlantic and Gulf Railroad. During the war, Roberts served as acting president of the railroad company. In addition, he owned rice plantations,

to which he retired shortly after the war. Roberts died in Savannah in 1880 (*Savannah Morning News*, September 8, 1880; Dun and Bradstreet, Hiram Roberts:7, 166).

Compared to the others, much is known about Gazaway Bugg Lamar. Not only was he more prominent in society, but also, after the war, Federal authorities arrested him for profiteering. As a result, many of his business records and personal letters found their way into the National Archives. These materials not only shed light on Lamar's varied economic activities during the war, they provide a window into the life of a prominent citizen who cast his lot with the Confederacy and lived to regret it.

Gazaway B. Lamar was born in Augusta in 1798. His extended family, of Huguenot descent, was wealthy, widespread and well connected. His cousin, Mirabeau B. Lamar, was a president of Texas during that state's brief stint as an independent nation. Gazaway Lamar himself was a pioneer in the use of steamboats. The first iron steamboat in the United States, *John Randolph*, was built for Lamar in Liverpool, specifically for the shallow Savannah River. It made its first run between Augusta and Savannah in 1834. In 1845-46, Lamar moved to New York City, where he became president of the Bank of the Republic. He served in that capacity until the outbreak of the Civil War (Marsh 2001:555-90; Cashin 1980:73; Coddington 1943:3-5).

During the controversies that led up to the war, Lamar strongly supported the Southern side. During the twilight period between secession and Ft. Sumter, Lamar aided the new government by selling Confederate bonds on the New York market. With the beginning of the war in mid-April, he was forced to resign his position at the bank, and only delayed leaving New York because of his wife's mortal illness. After her death, he moved to Savannah, and was there by late May of 1861. Almost immediately he was elected head of the Bank of Commerce (Coddington 1943:3-5).

Lamar was a prominent banker in the new Confederacy. He conferred regularly with Christopher Memminger, Secretary of the Treasury, and was elected president of two bank conventions that met in Atlanta and Richmond in June and July of 1861 to help establish the new government's finances (Coddington 1943:5-6, 10). At the Atlanta convention, there were 10 representatives from various banks around Georgia. In addition to Lamar, they included R. R. Cuyler of the Central Railroad Bank, Hiram Roberts of Merchants and Planters Bank, and Isaac Scott of the Bank of Middle Georgia (Confederate Finances—the Bank Convention 1861).

Lamar also had more prosaic duties in Savannah. As a personal friend of Governor Brown, Lamar was induced to become paymaster of the state troops stationed in and around the city. As Lamar stated in a letter to his brother, he was in charge of the pay to three brigades, two battalions, and one cavalry corps, "in all about 12,000 men and 500 officers" (Lamar, January 16, 1862). During this period, Lamar had his fingers in many pies, which included running the bank, selling cotton and "guano," even selling slaves for a personal friend. He also offered financial and military advice to Confederate officials, the governor, and Jefferson Davis himself. One unlikely proposal, submitted to Governor Brown in January of 1862, was to destroy Federal blockaders at the mouth of the Savannah River. For a cost of eight to ten thousand dollars, Lamar proposed to build a number of ships, 30 to 50 feet long, 3 to 4 feet wide, with depths of 16 to 18 inches. These vessels would be paired together like rafts, filled with cotton, and then be saturated with turpentine. Fired, they would be set loose among the Federal ships (Lamar, January 29, 1862).

Within two months of that proposal, Lamar would be involved in plans for the ladies gunboat, and the details of that operation will be presented below. For now, suffice it to say that by the end of 1862, Lamar had left the gunboat project behind, and by 1863 was involved with his new firm, the Importing and Exporting Company of Georgia. A cotton speculation scheme, this company would be his primary concern for the remainder of the war. With agents and offices all over Georgia, Lamar's company stored cotton all over the state and attempted to run cotton through the blockade. After Sherman entered Savannah in December of 1864, Lamar took the oath of allegiance to the United States, but this did not prevent the government from seizing his cotton under the terms of the Captured and Abandoned Property Law. Lamar himself was arrested in December 1865 for cotton speculation and was tried before a military commission in the winter of 1865-66. The trial apparently petered out without definite results, but by then Lamar was ruined. He died a few years later, in October of 1874 (Coddington 1943:34-36; Marsh 2001: 555-90; National Archives, College Park, Maryland, Record Group 56, Box 92, File 6327, and Box 135, Files 18912, 18924, 18984).

In March of 1862, Lamar not only served on the Ladies Gun Boat Steering Committee, but was also an important connection between the Ladies Gunboat Association and its many sub-committees established around the state. The first funds may have been raised in Savannah, but by mid-March, donations were coming in from all over Georgia. There were ladies gunboat sub-committees in at least 12 other Georgia towns and counties. As might be expected, the largest of these were in Savannah and Augusta, the two cities most directly threatened by a Federal advance up the Savannah River. There were, however, many others, from Macon and Milledgeville, to Columbus. Even communities in the uplands, like Marietta and Calhoun, sent donations. Interestingly, the only sizable community in the state that did not establish a sub-committee, or send money, was Atlanta (Lawson 1978a, Pt. 1:8). The other communities, however, raised money by appealing to patriotism and economic self-interest. The circular that made the rounds in Macon, for example, urged donations in order to construct a gunboat that would relieve the defenders at Ft. Pulaski. It would also destroy the blockading Federal ships and allow cotton to reach its markets abroad (Munroe et al., April 2, 1862).

Like any wave of enthusiasm, this one had a beginning and an end. Donations commenced almost immediately around the state in mid-March, and continued unabated through April. Most were tendered by private citizens, but many came from local troops, industrial workers, and railroad employees. In May, the donations were supplemented by "fairs" and the presentation of "tableaux" for which fees were charged. By July, donations in some areas had flagged, with newspaper articles exhorting their readers to make good projected goals (newspaper clippings on file, Tim Callahan; *Central Georgian*, July 2, 1862). In Augusta and Savannah, it appears that the treasurers themselves were deflecting donations and duties by July. As Lamar wrote to Mrs. William Schley, president of the Ladies Volunteer Association in Augusta:

Madam, your esteemed note... relative to the disposal of subscriptions... is before me and has been submitted to the only other member of the committee now in the city—the subscriptions already received from Augusta have been generous and magnificent—we cannot say whether we shall need the sum in question or not—and leave your respected association to do as you think best with the amount—without reference to us (Lamar, July 14, 1862).

As it turned out, the total raised not only got the vessel under construction, it almost paid for the whole thing. In October of 1862, the financial records of the gunboat committee were published in the newspaper. From March 15 to October 17, the total funds raised from all over the state came to \$108,184.87. Another \$7,224.02 came from the materials donated and

then sold, raising the total to \$115,408.89. The existing bills and vouchers that accounted for the construction amounted to \$94,548.46, leaving a balance of \$20,860.43 held by the treasurers. At that time, there was still the unresolved issue of the railroad iron used to armor the vessel, an amount that was greater than the balance (*Savannah Republican*, October 18, 1862; *Augusta Chronicle and Sentinel*, October 21, 1862; Lamar et al., October 18, 1862). By the time this issue was resolved, with the state chipping in to pay the remainder, the ladies ironclad gunboat was believed to have cost a total of \$155,408 (Garrison et al. 1980:2).

With the donations came the advice, much of which found its way into the newspapers. Many wanted to know if they were donating money for a “floating battery” or a “gunboat,” with almost everyone preferring a gunboat (Granberry, April 29, 1862). Suggestions also came in for the name of the vessel. One prominent suggestion was *Georgia*, but others were *Tattnall*, *Bartow*, or *Joseph Brown* (*Daily Constitutionalist*, March 22 and April 3, 1862; Lawson 1978a, Pt. 1:7; Melton 2002:11).

At a meeting on April 18, 1862, the Ladies Gunboat Association passed a couple of resolutions. The first was that the gunboat then already under construction would be named *Georgia*. The second gave the treasurers authority to hold the gunboat money for Major General Henry R. Jackson, who had promised to assume responsibility for construction of the vessel (Lawson 1978a, Pt. 1:9). As the committee would soon find out, raising the money was the easy part. Finding a place to build the vessel, determining the plans, and securing the personnel to do it, were altogether more difficult.

### Construction of *Georgia*, March – October 1862

In all likelihood, *Georgia* was constructed at Harding’s Shipyard, located near Alvin Miller’s foundry (Melton 2002:1; Design Memorandum 1983:A-26). It was at Harding’s Shipyard that Lee directed Major General Henry R. Jackson to furnish the mechanics to build troop transports, and this construction began in late February and early March, before there was a Ladies’ Gunboat Association (Lawson 1978a, Pt. 1:5). Jackson was later pressed into the construction of *Georgia*, and the problems began to pile up soon after. Many of the more specific questions dealing with the construction of the ladies’ gunboat are covered in the second part of this report. Only a general treatment of the construction, and those involved, is presented here.

Despite the various problems associated with the construction of the gunboat, the vessel was launched at half past twelve noon on May 19, 1862. Lamar, who was present, noted in a letter that day that the vessel still had to be covered with railroad iron on the casemate (“on the roofing and the bow and stern”). As for the other features, he said that the engines and boilers were nearly complete and most of the guns were ready to go on board. Four heavy guns were still missing out of the full complement needed. He went on to state that, “it may be best not to publish about her—though the Federal Flag of Truce officer told ours they had a plan of her and know when she would be completed—and that they got the Savannah papers with great regularity” (Lamar, May 19, 1862). Another observer of the launch also noted the lack of iron armor (George A. Mercer Diary, May 20, 1862).

A week later, on March 27, Lamar wrote to Mallory about the status of *Georgia*, the need for her captain to assist in the final arrangements on board, and the half-finished nature of the iron casemate:



Our agents returned this morning with the two 9-inch Dahlgren guns—and they will be placed immediately in the battery—we hope soon to receive the two promised from Richmond. It is of essential importance that Lt. Jones, who is to command the battery should be here on the first, now, if possible, but in the shortest time practicable—to arrange the interior of the battery, guns, ammunition, and etc., to suit himself.... The enemy is getting more bold daily and we fear an attack before we can finish, but if Lt. Jones were here, he could fight her effectively with the iron on only one side of her [original underlining] and do effective service with her heavy guns. One side will be completed by Saturday night (Lamar, May 27, 1862).

It was clear that *Georgia* was still far from finished (Still 1989:6). Even so, the final phases of work must have progressed well enough to inspire enthusiasm in at least some of the people who would man the vessel. W. H. H. Vaughn, writing on June 3, 1862, stated:

... that great and glorious ladies ram will be completed in a few days and our camp is going to take charge of it and then you may listen out to hear of the Bartow Artillery doing some execution... I think you will soon hear of the ladies gun boat and the Bartow Boys making things wake up such as not been realised (sic) yet (Vaughn 1861-62).

By July, *Georgia* was far enough along to allow the public to view the boat. On July 14 and 15, the ladies of Savannah and all other contributors were invited to tour the floating battery, then tied up at the Exchange Dock (*Southern Recorder*, July 15, 1862; Schley, July 12 and 18, 1862). On the 15th, the commissioners and treasurers of the Ladies Gunboat Association - G. B. Lamar, John Stoddard, Francis Sorrel, Hiram Roberts, and Robert Lachlinson - reported that their work was complete, and offered thanks to the engineers, mechanics, and military personnel who had contributed to the project vessel. They also offered special thanks to the ladies of the state who had made the vessel possible. The commissioners admitted that the vessel was a floating battery with propellers, rather than a true gunboat, as so many had wanted, but they pronounced it a "complete success," given the materials they had to work with. With this announcement, they turned over the vessel, and all finishing work, to the Navy. There were, however, a few provisos. The ladies of the gunboat association reserved the right to select the captain, and they chose Lt. J. Pembroke Jones of Virginia. Also, the guns were to have their own names. After considering naming the guns for individual ladies, it was finally decided to name the guns for the cities and counties that contributed the most money. The ten names selected, in descending order, were Augusta, Savannah, Macon, Columbus, Athens, Griffin, Wilkes, Milledgeville, Thomasville, and Sumter (*Southern Recorder*, July 15, 1862).

Several days later, the "complete success" announced by the commissioners, turned out to be something less. On July 25, 1862, William Daniel Dixon noted in his diary, "the floating battery made a trial trip yesterday afternoon, but I believe it was not very satisfactory" (Durham 2000:91). Even then, the final work was not complete. In August, the Navy reimbursed H. F. Willink for 50 pounds of oakum used on the vessel. In September, the cost of carpenters, lumber, oakum, nails and paint and putty were reimbursed to Krenson and Hawkes. A. N. Miller was doing metal work on the vessel throughout this period, even as late as November—drilling flanges, welding the pump rod, drilling and fitting for the pump, and the final valve stem work. The reimbursement forms were signed by the vessel's new commander, J. Pembroke Jones, Lt. Commanding (On file, Robert Holcombe; "AC" File and EM File, Record Group 45, National Archives).

In October, Lamar announced that the books of the Ladies Gunboat Association, showing all contributions and distributions of funds, were open at Commerce Bank for general perusal (*Augusta Chronicle and Sentinel*, October 21, 1862). Even at this stage, the financial problems associated with the iron for the casemate had not yet been resolved, and in fact would require the intervention of the governor.

### The Placement of *Georgia*, Late 1862

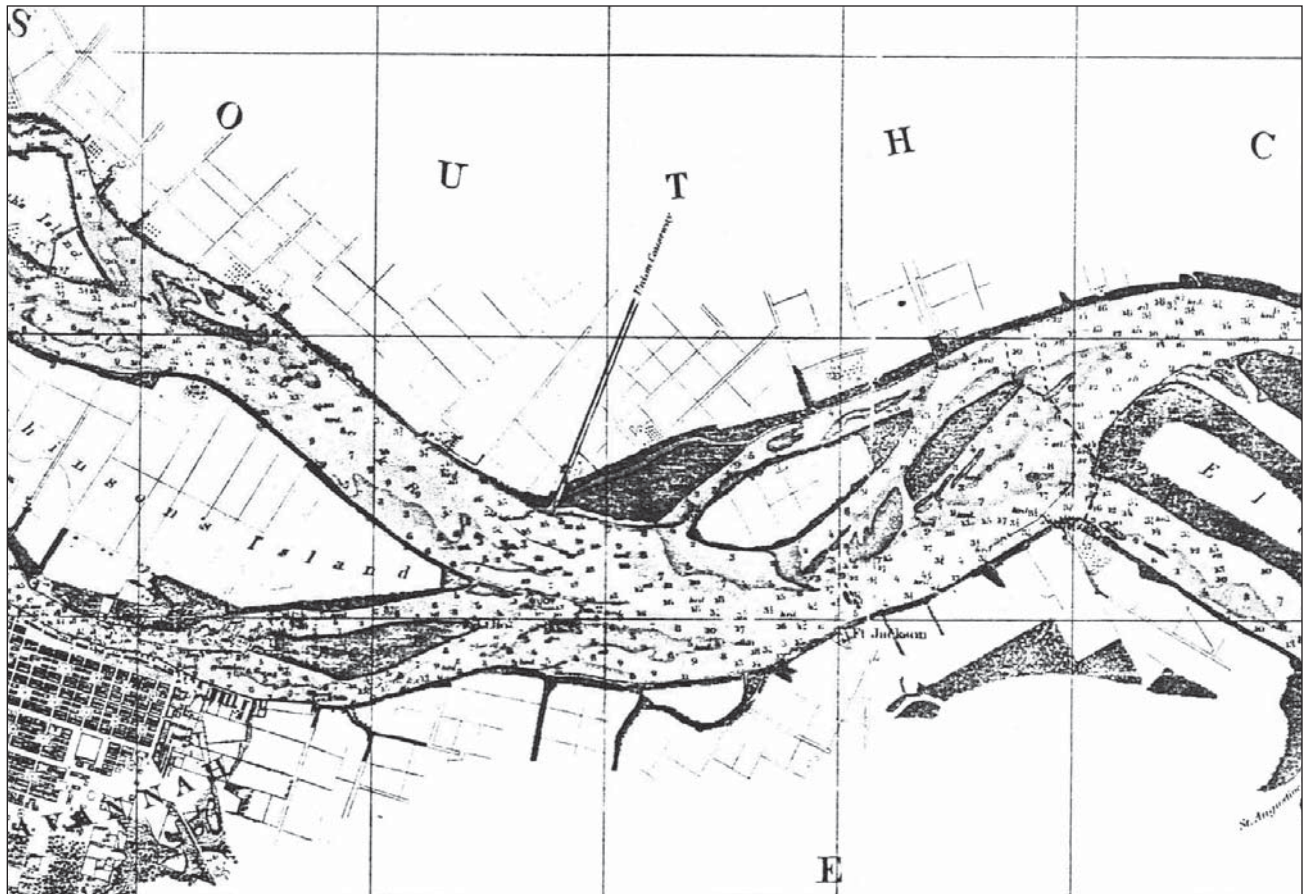
By late October of 1862, *Georgia* had gone down to Mackey's Point and "placed herself in a pound prepared for her," from which she could protect the north and south channels of the river. The *Tri-Weekly Courier* reported on November 4, 1862 that she would probably remain there until the end of the war. This mooring spot was near the upper end of Elba Island, where the vessel could be pivoted to cover either side of the river (Lawrence 1961:77; Garrison et al. 1980:32; Still 1971:215; Lawson 1978a, Pt. 2:3). Tattnall appears to have had a hand in this arrangement, as did Brigadier General Mercer, head of the Savannah troops, and his superior, Major General Pemberton in Charleston (Jones 1878:222). From a diagram map that appeared in the February 14, 1863 edition of *Harper's Weekly*, it appears that *Georgia* was placed just upstream from the lines of obstructions placed at the upper end of Elba Island, all of which was between Fort Jackson and St. Augustine Creek (*Harper's Weekly* 1863; Still 1989:8).

The general location of Fort Jackson and the lines of obstructions are shown on a Civil War era map, with the obstructions added by hand (Figure 8; Bache 1862). *Georgia* was situated to protect the obstructions from Federal wrecking parties. The obstructions themselves were double-lines of sunken structures, comprised of cribs put together with 18 to 20-inch timbers, and loaded with bricks. Except for a small opening to allow Confederate patrol boats to go in and out, these obstructions stretched across the navigable width of the river. In the south channel, these cribs were reported to have a height of 30 to 35 feet (Griffin 1963:181, 245-6).

There were two lines of obstructions in the vicinity of Fort Jackson. The line furthest downstream, on either side of the head of Elba Island, appears to have been *Georgia's* first home. A more irregular line of obstructions was also laid in the immediate vicinity of Fort Jackson, upstream from the first line. This line too appears to have had moorings for *Georgia* (Lawson 1978a, Pt. 2:3-4).

*Georgia* and the river obstructions were complemented by a series of shore batteries erected to augment the aging defenses of Fort Jackson. These included Lee, the battery east of Jackson; Cheves, across the river; Lawton, on Barnwell Island; as well as batteries on Fig Island, just downstream from Savannah. In addition, there were batteries along the west side of St. Augustine Creek, such as Causton Bluff and Thunderbolt. Work on these batteries was completed by state troops, as well as around 2,000 slaves (Lawrence 1961:74-76). A map prepared by Federal forces in early 1862 shows the lay of this land and the general placement of the batteries, despite a few inaccuracies, such as the spelling of Causton Bluff and the location of Battery Lee on the north side of the river (see Figure 7; Wilson 1862). A more accurate rendition of some of these river fortifications is provided in Figure 9 (Boutelle 1865).

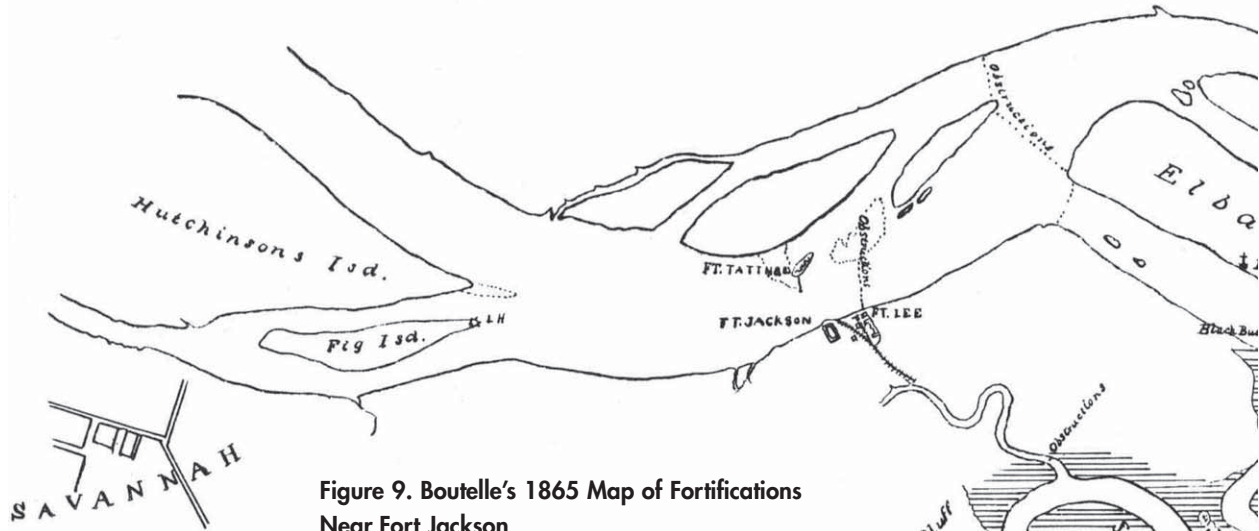
One of the strongest of the Savannah fortifications was Fort McAllister, too far south to be depicted on these maps. Located 15 miles below the city, on the south shore of the Ogeechee River, Fort McAllister at first glance would not appear to offer



**Figure 8. 1862 Map of Fort Jackson Showing Hand Illustrations of the Locations of Obstructions in the Savannah River**

any appreciable protection to Savannah. But this would fail to take into account the environment of the region. Just like St. Augustine Creek and Vernon River, the Ogeechee had to be defended, since its courses could be used to land troops to within a few miles of the city (Lawrence 1961:74-75, 94). It also provided protection to the railroad bridge for the Savannah, Albany and Gulf Railroad line that connected Savannah to the southwest hinterland of the state (Griffin 1963:168). Like the other forts used to protect Confederate ports in the latter part of the Civil War, Fort McAllister was a sand fort. Like Fort Fisher, south of Wilmington, North Carolina, and the earlier Russian forts, sand forts were not only effective against rifled cannon, but were also easy to repair.

The placement of *Georgia* was the final touch in a system of defense that remained in place for almost three years, from April 1862 to December 1864. During this period, the front between Confederate Savannah and Federal-held Fort Pulaski, complemented by Federal gunboats on patrol in the surrounding waters, remained basically unchanged until Sherman approached Savannah from the land. Nowhere else in any other sector of the war was there a front this static. While the Confederate defenses, including *Georgia*, played a big role keeping the Federals at bay, so too did the Federals' greater interest in attacking Charleston and Fort Sumter. As action flared on other fronts, there was a constant drain on the garrison troops around Savannah. In early 1862, there were as many as 13,000 Confederate and state troops in and around the city. On June 7, 1862, 5,000 men were sent off to Virginia under the command of General Alexander Lawton (Lawrence 1961:71-72). As the attacks against Charleston grew in intensity, more troops left the area for South Carolina (Griffin 1963:182). By



**Figure 9. Boutelle's 1865 Map of Fortifications Near Fort Jackson**

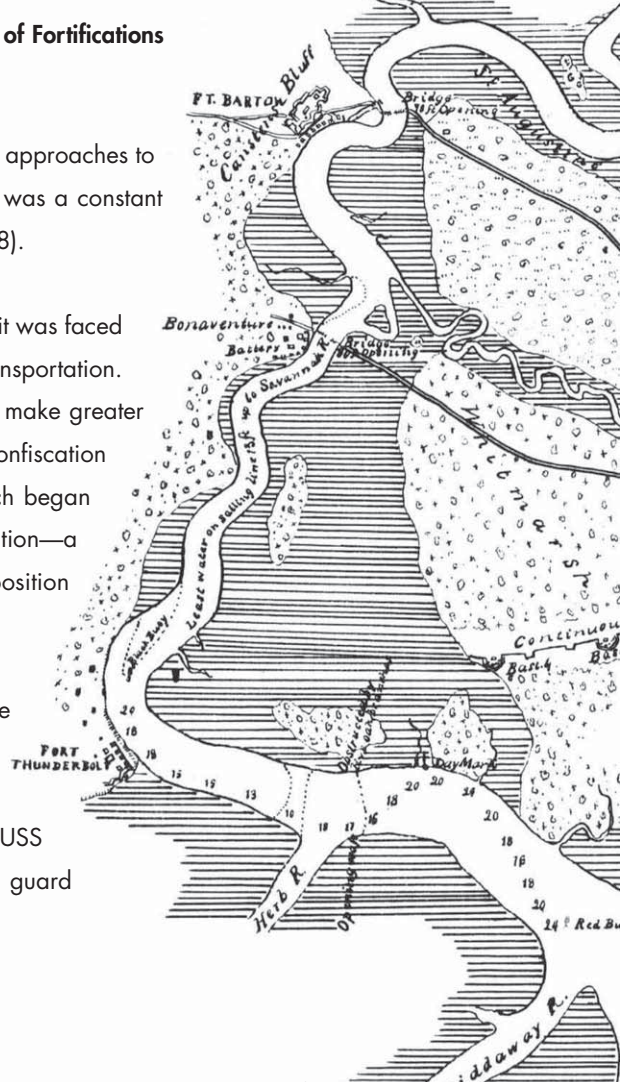
the middle of the war, the number of effective troops guarding the approaches to Savannah had been whittled down to around 5,000, and there was a constant shortage of men for the available defenses (Griffin 1963:157-158).

As the Confederacy entered the crucial middle stages of the war, it was faced with shortages on every side: men, weapons, guns, food, and transportation. To meet these challenges, the government required its citizens to make greater sacrifices, and this included extensions to the military draft and the confiscation of factories. This certainly affected the Confederate Navy, which began a reorganization about the time *Georgia* was under construction—a reorganization largely in place by the time the vessel was put in position in the Savannah River.

The Savannah Squadron did its share of defense and maintenance during the long years of standing guard over the city. While there were spectacular failures, like the loss of *Atlanta* in 1863, there were also spectacular successes, like the 1864 capture of USS *Water Witch*. In between were days, weeks, and months of guard duty.

### The Savannah Station and Squadron, 1862-1864

*Georgia* was one of many vessels that served in the Savannah Squadron, and the story of *Georgia* is inextricably tied to that of the squadron. Due to the blockade, the parameters of the squadron were limited, but the squadron and its personnel still played a vital role in the war effort. This section discusses some of the major events of the squadron in the last years of the war.



In addition to the squadron, which comprised between 10 and 14 vessels, Confederate naval facilities in Savannah included the naval station headquarters, a general naval store, a naval warehouse (at Bryan and Abercorn), a hospital, marine barracks, and several naval ordnance magazines scattered throughout the city (Lawson 1978b). All of this was known collectively as the Savannah Station, of which the Savannah Squadron was a part. To help run this operation, there were a total of eight paymasters. The first Chief Station Paymaster was C. Lucian Jones, and he was responsible for provisions, stores, personnel pay, and records. His assistant was Charles W. Keim. Another assistant was Dewitt C. Seymour, the squadron purser; all other squadron paymasters worked under his direction. Jones served a chief station paymaster until 1863, when he was succeeded by Keim (Kennington 2002:1).

Josiah Tattnell was the first head of the Savannah Station, as well as being the commanding officer of the squadron ("commander afloat"). He served in this capacity from July 18, 1861 to March 22, 1862, when he was called away to command *Virginia*. Tattnell's replacement in Savannah was Capt. Richard L. Page (March 22, 1862 to May 19, 1862). Tattnell resumed his command of both the station and the squadron on May 19, 1862, and held both positions until March 31, 1863. At that time, Tattnell was removed from command afloat, even though he retained command of the Savannah Station until the surrender of Savannah. The following officers commanded afloat after Tattnell:

Richard L. Page	March 31 to May 13, 1863
William A. Webb	May 13 to June 17, 1863 (captured on <i>Atlanta</i> )
William W. Hunter	June 28, 1863 to December 1864 (Lawson 1978b)

At the time of Sherman's approach, the Savannah Squadron counted 14 ships of varying sizes. These included *Resolute*, *Ida*, *Georgia*, *Savannah*, *Ogeechee*, *Isondiga*, *Firefly*, *Water Witch*, *Sampson*, *Macon*, *General Lee*, *Beauregard*, *Jefferson Davis*, and *Swan* (Lawson 1971:14). This does not count *Atlanta*, which was built at Savannah, but captured by the Federals in 1863. Alternatively, *Water Witch* was captured from the Federals the following year. Many of the others were constructed in Savannah during the war. Among the wooden gunboats constructed locally were *Isondiga*, a sidewheeler constructed at Krenson and Hawkes, and *Macon*, a propeller vessel made at Willink's (Lawrence 1961:121). Among the ironclads produced locally, the first was *Georgia*, but this was soon followed by *Atlanta*, *Savannah*, *Ogeechee*, and *Milledgeville* (Lawson 1971:9; Scharf 1894:637).

In 1862, the Savannah Squadron was still getting organized. Not only were the first ironclads under construction, but the command structure was in flux, as Tattnell was called to service in Virginia. In late March, he assumed command of *Virginia*, replacing Franklin Buchanan, who was wounded in the fight with *Monitor* (Still 1971:36-37; Scharf 1894:637). As commander of *Virginia*, Tattnell had a series of stand-offs with *Monitor* at the mouth of the York River in early April, and used the ironclad to protect Norfolk during George McClellan's Peninsula Campaign (Jones 1878:160-162; Still 1971:37-39). When Confederate army units abandoned Norfolk in early May, they left Tattnell in a quandry. *Merrimack/Virginia* could not go to sea, nor could it make it up the James River to Richmond without removing most of its armor. As a result, Tattnell ordered it destroyed on the night of May 9-10. A subsequent court of inquiry determined that the decision was justified, but it was highly unpopular (Still 1971:39-40; Jones 1878:173-220). By the time Tattnell returned to Savannah in late May, his previous command of naval facilities in both Georgia and South Carolina was now divided. Tattnell retained command only of the Savannah area (Jones 1878:180-181).

Other events that year included the blockade-runner *Nashville*, which arrived in July but was unable to leave. Trapped in the Ogeechee River, it was destroyed on February 28, 1863 by Federal ironclads during an attack on Fort McAllister (Lawson 1971:6; Scharf 1894:637-638). Fort McAllister was already a lightning rod for the entire Savannah defense system. Beginning in July of 1862, Fort McAllister was frequently and unsuccessfully attacked by Federal warships.

By the end of 1862, the Savannah Squadron was preoccupied with the preparation and completion of *Atlanta*. Thought to be invincible, and equipped with the best engine in the squadron, *Atlanta* was the pride of the fleet. Like *Virginia*, it was not built according to standardized plans since it was constructed onto a pre-existing hull. In the case of *Atlanta*, the hull was that of *Fingal*, purchased in Britain by the Confederate government. Entering Savannah in November of 1861 but unable to get back out, *Fingal* was converted into an ironclad. This operation began in the spring and summer of 1862 under the direction of Nelson and Asa Tift, who had previously worked on ironclads in New Orleans. *Atlanta* was fully commissioned on November 22, 1862 (Still 1971:128-129; Melton 1968:171).

With *Fingal's* hull, *Atlanta* had a length of 204 feet and a beam width of 41 feet. The draft was 15 feet 9 inches. The casemate, set at an angle of 30 degrees from horizontal, had 4 inches of iron plate, laid in two layers (Garrison et al. 1980:30). It was armed with two 7-inch and two 6.4-inch Brooke rifled guns. It was also built with a ram and a spar torpedo. *Fingal's* engine, virtually new, could only move *Atlanta* at a rate of six miles per hour due to the weight of the iron (Lawson 1971:7; Still 1971:128-129; Scharf 1894:638-641).

After commissioning, *Atlanta* went down to Fort Jackson to await orders and further developments (Myers 1984:314). None of this was lost on the Federals waiting on the other side of the obstructions. In January 1863, Du Pont sent a couple of monitors, *Montauk* and *Passaic*, to the waters off Savannah to watch for the ironclad (Still 1971:131).

*Atlanta's* first attempt to make it past the obstructions, on January 5, 1863, proved a failure (Still 1971:130). Another attempt was set for February 3, after work was done to remove more of the obstructions. The night before the attempt, the officers of *Atlanta* attended a party on board *Georgia*. The next day, a northwest wind prevented *Atlanta* from passing the obstructions (Still 1971:132). After another month of work, the monitors had returned to Charleston and the obstructions were finally cleared enough for the massive ironclad to pass. Then, on March 19, 1863, the mission was compromised. Conscripts from *Georgia* commandeered a small picket boat and deserted to the Federals at Fort Pulaski and warned them of the attack. The monitors were ordered back to Savannah (Still 1971:132-133).

Losing patience, Secretary of the Navy Mallory relieved Tattnall of sea command on March 24, 1863, putting in his place a younger man, Richard L. Page. Tattnall retained command of the naval station, but he would never again have command afloat (Still 1971:134; Scharf 1894:628-629 footnote). It was a sad end to a Navy career that spanned half a century. As one contemporary stated, "... no officer of his rank and quality was ever doomed to the indignity of such an inefficient command" (Lawrence 1961:24).

When Page proved no faster at getting *Atlanta* out to sea, he was replaced by Commander William A. Webb, who had orders to take offensive action against the Federal blockaders. On June 16, 1863, Webb brought *Atlanta* to bear upon the

Federal monitors *Nahant* and *Weehawken*, patrolling in Wassaw Sound. Within minutes of the attack, *Atlanta* was grounded and forced to surrender, leading to the loss of the ship and the entire crew (Still 1971:135-137; Lawson 1971:8-9). The recriminations were fierce in the wake of this disaster, and it would be the last time a Confederate ironclad out of Savannah would make an assault on the blockading Federal fleet.

With the loss of *Atlanta*, *Savannah* became the premier ironclad of the Savannah Squadron. Built by Henry Willink, *Savannah* was begun in 1862 and was first launched in February of 1863. A Richmond Class ironclad, *Savannah* had a length of 150 feet, a beam width of 34, and a draft of 13 feet (Kennington 1994; Still 1997:54). It took almost a half-year to complete the ironwork, with plating for the casemate provided by the Scofield and Markham Foundry in Atlanta. The engine and boilers came from the Columbus Naval Iron Works (Kennington 1994). Fully armored, *Savannah* made its test run on August 3, 1863 (Harwell 1963:104). Like *Atlanta*, it had two 6.4-inch and two 7-inch Brooke guns (Still 1997:65). Upon completion, John Pembroke Jones, previous commander of *Georgia*, was assigned to the ship as executive officer (Lawson 1978a, Pt. 2:6). It quickly developed a reputation as the best-built vessel in the squadron (Lawson 1971:21). The success of *Savannah* was followed by the construction of other ironclads, virtually completed but still waiting on their iron by the time Sherman arrived. These were *Milledgeville*, at Willink's yard and an unnamed vessel at the shipyard of Krenson and Hawkes (Scharf 1894:645; Kennington 1994).

During the final months of Confederate rule, Savannah was the home for surplus prisoners of war from Andersonville. Prisoners from that place began to arrive in early September of 1864, and by early October there were 7,000 prisoners in a stockade on the outskirts of town. Beginning October 11, they were transferred to the new prison pen at Millen, Georgia. When that camp had to be abandoned upon Sherman's approach the following month, the prisoners could not return to Savannah, because Lafayette McLaws, commander of Savannah's army's facilities, had dismantled the stockade to prevent just that possibility. All of this led to dissension between McLaws and Edward Anderson, which complemented the dissension between Anderson and Hunter. On October 22, Anderson confided to his diary that Savannah had become a graveyard of military careers—"the Botany Bay of the Confederacy" (Anderson 1861-1864). By the time Sherman approached, General William Hardee had assumed overall command of the city.

## Fall of Savannah, December 1864

By December of 1864, the Savannah Squadron contained 11 armed vessels, four of which were ironclads, including *Georgia*. The ships of the squadron certainly played an important role in keeping the Federal fleet at bay during the three years of blockade. During that period, garrison troops were constantly reduced as men were siphoned off to other fronts. They could do little against Sherman's army of 62,000, which began its "March to the Sea" from Atlanta in mid-November. By the time Sherman reached the outskirts of the city in mid-December, the city's defenders, even reinforced by Hardee, only numbered around 10,000. Finding Hardee's forces entrenched around Savannah's eastern perimeter; Sherman decided to make contact with the Federal fleet by way of Fort McAllister. On December 13, that place fell to direct assault, leaving Savannah cut off from the east and the south. Sherman, re-supplied by sea, prepared the final move against the city itself.

On December 7, Hunter ordered Gwathmey to take *Georgia* upriver to protect the Savannah and Charleston railroad bridge. W. W. Austin, a pilot on *Savannah*, was ordered to *Georgia* to prepare that vessel for the trip. Since the ironclad could not

make the journey on its own steam, *Beauregard*, *Ida*, and *Jeff Davis* were ordered to assist. Due to various delays, which included high winds and tides, this was not done before the order was cancelled on December 8 (Hunter 1861-1865, Box 2, Bound Vol. 2, Item 53; Lawson 1978a, Pt. 2:12; Kennington 1994). Two days later, Mallory told Tattnall to destroy all navy construction before it could fall into Union hands. Four days later, Mallory instructed Hunter that:

If necessary to leave Savannah, your vessels, except *Georgia* [a floating battery], may fight their way into Charleston. Under no circumstances should they be destroyed until every proper effort to save them shall have been exhausted (Harwell 1963:24).

On December 17, Mallory informed Hunter that he was to try and save at least the larger vessels of the squadron (Lawson 1978a, Pt. 2:11-12). The next day, more specific instructions arrived for the disposition of *Savannah* and *Georgia*. *Savannah* was to remain in the area for two days after the city's evacuation, and then proceed by sea to Charleston by way of St. Augustine Creek. Escape was not an option for *Georgia*. After the garrisons at Forts Jackson and Lee dismantled and spiked their guns, the crew was to scuttle the ship and evacuate by way of Schreven's Ferry (Official Record, Navies, Series 1, Vol. 16482).

*Macon*, *Sampson*, and *Resolute* steamed upriver to destroy the railroad bridge and be in a position for an escape to Augusta. They drew fire from Federal batteries opposite Argyle Island, an action that led to the damaging and capture of *Resolute*. Eventually, *Sampson* and *Macon* made it to Augusta (Lawrence 1971:13-14). By December 19, there was firing all along the line and Hardee decided to evacuate the city, which was done on the 20th.

This left the remaining vessels to their final fates. *Isoudiga*, *Firefly*, and *Water Witch* were burned. Also destroyed was the virtually completed ironclad *Milledgeville* (Scharf 1894:651). *Savannah* covered the retreat of the last Confederate troops out of the city on the night of December 20-21, and then was blown up by its crew (Lawson 1978a, Pt. 2:12-13). As for *Georgia*, its fate was tied to that of Fort Jackson and the various shore batteries that served with the ironclad. From Georgia to Fort Bartow at Thunderbolt, men spiked their guns and destroyed ammunition and carriages. On the night of December 20-21, the floating battery was scuttled at her moorings, which was then directly in front of Fort Jackson. The crew, under Captain Washington Gwathmey, was then ferried across the river along with the other battery artillerists under Col. Anderson's command (Jones 1988:151-152, 154).

By this time, the floating battery *Georgia* may have been completely outclassed as a fighting vessel, but no ironclad in the Savannah Squadron served as long or proved as useful. Built in haste and never used in anger, it nonetheless provided security along the river and helped keep the Federals at bay for three years. The section of the report that follows contains a more detailed examination of *Georgia*. This includes a discussion of the various issues concerning its construction and use that remain a mystery today.



## Part Two: CSS *Georgia* - Research Themes

The first part of this report provided the historical context of CSS *Georgia*, built in 1862 in Savannah and sunk in December of 1864. The following section deals more specifically with particular issues concerning *Georgia's* construction, personnel, use, material culture, and demise. Some of this material is embedded in the previous section as part of the context. This section is presented as a catalog of what is known, as well as what can be speculated, about *Georgia*. This historical catalog is developed around five topics - Planning and Construction, Manning and Outfitting, Operation and Maintenance, Sinking, and Early Salvage – and addresses aspects of *Georgia* appropriate to each section.

### Planning and Construction

#### 1. *Individuals and Organizations Involved in Fund-Raising*

CSS *Georgia*, also known as the Ladies Gunboat, was built with funds raised largely by the Ladies Gunboat Association. Established in Savannah in early March of 1862, this association was established to collect money from all over the state of Georgia. The Savannah chapter (Table 1) was the most important, but there were chapters in many of the larger cities and towns throughout the state. The membership of most of these auxiliary chapters, known as sub-committees, is not currently known, but there is a comprehensive list of names for the ladies of the Savannah chapter and the Macon chapter, as well as others empowered to receive funds from their part of the state. In many areas, such individuals may have been the extent of the formal organization. No attempt has been made here to list the many small individual contributors, often listed in the local newspapers by last name only. Since contributions were not necessarily made in the city of residence, it would be difficult to trace the provenience of these individuals, and the return for the effort would probably be small. Even so, these names, provided by a number of contemporary newspaper notices, are provided in Appendix 2 of this report.

The 22 known members of the Savannah chapter of the Ladies Gunboat Association are listed in Table 1.

<b>Table 1. Known Members of the Ladies Gunboat Committee (Association) of Savannah</b>
This list of 22 names was provided in the <i>Savannah Republican</i> , March 11, 1862, and is repeated by Samuel Lawson (1978, Part 1:7). Additional information has been added or suggested by Robert Holcombe of the National Civil War Naval Museum, and Phil Brinson and Gail Whalen of the Coastal Heritage Society. The most recent contributions have been made by Joan Moore. Husbands' names and occupations provided in parentheses, if known.
Mrs. Sarah Anderson (Gen. Edward C. Anderson, planter)Miss Elizabeth G. BasingerMrs. Beale
Mrs. Henrietta Y. Cohen (Gen. Octavus [Octavius?] Cohen, merchant and factor)
Miss R. Cohen
Mrs. Florida F. Fish (Mr. John D. Fish, physician)

Mrs. Gilmer (Gen. Jeremy F. Gilmer)
Mrs. Lamar (Mr. Charles Lamar)
Mrs. Fanny Y. [Yates] Levy (Mr. Jacob C. Levy, merchant)
Mrs. Frances S. Lewis (Mr. John N. Lewis, merchant)
Mrs. Mary W. Lincoln (Mr. William W. Lincoln, druggist)
Mrs. Mackall (probably Amenta Elizabeth Douglas Sorrel Mackall; husband, army general)
Miss Frances Minis
Mrs. Parker
Mrs. Jane Read (Mr. James B. Read)
Mrs. Virginia Sheftall
Mrs. Ann L. Smith (Mr. William H. (Halstead?) Smith, cotton merchant)
Mrs. M. L. Stoddard (Mr. John Stoddard, planter)
Mrs. G. Wade
Mrs. Louisa A. Walker (Mr. Robert D. Walker, master marble)
Mrs. Eliza C. Wayne (Eliza Caldwell Roe Wayne; husband, Thomas Smythe Wayne, commerce house)
Mrs. Williamson*
*There are a number of possibilities as to the identity of "Mrs. Williamson": Mrs. Eliza J. Williamson; Mrs. Mary Williamson (Mr. John P. Williamson, engineer); Mrs. Julia C. Williamson (Mr. John Williamson, commerce merchant and factor); Mrs. Emily Williamson (sic) (probably Emily Beck Williams; husband, Steven B. Williams, bank officer).

At present, little is known about any minutes and other records that might have been kept by the Ladies Gunboat Association. It has been suggested that some of the records of the association were inherited by the United Daughters of the Confederacy (UDC). At least some of the people listed above helped form the Ladies Memorial Association in 1867 to preserve local Confederate graves and to raise money for monuments. This group merged with other local associations to form the UDC in 1897. Until recent years, the historical materials of the local UDC were curated at the Georgia Historical Society in Savannah. Now stored directly by the UDC, these materials are not often made available to the public (Gayle Dawson, former president, UDC, personal communication, November 5, 2002).

An auxiliary to the Ladies Gunboat Association, and almost as important, was a group of prominent Savannah men delegated to collect the funds raised by the ladies and to oversee the construction of the gunboat. Called at various times the treasurers, the commissioners, or the steering committee of the gunboat association, this group was responsible for arranging the construction of the vessel. This steering committee had five members: Gazaway B. Lamar, John Stoddard, Hiram Roberts, Robert Lachlinson, and Francis Sorrel (*Southern Recorder*, July 15, 1862; Melton 2002:10). The most active members within this group appear to have been Lamar, Stoddard, and Sorrel, and in later months these three are usually listed as the sole treasurers (Lamar et al., March 28 1862; *Augusta Chronicle and Sentinel*, October 21, 1862). The steering committee members are mentioned here because some are clearly associated with the ladies gunboat association chapters set up in other parts of Georgia. These chapters, more commonly known as auxiliary committees or sub-committees, often sent their

donations directly to the steering committee members. For information on the personal histories of these members, refer to the previous discussion of the Ladies Gunboat Association in the first part of this report.

Some of the people and sub-committees active in raising money beyond Savannah, are listed in Table 2. The list is certainly not comprehensive.

<b>Table 2. Sub-Committee Heads and Members around Georgia</b>	
<p>Unless otherwise noted, this list is certainly not comprehensive. In some cases, the subcommittee heads or members were people who corresponded with G. B. Lamar about money raised for the gunboat. Their position and place of residence is determined from his replies. Other names were those who made donations, often late donations, that merited a special reply from Lamar. The role of others has been determined from various contemporary newspaper notices from around Georgia. It was the custom in these newspaper accounts to publish the names of those who made contributions. A comprehensive listing of these contributors would be very long and is not included here. Below are listed only the names of the ladies in the sub-committees, if known, and the names of key people in the steering committees that funneled money to Savannah.</p>	
Albany:	Richard H. Clark (proposed in original letter, early March 1862)
Americus:	John J. Scarboro; T. M. Furlow (proposed in original letter, early March 1862) J. J. Granberry (subcommittee head, per Lamar letter; Granberry, 29 Apr. 1862)
Athens:	<p>the Ladies Sub-Committee members (listed in local newspaper article):</p> <p>Mrs. Franklin, president Mrs. Lipscomb, secretary Mrs. Hull Miss Carlton Mrs. Hillyer Mrs. Rutherford Mrs. B. Hill Miss A. Hodgson Mrs. John H. Newton Mrs. Goulding Mrs. Rucker Mrs. Stovall Mrs. Richardson Miss Sallie Moss</p> <p>Proposed committee to receive donations (local newspaper article):</p> <p>Henry Hull, Jr., president of State Bank Stevens Thomas, president of Bank of Athens John H. Christy, editor of <i>Southern Watchman</i> James A. Sledge, editor of <i>Southern Banner</i></p> <p>W. Rutherford, head of subcommittee</p>

Augusta:	<p>Mrs. William Schley, president of the Augusta association (Lamar, July 14, 1862) Col. James Gardner, editor of <i>Daily Constitutionalist</i> (collected donations)</p> <p>Suggested steering committee members (listed in local newspaper article): Thomas S. Metcalf John Bones B. H. Warren J. B. Walker John Davison</p> <p>Thomas S. Metcalf, head of subcommittee, as per <i>Savannah Republican</i>, May 13, 1862 L. A. Dugal, member, as per Lamar correspondence</p>
Calhoun:	Jewell R. Alverson (subcommittee head?) (Alverson 1979)
Columbus:	W. H. Young (subcommittee head) (Young, April 1 and 17, 1862)
Covington:	William P. Anderson (proposed in original letter)
Cuthbert:	Edward McDonald; Otho P. Beall (proposed in original letter)
Early County/Blakely:	W. C. Cook (Cook, April 14, 1862)
Gramsboro:	Thomas Stocks (Stocks, April 18, 1862)
Jefferson:	Mrs. Sarah A. Witt
Macon: Auxiliary Steering Committee of Macon (per Lamar letter)	<p>Proposed to accept donations in original letter, early March 1862: Col. (J.) N. Whittle James A. Nisbet Mrs. Washington Hoe N. C. Munroe (subcommittee head?) Isaac Scott James A. Nisbet John B. Ross (or possibly M. B. Ross) William B. Johnston</p>
Marietta:	J. MacLeod (subcommittee member or head who sent money from local ladies, a
Milledgeville:	<p>Hon. Seaton Grantland Miller Grieve, Sr. (Grieve, July 10, 1862) Judge Iverson L. Harris</p>
Polk County/Van Wert: Managers:	
	<p>Miss Lizzie B. Heslop Miss Elenor E. Heslop Miss M. A. O. Wilson</p>
Sandersville/Washington County:	
	<p>James S. Hook (proposed in original letter) Mrs. James S. Hook, secretary and treasurer</p>
Waynesboro:	Mrs. Showmake (?)

## 2. Evidence for Conception of Construction Plans for the Vessel; Background and Skill of Those Involved; And an Estimate of How Long They Worked on the Project

From the beginning, *Georgia* was not adequately planned. To some degree, construction and planning occurred almost simultaneously. The main reason for this lapse was the urgent need to relieve Fort Pulaski (Lawson 1978a, Pt. 1:18). After the fort fell, it was too late to remedy the situation.

Potential plans for Savannah's first ironclad did not begin with the ladies gunboat project. In October of 1861, an ironclad plan was submitted at a Commercial and Financial Convention held in Macon. The plan was drawn up by James R. Butts, Surveyor-General of Georgia. A five-member committee, that included Gazaway B. Lamar, was appointed to report on the plan. The committee approved Butts's plan and suggested it to the government. After the Ladies Gunboat Association began to raise money, the *Savannah Daily Morning News* suggested that Butts' plan be dusted off as the blueprint for the new ironclad (*Savannah Daily Morning News*, March 21, 1862). There is no indication that this was done, but there is likewise no indication to the contrary.

Henry Willink and Aluiu. N. Miller had early plans for an ironclad as well. Asa Tift, the Confederate designer who worked on the large New Orleans ironclads, visited Savannah in the fall of 1861 and told the Navy Secretary that H. F. Willink could build a gunboat in about three months, and that A. N. Miller could build a boat engine in the same time frame. Inspired by Tift's visit, Henry Willink and Alvin Miller prepared tentative plans for an ironclad and constructed a model, which they sent to Richmond in late 1861. In January of 1862, Mallory approved the construction of such a vessel if they thought they could do it, and added that he would be "glad to confer with either or both of you as early as practicable" (Mallory, January 14, 1862; Melton 2002:11). This conference never took place, and it is clear that this vessel was never constructed. Willink was soon too busy on other projects, as was Miller. It is not known, however, whether these early plans had any bearing on the construction of *Georgia*, which began in March of 1862 and would involve Miller.

Josiah Tattnall may not have been involved in the construction of the ladies gunboat, but it appears that he was involved in the initial planning. Shortly after the formation of the Ladies Gunboat Association, Tattnall formed a board of prominent local citizens, shipbuilders, and Army and Navy officers to suggest a plan for the floating battery. The board suggested a plan, and it was forwarded to Richmond "for consideration of the Chief Naval Constructor." Tattnall himself did not approve the plan, probably because he had to leave Savannah (Tattnall, October 21, 1862). On March 21, 1862, he was ordered to command *Merrimack/Virginia*, and by the time he returned, *Georgia* was already completed.

According to Tattnall, the plan submitted by the board to naval authorities in Richmond was never approved, but it is not certain if this signified active disapproval or was merely the result of an oversight. Either way, the plan adopted by the board was one proposed by Aluiu. N. Miller (Tattnall, October 21, 1862). The story of Miller's involvement is a convoluted one best told by Gazaway B. Lamar. It is almost surely not a coincidence that the day after Tattnall was ordered to Virginia; John Stoddard approached General Jackson about constructing the ladies gunboat. Jackson took the assignment, but from the beginning, averred that he had no knowledge of how to do such things. He basically limited his role to that of providing workmen and enforcing military discipline (Lamar et al., October 20, 1862).

Jackson ordered *Georgia* built based on the plan proposed by the gunboat's building committee, which had been appointed by a citizen's meeting. No dates are given for any of these events, but presumably they occurred in late March. The building committee then approved a plan proffered by Alvin N. Miller, which had already met the approval of naval officials, likely local squadron officers. Miller's plan was then adopted after consultations with General Jackson, Dr. Langdon Cheves, and the building committee. Presumably, this was a verbal plan, with limited drawing involved, since Miller and Cheves were then authorized to draft the working plans. Called to Charleston to work on fortifications, Cheves retired from the project a few days later. After that, Miller simply continued the project on his own, without resort to working plans. He was aided by Mr. Flanders and Mr. (James E.) Withington, local ship carpenters (Lamar et al., October 20, 1862; Lawson 1978a, Pt. 1:14-15; Garrison et al. 1980:19-20). From this, it appears that *Georgia* took shape without benefit of either formal plans or models.

A contemporary newspaper account stated that the basic plan of the ladies gunboat had been proposed by A. Miller and selected by naval officers. Miller's plan was then adopted by Major General Jackson, Dr. Cheves, and the building committee, all unanimously. Presumably later, one member of the committee did not approve some details, but no other alternatives were suggested. Miller modified some of the details on his own, without consulting the committee. As the writer of the article admitted, "perfect agreement on construction has not been reached," but the product was as good as could be expected under the circumstances. The writer reminded his readers that, given the lack of proper materials, and deficiencies all along the line, the ladies gunboat was never going to be another *Virginia* (*Savannah Morning News*, April 28, 1862).

Interestingly, there is a record of plans being drawn up for *Georgia*—after the commencement of construction. At the end of March, when the Confederate Navy was considering direct purchase of *Georgia*, an S. J. O'Connor was sent to do elevation and section drawings of the vessel (Lawson 1978a, Pt. 1:15; Melton 2002:2). According to Samuel Lawson, the information that refers to these drawings appears in the "AD" File of Record Group 45, in the National Archives. The drawings themselves, if they were actually completed, do not appear to have survived.

Both Henry Willink and Alvin N. Miller were prominent in Confederate naval construction in Savannah. For this reason, it might be useful to provide some additional biographical information. Henry F. Willink, Jr., came from a shipbuilding family. His Savannah shipyard, generally considered the best in the city, had been the creation of his father, Henry F. Willink, Sr. It was the only one in town with a marine railway. Before the war, the yard and wharf were valued at \$19,500, by far the most valuable property owned by the family. During the war, this facility built *Savannah* and *Milledgeville*, in addition to *Macon* (Savannah, Chatham County, Tax Digests 1858-60; Babits and Barnes 1984:17). After the war, Willink Jr. was the only Savannah shipbuilder to apply for restitution with the Southern Claims Commission, set up in 1871 to reimburse loyal Southerners who had their property damaged or taken by Union forces during the war. To be approved, the claimant had to show proof of loyalty to the U.S. government throughout the war. Willink's claim, No. 20016, was for \$12,492.95 for metals like copper, zinc, and iron. The claim was barred, which indicated that the claimant filed too late or did not provide enough data to process the application (Moore 1985:5; Suzanne Dewberry, personal communication, National Archives and Records Administration, Southeastern Region [Record Group 233, M1407, microfiche 4812]).

Alvin N. Miller, whose plan produced *Georgia*, was born in New York City in 1814. From 1820 to 1830, he served as an apprentice to a New York shipbuilder before becoming an engineer and machinist. During that time he helped repair the

British steamer *Aaron Manby*, one of the first vessels to have iron plating in the construction. The notes he took on the plating, the engines and general design would help him in his subsequent career. Miller moved to Savannah in the early 1830s and by 1835 was a superintendent at the Iron Steamboat Company, a steam line between Savannah and Augusta. He saved up his money and was soon able to open his own foundry and machine shop, located on Lot 5 of the Eastern Wharves (Ross 1987:1-2). It would later be called the "Savannah Iron and Brass Foundry and Machine Works" (Miller, November 6, 1866). By 1843 he also began to purchase plantation lands. Four years later he married Sarah Jane McNish. The couple had no children (Ross 1987:9-10).

By 1847, credit reports noted that Miller had both the foundry and the adjacent wharf. He also had a reputation for doing a fair amount of business, and for accumulating debt. In 1849, it was noted that he was slow to repay his debts, but "when sued, the money comes." In the early 1850s, he enlarged his business, and had a relatively prosperous period around 1852-1853. The rest of the decade was not so favorable. It was noted that Miller was considered a good mechanic, but often failed to attend to the business side of his operation. By 1858, Miller was in debt, and was particularly hard up in 1860 (Dun and Bradstreet, A. N. Miller:7).

Miller often survived through his political connections. A lifelong Democrat, Miller served six terms as city alderman. It was said that he favored progress, and made sure he got his share, using his municipal position to award himself contracts (Ross 1987:1, 5-9). In the 1850s, Miller was commissioned to build a steam locomotive engine for the Savannah, Skidaway and Seaboard Railroad. Constructed with a 15-inch bore (cylinder) and a 4-foot stroke, the engine went into service in 1855. For the rest of the decade, however, Miller was under-employed. In 1859, to stave off creditors, Miller sold 40 percent of his company stock to William Wade, and operated the foundry with a skeleton crew until the war brought more business (Ross 1987:2). The tax digests support this, as does the 1860 census. In 1859, Miller was taxed for Lot 5 and improvements, one horse, one carriage, and one slave. At the time of the 1860 census, Miller was not even head of the household in which he was counted; he and his wife were living under someone else's roof, possibly in a boarding house. He was also listed as 44 years old, with real estate valued at \$25,000, which was almost surely the foundry; his personal estate was valued at \$5,000. Miller's situation started to improve in 1862, and by 1863, he had the facilities on Lot 5, plus three horses, two carriages, 30 slaves, as well as furniture and chattel (Savannah, Chatham County, Tax Digests 1858-60, 1861-63).

Miller's foundry, located at the eastern edge of town, was across the river from the upstream end of Fig Island. The "shipyard" was located on the river; the foundry was located just inland (Ross 1987:15). Miller started doing military work for Georgia and the Confederacy very early on. In December of 1860, he proposed making six 32-pounder cannons for the state of Georgia, an order that was changed to 24 pounders after consultation with military authorities (Miller, December 12, 1860; December 21, 1860). By March of 1861, it was reported that Miller's foundry had cast the first gun ever made in the state of Georgia, a 24-pounder howitzer. In June, he cast an eight thousand-pound 10-inch mortar, the first cast in his new furnace. Miller also produced balls and shells as needed (Griffin 1963:29). Despite this ordnance work, it is reported that Miller's shop usually produced "nuts and bolts" for the Confederate navy— items like three-inch screws, rivets, three-quarter-inch bolts, half-inch washers, tin plank, wench timber, 15 by 15 foot timber, and keybolts (Ross 1987:2-3).

Most of Miller's work for the Confederacy was conducted in the first two years of the war. As far as ship work was concerned, Miller worked on a number of vessels during this period. For Green Island, he replaced the stack and provided metal tools,

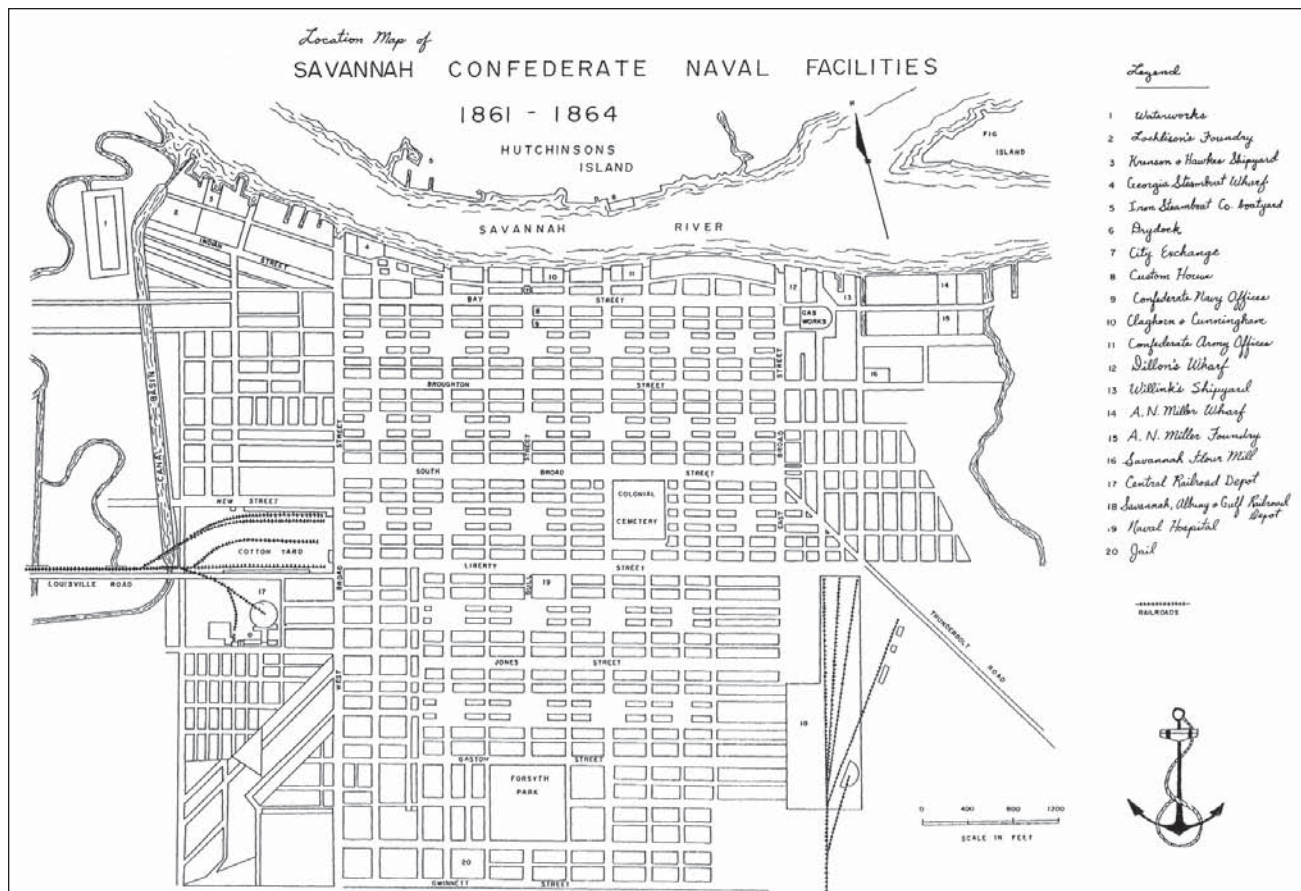
in addition to other repairs (May and August 1861). During this same period, he repaired the boiler on *General Clinch*. His greatest achievement, however, was the supervision and construction of *Georgia* (Ross 1987:3-4). Miller worked on this from March of 1862 until at least May 19, when the vessel was launched. In all likelihood, Miller was involved with *Georgia* until its construction was completed in the fall of 1862.

### 3. Evidence for the Location of the Construction Site, the Site Where the Engine and Machinery were Installed, and a Description of These Facilities

As incredible as it may seem, there is some uncertainty about the actual site of the ironclad's construction. It is generally recognized that Major General Henry Roote Jackson, local commander of the state troops in the Savannah area, began construction of the vessel based on plans provided by Alvin N. Miller. Miller had an extensive shipyard along the Eastern Wharves, east of the city center, but *Georgia* does not appear to have been built there. Rather, most researchers believe *Georgia* was constructed at a relatively unknown yard called Harding's, close to Miller's establishment.

During the Civil War, Savannah's Confederate naval facilities were located on the east and west sides of town, where most of the city's manufacturing and boat construction facilities were located. East of town were Dillon's Wharf, Willink's Shipyard,

Figure 10. Map of Confederate Naval Facilities in Savannah (Still 1997)





A. N. Miller’s Wharf and Foundry, and the Savannah, Albany and Gulf Railroad depot. West of town were the Krenson and Hawkes Shipyard and the Central Georgia Railroad depot (Figure 10; Still 1997:94).

These locations and others are depicted on an 1856 map of Savannah that shows the “Eastern Wharves,” located between East Broad Street and Lamar’s Creek (Figure 11). These include, from west to east, Dillon’s Wharf, Screven, Willink’s Wharf, Lamar’s Canal, Lamar’s Cotton Press, Hydraulic Cotton Press, A. N. Miller (and Miller’s Foundry), and Savannah Tyler Press. East of Lamar’s Creek was Robert’s Street Saw Mill and Wharf, and Anderson’s Wharf. This line-up was basically the same after the war, with the notable exception of Willink and Miller (Figure 12). Both were active in Confederate shipbuilding and manufacturing, and appeared to have paid for this after the war.

Considering the amount of naval construction that occurred in Savannah during the war, it is interesting that only two shipyards are even listed in the 1860 city directory (Appendix 1). These were F. Krenson (Krenson and Hawkes) on the west side, and H. F. Willink, Jr. in the Eastern Wharves. Frederick Krenson, 48 years of age at the time of the 1860 census, was listed as born in Prussia, Germany. The value of his real estate was listed at \$1,800; the value of his personal estate was much higher: \$14,775. The same census lists a Frederick H. (sic) Willink, 35 years old, as a master shipbuilder, born in Savannah. While he had no listed real estate, the value of his personal estate was put at \$10,000 (Savannah City Directory 1860; Lawson 1971:5).

Figure 11. Cooper 1856 Map of Savannah Showing the Eastern Wharves

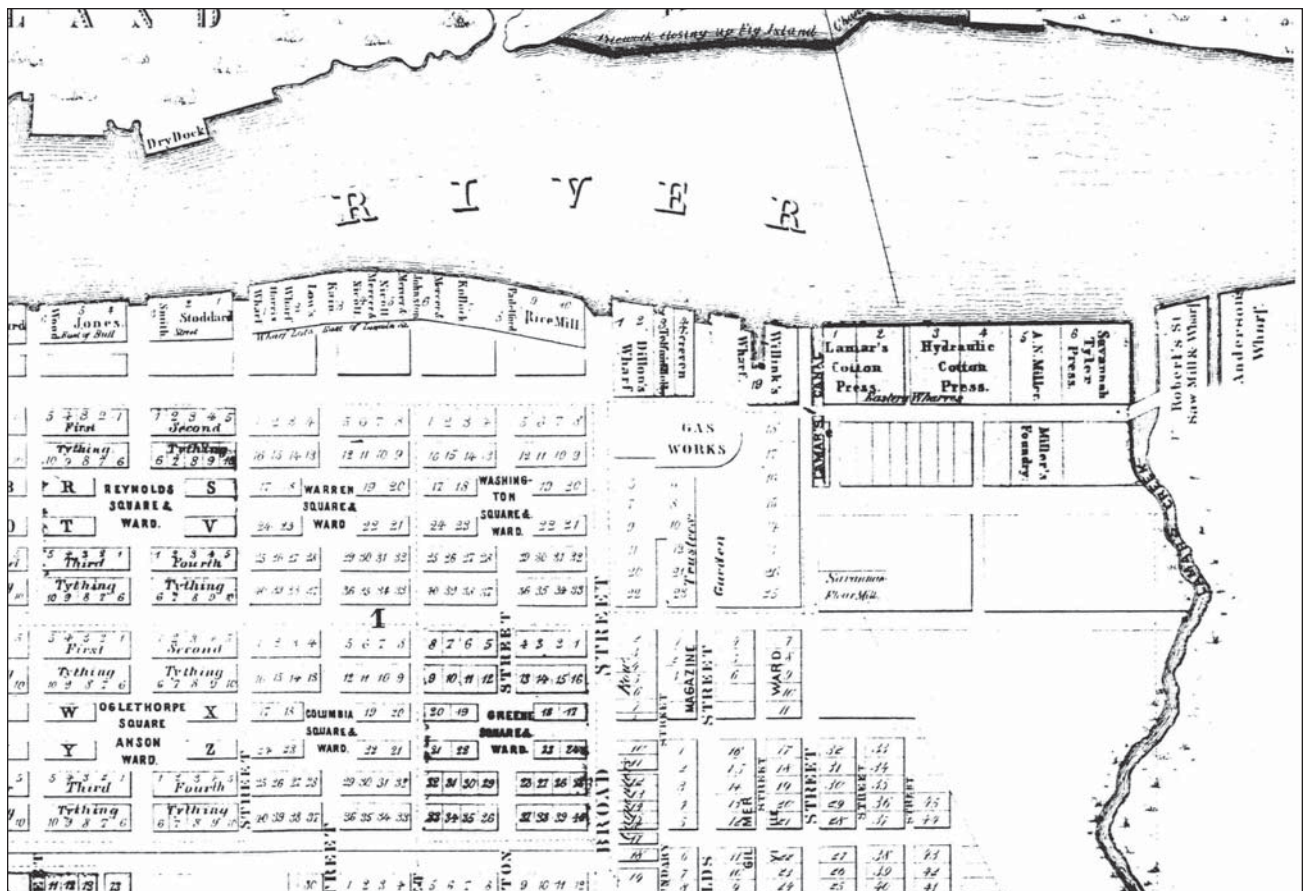
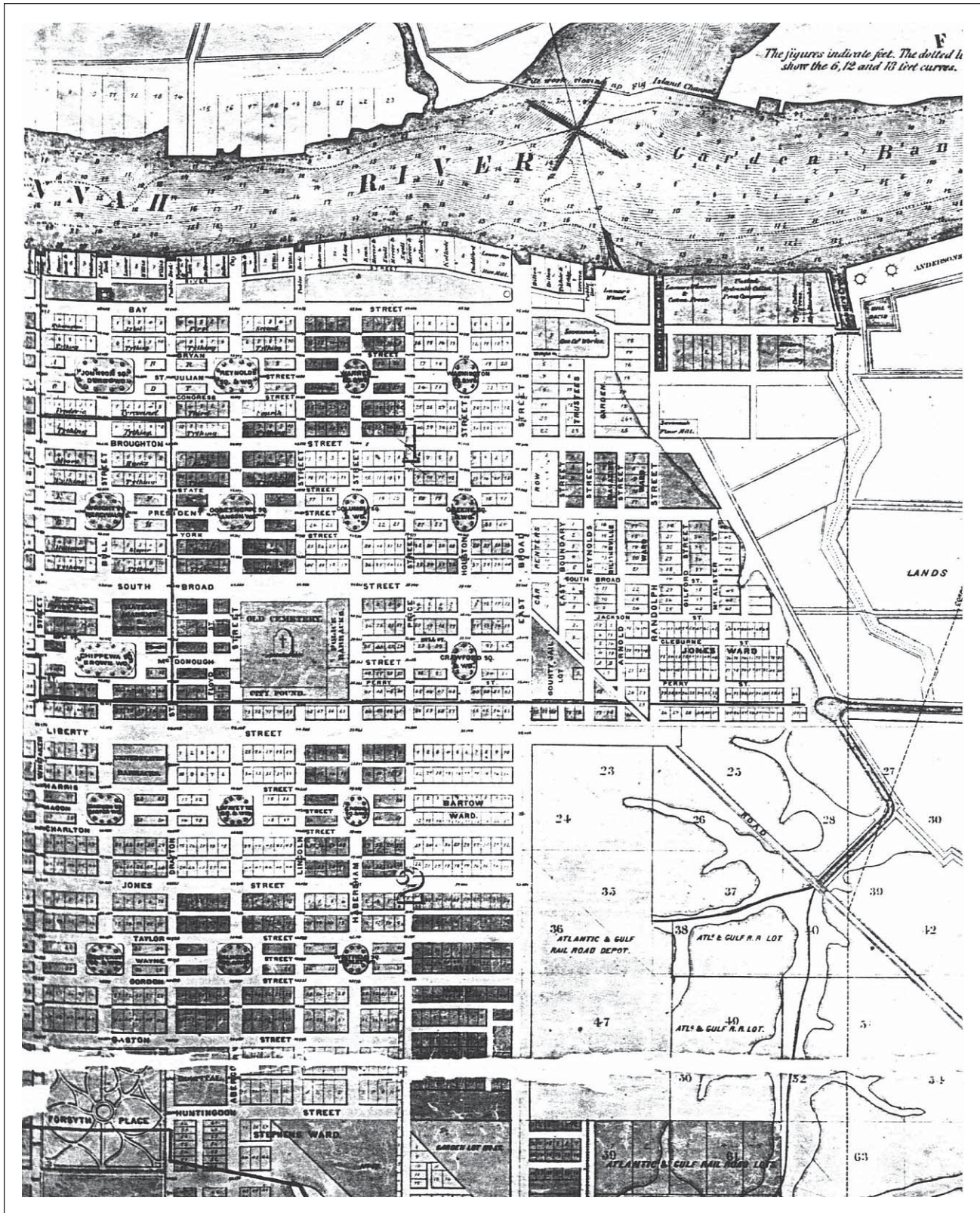


Figure 12. Hogg 1868 Map of Savannah



Even though Krenson and Willink were the only persons listed with shipyards, there were other people listed in similar businesses, like shipwrights, foundry operators, engine builders, and the like. Willink himself was also listed under marine railway, shipwright, and caulker. Shipsmiths that year were listed as T. M. Willink, J. Clemments, and W. H. Smith. Under the three categories of “foundries,” “engine builders,” and “machine shops,” there were the same four entries: R. & J. Lachlison and Company, H. H. Linville, D. & W. Rose, and A. N. Miller and Company. According to the city directory, A. N. Miller and Company foundry was located in the Eastern Wharves, at the end of Bay Street. Other industrial operations included the railroad shops and the city’s saw mills. The sawmills were: W. B. Giles and Company, Jefferson Roberts on the Eastern Wharves, and Savannah Lumber Manufacturing Company at West Boundary near Farm (Still 1989:4-5; Lawson 1978a, Pt. 1:5; Kennington 1994).

Savannah’s two “official” shipyards, Krenson and Hawkes, on the west side, and Henry F. Willink, Jr., on the east side, both received Confederate Navy contracts early in the war. Willink’s yard received its first contract as early as November 2, 1861, for the construction of the hulls for two wooden gunboats, each estimated to cost \$36,000. These boats were to be 150 feet long and 25 feet wide, equipped with both sails and steam, each armed with a six-gun battery. Only one of these vessels was actually launched, as *Macon*, in July of 1863. Krenson and Hawkes received a contract in March of 1862 for the construction of three wooden gunboats, to measure 112 feet by 21. Only one of these was completed: *Isondiga*. Finished in 1863, it was steam-propelled only, with a screw propeller (Still 1989:4-5; Lawson 1978a, Pt. 1:5; Kennington 1994).

Miller’s foundry, located at the eastern edge of town, was across the river from the upstream end of Fig Island. The “shipyard” was located on the river; the foundry was located just inland (Ross 1987:15). If Miller was so closely associated with *Georgia* and it was one of his crowning achievements, then why was it not constructed in Miller’s own shipyard, next to the foundry? Why was it built at “Harding’s Shipyard” (Melton 2002:1), an adjacent establishment that does not appear on any pre-war map or city directory. The main reason is probably that the main shipyards were already occupied with the construction of other vessels. Another wrinkle is that many Savannah shipbuilders did not own their own yards. Willink, Jr., for example, sold his to Gazaway B. Lamar, who then leased it back to Willink. Harding might not have owned his shipyard either (Judy Wood, personal communication 2003). This, however, would not explain why the yard failed to make it into the pre-war directories. This leads to the possibility that “Harding’s Shipyard” did not exist before the war, but began as property pressed into service for the construction of small Army boats. In late 1861 or early 1862, General Robert E. Lee asked General H. R. Jackson to provide the mechanics for building transports to move troops, and this construction began at Harding’s in early March (Lawson 1978a, Pt. 1:5). With the shipyard ready and the labor already assembled, it is perfectly reasonable that Jackson, assigned responsibility for the construction of *Georgia*, would use Harding’s yard as the construction site.

#### *4. The Organizations, Military Units, and Individuals Involved in Constructing the Vessel and its Machinery, their Skills, and the Amount of Time Spent*

In all likelihood, *Georgia* was constructed at Harding’s Shipyard, located near Alvin Miller’s foundry (Melton 2002:1; Design Memorandum 1983:A-26). It was here that General Robert E. Lee directed Major General Henry R. Jackson to furnish the mechanics to build boats for the transporting of troops, and this construction began in late February and early March, before the beginning of *Georgia* (Lawson 1978a, Pt. 1:5).

One question that comes to mind almost immediately is - why use Army personnel for the construction of the ladies gunboat? Given Tattnall's reputation and standing, why not use the Navy? It was, after all, within the Navy's domain. The reason for using the Army was probably two-fold: speed and availability. With Fort Pulaski already under siege, it was critical to get something in the water as quickly as possible. And, as will be shown, General Jackson was already at the scene, using Army personnel to build Army transports for General Lee. Even before the construction of *Georgia*, it was difficult to get the necessary number of civilians together for such work. Using Jackson and his troops to construct the gunboat was simply the quickest option. As a result, much of what we know about the early phase of construction comes from Jackson's order books, on file with the Georgia Department of Archives and History.

Although a native of Georgia, General Jackson had only been in the state a brief period before construction began. In the summer and fall of 1861, he served with the Confederate forces in western Virginia. During that time, he became acquainted with General Lee, who also served in that sector. In early November of 1861, Lee was sent to command the troops in South Carolina and Georgia. Jackson was still in Virginia as late as November 27, but sometime after that, he resigned his Confederate commission to assume command of Georgia state troops around Savannah. He was at his new post by the beginning of 1862 (Jackson 1861-62 Orders).

In February of 1862, Lee asked Jackson to "furnish mechanics to aid in the building of some boats, that we may be able to employ troops on the water when necessary" (Lawson 1978a, Pt. 1:5). In response to this, on February 20, 1862, Jackson issued Special Order 117:

All the carpenters of the 2nd Brigade reported in the schedule a copy of which is herewith annexed are assigned to special duty and will report to Col. Boggs at Miller's Wharf in the city at 9 o'clock tomorrow morning with one day's cooked rations. They will be under the immediate command of Captain Gordon, Co. G, 3rd Regiment, who will be responsible for their discipline (Jackson 1862, Order Book, Vol. 3:65).

This was followed on March 3 by Special Order 150:

Capt. Gordon will detail 35 of the carpenters under his command to report to Mr. Withington at Harding's Shipyard, near Miller's Foundry, with one day's cooked rations and with six handsaws, six clawhammers, and three bracing bits to rivet nails 3 and a half inches. This detail to report daily for this special duty at Mr. Withington's discretion (Jackson 1862, Order Book, Vol. 3:78; Lawson 1978a, Pt. 1:9).

This is the first clear association of Army troop construction work with Harding's Yard, near Miller's Foundry, on the Eastern Wharves of Savannah. It is also the first mention of James E. Withington in connection with the work at Harding's shipyard (Lawson 1978a, Pt. 1:5). According to the 1860 population census, Withington was a 40-year old master shipbuilder, born in Charleston, South Carolina. There were a total of seven people in his household, including his wife, Mary, their children, and a ship carpenter, Rufus Hanks (probably Rufus Hawks), aged 38.

Just days later, the Ladies Gunboat Association was organized and money began to be raised. The earliest known mention of the need to build the ladies gunboat appears in the diary of General George Mercer. On March 15, 1862, he directed a Captain Prichard to go to Savannah and offer to build a floating battery, adding that Mercer hoped his services would be accepted (Mercer 1862:March 15). Despite this offer, it appears that serious work on the gunboat was not begun until after March 22. On that date, John Stoddard of the Ladies Gunboat Association steering committee, asked General Jackson if he would construct the gunboat. In a letter still preserved in Jackson's letter book, Stoddard stated that:

...we all have the greatest desire to have a Battery constructed within the shortest time possible.... It matters not to any of us under whose control it be built. Mr. [Hiram] Roberts has given the matter much of his thought, and has made arrangements with the mechanics to begin and hurry forward the work. Many reliable hands can be had from our railroad company, and Capt. Screven offers some good workmen from his company. These can all be had as well, if the Battery is [illegible] to be constructed by state authorities.... If you will undertake it, I am authorized by Mr. Roberts and all concerned to say that we cordially turn over the matter to you....have the kindness to inform me... if you will undertake the work (Jackson 1862, Letter Book, p. 48; Stoddard, March 22, 1862; Lawson 1978a, Pt. 1:9-10).

General Jackson clearly accepted, as four days later, Gazaway Lamar's son, C. A. L. Lamar, wrote Jackson that:

...as you are about to construct a gunboat for the clearing out of our river, and as the work [is] to be done principally by soldiers, permit me to suggest the propriety of engaging the services... of Lt. W. J. Mathews of the 7th Georgia Battalion, as well as Private Alex Stripling of Capt. McRae's Company of the same battalion. I have no doubt but that their patriotism would prompt them to take hold, if Generals Lawton and Mercer would give their consent (Jackson 1862, Letter Book, March 26, 1862).

That same day, March 26, William Daniel Dixon made entry in his journal that, "the Iron Ram is being [built] for the defense of this river. There are six hundred hand to work on it" (Durham 2000:74).

While the number of workers was almost surely not that high, labor does not appear to have been a problem, at least not at the beginning. Among the units known to have contributed laborers to *Georgia*, were:

Company G of the Georgia 3rd Regiment, under Capt. George Anderson Gordon;  
Southern Rangers, under Capt. E. H. Bacon;  
Chatham Siege Artillery (Private George McBillet);  
Tattall Guards, under Capt. Archibald C. Davenport; and  
Company B of the Irish Jasper Greens, under Capt. (David?) O'Conner (Lawson 1982).

By the end of March, soldiers and others were working on *Georgia*. Jackson's General Order 45 (March 30, 1862) specified that:

The details of carpenters, engineers, and blacksmiths assigned to the construction of the Floating Battery will be encamped at some eligible point in the vicinity of Miller's Foundry under the command of the senior

commissioned officer who will be held immediately responsible to General Headquarters for their discipline and good order by night as well as by day. They will come consequently provided with the necessary camping equipage and will be supplied with their rations through the Division Commissary (Jackson 1862, Order Book, Vol. 2).

That same day, Jackson issued Special Order 185, which stipulated that a guard be placed on the Floating Battery construction site from 7 to 7, presumably the night hours. Capt. A. C. Davenport was put in charge (Jackson 1862, Order Book, Vol. 3:108). Soon after, guards were posted at the site around the clock (Lawson 1978a, Pt. 1:10-11).

On March 31, Governor Joseph E. Brown asked Jackson to “please give me the facts about the floating battery or gunboat; has it been commissioned, and what is the prospect of success” (Jackson 1862, Letter Book, p. 35; Brown, March 31, 1862). Jackson replied that the work was progressing, but not as quickly as he would like. He reiterated that the ladies gunboat was the “last hope” for the relief of Fort Pulaski (Jackson, April 1, 1862).

Governor Brown paid a visit to Savannah in early April, and Jackson’s General Order 49 specified that all working parties were temporarily suspended to form a review line for the governor on April 5. The only party exempted from the review was the one working on the floating battery (Jackson 1862, Order Book, April 4, 1862). The governor visited the work site on April 9, but did not leave a record of what he saw (Garrison et al. 1980:14).

By early April, the project employed between 175 and 200 soldiers and others (Melton 2002:1; Kennington 1994). In Special Order 187, issued on April 2, Jackson ordered that City Post No. 1 double the night guard at the floating battery construction site (Jackson 1862, Order Book, Vol. 3:110). On the 9th, Special Order 191 detailed privates R. McGlorie (?) and M. Brannon from Company B of the Irish Jasper Greens, under Captain O’Conner, to report to A. N. Miller for work on the floating battery. This is the first direct mention of Miller in association with *Georgia*. Privates Bulger, Gordon, and Kent, of the Chatham Siege Artillery, were also ordered to report to Miller, presumably for the same purpose (Jackson 1862, Order Book, Vol. 3:113).

That same day, on April 9, Capt. A. C. Davenport of the Tattnell Guards, wrote to the assistant adjutant general that his troops, at a full meeting two days earlier, offered, “the services of our corps, as part of the force to man the ‘Floating Battery’ now being built. It is understood that the object of said battery is to open communication with Ft. Pulaski” (Davenport, April 9, 1862; Jackson 1862, Letter Book, p. 12).

Fort Pulaski surrendered two days later, on April 11, but this did nothing to relieve the urgency of defense construction projects around Savannah. Only now, it was probably more urgent to finish the river shore batteries than to finish the floating battery. On April 13, Special Order 196 had a number of groups report to either Miller’s Foundry or Miller’s Wharf, and most did not appear to be working on *Georgia*:

Col. E. W. Chastain will order 8th Regiment without arms and with one day’s cooked rations to report at Miller’s Foundry at 2 o’clock. Let every available man be sent.... Brig. Gen. Capers, commanding 2nd Brigade, will detail 300 men under an energetic field officer with rations for one night to report at Miller’s

Wharf at 5 o'clock today.... Col. E. W. Chastain, commanding 3rd Brigade, will detail 300 men under Major Harris from the 10th Regiment and 3rd Battalion, with one night's rations, to report to Maj. Lamar Cobb at Miller's Wharf at 6 o'clock.... Privates Leander (?) and Michael Bohn [illegible] of the Chatham Siege Artillery, are hereby detached on special service and will report to Maj. Gladding (?) to assist in obstructing the Savannah River, and Thomas Clancy to work on Floating Battery (Jackson 1862, Order Book, Vol. 3)

On April 18, John Stoddard wrote Jackson that state troops working on the battery had not been paid the previous Saturday: "I have requested Mr. Bennett to have the pay roll made up to the 16th. Will you see that they are paid tomorrow. Great trouble has been experienced in getting their rations. For this day, it was settled favorably at noon only when they should get a dinner or if they should have none. They must be kept at work and in good heart" (Stoddard, April 18, 1862).

It is possible that the ration problem was related to the transfer of state troops to Confederate authorities, a transition that began in mid-April. On April 16, 1862, Jefferson Davis signed into law a conscription bill that called for the draft of white males between the ages of 18 and 35. As a result, in middle to late April, General Jackson's Georgia troops were drafted into the Confederate Army. This ended Jackson's direct involvement with the construction of the battery. A citizens' committee then had to find new workers to continue the work on the floating battery (Lawson 1978a, Pt. 1:12). General Alexander Lawton, local Confederate commander, was induced to contribute men from his command to get the work going again (Melton 2002:19). Within a few weeks, Lawton himself was called to Virginia and was replaced by Hugh Mercer (Griffin 1963:156). During this confusing period, less is known about the individuals and groups pressed into the construction of *Georgia*.

Work continued on the floating battery through the rest of the spring and into the summer of 1862. On June 10, Brigadier General Mercer received a request for 125 men to work on the "floating battery *Georgia*." As a result, the commanding officers around Savannah were requested to submit the names of those in their commands willing to volunteer for this work. These men would then be discharged from the Army and enlisted into the Navy, for three years or the duration of the war (Mercer:1862). By now, it was clear that work on *Georgia* was becoming more regular. It was also nearing completion.

##### 5. *The Ship's Architecture and Layout; Equipment Distribution, etc.*

Compared to most Confederate ironclads, little is known about the design and construction of *Georgia*. Despite extensive searches, no plans or written specifications have been found. According to one account, *Georgia* was built without the benefit of formal builder's drafts and it was only after construction began that the Confederate Navy hired a draftsman to draw her elevation and sections in anticipation of ultimately receiving the vessel from the Ladies Gunboat Committee (Subject File, Roll 7). The only known contemporary illustrations of *Georgia* consist of at least four engravings of the vessel from two Northern periodicals, *Frank Leslie's Illustrated Newspaper* and *Harper's Weekly*, and an apparent photograph of unknown provenance (Figures 13-16). There are variances in the depiction of *Georgia* in these illustrations, however, suggesting that at least some were made in the image of an ironclad in general, rather than of *Georgia* directly. In addition, five eyewitness descriptions provide useful, although often contradictory, information on *Georgia's* size and structure. Although differing in detail, the images conform in depicting a relatively conventional casemated Confederate ironclad warship.

The barn-like armored casemate, or shield, was the characteristic feature of Southern ironclads. The structure first appeared on CSS *Virginia* (USS *Merrimack*) because of its simplicity of construction, a prime consideration in a region lacking in extensive shipbuilding facilities. For that reason, every known Confederate ironclad commenced after *Virginia* featured the angled, iron-plated casemate. The casemates on these vessels were constructed of multi-layers of wood usually totaling from 20 to 24-inches in thickness. Generally, the framework of the casemate was made of vertical foot-square timbers (sometimes 12 x 13 inch) laid solid. On the exterior of this structure were attached two layers of wood planking, the inner most placed horizontally and the outer vertically. Some vessels had a thin layer of wood on the casemate interior to give a finished appearance and

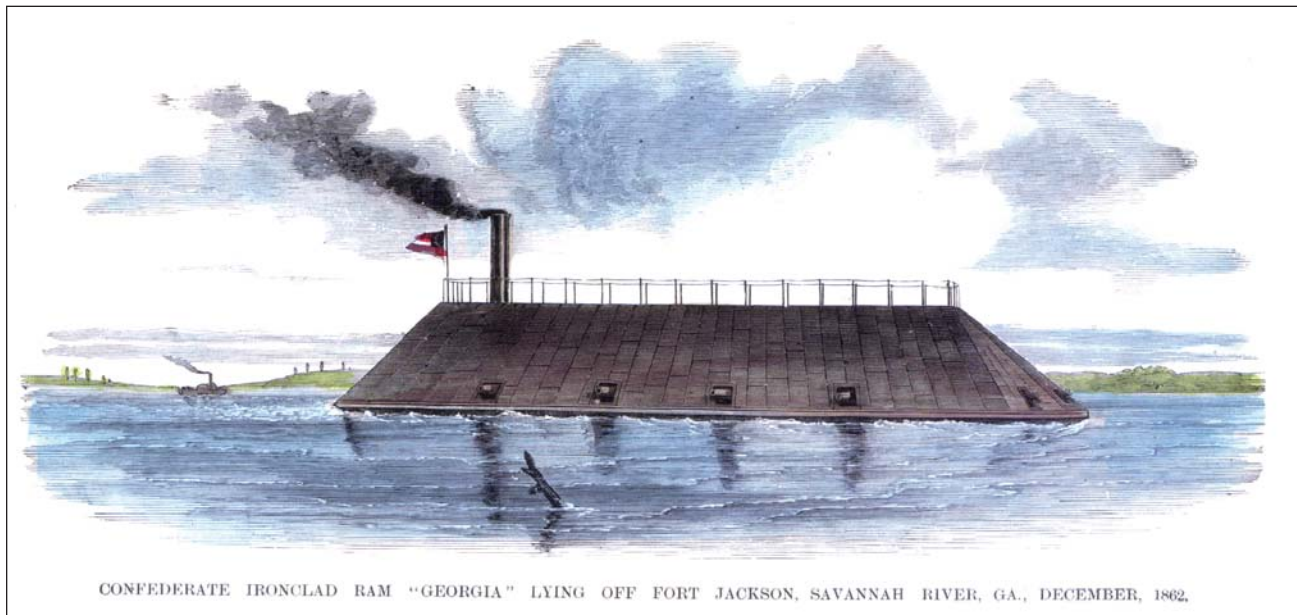


Figure 13. CSS *Georgia*, drawn December, 1862. From Frank Leslie's *Illustrated History of the Civil War* (Moat 1977)

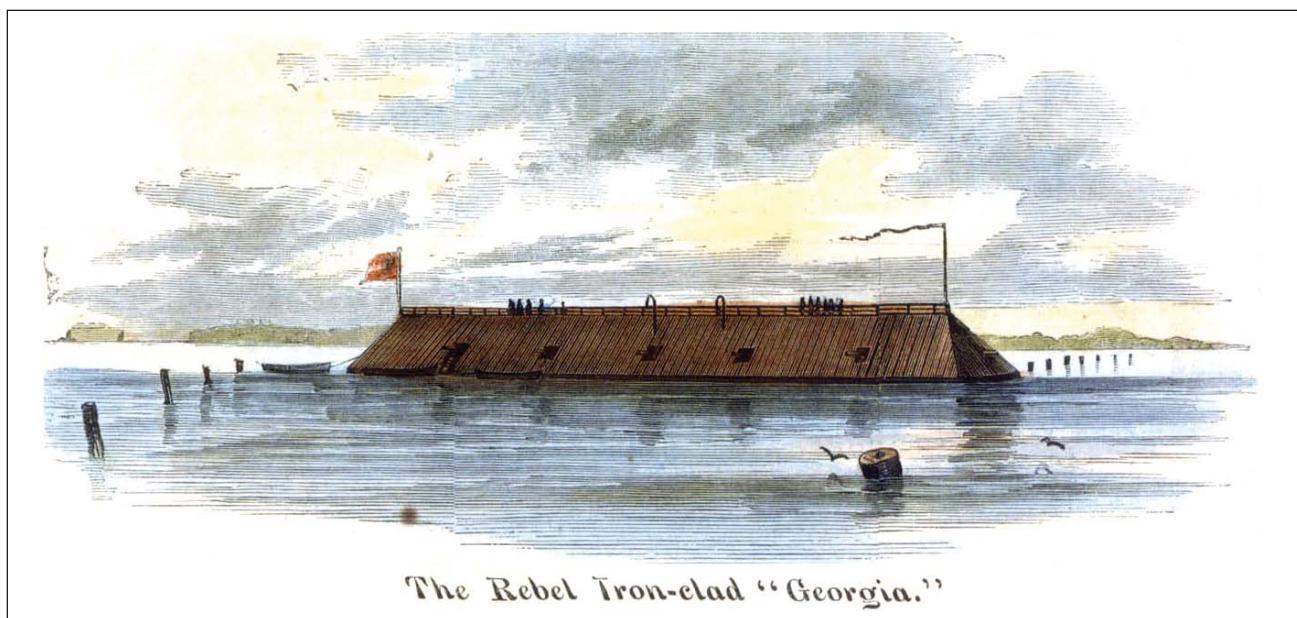


Figure 14. CSS *Georgia*. Illustration from *Harper's Weekly*, February 14, 1863. From Frank Leslie's *Illustrated History of the Civil War* (Moat 1977)



reduce the threat of splintering. One eyewitness described *Georgia's* casemate as being constructed of wood 15 inches thick (Barnwell 1981: 207). If so, it would have been the lightest casemate of any known Confederate ironclad. The angle of the sides and ends of Confederate casemates usually varied between 30 to 45 degrees from the horizontal, with 35 degrees being the most common.

There are several contemporary references to the angle of *Georgia's* casemate. Potentially the most valid is contained in a letter written by Hiram Roberts to fellow gunboat committee member Gazaway B. Lamar in which he states that the casemate



Figure 15. CSS *Georgia*. Illustration from *Frank Leslie's Illustrated Newspaper*, February 21, 1863

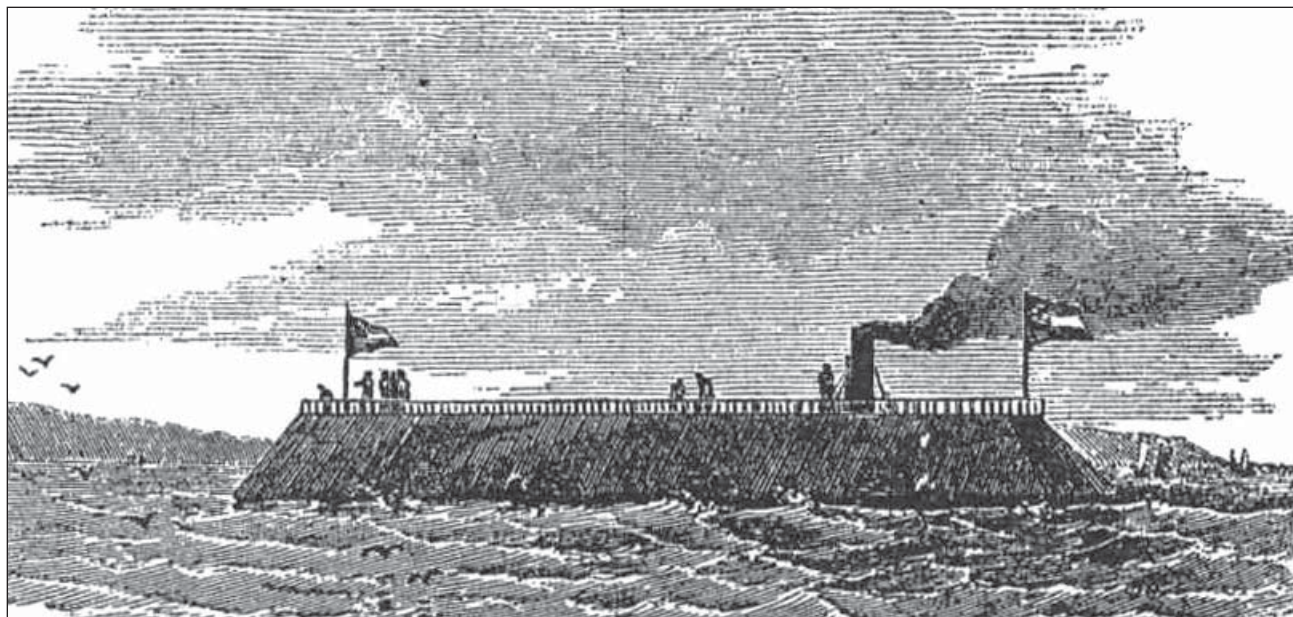


Figure 16. CSS *Georgia*, erroneously labeled *Atlanta*. Illustration from *Frank Leslie's Illustrated Newspaper*, March 14, 1863

angle as built was 31 degrees even though the intended inclination was 26 degrees (Citizens File 1862). In this case apparently, the inclination is from the vertical and not the horizontal. Unfortunately, the letter is virtually illegible and its precise contents cannot be discerned with any degree of certainty. A soldier who visited *Georgia* estimated the casemate angle "at about 45 degrees..." (Barnwell 1981: 207). All of the contemporary illustrations show *Georgia* with flat casemate ends and most Southern ironclads were so constructed. *Virginia's* casemate is the only one known to have had rounded ends, which were more complex to build.

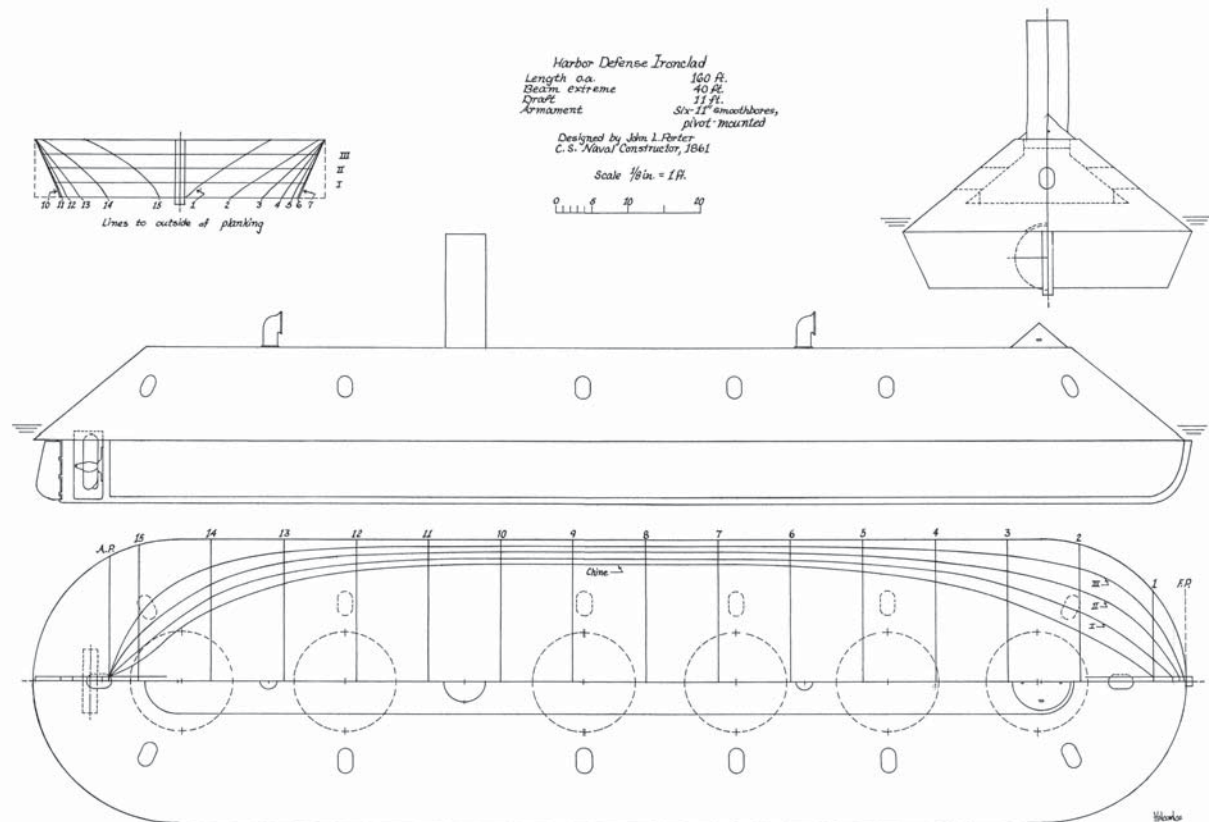
Typically, laminated iron plate ranging from four to six inches in thickness was placed over the outer layer of casemate planking. Most Confederate ironclads were armored with two or more layers of two-inch rolled iron plate, seven to eight inches in width. At least four, including *Georgia*, were plated with railroad iron. The casemate roof, or spar deck, could also be armored. Some ironclads had one layer of plate laid solid, with openings left for hatches leading to the gun deck below. This method effectively made the casemate roof the weather deck. Others had plate laid several inches apart, which provided light and ventilation to the area beneath and made the gun deck the weather deck. At least one ironclad, *Virginia*, had its casemate top covered entirely with cast iron grating, with openings left for hatches. Nothing is known for certain about *Georgia's* casemate roof though one account mentions that the only access to the vessel's interior was through "the gratings on top" (Barnwell 1981: 207).

Most ironclads had either a pilot's hatch or a pilothouse on the spar deck. Both were positions from which the vessel was conned. A pilot's hatch was an open-top hatch with a low combing out of which the pilot peered. A pilothouse was a truncated pyramid that rose two to three feet above the spar deck. The top of the pilothouse could either be solid or have a grating for light and ventilation. Viewing slits on all four sides provided visibility for those within. Neither the illustrations nor the photo depict either type of structure on *Georgia's* casemate top.

*Georgia* was designed to carry ten heavy guns within the casemate. Four guns were to be mounted on each broadside and one at each extremity of the casemate. The photograph and several of the engravings confirm this arrangement, although one shows three guns on the casemate's end and another depicts two. The guns were named for the cities and counties of the State making the largest contributions to the vessel's construction (*Southern Recorder*, 1862). After *Georgia* was commissioned the stern gun (caliber unknown) was removed. This was likely due to *Georgia's* lack of motive power, which caused her to be semi-permanently moored, with her stern pointed in an ineffective direction. An ordnance report dated April 23, 1863, gives the vessel's armament as three 8-inch smoothbore shell guns and one rifled and banded 32-pounder (6.4-inch) on the starboard broadside, two 9-inch Dahlgren smoothbores and two rifled and banded 32-pounders on the port broadside, and a rifled and banded 32-pounder mounted at the bow. In addition to her main battery, a 24-pounder smoothbore made in Savannah by A. N. Miller, and a 6-pounder smoothbore presented by the ladies of Rome, Georgia, were mounted, respectively, on the *Georgia's* fore and aft casement deck (Emory University Special Collections: Document No. 20). These two light guns were probably meant to be utilized as boat howitzers and to repel boarders.

Over the next two and a half years several changes were made in *Georgia's* armament. In September 1863, citing the *Georgia's* fixed position and resulting inability to bring more than one broadside to bear downstream, the Army requested four of her guns for use in Savannah's land defenses. Accordingly, the four starboard broadside guns were loaned to the military authorities until otherwise needed by the Navy (ORN 14: 766). In April 1864, the Army requested the use of one of the vessel's

9-inch Dahlgren smoothbores. Apparently this request was not approved until some time between August 31 and November 5, 1864, when official reports of those dates credit *Georgia* with carrying five then four guns respectively (ORN 15:767; 16:459). On September 27, a shell burst prematurely in *Georgia's* bow 32-pounder during quarterly target practice, resulting in the loss of a portion of the gun's muzzle (Hunter 1862-1863:201-202). The damaged gun was immediately replaced by a 9-inch Dahlgren. Based on the surviving evidence, *Georgia* had four heavy and 2 light guns on her at the time of her sinking the following December. In 1986 one of her starboard rifles and the 24-pounder howitzer were raised, apparently leaving the remaining three heavy guns and the 6-pounder on the river bottom (Babits 1993).



**Figure 17. John L. Porter's 1861 Harbor Defense Ironclad. Drawn by Robert Holcombe from a Reconstruction by William E. Geoghegan**

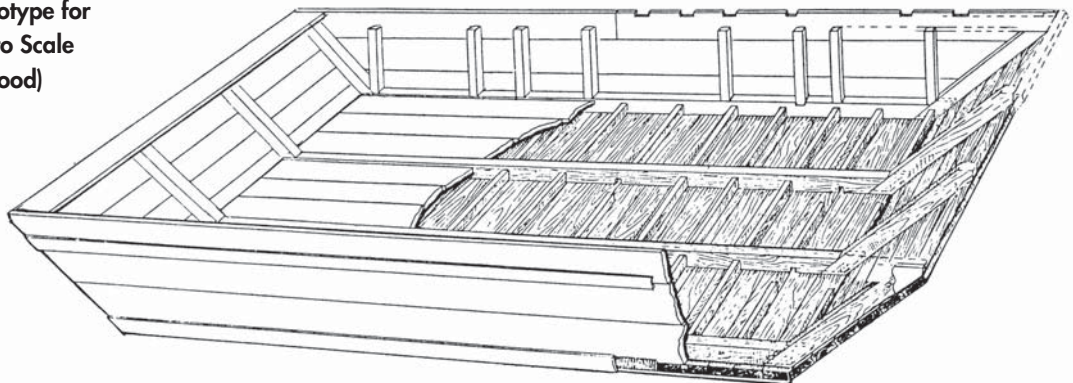
Despite *Georgia's* similarities to other casemated ironclads, a deviation from the common architecture as depicted by all but one of the surviving illustrations of *Georgia*, is the lack of visible flush decks – the low, exposed extensions of the gun deck forward and aft the casemate. Illustrations of *Virginia* suggest that this ship was also constructed without exposed flush decks, but *Virginia's* decks were actually several feet below the waterline. Intended to give the vessel greater speed and buoyancy, *Virginia* was the only Confederate ironclad built with submerged fore and aft ends. *Georgia* images more closely resemble a proposed Confederate ironclad that was never constructed. In June 1861, following Naval Secretary Stephen R. Mallory's decision to build an ironclad in the Confederacy, naval constructor John L. Porter submitted a plan for a 150-foot harbor defense ironclad that lacked fore and aft flush decks (Figure 17). Mallory opted instead to convert the burned-out remains of USS *Merrimack* rather than construct an ironclad from the keel up, and no warships are known to have been built

to Porter's plans. Instead, Savannah foundryman A. N. Miller is credited with *Georgia's* design and there is no evidence of navy participation in that process.

Virtually nothing is known about the configuration of *Georgia's* structure below the waterline. A letter published in the *Savannah Republican* contains the only reference to the vessel's hull yet found. In this correspondence, gunboat committee members G. B. Lamar, John Stoddard and Francis Sorrel wrote that *Georgia* was being built without a keel, even though one was proposed "to insure her steering..." (*Savannah Republican*, October 21, 1862). The real issue behind the keel was the nature of the vessel itself. If it was to be a floating battery, then a large keel was not needed. It would need a keel only if it was to be an ironclad gunboat, and this was what most people had in mind when they made contributions to the project. As it was, *Georgia* turned out to be a "floating battery with propellers" (Garrison et al. 1980:18). The quickness with which the *Georgia* was built suggests either an extremely simplified hull form or a conversion based on an existing vessel, such as a rice flat. It has been suggested that the hull was already in place before the Ladies Gunboat Association was formed. One theory is that *Georgia's* hull was laid down as a troop transport constructed by Jackson before the Association existed, and was then converted into a gunboat at the last minute (Design Memorandum 1983:A-7 through A-8). Another suggestion is that a rice flat formed the hull of *Georgia*.

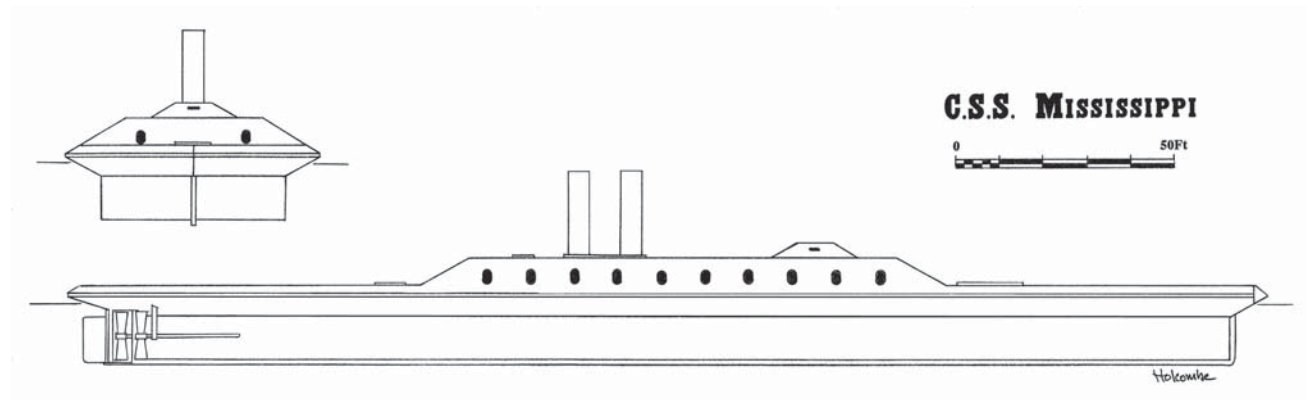
Neither possibility, the converted transport nor former rice flat, seems likely. The troop transports that Lee asked Jackson to build were in all likelihood smaller than *Georgia*. The workforce and lumber assembled for this work were almost surely used in *Georgia's* construction, but it is unlikely that a transport hull would have served as the hull of an ironclad gunboat. As for a pre-existing rice flat, it seems unlikely for at least one big reason—after it was launched, the hull of *Georgia* was known to leak, and leak badly, throughout its life on the river. A pre-existing rice flat, known to leak, would not have been pressed into this kind of service. Systemic leaking is the hallmark of new construction using unseasoned wood. This was a common problem in Confederate naval construction. Along Southern waterways, wood was plentiful; time was not. Taking a year or so to cure wood properly was a luxury the Confederate Navy could not afford. Almost all the timber used in Confederate ironclad construction was green and over time, it leaked. In confirmation of this, after the war, the U.S. Navy retired almost all Confederate ships because of construction flaws directly related to the use of unseasoned wood (Still 1987:58-59). Another possibility is that the hull, which was almost surely a new construction, was simply built like a rice flat (Figure 18). This is certainly plausible. A rice flat was typically large and could handle great weight. With a minimal number of curves, it was also simple to construct. Given the untrained work force that constructed *Georgia*, this would have been an important consideration. Also, the apparent

**Figure 18. Illustration of a Rice Flat, a Potential Prototype for *Georgia's* Hull: Not to Scale (Courtesy of Judy Wood)**

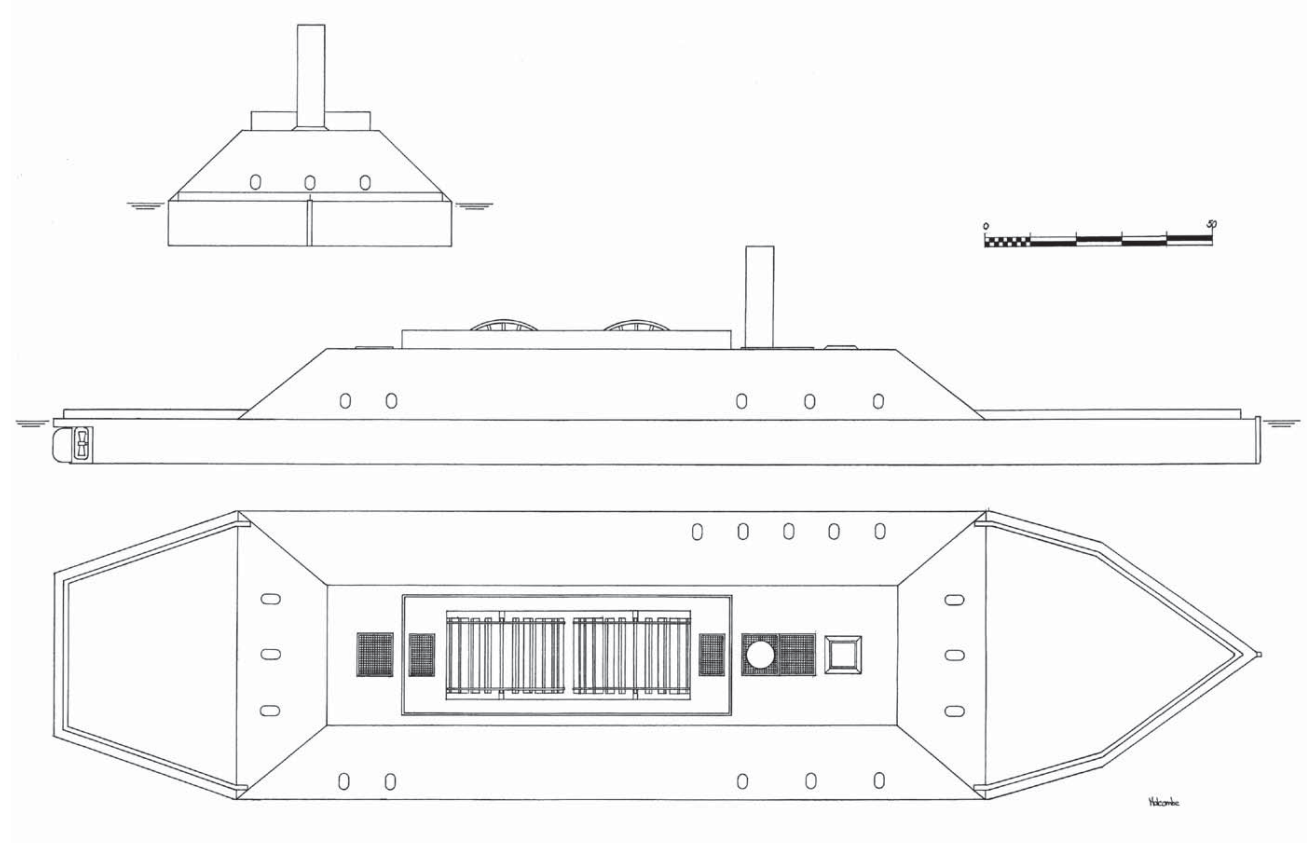


The Confederate Navy constructed several ironclads with simplified hull forms. The first were two large ironclads, *Mississippi* and *Louisiana*, which were commenced at New Orleans in the fall of 1861 (Figures 19 and 20). The 275-foot, 20-gun *Mississippi* was built to a design developed by brothers Asa and Nelson Tift. The vessel's hull was completely devoid of curves and featured a flat bottom with a hard chine and vertical hull sides, and a solid, built-on knuckle at the waterline (Figure 19). Veteran steamboat builder E. C. Murray conceived the 264-foot, 16-gun *Louisiana*, which was also characterized by a flat bottom and vertical hull sides but without *Mississippi's* distinctive built-on knuckle (Figure 20). Both ships were destroyed on

**Figure 19. CSS *Mississippi*, designed by Asa and Nelson Tift, 1861. Drawn by Robert Holcombe**



**Figure 20. CSS *Louisiana*, designed by E. C. Murray, 1861. Drawn by Robert Holcombe**

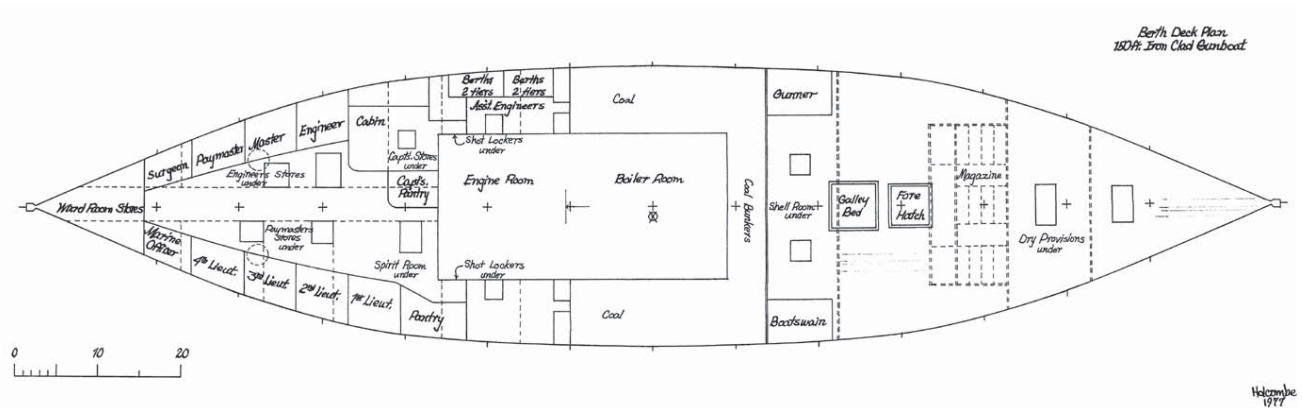


the fall of New Orleans in April 1862 and no other Confederate ironclads are known to have been built with their peculiar hull forms. Another simplified design became the standard model for ironclads built at inland sites in the South. Called diamond hull types because of their hull shape, these ironclads featured a flat bottom, with or without a keel, and a chine bilge with straight sides that angled outward to the knuckle at about 45 degrees. At least ten diamond hull ironclads were built at various inland sites throughout the Confederacy. All are believed to have been designed by Chief Naval Constructor John L. Porter; none were completed as quickly as *Georgia* was. Remains of two diamond hull types, *Jackson* at Columbus, Georgia, and *Neuse* at Kinston, North Carolina, were recovered in the 1960s and are currently exhibited at museums in those cities.

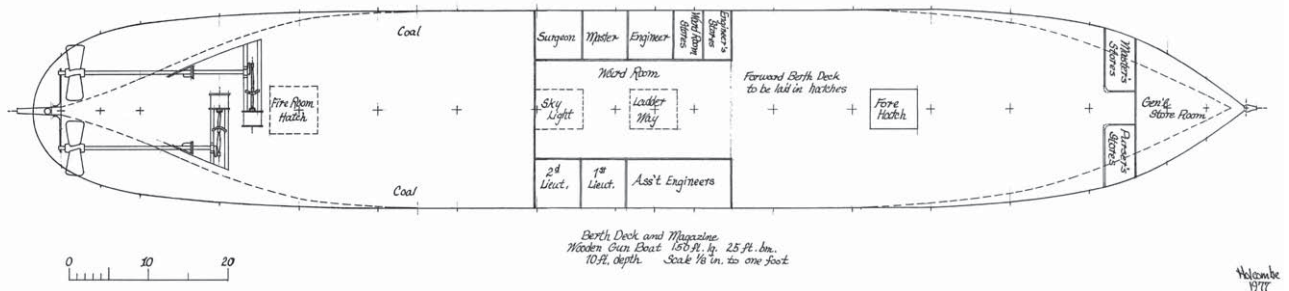
Estimates of *Georgia*'s size range from 150 to 250 feet in length. These dimensions are based on two contemporary descriptions and a post-war examination of the vessel's wreck. A correspondent with a Unionist Port Royal, S.C. newspaper viewed *Georgia* from the lower end of Elba Island (a distance of approximately 3.4 miles depending on the precise location of the observation point) reported the vessel's dimensions as 250 feet in length, 60 feet in beam, with a 12-foot high casemate (*New South*, 1863). H. G. Turner, a Confederate soldier stationed at Savannah, wrote that *Georgia*'s length was "about a hundred and fifty feet, and her width fifty feet..." (Turner 1862). It is not known if Turner actually saw *Georgia* or based his description on hearsay. In 1872 the Corps of Engineers surveyed *Georgia*'s remains as a potential navigational hazard and reported her to be 150 feet in length by 60 feet in beam (Garrison et al. 1980:35). Contemporary accounts suggest that *Georgia*'s hull was relatively shallow draft, or at least less so than CSS *Savannah*, another ironclad operating with the Savannah Squadron. As Union General W. T. Sherman's forces approached Savannah in early December 1864, *Savannah* was ordered to take a position 14 miles above the city to guard the important Savannah and Charleston Railway bridge. *Savannah* could not reach the bridge "owing to her draft of water ..." of twelve-and-half feet, and *Georgia* was ordered instead. Ultimately *Georgia* never made the movement but the incident infers that she drew less water than *Savannah* (ORN 15:702; 16:437-74). Confederate Army lieutenant John Elliott, who likely saw the ship firsthand, wrote that *Georgia* "will draw very little water..." (Barnwell 1981: 207).

Like most aspects of *Georgia*'s design, virtually nothing is known about the vessel's interior layout; clues, however, can be gleaned from knowledge about other Confederate ironclads. Nearly all such vessels were configured with two interior decks. The first of these was the gun deck, which was located within and protected by the armored casemate. As the name implies, the ship's heavy ordnance was carried on this deck, often with the capstan (or windlass) and other anchor handling gear, a manual pump, and other fittings. On some ironclads the ship's steering wheel was mounted on the gun deck but most often it was carried on a raised platform mounted below the pilothouse from which the vessel was conned. Sometimes the gun deck was also used as berthing space. As previously mentioned, the exterior extensions of the gun deck fore and aft the casemate, were called flush decks. These low decks were usually less than three feet above the waterline. Below the gun deck and forward and aft of the machinery spaces were the berth decks. These were the living and mess spaces for the officers and crew. The forward berth deck was usually for enlisted personnel and contained the ship's galley. Officers' quarters and wardroom were contained in the aft berth deck. Between the two berth decks and the vessel's bottom were the holds, which were used for storage of munitions, victuals, and other supplies. The machinery spaces, containing engines, boilers and fuel, were usually located in the center of the ship between the forward and aft berth decks and took up the entire space between the gun deck and the ship's floor frames (Still 1971:100-101). A surviving plan of CSS *Savannah* shows the common arrangement of the berth decks and machinery spaces, superimposed over the hold spaces (Figure 21). Several of the *Georgia* illustrations and the photograph suggest *Georgia*'s steam machinery was located in the stern area of the ship

**Figure 21. CSS Savannah Berth Deck Plan Superimposed Over the Hold Plan. Redrawn by Robert Holcombe from an Original Plan in the H. F. Willink Collection, Robert Woodruff Library, Emory University**



rather than amidships. Figure 22 depicts the berth deck plan of the wooden gunboat CSS *Macon*, not an ironclad, but had engines and boilers located in the stern portion of the hull. CSS *Chattahoochee*, a similar but smaller wooden gunboat with machinery aft, had the captain's cabin located in the extreme stern, behind the engines and above the twin propeller shafts.



**Figure 22. CSS Macon Berth Deck Plan and Machinery Spaces. Redrawn by Robert Holcombe from an Original Plan in the H. F. Willink Collection, Robert Woodruff Library, Emory University**

6. The Origin and Design of the Machinery (Engine And Boiler) and Equipment and Tools That May Have Been on Board for Ship Maintenance

Little is known about the engine except that all sources agree that it was totally inadequate. Here, the Ladies Gunboat came up against the greatest shortage of them all: powerful marine engines. With an inadequate engine, further hampered by a piece of timber that got stuck on the hull when the boat was launched, it was said that *Georgia*, even at full steam, could only make two knots (Lawson 1978a, 1:17). Later, after the boat was moored into position as a floating battery, the engine was merely used to pump water out of the vessel (Still 1971:87). The only specific reference to *Georgia's* engine was a brief statement made by John Elliott that the machine was a "double engine" with two propellers. To make sense of what this might mean, it would help to explore briefly the development of the steam engine in the late 1700s and early 1800s.

The rotative steam engine, perfected by Boulton and Watt in the late 1700s, was the machine that launched the Industrial Revolution. A vast improvement over previous steam engines, which had been used for pumping, the Boulton and Watt machine became the standard means of providing power. It made possible large-scale factories, not to mention railroads and steamships (Hills 1989:70). The Boulton and Watt engine was a “reciprocating engine,” meaning that it was powered by steam entering a cylinder and moving a piston (Figure 23).

This was true of all the steam engines that followed, until the development of the turbine shortly after the Civil War (Robert Holcombe, personal communication, January 14, 2003).

The movement of the piston was translated into rotative power by a wide range of forms, and these different forms comprise the different types of steam engines that existed at the time of the Civil War. Despite the range of forms, they all operated basically the same way. All were reciprocating (with cylinder and piston) and were either single-expansion or double or even triple-expansion engines (Still 1997). A single-expansion engine is one in which steam enters one cylinder, moves the piston, and then exits the machine or is returned to a condenser. A double expansion engine, also called a compound engine, usually operates with higher-pressure steam, which enters one cylinder, moves the piston, and is then exhausted into a second cylinder with less pressure to bear on the pistons (Croft 1939:23; Hills 1989:141, 157; Robert Holcombe, personal communication, January 14, 2003). As might be expected, the single-expansion system was the earliest; double-expansion was not perfected until around the middle of the 1800s. At the time of the Civil War, the basic options were single and double expansions; multi-cylinder expansions were not perfected until later (Still 1997).

One of the earliest types of single-expansion steam engines was the Bell Crank, perfected around 1807 (Figure 24). The Crosshead Engine, perfected around 1811, was an improvement on the Bell Crank. Not only were the bell cranks eliminated, but also the new model was lighter and less costly. The most popular type of engine in the early 1800s, however, was the beam engine, first used by Boulton and Watt and employed with few major changes throughout the first half of the 1800s (Ridgely-Nevitt 1981:271; Hills 1989). A beam engine, also called a walking beam or a T-beam, looked something like a seesaw, with the cylinder and piston under one arm, and a crankshaft and the rotating wheel under the other (Figure 20; Ridgely-Nevitt 1981:69).

William McNaught of Glasgow patented the first double-expansion or compound engine in 1845. Using the basic beam engine design, he put a second cylinder between the beam column and the crank, where the cold-water pump was normally fitted. This extra cylinder not only provided fuel savings of up to 40 percent, but also made the engine run smoother (Hills

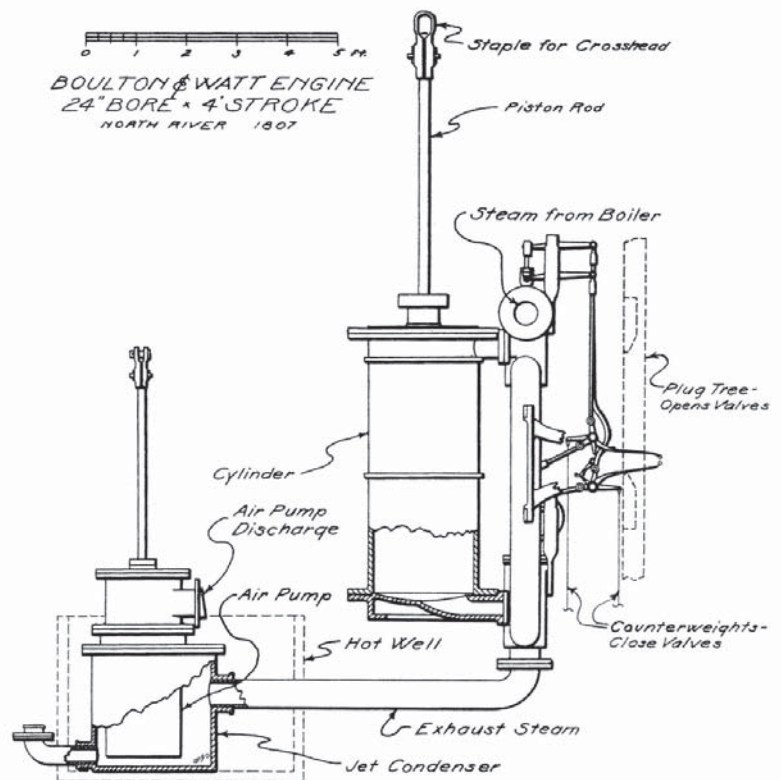
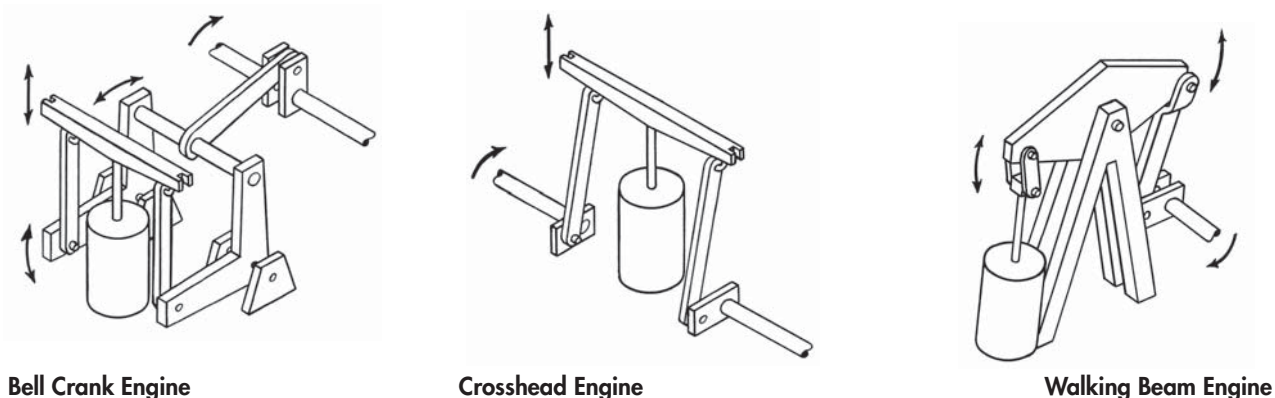


Figure 23. Boulton and Watt Steam Engine in Profile



**Figure 24. Illustrations of the Bell Crank Engine, Crosshead Engine and Walking Beam Engine (Ridgely-Nevitt 1981:34, 44).**



1989:157-158). It also marked the beginning of higher steam pressure for both engines and boilers. In technical terms, this meant a jump from 6 to 7 pounds per square inch (psi), to 30 psi. Higher steam pressure allowed engines to be made smaller, always an advantage on ships (Hills 1989:141-144).

The next major innovation was the horizontal engine, which began to replace the beam engine in the 1850s. By eliminating the T-beam, or seesaw element, horizontal engines were more compact, and more stable, with fewer parts. Horizontal engines paved the way for higher speeds (Hills 1989:188-192).

The 1850s was the golden age for pre-turbine steam engines. A number of different forms appeared, most of which were placed onto steamships. Among these different engines were the following:

- Vertical Trunk Engine (for Pioneer) (Ridgely-Nevitt 1981:193);
- Direct-Acting Engine and Inverted Direct-Acting Engine (a compound engine) (for Benjamin Franklin and William Penn) (Ridgely-Nevitt 1981:200);
- Hot Air Engine (designed by John Ericsson, inventor of Monitor) (Ridgely-Nevitt 1981:210);
- Oscillating Engine (on San Francisco) (Ridgely-Nevitt 1981:168, 183, 268); and
- Side Lever Engine (first used by U.S. Navy in 1840s) (Ridgely-Nevitt 1981:100,153).

Another machine popular at this time was the Corliss engine. Invented by American engineer George H. Corliss and patented in 1849, it became the preferred engine for use in mills and factories in the United States and Europe (Hills 1989:178; Ripper 1905:331). The Allen engine also appeared just before the Civil War and was later known as the Porter-Allen engine. It was a single cylinder, horizontal steam engine capable of high speeds, up to 150 revolutions per minute (rpm) (Hills 1989:193-203).

There was also a wide range of steam boilers for these new engines. They were commonly identified by their placement, whether vertical or horizontal, and by the variety of tubes and flues used (Still 1997:66). Among the more popular types were:

- Vertical Water Tube Boilers (Ridgely-Nevitt 1981:154);

Drop-Flue Boilers (Ridgely-Nevitt 1981:192);  
Return-Flue Boilers and Return-Tube Boilers (Ridgely-Nevitt 1981:133) and  
Lancashire Boilers, suitable for higher steam pressures (Hills 1989:141).

All of these engines and boilers could have been present in the Confederacy at the outbreak of the war, but only if they happened to be on ships caught at port. The Confederacy had limited capability for producing marine engines, and in most cases had to salvage them from other ships for use on its ironclads. Most engines pressed into service on board Confederate ironclads were reciprocating, single-expansion (one cylinder), using high-pressure. Most of the boilers were horizontal fire-tubes, with a double (return) flue (Still 1971:101). The one or two engines on board were served by anywhere from one to six boilers. Both engine (or engines) and boilers were usually placed mid-ship, but were sometimes located in the stern (Still 1997:66). Among the known engines aboard some of the better known Confederate ironclads, there were:

Low-Pressure Engines (*Savannah*);  
Vertical Engines (T-Beam?) (*Atlanta*);  
Horizontal Engines (*Albemarle*, *Neuse*, *Columbia*, *Texas*); and  
Inclined Engines (*Nashville*, *Baltic*, *Missouri*) (Still 1971:101 footnote).

Other types of engines were also pressed into service, especially on smaller boats. Some of these were portable sawmill or “plantation” engines, or transformed railroad locomotive engines (Still 1997:67).

The best engines for use on ironclads were believed to be tow-boat engines. These were built for power and most were already designed for screw propulsion, essential for an ironclad. These engines were generally vertical (although some were horizontal), single-cylinder engines that usually operated with steam pressure under 50 psi. They could achieve speeds of between 4 to 7 knots. Tow-boat engines were used on at least five ironclads (Still 1997:66; Robert Holcombe, personal communication, January 14, 2003). Unfortunately, for the Confederates, such engines were not nearly as common as those used on paddlewheel vessels, more ideally suited for shallow Southern rivers. Most paddleboat engines operated under higher pressure (150 psi or more) and had a long stroke, which made them slow and powerful. This was an ideal arrangement for large paddlewheels, but did not work well with propellers, which were small and had to turn rapidly. Even after they were geared for propellers, paddlewheel engines tended to be inefficient and slow (Still 1997:66). All Confederate ironclads were painfully slow, in part because of the weight of the armored casemate, but those what were exceptionally weak-powered, like *Georgia*, were often saddled with a paddlewheel engine geared to turn a propeller.

It is not known what kind of engine was used in *Georgia*, but it is known that the steering committee searched for one far and wide. Gazaway B. Lamar seems to have kept notes on engines that he either encountered or heard about. Within Lamar’s personal materials swept up by Treasury officials after the war and used as evidence at in his trial, were notes he kept on engines, specifically the engine of the paddlewheel steamer *Montreal*, a “beam engine with wrought iron Gallows frame and wrought iron shaft. Cylinder diameter 60 inches; stroke eight feet; number of revolutions per minute, under 35; pounds of steam, 28. Patent feathering float wheels, 24 feet diameter; 12 buckets to each wheel; nominal horsepower under 35 lbs. steam, 400 horse” (National Archives, College Park, Maryland, Record Group 56, Stack Area 450, Box 135, File 18989).

On April 1, 1862, Lamar wrote Mallory that he wanted to buy *Fingal* from the Navy Department. At first glance, this would appear to be for *Georgia*, since *Fingal* had a very good engine and it was also during the right time period. It appears, however, that Lamar had something else in mind. The fact that he told Mallory that such a transaction would “advantage the Confederacy indirectly,” suggests that he merely wanted the vessel for his own use, as a blockade-runner (Lamar to Mallory, April 1, 1862). Either way, Mallory refused the offer (Mallory, April 4, 1862).

Another vessel Lamar tried to acquire was *Emma*, in all likelihood for *Georgia*. On May 22, 1862, he wrote *Emma*’s owner in Augusta that:

The engines and boilers of the *Emma* are wanted for a battery—please say the lowest price you will sell them for, apart from the vessel, with all fixtures attached, that would be required on the battery. If you are unwilling to separate them please give the lowest figures for the boat as she is complete—for cash payments—and let me know if she can pass the obstructions placed in the river at Shell Bluff. Please reply by telegram (Lamar, May 22, 1862).

Apparently the owner was not interested in selling, for the vessel is mentioned at the end of August 1862 as still in operation on the river. Speaking of *Emma*, Lamar mentioned, “her two disconnected engines will not do well at sea—in rough water she does not make steam enough” (Lamar, August 28, 1862). A few days later, Lamar mentioned that *Emma* went aground in an exposed area, and was set on fire to keep her out of enemy hands (Lamar, September 1, 1862).

Other possibilities include a few land engines that Lamar offered for sale during this period. One of these, located at a “flouring mill” in Savannah, had a two-foot diameter cylinder and a 4.5-foot piston stroke. It was rated at 150 horsepower, and included boilers “full of fixtures,” which make plenty of steam. Engine and boiler were built in New York in 1857 and were offered for \$16,000 (Lamar, February 22, 1862). This was probably too large and expensive for *Georgia*, and there is no record that Lamar sold this to the Ladies Gunboat Association. Lamar had other engines for sale, namely two high-pressure engines with 13-inch cylinders and two-foot strokes, but when these were offered for sale in October, *Georgia* was all but complete (Lamar, October 11, 1862). By this time, it is clear from Lamar’s letters that he was entering a more straightened economic period, and was restricting his interest to cotton. After the fall of 1862, Lamar never has occasion to mention *Georgia* again.

The strongest candidate for *Georgia*’s engine is *William Jenkins*. Along with sister ship *Joseph Whitney*; *William Jenkins* was built in 1855 in Baltimore by John A. Robb for the Merchants and Miners Transportation Company. Burned while at port in Savannah on January 19, 1861, it was one of eight ships that fell into Confederate hands when *Georgia* seceded (Robert Holcombe, personal communication). This wooden hulled vessel weighed 1,011 tons and measured 205 feet long, with a beam width of 31 feet and a draft of 10 feet 6 inches. Her two-cylinder (compound) beam engine had a 56-inch cylinder and a 9-foot stroke, capable of 350 horsepower. The engine was geared to turn the ship’s two side-paddlewheels (Taylor 1951; Design Memorandum 1983:A-18).

On March 10, 1862, General Jackson’s Special Order 163 authorized A. N. Miller to remove from *William Jenkins* “any of the iron that can be used for state purposes” (Jackson 1862, Order Book, Vol. 3:87). In lieu of any other mention of an engine

for the floating battery, it appears likely that *William Jenkins* provided the engine placed into *Georgia*. It would also explain why the engine was so inadequate for the ironclad, since it had to be converted from sidewheel operation to propeller. The gearing required would have robbed the engine of much of its power.

The only direct mention of *Georgia's* engine after it was installed comes from John Elliott of Screven's Savannah Volunteer Guards, who described *Georgia* in a letter dated June 11, 1862. His description of the vessel is presented in full in Section 8 below, but he made brief mention of the engine, which he described as "a double engine and twin propellers" (Barnwell 1981:203, 206-208; Melton 2002:19). The term double engine is somewhat perplexing. It could mean a single engine with two cylinders, but this engine type was only then being introduced in Great Britain and it is unlikely that examples would be found on the western side of the Atlantic. Instead, the phrase probably refers to two individual cylinders, each independently connected to a propeller shaft. This layout was commonly used in Confederate shallow draft ironclads, which were predominately equipped with twin screws in order to achieve the required blade surface without the propellers breaking the water's surface and losing efficiency (Holcombe 1993:115).

No reference has been found regarding the number and type of steam boilers used in *Georgia*. Nineteenth-century boilers came in an almost infinite variety of types, usually characterized by their placement (horizontal or vertical) and tube or flue design. They provided either high or low-pressure steam, depending on engine requirements. Most Confederate ironclads were equipped with from one to six boilers, though *Mississippi* carried sixteen.

As for the tools and other equipment that might have been kept on board *Georgia* for ship maintenance, these would probably include such basic items as coal and coal bins, coal shovels, and lubricants for the machinery. In addition to standard machinery tools required to fix small problems, there might well have been some sort of brush for cleaning the flue. Since canvas awnings and even wooden sheds were placed over the ironclad in summer, items needed to construct and arrange these coverings could also be found. *Georgia* likely carried a wide variety of tools for maintenance and repair. Most could be placed in two major categories: those used by the engineer's division in maintaining the ship's propulsion system, and those used by the carpenter's mate in caring for the ship's wooden structure. Tools used by the engineers would include hammers, wrenches of various descriptions, screwdrivers, files, jacks and a wide variety of blacksmithing tools. Examples of most of these types of tools were found in the ironclad *Jackson* when she was recovered near Columbus, Georgia, in the early 1960s. Carpenter tools would include all manner of wood working implements, including hammers, saws, planes, adzes, rasps, augers and caulking tools. In 1979 the blade of a carpenter's adze was recovered from *Georgia's* wreck site (Garrison et al. 1980:47).

### 7. *The Origin and Quality of Materials Used in Construction, Specifically Timber and Railroad Iron*

Because of the special conditions under which *Georgia* was built, the wood may have been on hand at the shipyard. By early March, before the existence of the Ladies Gunboat Association, General Jackson had already gathered workmen and soldiers for the construction of the transport boats requested by General Robert E. Lee. It is a strong possibility that the timber used in *Georgia* came from MacPherson B. Miller. On March 19, 1862, he wrote a letter to General Jackson, stating that:

I have a large quantity of timber in the Savannah River at your city of various lengths and dimensions, from 20 to 70 feet long and from 12 to 20 inches square, and some of it of superior quality, suitable for shipbuilding purposes. I will sell the whole of it to the Government or State for defensive purposes, if needed, at cost, and receive state bonds in payment if preferred. I refer you for particulars to Mr. John O'Byrne of Savannah near Habersham's upper rice mill that has charge of the timber (Miller, March 19, 1862; Jackson 1862, Letter Book, p. 32).

A few days later, on March 25, just three days after Jackson agreed to construct *Georgia*, Miller informed Jackson's adjutant-general that, "I will furnish 300,000 feet of timber or more that will saw up 12 inches [square] for ten dollars per foot." That same day, another source (Zugler[?] Mills) offered an undisclosed amount of square timber, "that will saw 12 inches," at \$10 per foot (Adjutant General-Arms 1862). Since neither Miller nor Mills are listed as sawmill operators in the 1860 Savannah directory, it is likely that the lumber came from further upstream, possibly Augusta.

A sample of wood recovered from the wreck in 1979 was determined to be pine of an undetermined variety (Garrison et al. 1980:105). Based on information gleaned from other Confederate ironclads additional species of wood were probably used in *Georgia's* construction. The recovered lower hull of CSS *Neuse* contains gum (keelson), oak (bow deadwood) and pine (frames and exterior planking) (Bright et al. 1981:29). Records relating to the construction of CSS *Jackson* show that pine and oak were purchased in large quantities for that vessel, along with china wood and black walnut in much smaller amounts (Subject File, Rolls 2, 33, 41, 59).

As for the railroad iron, it was the subject of the longest controversy of the entire construction period. The iron armor for the casemate was clearly one of the last things added to the vessel. While this appeared to be a standard construction technique, in the case of *Georgia*, as with many other Confederate ironclads, it also represented the general difficulty of simply getting the iron (Still 1989:6). As early as April 1, 1862, Lamar sent out letters to business associates in Macon and Augusta, in search of suitable iron. In these letters, Lamar wanted to know:

the various descriptions of the iron to be had in your city—round, flat, and square bars and the thickness of the flat bars as well as the average length of the bars—what quantity of each can be had and the prices—if there be any rolled or boiler iron, that will be wanted specifically. It will be required in constructing the Floating Battery—now under way with fully 175 to 200 mechanics at work.... (Lamar to Bones, April 1, 1862; Lamar to Harris and Ross, April 1, 1862).

The search for iron, especially rolled iron, does not appear to have been successful, and in the end, the gunboat constructors had to use the railroad "T" iron that General Jackson seized in Savannah on or just before April 16. This iron, however, was probably not affixed to the gunboat until late May or June, clearly sometime after the launching. From iron recovered from the wreck site, it is known that each rail was 3.5 inches high. The width at the base was 3 and 15/16 inches, while the width of the rounded or bulb end was 1 and 15/16 inch. To form a casemate, the rails were interlocked (Garrison et al. 1980). Basically, this meant that the inner layer of railroad iron was attached with the T-rail bases against the casemate frame; the outer layer was then inverted, with the bulbs of the outer layer interlocked with the bulbs of the inner layer. This exposed the base of the outer layer and provided a level surface to deflect enemy shells. It also provided about 4 inches of armor,

the minimum required for contemporary ironclads (Robert Holcombe, personal communication, October 26, 2002; Melton 2002:18). An early estimate of the amount of iron used on *Georgia* came to 500 tons (Lawrence 1961:121), but a more recent tabulation put the figure at around 1,000 tons (Robert Holcombe, personal communication, October 26, 2002).

More information about the iron comes from a financial controversy that took place in June and July between G. B. Lamar and Isaac Scott, a member of the steering committee for the Macon Ladies Gunboat sub-committee – a controversy that involved the governor. On June 28, 1862, Lamar wrote Governor Brown that two months earlier, on April 16, 1862, Scott submitted a bill to the Ladies Gunboat Association for the railroad iron taken for the gunboat by order of General Jackson. This railroad iron came to “2784 bars [each?] weighing 1098.034 lbs, rendered at 5 plb.” Scott charged what looks like five cents per pound, but this is not at all certain. Regardless, the bill was definitely more than the Savannah steering committee wanted to pay. The latter went on to state that the bill:

... has been deliberately considered with attending facts and circumstances, and they, the treasurers, come to the conclusion that as the iron cost about \$47 [per ton] and transportation \$2.50 per ton—not long prior to the date—that as Misters Miller (?) and Michaels asked but \$55 for their iron taken also—of rather better quality—and as all the iron as well as all other property, especially that transportable, was in jeopardy to... the enemy... [now] within 10 miles of us—and the use of this iron being to secure the whole property from depredation—the owner was not entitled to fix an enormous or unreasonable price upon it and on the contrary, he should be satisfied with what the other house willingly received for theirs—more especially as it afforded him a fair price—in fact a large one, in ordinary times. Acting on these premises, the committee propose to offer to pay Mr. Isaac Scott \$55 p. ton of 2240 lbs. for all his iron, whether used for the Battery or not, because what was used for the river defenses would be paid for by the state and whatever balance the subscriptions will not pay for the Battery, will be paid by the agreement between your Excellency and General Jackson, by the state also.... (Lamar, June 28, 1862).

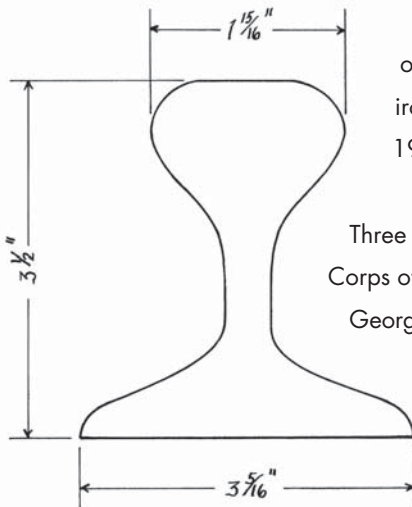
On July 3, 1862, the governor responded to Lamar’s letter through W. W. Waters of the State Executive Department, with copies sent to Isaac Scott. The governor concurred with Lamar on the figure of \$55 per ton of 2,240 lbs, plus a fair market value of the iron in Savannah at the time of seizure, with interest on the amount since that time. The gunboat association was then directed to pay Scott at the rate of \$55 per ton, with other payment, if any, to be dealt with later. In the letter to Scott, he added that, “if that market price was greater than the price Lamar proposes to pay, the governor will recognize your claim as just. Otherwise, no.” (Waters, July 3, 1862a, July 3, 1862b; Executive Letterbook 1862:3, 5).

On July 11, Lamar wrote to Scott that, “the committee of the Iron Battery are prepared to pay you for the railroad iron used on the Battery at the rate of \$55 per ton (of) 2240 lbs., the market price of other iron as the same here.... The remaining portions, some 300 to 500 bars are subject to your order... the interest will cease on the 15<sup>th</sup> instant [July 15], as the cash is ready for you” (Lamar, July 11, 1862). It should be noted that the notation Lamar used to signify the “300 to 500 bars” was actually written as “3 @ 500.” At first glance, this would hardly seem to be the proper translation. However, because this was the way less ambiguous figures were written in other Lamar letters, “300 to 500” seems to be what Lamar intended.

Scott's reply to this offer was apparently not cordial, and neither was Lamar's return letter, dated July 14. The matter was still not resolved in October, when an article in the *Augusta Chronicle and Sentinel* discussed the financial situation of *Georgia*. Despite the fact that all other bills and accounts were closed by that time, the bill for the railroad iron still exceeded the balance of the money left over in the gunboat fund, a balance that came to \$20,860.43. In the article, it was stated that "an individual" still claimed ownership of the iron and refused to settle with the treasurers, and planned to go to the state for redress (*Augusta Chronicle and Sentinel*, October 21, 1862). On November 6, Governor Brown made a statement to the

State House and Senate that of the \$5 million appropriated for military use during the previous session, only a little over half had been drawn from the state treasury. Out of this sum had come \$100,000 for arms purchased from England, and \$50,000 for iron "to be used in fortifications and upon the gunboat called *State of Georgia*" (Candler 1909:241-242).

Three pieces of *Georgia's* "T" iron plate were recovered during dredging operations by the Corps of Engineers in 1968 and are at the Port Columbus Civil War Naval Center in Columbus, Georgia (see Figure 25). One piece, measuring 19 inches in length weighs approximately 24 pounds, suggesting a weight per yard of at least 48 pounds.



**Figure 25. Section, Railroad T-iron, from the CSS *Georgia*. Drawn by Robert Holcombe from a Piece in the Collections of the Port Columbus Civil War Naval Center, Columbus**

#### *Description of the Vessel*

Because there are no extant plans of *Georgia*, and because she sank during the war and was not brought to the surface afterwards, all descriptions of the vessel have to rely on contemporary accounts, which were surprisingly few, and contemporary illustrations, which were either sketchy or contradictory. These are presented here as the best known descriptions of CSS *Georgia* (See Figures 13-16).

The ladies gunboat *Georgia* was basically complete by late October of 1862, when it was positioned in a pen in the river near Fort Jackson, where it could dominate the north and south channels of the Savannah River. During this period, and for a number of months before and after, the gunboat generated considerable interest. As a result, it was described in some detail by a number of observers, including some Federals. It was drawn for Northern magazines at least three times, and in three different ways. There is even one poor quality photograph of an ironclad believed to be *Georgia*. All of these are shown and discussed here.

The earliest known description of the floating battery was made by H. G. Turner of the Savannah Volunteer Guards, in a letter to his wife, dated June 3, 1862. After mentioning the heavy batteries along the river, he described the river obstructions designed to keep the Federal fleet at bay. These were cribs formed by live oak frames and filled with stone, under supervision by Major Screven. He then mentions *Georgia*:

The Floating Battery is making some sensation. The slant of her roof reaches below the water's edge, the design of which you will readily perceive. Her timbers appear to be of immense strength, and her upper works are heavily mailed with railroad iron. Her length is about 150 feet, and her width, 50 feet, being calculated to mount eight or ten guns, rifled and Armstrong. She is probably intended to defend the river barricades, and will be ready for service in a few days (Turner, June 3, 1862; Griffin 1963:139; Lawson 1978a, Pt. 1:16; Garrison et al. 1980:17).

John Elliott of Screven's Savannah Volunteer Guards, described *Georgia* in a letter dated a few days later, on June 11. In it, he said:

... her woodwork is composed of about 15 inches of solid timber, upon which is a double layer of railroad iron fitting into each other, and then a composition of iron filings and some kind of cement is to be laid upon the iron so as to cover the inequalities and to make it solid and keep it from shaking. This is then to be covered with a thick layer of grease.... She will mount 10 guns, and has a double engine and twin propellers.

He goes on to say that her sides are inclined upwards at 45 degrees, and that access to the inside was through a grating at the top (Barnwell 1981:203, 206-208; Melton 2002:19).

In September and October, *Georgia* was being finished and readied for its position around Fort Jackson to defend the river approach to Savannah. By this time, its defects were becoming more obvious, and that led to considerable grumbling about the expense of the project and its disappointing results. On September 2, 1862, Mrs. Edward F. Neufville wrote to George J. Kollock that:

Our iron floating battery is a splendid failure. She has been taken down between the forts and they are obliged to keep her engines at work the whole time to prevent her sinking, she leaks so badly. The officers had a consultation, a day or two after she went down, to decide on the propriety of throwing over her coal to keep her afloat. During the long storm last week, she leaked also from the roof, so that there was not a dry spot for the men or anything else in the vessel, even their beds were wet. She is, however, to be towed down to the obstructions and there moored, and Cousin Josiah [Tattnall] says he will be obliged to have two steam boats to attend upon her. This is a pretty state of affairs is it not (Kollock 1950:242).

A month later, on October 1, in another letter, Mrs. Neufville wrote to George Kollock's wife that:

... while we were at dinner a messenger came to Cousin Josiah, to tell him the yankees were shelling Fort Lee [Battery Lee]. He rushed off immediately and just now came back for his sword, while they were getting up steam on the Savannah. He has gone down the river and says it is uncertain when he will be back, he thinks of taking the iron battery down to Elba [Island] and fixing her in the pen that I suppose they have made for her. She is now just below Fort Jackson (Kollock 1950:245).



Neufville's letters are some of the last known descriptions of *Georgia* from the Confederate side. "A splendid failure" became the consensus of opinion in Savannah about the ladies gunboat. The hope of constructing an active and powerful gunboat made it possible to raise the money for *Georgia*, and now that it turned out to be a crippled floating battery, suitable only for defense, public opinion veered away from the project. It was noted with contempt that the vessel's engine was so weak it could not even make headway against the tide (Lawrence 1961:122). In the months to come, it was commonly referred to as the "mud tub," even by the people who served on board (Lawson 1978a, Pt. 1:17-18). The vessel, however, was not a failure. Its presence on the Savannah River, together with Fort Jackson and adjacent batteries on both sides of the river, kept the Federal Army and Navy out of Savannah for almost three years. The Federals, based at Fort Pulaski and Hilton Head, had a healthy respect for the ladies gunboat, and their descriptions and illustrations of *Georgia* began about the time that Confederate interest in the vessel began to wane.

The first Federal sighting of the floating battery was premature. On March 28, 1862, when construction of *Georgia* had barely begun, Maj. Oliver T. Beard of the 48<sup>th</sup> New York reported that during a recent reconnaissance at the mouth of St. Augustine Creek, he climbed to the top of the Coast Survey station on Elba Island. From that vantage point:

... a large black object is to be seen in the river opposite Fort Jackson. It looks like a floating battery. Anchored in the stream, below the fort, there is a steamer with two large schooners, one on either side. I think they are both armed, and intended to be towed into action in that shape, as the schooners would in a measure protect the machinery of the steamer (Official Record, Series 1, Vol. 6, pp. 112-113).

Beard made a sketch of the vessel and sent it to Du Pont, creating general consternation back at Federal headquarters on Hilton Head (Melton 2002:2-3). By the time it was reported in a New York paper, the vessel had become, "an iron-plated monster a la Merrimac" (Lawson 1978a, Pt. 1:13). Ironically, all this was for something that was probably one of the large wooden cribs loaded with stone and sunk into the river to serve as obstructions.

By October, when *Georgia* really was afloat, a deserter brought a description of the vessel to the commander of the U.S. gunboat *Sebago*, who in turn forwarded the information to Du Pont. "The *Georgia* or Ladies Ram is a failure," but the message went on to describe the vessel as 198 feet long, with a draft of 14 feet (Garrison et al. 1980:20).

The following year, in June of 1863, Charles Nordoff, a Northern correspondent on board a Union flag-of-truce ship, had the chance to see *Georgia* up close. His description of the vessel, and the obstructions around it, is one of the best available:

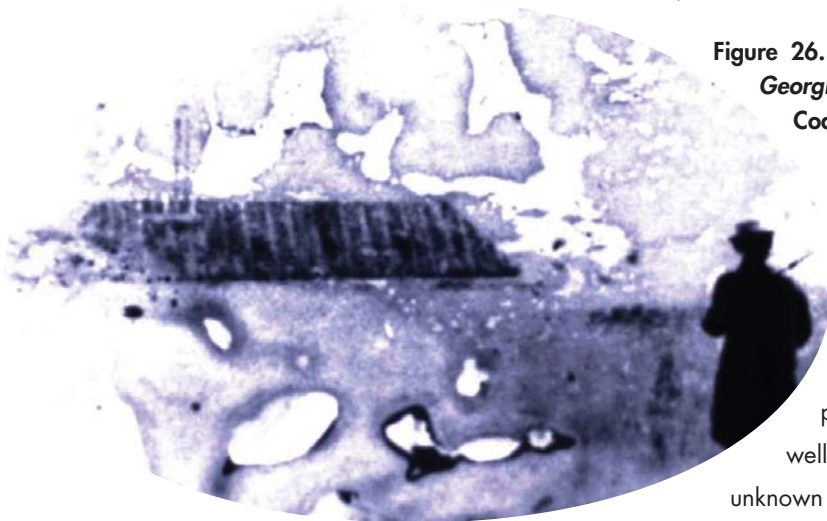
... we came in sight of the obstructions by which the rebels have attempted to bar our way up to Savannah; above them, and apparently close to them, lay a nondescript marine monster, which is the iron clad battery *Georgia*. She lies there, moored with her broadside down the river, prepared to defend the narrow passage which is left in the barrier of piles for the ingress and egress of rebel craft. We steamed up steadily nearer and nearer, up to the mouth of Augustine Creek, past its upper bank, beyond it for some distance, and ever nearer and nearer to the enemy, till at last an angry flash from the broadside of the *Georgia*, and presently after a sharp report from her, warned us that we were far enough.... Ahead of us, but a short mile away, were two rows of piles sticking out of the water, and between them, through the opening I have

spoken of, a little rusty looking rebel steamer passed on her way up from Augustine Creek.... Beyond lay *Georgia*—to a sailor’s eye a monstrous creature, something like, in appearance, to the pictures we have of the *Merrimac*; with sides and ends sloping to the water at an angle of, I should think, 45 degrees, and covered with long slabs or strips of railroad iron; with a long box on top of the deck, which also appeared to be armored; and with her ports open. It is said that she proved unable to stem the tide in the river, and is therefore useless, except as a kind of floating fort (Nordoff 1863; Lawson 1978a, Pt. 1:16; Garrison et al. 1980:19).

During this period, three engravings of the *Georgia* appeared in Northern magazines. Unfortunately, all show different details, leading some observers to surmise, probably correctly, that at least some of the illustrators never saw the vessel. That was almost certainly the case with the earliest illustration, the “Confederate Ironclad Ram *Georgia* Lying off Fort Jackson, Savannah River, Georgia, December 1862” (see Figure 13). This image shows four gun ports to a side and at least two, possibly three gun ports at the front end. A smokestack is shown, but the vessel is shown covered with iron plate, a definite error.

The next illustration of *Georgia* shows five gun ports to a side, and at least one port at the end. Even though it shows what appears to be railroad iron, it does not show a smokestack, another obvious error (see Figure 14).

The most accurate of the three illustrations would appear to be the last, sometime labeled “Rebelbatt.,” which appeared just a week later in *Frank Leslie’s Illustrated* (see Figure 15). This showed four gun ports to a side, with three at the rear. There was also a smokestack and railroad iron covering the casemate. At the same time, the hull is shown between the casemate and the water line, and this is probably inaccurate. The sides, however, are shown to be around 45 degrees, and this is thought to be more accurate than the other depictions.



**Figure 26. A Photograph Believed to be of the CSS *Georgia*. From a Copy in the Collections of the Coastal Heritage Society, Savannah, Georgia.**

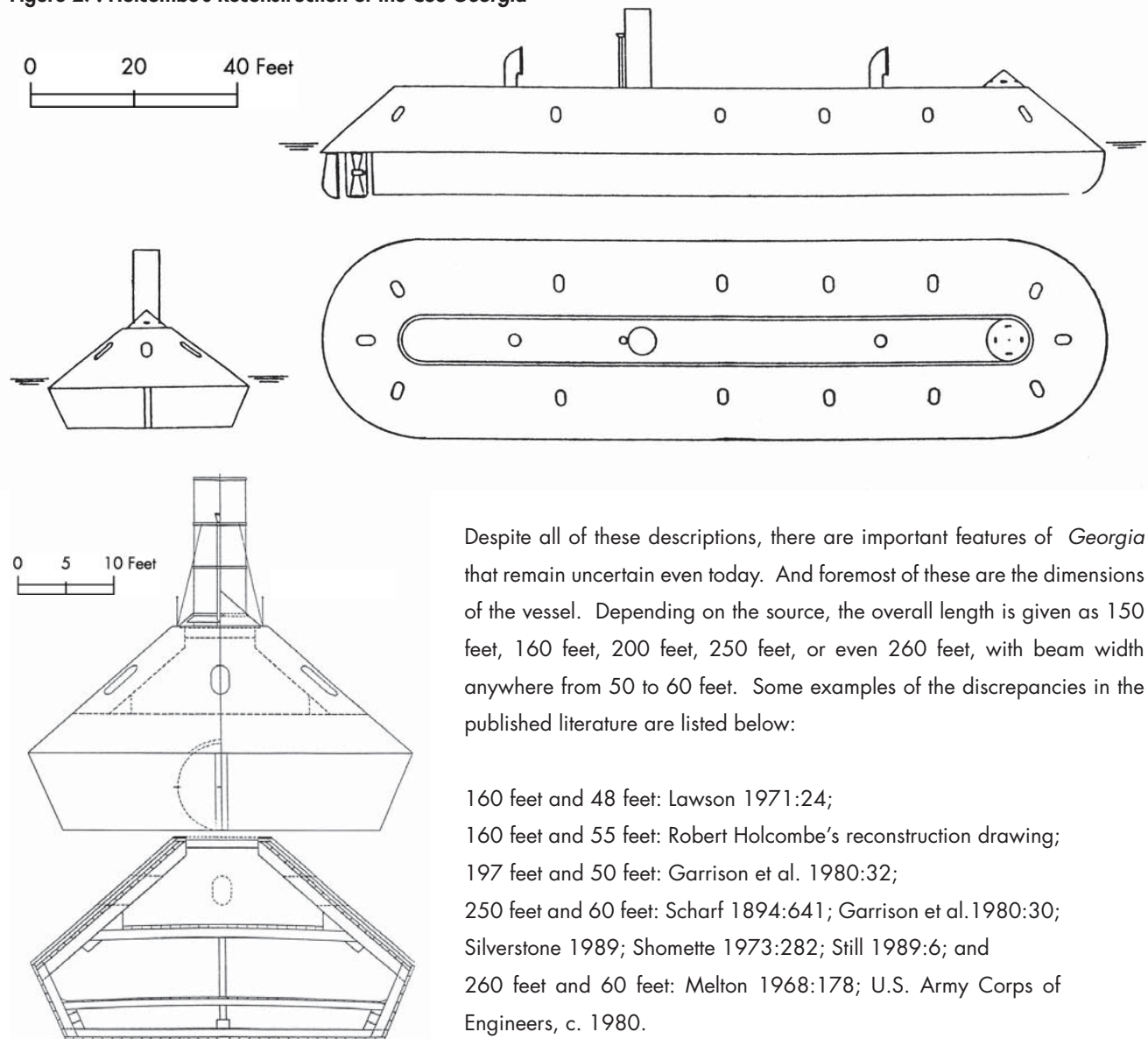
If anyone thought to photograph *Georgia* during its launch or during the latter stage of construction, such an image has not yet been found. There is, however, a poor-quality image of an ironclad that could well be *Georgia* (see Figure 26). Found by an

unknown collector and now in the possession of Robert Holcombe, this photograph has, at best, uncertain attribution.

Even so, Holcombe believes it quite possible that this image is that of the ladies gunboat (Robert Holcombe, personal communication, November 20, 2002). Although the photograph is of very poor quality, the sides of the casemate appear to be at 45-degree angles, with four ports to a side. The vessel is also clearly armored with railroad iron T-rails. A smokestack is present above the casemate.

Based on these illustrations and the photograph, Robert Holcombe made a reconstruction of *Georgia* in 1980, based on what he thought were the most accurate features from the existing illustrations, with additional information from contemporary Confederate ironclad designs (Figure 27; Garrison et al. 1980). Here, *Georgia* has a length of 160 feet, a beam width of 55 feet, and a draft of around 10 feet. Holcombe thought it likely that the vessel was flat-bottomed, without any sort of keel, and with large knees or some other form of bracing at the “knuckle,” where the casemate and hull join.

**Figure 27. Holcombe’s Reconstruction of the CSS *Georgia***



There has even been an attempt to justify the difference between the extremes. One source has suggested that the larger dimension might be for the hull, which would have been buried below water by the weight of the armor, much like *Merrimack/Virginia*, while the smaller dimensions might have been those of the casemate (Campbell 1998). This is unlikely. *Virginia* was a special case, where it was expedient to use a pre-existing hull. There would be no reason to make such a large hull for *Georgia*.

Which is more likely, the large version or the small? Given the construction problems that plagued *Georgia* from the beginning— the time limitations, the use of unskilled labor, the limited level of Navy involvement in the planning and construction, and the difficulty in obtaining even railroad iron— it seems more likely that constructors of *Georgia* would have built on a more prudent scale, closer to 150 feet and 50 feet. Recent sonar readings from the wreck site seem to agree.

## Manning and Outfitting

### *1. Officers With Their Ranks and Periods of Service on the Vessel; Brief Biographies of the Officers, Their Training and Military Careers; Manning of the Vessel*

The Confederate Navy never contained more than about 6,000 men, and very few of these were trained seamen. A sizable proportion of this total, 38.7 percent, hailed from overseas. Almost 17 percent were from Ireland alone, and in the category of ordinary seamen, the percentage was almost 30. Even though the remaining 61.3 percent were born in the United States, 8.9 percent of them hailed from the Northern states. Clearly it was not easy to induce Southern volunteers to enter naval service, and the Navy Department was forced to take whomever they could. Even so, most of the enlisted men were not volunteers, but came from the conscription camps, and this was despite the material benefits of Navy service. Across the board, the Navy offered better fare than the Army. This included better clothing, food, and medical care, not to mention better pay. A landsman, the lowest Navy rank for an adult, received \$16 a month, which was \$5 more than an army private. An ordinary seaman made \$18 a month; a seaman, \$22. Normal Navy enlistment was for three years or the duration of the war; for marines it was four years or the duration (Kennington 1994). This situation was sometimes complicated in the case of Army volunteers who were induced to join the Navy, since they often served under different terms.

The Confederate Navy, like the U.S. Navy, had two basic personnel categories: those capable of commanding a ship, and those not eligible for command. Among the latter were the ranks below that of petty officer, which were, in descending order: seaman (with at least two years of sea service), ordinary seaman (with at least one year sea service), coal heaver, fireman 2<sup>nd</sup> class, landsman, and boy (between 14 and 17). In addition to this split between officers and men, there were five basic mission divisions on board any combat vessel. These were masters division (those in command); engineers division (those who worked the engines); powder division (those who tended the ammunition); gun division (gunnery crews); and surgeons (Kennington 1994).

By the time *Georgia* took its position on the Savannah River, in October of 1862, the vessel had a full complement of officers and men. The captain, Lt. John Pembroke Jones, had been selected while the ironclad was still under construction. Born in Hampton, Virginia, in 1825, Jones graduated from the U.S. Naval Academy in 1847. He then served in the Mexican War and volunteered for duty in the Confederate Navy when the Civil War broke out. In November 1861, Jones commanded the *Resolute*, part of Tattall's "mosquito fleet," in action off Port Royal. Later, he accompanied Tattall to serve as executive officer on the *Virginia*. After the demise of that vessel, he was given command of *Georgia* (Durham 2000:358-359; Lawson 1978a,

Pt. 2:4). Jones's executive officer, the second in command, was Lt. Oscar F. Johnston, who had also served on the *Resolute* (Lawson 1978a, Pt. 2:5). Johnston was attached to *Georgia* as early as late May of 1862 (Mallory, May 29, 1862).

In late June 1862, Lt. Oscar Johnston, executive officer of *Georgia*, was sent to Camp Randolph, near Calhoun, Georgia. His mission there was to find conscripts fit for service on board *Georgia* (Brent, June 27, 1862). In early July, Jones was ordered to Richmond and Johnston was ordered back to Savannah to take charge of the ironclad and its crew. Jones left instructions:

I would suggest to you to dress the crew in clean clothing from Augusta, drill them daily at the guns and get that cable from round the sunken ship and look after the moorings down below. I did not launch the boats because Miller asked we (sic) not, as we has not taken the mould for the beds for hoisting. I will hurry back. I have left O'Neal and King to receive the men [coming in from Camp Randolph] and ordered them to meet you at the depot (Jones, July 4, 1862).

On July 9, Johnston was ordered back to Camp Randolph to get more conscripts. He was to do this with the cooperation of Major Dunwoody, commanding officer at the post, as he did the time before (Brent, July 9, 1862).

By 1862, the Navy had established official service requirements. An enlistee had to be at least 14 years of age, with a height of at least four feet, eight inches. Enlistees under the age of 21 needed parental consent. The Navy was the only service in the Confederacy in which free blacks were allowed to serve, even though this still required permission from the Navy Department or the local squadron commander. In another restriction, free blacks could comprise no more than one-twentieth of the total enlistment. The most prominent free black to serve on *Georgia* was John H. Deveaux. An officer steward, Deveaux took part in the expedition that captured *Water Witch* in 1864. After the war, he became a prominent Republican and Reconstructionist, and was appointed port customs collector at Brunswick in 1889 (Smith, n.d.; Lawrence 1950).

John Pembroke Jones became executive officer of the ironclad *Savannah* in early 1863. After this, command of *Georgia* went to Lt. Thomas P. Pelot (Lawson 1978a, Pt. 2:6-7). This appears to have been something of a provisional assignment. Pelot was later replaced by Lt. Charles F. M. Spotswood, a temporary commander. The next permanent command was that of Lt. Washington Gwathmey, who took over *Georgia* on July 10, 1863. Pelot served as *Georgia's* executive officer after August of 1863, when Oscar Johnston was transferred to command of *Oconee* (Lawson 1978a, Pt. 2:5-9). Pelot, a native of South Carolina, and appointed to the U.S. Navy from that state, had risen to a lieutenant's rank before he resigned his commission on 11 January 1861. He then became a first lieutenant in the Confederate Navy on March 26, 1861. He spent the entire war in the Savannah Squadron, serving on *Lady Davis*, the steamer *Savannah*, *Resolute*, and finally *Georgia* (U.S. Naval War Records Office 1931).

In late June of 1863, in the wake of the *Atlanta* fiasco, William W. Hunter assumed command of the Savannah Squadron. Other problems followed almost immediately. In late June and early July, there was a controversy over the discharge of some 77 crewmen of *Georgia*. These crewmen were in a company that had accepted Navy service at Camp Randolph the year before, for a term of one year. In April of 1863, the Confederate Congress extended military service across the board to three years or the duration of the war. The crewmen refused to accept this change in their agreement, and they refused to re-enlist voluntarily. Fourteen of the men agreed to re-enlist only under certain conditions—that they receive all back-pay, receive

prompt pay in the future, and obtain an immediate 30-day furlough. The 14 men, listed below, were named in a letter that Thomas Pelot wrote to Hunter on July 1, 1863. A photostat copy of the original letter is presented in Appendix 5.

CREWMEN	RANK
E. G. Murphy	1 <sup>st</sup> C.H.
J. C. Nichols	coxswain
John Cleveland	ship's steward
S. H. Boon	ship's carpenter
J. N. Moore	landsman
James Wood	1 <sup>st</sup> C.H.
W. Bailey	O.S. (ordinary seaman)
J. P. Seary	(S.M.?)
John Yergis	1 <sup>st</sup> C.H.
E. Newton	carpenter's mate
W. R. Shelton	seaman
S. F. Norris	landsman
W. F. Buchanan	captain of A.G.?
Joseph Lynn	W.R. steward

Pelot urged the Navy to consider the terms, since he believed the others would re-enlist as well once the dust settled (Pelot, July 1, 1863). When these conditions were not met, at least two of the disaffected crewmen, David R. Milton and George H. Davis, got a writ of *habeas corpus*, requiring the Navy to release them to civilian courts for trial (July 9). Local naval officials were not sure how to handle this legal matter, and despite pleas for assistance, it appears the Navy Department in Richmond was at a loss as well. The cases went to court, where they were settled in favor of the crewmen (July 16-20). Having lost the trial cases, the Navy decided to release the others—after first alerting local conscription officers of their imminent availability (Emory University Special Collection No. 110, Box 1, Folder 9, Item 102; Folder 11, Item 122). On July 23, 1863, the men were discharged (Griffin 1963:181; Lawson 1978a, Pt. 2:8; Wells 1971:34; Official Record, Navies 14:715-716; Hunter 1861-1865, Box 2, Bound Vol. 1, Items 22-30).

It might not be coincidental that July 1863 was the first month that marine guards were placed on board both *Georgia* and *Savannah*, even though the initial request for marine guards for *Georgia* was made as early as late May (Tattnall, May 26, 1863). No marine officers were put on *Georgia*, but the total guard was 10 to 11 marines. The basic function of the marines was not just to serve as the Navy's shock troops in combat, but to also preserve order on board (Sullivan 1986:75, 85).

During this period *Georgia* had a change of command. It is not known if this change was brought about by the discharge controversy, or if it was purely coincidental. Either way, on July 10, 1863, Lt. Washington Gwathmey was made permanent commander of *Georgia* (Lawson 1978a, Pt. 2:4-5, 9-10; Melton 1968:178-179). Gwathmey (apparently pronounced "Gafney," based on postwar pension documents where the name was rendered phonetically) was born in England and later appointed to the U.S. Navy from Virginia. Casting his lot with the Confederacy in 1861, he commanded steamers at the New Orleans Station before that city fell to the Federals in late April of 1862. He then served in Richmond and Fort Caswell, North Carolina, before being transferred to the Savannah Station. There he served on *Resolute* before his transfer to *Georgia* (U.S.

Naval War Records Office 1931). Gwathmey would remain captain of *Georgia* until the vessel was scuttled in December of 1864. In August of 1863, Thomas Postell Pelot replaced Oscar Johnston as executive officer. Johnston was then given command of the *Oconee* (Lawson 1978a, Pt. 2:5, 7). Pelot would later lose his life in the capture of the USS *Water Witch*, an episode discussed in greater detail in “Operation and Maintenance.”

### 2. Military Units and Names of Individual Crew Members Who Served, Showing Their Ranks, Job Titles, and Periods of Service

The first known pay roll and receipt roll for *Georgia* is dated to September 30, 1862 (Frame 0707, 0734, National Archives Microfilm Publication M-909). This roll (see Appendix 5) includes a total of 120 men and officers, giving their names, ranks, and commencement of service in the Navy.

At least two attempts have been made to compile a comprehensive list of the officers and crew who served on *Georgia*. The earliest and perhaps the most comprehensive was compiled for the Official Records of the Union and Confederate Navies in the War of the Rebellion (Official Record, Navies [ORN] 1894-1927). This listed the known officers, crew, and marine guards on board *Georgia*, pulled from selected muster rolls dating from November 1862 through December 1864 (ORN, Series 2, Volume 1, Part 2:286-287). In recent years, another compilation was done by Thomas Callahan, based on his research on *Georgia* and its crew and officers. The two crew lists do not always match, but together give modern researcher a reasonably comprehensive a list of crewmen and officers on board *Georgia*. Both the ORN and the Callahan lists are shown in Appendix 5.

### 3. The Vessel's Ordnance

On April 15, 1863, it was ordered that all naval guns were to be inventoried, indicating number of guns, distinguishing marks on each, caliber and weight, pattern, position, and whether used on a shore battery or on a ship, and if the latter, which ship (Brooke, April 15, 1863). As a result, the earliest and most complete inventory of the guns on board *Georgia* was compiled on April 23, 1863. At that time, the vessel had a total of 11 guns. These, and their characteristics, are listed in Table 3 (Spotswood, April 23, 1863; Lawson 1978b; Garrison et al. 1980:22-24). The complete list compiled by Spotswood and O. F. Johnston, plus all identifying marks, is presented in Appendix 3.

<b>Table 3. 1863 Inventory of Guns on <i>Georgia</i>.</b>	
No. 1 starboard	8-inch shell gun
No. 2 starboard	32-pounder rifle
No. 3 starboard	8-inch shell gun
No. 4 starboard	8-inch shell gun
No. 1 port	9-inch shell gun, Dahlgren pattern
No. 2 port	32-pounder rifle

No. 3 port	32-pounder rifle
No. 4 port	9-inch shell gun
Spar Deck Forward	24-pounder (made by A. N. Miller, Savannah)
Spar Deck Aft	6-pounder (presented by Ladies of Rome, Georgia)
Mounted in Bow	32-pounder rifle

Source: Pelot July 17, 1863

A list of shells and other large-gun ammunition on board *Georgia* was provided a few months later, on July 17, 1863. This list included cartridges, shells, grape shot, and canisters. The complete list is provided in Table 4. Also included on the list were surplus items not stored on board the vessel, but rather were available in Savannah, stored at the Ordnance Store, the Dutch Church, and the Central Railroad Depot (Table 5). The original lists are presented in Appendix 3.

#### 4. Changes in Ordnance Over Time

Many of *Georgia's* cannons were transferred to the Army in September and October of 1863. On September 4, Brooke authorized the loan of four guns to General Mercer. At this time, it is thought that the vessel had total complement of nine guns. As part of this arrangement, a report was to be made to the Secretary of the Navy, providing information on the guns aboard, specifically the caliber, numbers, and distinguishing features (Brooke, September 4, 1863). On September 15, Captain W. G. Harden was authorized to visit *Georgia* and examine the four guns (three 8-inch guns and a rifled 32-pounder) on the upstream side of the vessel. If the Army wanted these guns, they were to be transferred, along with ammunition and carriages (Hunter, September 15, 1863). The four were taken by the end of October, leaving five guns on *Georgia* (Hunter, October 25, 1863; Shomette 1973:282; Lawson 1971:5).

On January 12, 1864, Hunter provided a description of *Georgia's* guns. Four guns were on the broadside facing downstream, toward the obstructions, with a fifth gun located at the extremity. This last was a 32-pounder rifle of 5,700 lbs. weight, not adequate for the heaviest projectiles. The broadside guns were two 9-inch Dahlgren smoothbores and two 32-pounder rifled cannons, each of the last two weighing 5,700 lbs. The last two were not banded and as a result were not adequate for the heaviest shells. There was ammunition on board. It was also noted that the vessel was a fixture with no effective engine power, and was manned by conscripts, who were well-drilled (Hunter, January 12 1864; Lawson 1971:6).

Hunter was apparently correct about the weak 32-pounders, for several days later, on January 28, 1864, during a practice session with the 7-inch stern gun, the muzzle burst upon detonation. The charge had been 12 lbs. load, using a Charlotte shell [shell produced at the ordnance facility in Charlotte] and a McEvoy fuse (Hunter 1861-1865, Box 2, Bound Vol. 1, Item 106). Two months later, Col. Edward C. Anderson told Hunter that *Georgia* had a spare 7-inch Dahlgren, since there was no port for it on the vessel's downstream side (Hunter 1861-1865, Box 2, Folder 6, Item 431, April 9, 1864).

On September 27, 1864, a second muzzle explosion took place on *Georgia*. During quarterly target practice, the No. 1 32-pounder, single-banded rifle burst upon detonation, blowing 18 inches off the muzzle (Hunter, 1 October 1864). The damaged 32-pounder was replaced by a 9-inch Dahlgren already on board, and Hunter decided to save the damaged gun



**Table 4. List of Large-Gun Ammunition on Board the CSS Georgia, July 17, 1863**

98 nine-pound cartridges
306 seven-pound cartridges
56 six-pound cartridges
12 two and one-quarter pound cartridges for howitzers
600 percussion primers
80 friction primers
71 six-inch bolt shots
22 six-inch percussion fuze shells
128 six-inch rifle shells (filled)
150 eight-inch shells (filled)
100 nine-inch shells (filled)
36 stands of grape for 32-pounders
30 canisters for 32-pounders
21 stands of grape for howitzers
25 stands of fixed ammunition for howitzers
14 round shot for howitzers

**Table 5. Georgia Ordnance Stored in Savannah, July 17, 1863**

98 nine-inch shells (not filled)
147 eight-inch shells (filled)
196 six-inch shells (filled)
344 seven-pound cartridges
96 nine-pound cartridges
50 pounds of powder

for testing 6.4-inch shells in Savannah (Hunter 1861-1865, Box 2, Bound Vol. 5, Item 296). By early October, Navy officials determined that the damaged gun had been made at Tredegar in Richmond and that the gun broke as a result of a defective shell, of which there seemed to be a considerable number on hand in Savannah. Most of the bad shells appeared to have been made in Charlotte, leading officials to recommend that future ordnance be obtained from Navy facilities in Selma. The damaged gun was not discarded, but prepared for re-use: "It is desirable that the muzzle of the gun should be cut to [a] smooth face" (Brooke, October 6, 1864).

##### 5. Possible Origins of Major Pieces of Ordnance with Identifying Marks

Most of the major guns on board *Georgia* appear to have come Tredegar Iron Works in Richmond, Virginia, just as most of the shells for the guns came from the naval ordnance works facility in Charlotte. At least one gun, however, appears to have been made by A. N. Miller: the 24-pounder located at the spar deck forward position. This could well have been one of

the 24-pounders produced by Miller early in the war, and reputed to be the first cannons produced in the state of Georgia. The smallest cannon on the vessel, a 6-pounder located at the spar deck aft, was a present from the ladies of Rome, Georgia (Spotswood, 23 April 1863; Lawson 1978b; Garrison et al. 1980:22-24). It could have been made in Rome, but this is only a possibility. Descriptive attributes of the ordnance on *Georgia* are presented in Table 6.

<b>Table 6. Guns and Ordnance on the CSS <i>Georgia</i></b>				
<i>Calibre</i>	<i>Name of Maker</i>	<i>Position</i>	<i>Weight</i>	<i>Marks</i>
32 pdr Rifle 6 inch Single Band	not marked	Bow	66.96.00	Face of Muzzle None Right Trunion J. P. A. Left Trunion 1862 Cascable 1356
VIII inch Shell	not marked	No.1 Starboard	56.0.0.8	Face of Muzzle-none Right Trunion 1846 Left Trunion (P/A.S.M.) Cascable F.P.F. - 111
32 pdr. Rifle 6 inch Single Band	not marked	No. 2 Starboard	58.3.10	Face of Muzzle – none Right Trunion 32 lbs. 1849 Left Trunion (P/J.S.C.) Cascable R.F. 654
<i>Calibre</i>	<i>Name of Maker</i>	<i>Position</i>	<i>Weight</i>	<i>Marks</i>
VIII inch Shell	not marked	No. 3 Starboard	55.3.12	Face of Muzzle – none Right Trunion (VIII inch 1846) Left Trunion (P./C.A.M.) Cascable W.P.F.-68
VIII inch Shell	not marked	No. 4 Starboard	55.1.22	Face of Muzzle – none Right Trunion (VIII inch 1846) Left Trunion (P./C.A.M.) Cascable W.P.F. -69
IX inch Shell Dahlgren Pattern	not marked	No. 1 Port	93.00.00	Face of Muzzle – 1389 Right Trunion J.R.A.T.F. Left Trunion – 1862 Cascable – 93.00.00
32 pdr. Rifle 6 inch Single Band	not marked	No. 2 Port	58.2.00	Face of Muzzle – None Right Trunion 32 lbs 1852 Left Trunion (P./C.W.F.) Cascable B.F.-714
32 pdr. Rifle 6 inch Single Band	not marked	No. 3 Port	66.89	Face of Muzzle – 1367 Right Trunion J.R.A. Left Trunion 60689 – 1862

IX inch Shell Dahlgren Pattern	not marked	No. 4 Port	93.00.00	Face of Muzzle - 1385 Right Trunion J. R.A. I. F. Left Trunion 1862 Cascable – 93.10.00
<u>Spar Deck Forward</u> – One 24 pds – no marks or weight attached. Made by Jno. N. Miller Savannah Ga.				
<u>Spar Deck Aft</u> – One 6 pdr -no marks or weight attached. Presented to the Georgia by the Ladies of Rome, Ga. Comdr. Very Respectfully, O. T. Johnston Lt & Ex. Officer  C.F.M. Spotswood Comdng C.S. Battery				
Source: Savannah Squadron Papers, Special Collections, Emory University, The Robert W. Woodruff Library				

6. Typical Military Equipage for the Officers and Crew of the Confederate Navy Including Typical Clothing Items and Food

In addition to large guns, there were also small arms on board in the event of close-quarters fighting (Table 7). Mallory preferred breech-loading rifles, since they were easier to load on ships where space was at a premium. He also preferred fixed or pre-prepared ammunition for the same reason. More often than not, the Confederate Navy used what small arms were available. While in England, James Bulloch tried to get British-made Wilson rifles that were breech-loading, with fixed ammunition. Unable to obtain these, Bulloch had to settle for Enfields (.577 caliber). Later in the war, the Maynard carbine became one of the more popular guns of the Savannah Squadron. Made in Danville, Virginia, by Keen, Walker and

**Table 7. List of Small Arms on Board the Georgia, July 17, 1863**

- 19 Maynard rifles
- 30 Enfield rifles, with saber bayonets
- 50 belts, cartridge boxes, etc.
- 50 cavalry pistols
- 21 revolvers (Colt)
- 37 cutlasses
- 39 boarding pikes
- 1200 musket caps
- 500 pistol caps
- 400 Maynard caps
- 300 revolver cartridges
- 400 Maynard cartridges
- 800 Enfield cartridges
- 500 pistol cartridges
- 5 blue lights
- 5 rockets

Company, the Maynard (.52 caliber) was breech-loading with “semi-fixed ammunition.” This entailed a brass cartridge without a primer cap, which had to be placed on the weapon manually. Ordnance returns for *Georgia* indicate that 19 Maynards and 30 Enfields were on board (Kennington 1994).

Handguns were also standard issue on *Georgia*. The most common of these was probably the Colt pattern revolver, particularly the 1851 model, which used powder and ball. Most of these probably came from L. Haiman and Brother of Columbus, Georgia, and Griswold and Gunnison of Griswoldville, Georgia, both of whom were major suppliers to the Confederate Navy. A popular handgun for officers was the LeMat-pattern revolver. This was a French-made, nine-shot, 40-caliber handgun (Kennington 1994).

Other standard issues were leather ammunition carriers, of which there were three. The “musket cartridge box” carried 40 rounds of rifle ammunition. The “pistol cartridge box” carried 60 rounds of small firearm ammunition, while the “cap box” held the percussion caps. Other types of ammunition would have been stored in haversacks (Kennington 1994). Close-quarters arms were not limited to firearms. Swords, bayonets, and even pikes, were also used (Kennington 1994).

Weapons may have been the most obvious artifacts on board *Georgia*, but there would also have been more prosaic items. As early as August, there was a Confederate Navy voucher for 20 camp cots, “tufted,” at \$6.50 each, signed by J. Pembroke Jones (Kelly, August 17, 1862). In November, there was another voucher for “one stove for cabin,” \$10; 40 lbs. of pipe, \$40; and 1 cap for \$1.25, all from S. S. Jones and Company” (Kelly, November 28, 1862). More common than these items would have been provisions and clothing. The Navy’s Office of Provisions and Clothing appears to have always been able to provide food, and could usually provide clothing, although it was rarely regulation garb (Kennington 1994).

In the parlance of the day, “provisions” consisted of food and small stores, the latter consisting of such items as jackknives, needles, and tobacco. The July 17, 1863 lists of large ordnance and small arms also contained a list of the food and other provisions on board *Georgia* at that time. This list is presented in Table 8. For the Savannah Squadron, the main food items were salt pork and salt beef, fresh pork and beef, bacon, rice, bread, dried peas and beans, as well as dried vegetables. Fresh fruits and vegetables were provided depending upon availability. The mainstay of the diet was bread and rice, and when cornmeal and flour became scarce, the difference was made up with rice. Some prescribed food items became difficult to find, especially by 1862. These included cheese, butter, raisins, tea, and coffee (Kennington 1994). By 1864, flour was often scarce. On April 24, 1864, Hunter noted that the wheat rations for *Georgia* had been reduced: “ordered to ration one-half of a ration of corn meal and one-half ration of wheat flour, due to wheat shortage” (Hunter 1861-1865, Box 2, Bound Vol. 5, Item 98).

The most controversial item was the spirit ration—alcohol. Beloved by the crew and approved by physicians, it was frowned on by officers as the source of discipline problems. Even so, it was made available throughout the Savannah Squadron. A naval distillery was even set up in Augusta to handle the demand (Kennington 1994).

**Table 8. List of Provisions on Board the *Georgia*, July 17, 1863**

<p>1 tierce of bread [tierce: a 42-gallon cask, larger than a barrel, smaller than a hogshead]</p> <p>4 barrels of beef</p> <p>2 barrels of molasses</p> <p>1 barrel of bacon</p> <p>1 sack of dried fruit</p> <p>2 barrels of flour</p> <p>2 barrels of peas</p> <p>1 barrel of sugar</p> <p>3 boxes of candles</p> <p>2 boxes of tobacco</p> <p>1 box of soap</p>
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Other items not listed on *Georgia*, but probably found there, since they were listed on other vessels of the Savannah Squadron, included vinegar, spirits (rationed out in two-ounce increments), and quinine, essential for treating malaria. Quinine was rationed out in grains, three per man (information on file, Emory University Special Collections No. 110).

Unlike the food and provision ration, clothing appears to have been more problematic. The uniform was formally standardized in 1862 with the adoption of Confederate States Navy regulations. These regulations

were virtually identical to those in force in the pre-war U.S. Navy, with the exception that all references to “navy blue” were changed to “steel gray.” Another alteration was in the rating badge, changed from the old eagle, anchor, and five-pointed star, to that of a fouled anchor (Kennington 1994).

The “gray” proposed by the Navy Department was slow to be implemented. At the beginning of the war, there was still a considerable amount of blue clothing, which had been captured at Gosport Navy Yard in Virginia. In addition, there was much British material brought into Southern ports in 1861, before the blockade became stringent. These included blue pea jackets and blue satinette trousers. Even when gray uniforms began to be produced for the military, the Army had first claim. Even so, navy gray began to make inroads into the Savannah Squadron by late 1862 (Kennington 1994). It is certainly worth noting that one of the top clothiers in the Confederacy was Henry Lathrop, located in Savannah. Lathrop employed seamstresses to produce uniforms for the Quartermaster Bureau (DeCredico 1989:239).

A complete Confederate Navy uniform cost around \$100, which sailors were required to purchase out of their own pay. While much of what sailors earned could be sent home, they were required to keep \$6 per month for themselves, and much of this had to pay for the uniforms (Kennington 1994). During the height of the “navy gray” period, around 1863, regulation clothing for the Savannah Squadron, from petty officers to boys, consisted of cold weather and warm weather gear. The primary cold weather attire was the steel gray cloth jacket, also known as a round jacket or monkey jacket. This was waist-length with 18 shell buttons, and came with gray trousers. In addition, there were steel gray wool frocks or jumpers, with white duck collars and cuffs, black hats, black silk neckerchiefs, and shoes or boots. Warm weather gear consisted of white jumpers, with collars and cuffs lined with blue cloth, white trousers, black or white hats, black silk neckerchiefs, and black shoes. Shoes were extremely difficult to get (Kennington 1994).

The standard issue of clothing items, along with their prices, was approved by the Confederate Congress on April 30, 1863 and published in June of that year (see Appendix 4). Most items were to be issued every year, and officers were instructed to make sure that the men did not sell any of these items as a means of making extra money (de Brée 1863).

There were three basic trouser types, although government records never specified which types were issued where. The most traditional was the “fall front,” with a bib front closure and a large leg cuff that allowed the pant legs to be rolled up. The most popular in the Confederate service was the “seam pocket.” In addition to the seam pockets, these trousers also had a four-button fly. The “mule ear” featured pockets sown onto the trousers and closed with a button. The basic Navy shirt, identical to what was issued to the Army, was made in both wool and cotton. It was usually an off-white or cream garment with a slit-head opening (Kennington 1994).

The most popular headgear was the “round hat,” also known as the “pork pie.” It was either blue or gray, wool or cloth. This hat was lined with muslin and had no visor. The hatband was adjusted in the back with a drawstring. Some versions also came with a ribbon in the back. This hat began the war on both sides as informal headgear, but soon became the dress hat of the U.S. Navy. The same was probably true in the Confederate service. The regulation dress hat of the Confederate Navy was the sennet hat, or straw hat. It is possible that this type of hat was never even issued (Kennington 1994).

Despite regulations, the clothing apportioned out to Navy personnel was varied. Out of the existing clothing records available for CSS *Georgia* in 1863, there were total issues of 99 white jumpers, 93 gray trousers, 45 blue trousers (issued on 6 October 1863), and 17 blue jumpers (issued on July 1, 1863). And this was during the height of the gray period in the uniforms of the Savannah Squadron. By the end of 1864, blue again made a comeback as a result of captured supplies and a general breakdown in Confederate clothing supplies (Kennington 1994).

## Operation and Maintenance

### 1. Overview of Operations With Day-To-Day Descriptions; Detail of Campaigns Involving The Vessel and Her Officers

Unfortunately, no officer or crewman that served on *Georgia* is known to have kept a diary of daily events. Other diaries, kept by those served in nearby shore batteries and other vessels, made mention of *Georgia*, and some idea of life on board the floating battery can be obtained from these sources. The same holds true for the campaigns that involved *Georgia*, even though the vessel itself never left its mooring until the very end.

As the Savannah Squadron papers at Emory University make clear, checking watchwords was an important function. For every day of every month, there was a particular sign and countersign that had to be exchanged to be able to tell friend from foe on the river. This was particularly important on *Georgia*, which guarded the obstructions on the river and was the first line of defense for the Confederate battery system around Fort Jackson (Emory University Special Collection No. 110, Box 2, Folder 16, Items 289-292). By 1864, if not before, midshipmen had to keep a record or journal of the service, watch, quarter, and station bills for the vessel, to be produced for examination at the end of each year (Emory University Special Collection No. 110, Box 2, Folder 18, Item 318).

Target practice was probably the highlight of duty on *Georgia*. This occurred every quarter, but became more restricted as the war continued. For the quarter beginning July 1, 1863, it was announced that target practice would be limited to six rounds (presumably per gun). Where possible, target practice was also to occur in places where the projectiles could be recovered. It was also announced that wrought iron bolts were no longer to be used (Brooke, June 30, 1863). In February 1864, target practice was reduced to three rounds (Brooke, February 13, 1864).

In August of 1863, it was reported that the awning over *Georgia* needed replacing. Shading was essential on an ironclad during the summer months, and since no canvas could be found, it was requested that a board shed be erected over the vessel. Since this was not "regulation," the request had to go all the way to Mallory in Richmond (Hunter, August 13, 1863). If the shed was constructed, as seems likely, then the materials were probably brought to the site by *Resolute* and *Firefly*, which served as tenders for *Georgia* during this period (Hunter 1861-1865, Box 2, Folder 1, Item 799, August 28, 1863).

The lack of canvas appears to have been a constant problem. As early as January of 1863, there were requests from the Savannah Squadron for canvas, which had to come from the naval storehouse in Charlotte. The material was not available, and promised to be in short supply for a long time to come. Quartermaster personnel suggested that "cotton tent canvas"

would have to be substituted for regular canvas for such items as awnings and boat sails. They even suggested "cotton rope" in place of hemp. It was also reported that no "hammock duck" was available in Charlotte (Mitchell, January 10, 1863).

Despite efforts to make life on the vessel tolerable, it is clear that they were not. Even the officers were dissatisfied. Captain Spotswood, temporarily in command of *Georgia* in early 1863, described it as being shut up in an iron box, "horrible." He went on to describe *Georgia* as "tied fast to a pile pier," with no steam power (Spotswood, April 14, 1863). Life on board the vessel was tedious and was little more than guard duty, punctuated by quarterly target practice on the guns. There were certainly instances of drunkenness, if not on ship, then certainly on shore. Patrick Judge, captain of the hold on board *Georgia*, died on July 27, 1863. The cause of death was identified as "inflammation of the brain... produced by a drunken frolic" (Thomas, July 27, 1863).

Among the conscripted crew, desertion was not uncommon. The most damaging instance occurred on March 19, 1863, when a picket boat from *Georgia* was seized by two Irish draftees, who then told Federals at Fort Pulaski about preparations for *Atlanta's* attack on Federal blockaders (Lawson 1978a, Pt. 2:5-6). After the capture of *Atlanta* in June, General David Hunter urged Admiral Du Pont to follow up that success by attacking *Georgia* directly. The admiral dismissed the plan, declaring that the ironclad's railroad iron was virtually impregnable (Lawson 1978a, Pt. 2:7).

Desertion remained a problem that would persist until the end of the war. On November 11, 1863, Edward C. Anderson, commander of the Savannah River batteries, noted in his diary that, "the officer of the guard of Fort Jackson reports that a boat from the Floating Battery with four men and a master's mate went down to the enemy at eight o'clock last night" (Anderson 1861-1864). In this particular instance, however, it is possible that the picket guard was simply taken prisoner. In a note dated to November 8, 1863, acting master's mate Samuel A. Brockington was allowed to inform his superiors that he had been captured near the obstructions and taken to Fort Pulaski (Emory University Special Collection No. 110, Box 1, Folder 17, Item 313). His apparent replacement was Alexander Campbell; a 31-year old Scotsman who was examined and found qualified to serve as master's mate (Gwathmey, December 31, 1863).

On December 30, 1863, Anderson again mentioned *Georgia* and used its nickname: "Paid Gwathmey a visit this morning on board *Georgia* and loaned him a Yankee Navy register captured on Sullivan's Island whilst on a visit to Smith's Island after leaving the Mud Tub...." (Anderson 1861-1864).

Other information immediately after this event comes from Hubbard T. Minor, who served on Savannah in 1864, and kept a diary of his activities. While his contact with *Georgia* was limited, he left entries that illuminated the routine of guarding Confederate positions on the river. It is interesting to note that during this period, Minor began a courtship with Annie Lamar, daughter of Gazaway B. Lamar (Hubbard Minor Diary 1863-1864).

On February 22, 1864, a Federal attack on the forward defenses on Whitmarsh Island, just east of St. Augustine Creek, provoked a Confederate response (Griffin 1963:247). The next day, Minor noted that *Savannah*:

... got up steam today and we started down the river to see what the Yanks who were reported about four miles below us were doing, but we soon ran aground and were compelled to await the raising of the tide.

Our wood having given out I was ordered to take a boat and go back to our tender about a mile and a quarter from us and bring down as much wood as my boat would hold (Hubbard Minor Diary February 23, 1864).

In early April, Minor mentioned *Georgia*:

[I] wrote some for the captain and then went down to *Georgia* on duty and while there saw some very fine shooting from the guns, returned on board to supper and then went on watch." Three days later he, "rose early and with a crew of four picked men armed with rifles went down the river within a few miles of Fort Pulaski for oysters. There were two other boats with me, one from *Georgia* and the other from the *Resolute*. We were successful in getting a good many oysters and stopped on our way back and had a nice roast (Hubbard Minor Diary April 1 and April 4, 1864).

On April 19, Minor and others again went for oysters, but two of his men took the opportunity to desert:

As soon as I missed them, I took my pistol and unaccompanied walked across the island on which I was, to find... some trace of them but was unsuccessful.... After obtaining some ammunition and arms for my men and Mr. Doak and myself from another boat which was with us under charge of Lt. Price of *Georgia*, I went on shore and leaving Mr. Doak and one of the men again in charge of the camp and boat, I again commenced to trace the whereabouts of my men....

Minor never found the deserters (Hubbard Minor Diary April 14-19 1864).

Longing for a more active assignment, Minor tried to get transferred in the spring of 1864 to serve on *Albemarle*, then being made ready for a campaign in eastern North Carolina. He even pulled strings with his cousin, Robert Minor, in Richmond. When this failed, he volunteered to join the expedition headed by Lt. Thomas Pelot to seize *Water Witch* in the waters off Savannah (Hubbard Minor Diary:1864).

Thomas Pelot, equally bored with his assignment on *Georgia*, conceived of a plan to seize USS *Water Witch* with a complement of officers and men drawn from *Georgia*, *Savannah*, and *Sampson* (Lawrence 1961:139-141). Hubbard Minor recorded the expedition in his diary. Minor left the *Savannah* on May 31, 1864 with a crew of 20 well-armed seamen for a rendezvous with Pelot and his party from *Georgia*. The expedition was to head out that day from *Georgia*, under Pelot's command (Minor n.d.:24). Anderson, in his diary, noted that same day that, "the Navy sent an expedition to day down the river under charge of Lt. Pelot. They started at mid-day in the Firefly, towing down five boats astern. I am told each man was designated by a white bandage around the left arm" (Anderson 1861-1864).

Pelot's expedition was comprised of 50 men from *Georgia*, 40 from *Savannah*, and 25 from *Sampson*, as well as officers (Lawrence 1961:139-141). There were a total of seven boats, two from *Savannah*, the rest from *Georgia* and *Sampson* (Scharf 1894:646). After leaving *Georgia*, the boats went down to St. Augustine Creek and then the Wilmington River, past the batteries at Thunderbolt, into Ossabaw Sound, where they found *Water Witch*. During a stormy night attack, Pelot's men



successfully seized control of the Federal ship, even though Pelot and two others were killed in the fight. After Pelot's death, Lt. James Price of *Georgia* assumed command of the expedition (Griffin 1963:250; Lawson 1978a, Pt. 2:10; Kennington 1994). The capture of *Water Witch* was announced on June 3. In the official report that followed, special praise was given to Private Thomas Veitch, one of the marine guards on board *Georgia* (Anderson 1861-1864; Sullivan 1986:87). It is interesting to note that Private Marine Veitch had been tried by Naval General Court Martial on January 4, 1864, on the charge of desertion. Although found not guilty of that charge, he was found guilty of absence without leave. He was sentenced to loss of liberty on shore for six months, a sentence that was approved by Mallory on January 21. *Water Witch* expedition may have been the first time Veitch was allowed to leave *Georgia* since the sentencing (Emory University Special Collection No. 110, Box 1, Folder 15, Item 286).

Another interesting aside concerning *Water Witch* concerned the anthracite coal used to fuel the ship. This may have been the most important cargo on board the entire ship. The Engineer Department Iron Works in Savannah, which was in the process of making torpedo boats, put in an urgent request for two tons of anthracite coal from the captured vessel (Emory University Special Collection No. 110, Box 2, Folder 8, Item 1008). Apparently every last chunk of that prime-grade fuel was allocated to various foundries throughout the Southeast.

On August 31, 1864, Hunter listed the numbers of guns, men and officers of the various vessels of the Savannah Squadron. At that time, *Georgia* contained five guns, 12 officers, and 82 men. The only vessel that had more officers and men was the ironclad *Savannah*, with four guns, 27 officers, and 154 men. The wooden vessels *Isondiga* and *Sampson* had two guns apiece, served by 10 officers and 50 men, and 9 officers and 40 men, respectively. *Resolute* and *Firefly* were tenders and had no guns: they had 7 officers and 28 men, and 3 officers and 14 men, respectively (Hunter 1861-1865, Box 2, Bound Vol. 2, Item 176).

On October 29, 1864, a B. C. Skelton appeared on *Georgia* to report for duty. An ordinary seaman who had served on the *Atlanta*, he had been wounded, captured, and finally exchanged in Richmond (Gwathmey, October 29, 1864). Just days later, on November 6, Hunter noted that, "*Georgia* has so little power of locomotion by reason of her defective and powerless machinery that one assistant engineer and four firemen will be sufficient number in the engineer department of that vessel" (Hunter 1861-1865, Box 2, Bound Vol. 1, Item 71).

A number of other men and officers were moved on and off the vessel. On November 22, 1864, *Georgia* became a hold for at least two deserters: Fireman J. H. McDowell and Landsman H. Miller. Assistant Surgeon W. C. Jones was ordered to the vessel, as were a number of others that previously served on *Sampson*: Landsman Randall Polk, colored; Assistant Engineer James E. Lacklison; and Masters Mate E. D. Davis. Lt. W. W. Carnes was moved in the other direction, from *Georgia* to *Sampson*. Assistant Surgeon W. L. Warren was transferred to *Georgia* from *Savannah*. A few days later, on November 30, Hunter ordered Gwathmey to store one month's provisions on board the vessel (Hunter 1861-1865, Box 2, Bound Vol. 2, Item 214).

By the end of November, it was apparent that Sherman's march through Georgia was aiming for the city of Savannah. Long used to facing the enemy from the sea, Army and Navy alike scrambled to face the invaders approaching from the west. On November 5, *Georgia* reported a complement of four guns (Hemphill 1998:100-101). By the first of December, it was

reported to have five guns, serviced by 13 officers and 109 men (W. W. Hunter Collection, Item 748, Tulane University; Garrison et al. 1980:24). One of the last duties of *Georgia* and *Savannah* crews was to help construct the pontoon bridge used by Hardee to vacate the city on the December 20. This work was done under the supervision of “boatswain McCalla” (Brent, December 24, 1864).

## 2. Operations (Engine Problems, Grounding) That Might Have Physically Altered the Boat or its Contents.

Little can be said about any operations that might have physically altered *Georgia*. For the vast majority of its life on the Savannah River, the vessel never left its moorings. From the beginning, its engine was considered under-powered, and there was some discussion at the beginning of simply throwing its coal overboard to lighten the ship. This was almost surely not done, since the engine had to be kept running at regular intervals to pump the bilge due to leaks. Since the vessel was basically a fixture, any changes to the vessel would have been along the lines of possible additions of a more stationary nature. This certainly included awnings and wooden structures erected over the vessel to deflect the summer sun. In August of 1863, it was reported that the awning over *Georgia* needed replacing. Since no canvas could be found, it was requested that a board shed be erected over the vessel (Hunter, August 13, 1863). In all likelihood, this shed was constructed. There may have been other types of constructions designed to increase the comfort of the crew.

## The Sinking

### 1. Disposition Planning: Why Scuttling Was Preferred and How It Was Achieved

Before Sherman entered Savannah, there were attempts to move *Georgia* away from her moorings near Elba Island and tow the vessel to the railroad bridge upstream from the city. On December 8, 1864, William Hardee asked Hunter to use *Sampson* and *Resolute* to tow *Georgia* to the railroad bridge, where it would set up a new position (Hardee, December 8, 1864). The following day, Gwathmey reported that his vessel had not yet been moved due to stormy weather (Gwathmey, December 9, 1864). While this movement was ultimately unsuccessful, the vessel was in front of Fort Jackson, detached from her permanent moorings, at the time it was sunk. On the night of December 20, 1864, when most of the Savannah Squadron vessels were either fired or exploded, *Georgia* was scuttled. The reason for this method of destruction might have been simple convenience. *Georgia* might have been too damp to burn easily, and possibly there was not enough gunpowder on board to explode the ship. In the days before the sinking, when there was an unsuccessful attempt to move the vessel upriver, there may have been attempts to remove much of the powder and other ammunition from the vessel—ammunition that could have been used more effectively on *Savannah*, for example. *Georgia* may have been scuttled simply because that was the only option left. How the scuttling was achieved is not known. In a vessel that leaked as badly as *Georgia*, it might not have taken much to sink the ship.

### 2. Condition of Evacuation of the Crew and Materials Taken With Them as Well as Materials Left Behind

The crew was evacuated on the night of December 20, 1864, and was transported across the river along with Col. Anderson’s shore battery crews in the general evacuation of the river defenses. All were taken to the Screven’s Ferry landing on the South

Carolina side of the Savannah River (Jones 1988:151-152, 154). Naval commands were told to be at Screven's Ferry by eight o'clock on the evening of December 21, and that the ferry would be protected on the South Carolina side until the 22nd due to the presence of stores (Brent, December 24, 1864). While there is no hard data on what was taken off *Georgia* during the final evacuation, it would appear that most of what was on board was left behind. Speaking of the evacuation, naval personnel later reported that, "nothing was saved except what was carried about the person and no transportation could be obtained from the army, except a wagon to carry the sick who could not march." This appears to have applied to the crews of both *Georgia* and *Savannah*, who marched 18 miles to Hardeeville (Brent, December 24, 1864).

From this statement, it seems likely that the crew would have taken any personal firearms, clothing, and provisions that they could carry on their persons. Large ordnance, to the degree that such was still on the vessel, was probably have been left behind. The large guns were probably spiked, to prevent re-use by the enemy. Even so, much would have been left in the vessel. The personal accumulation of items by the crew could not have been completely cleaned out in the haste to evacuate.

## Salvage Operations

### 1. Nineteenth-Century Operations

From 1862 until December of 1864, considerable efforts had been made to secure the eastern approaches to the city, and this included river obstructions as well as shore batteries. *Georgia* was just one of many types of obstructions placed in the river to keep the Federals at bay. There were sunken vessels, "torpedoes" (mines), and cribs. The latter were usually giant wood frame structures loaded with rock or brick and then sunk into position along the obstruction lines adjacent to *Georgia*. After the war, these had to be removed or rendered harmless to open Savannah again to commerce. Some of these features, especially the river cribs, still remain in isolated portions of the river, and two are considered archaeological sites today: 9CH729 and 9CH730 (Babits 1988:2, 10-11).

Cribs and other obvious obstructions could be seen and were therefore relatively easy to remove. Alternatively, *Georgia* sank beneath the surface of the river, and its location does not appear to have been marked. On May 12, 1866, *Lizzie Baker* struck what was thought to be a crib off Fort Jackson. The damage had to be repaired back at the Eastern Wharves (*Savannah Daily Herald/Daily News and Herald*, May 12, 1866). After examination, it was determined that the ship probably struck *Georgia*. On May 17, the mayor of Savannah, former battery artillery commander Edward C. Anderson, gave notice of the vessel's location:

Pilots and Masters of vessels are hereby notified that the wreck of the Confederate Gunboat *Georgia*, has drifted from 60 to 100 feet from her moorings to the southward, and now lies submerged on the northern margin of the main ship channel, between Fort Jackson and Battery Cheves, on a line prolonged from the northwest angle of Fort Jackson Wharf to the hulk on the sand bank near the western end of Cheves Battery. The location of *Georgia* is marked by a small barrel buoy, anchored over the wreck, with a mooring of

eight fathoms rope. All parties in charge of vessels navigating the river between the city and the ocean will keep to the southward of said buoy—close in to Fort Jackson (*Savannah Daily Herald/Daily News and Herald*, May 18, 1866).

The mayor also requested that the Federal government, specifically the Treasury Department, place a permanent buoy over the site (Anderson, May 1866).

The Treasury Department was involved because it was the owner of all “captured and abandoned property,” that was disposed to help pay off the huge war debt sustained by the Federal government. As a result, in 1866, two contracts were signed between the Secretary of Treasury and Henry S. Welles to remove *Georgia* and other sunken properties in the area, namely *Savannah*, *Ogeechee*, various vessels sunk downstream from the obstructions, as well as any remaining cribs (Broutwell 1873). This work, which commenced shortly thereafter, was the subject of a contemporary illustration (Figure 28).

Welles worked to fulfill his contract until around 1870, when the work sputtered to an end. Due to heat and the threat of malaria, Welles did not work in the summer months, but during the rest of the year, he used salvage vessels, steam-pumps, flats, and a submarine apparatus. The vessels and other obstructions raised or dismantled included the *Isondiga*, *Firefly*, the ironclad *Milledgeville*, two small gunboats, a large lighter, many cribs and other obstructions near Fig Island. Other materials included timber and a crib near Fort Jackson, and various private and or captured ships, including four pilot ships. One of these was a vessel named the *Lamar*; another, *Willink, Jr.* (Robb, September 8, 1870).



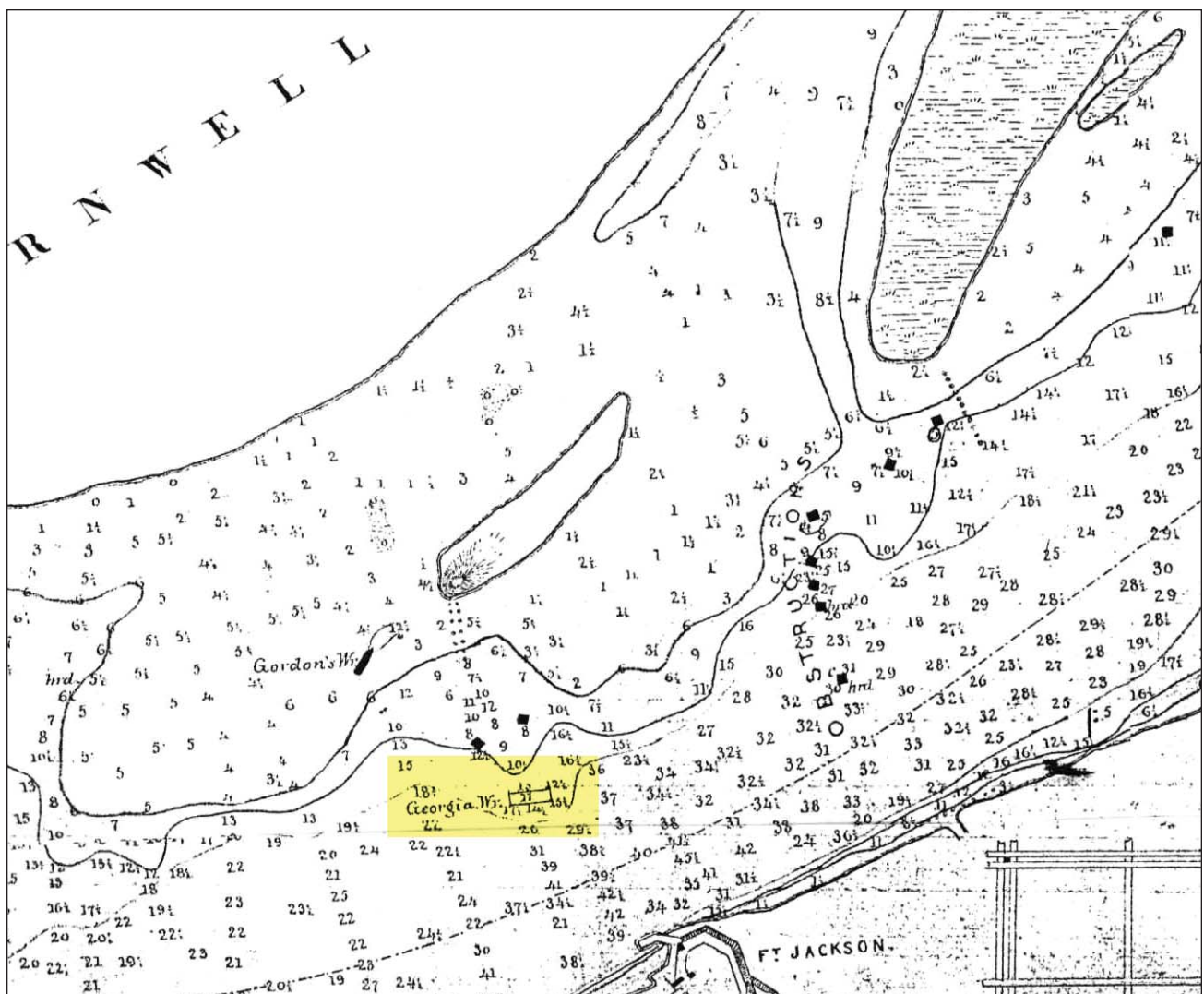
REMOVING THE OBSTRUCTIONS IN THE SOUTH CHANNEL OF THE SAVANNAH RIVER, GA., BELOW FORT JACKSON.

Figure 28. Illustration Showing the Removal of Obstructions from the Savannah River (Courtesy of Coastal Heritage Society)

As a result of Welles' work, a list was compiled of known wreck sites in the Savannah River between the city and the ocean. Among the larger wreck sites was *Savannah*, found near Screven's Ferry, and *Georgia*, located near Fort Jackson. There were 10 miscellaneous vessels located between Fig Island and Fort Pulaski. A large dry dock was found in the south channel near St. Augustine Creek, along with between 100 and 150 cribs. The steamer *Nashville*, a blockade runner, was found near Fort McAllister on the Ogeechee River, while *Water Witch* was found in the Vernon River, about one mile from White Bluff (Robb, September 9, 1870). The location of *Georgia* wreck site, off Fort Jackson, is shown in a map from 1871 (Figure 29).

As for salvage work on *Georgia*, it was reported that dynamite was used at the wreck site in 1868 to remove portions of the vessel, apparently unsuccessfully. The 1872 Report of the Chief of Engineers noted that the wreck site had already created a sand bar and that the site was covered by 11 feet of water at low tide. As a result of Welles' work, the vessel was believed to be about 150 feet long and 60 feet wide. At least 80 tons of the railroad iron were removed, but not the engines and other machinery (Garrison et al. 1980:4).

**Figure 29. Gilmore and Ludlow 1871 Map Showing the Location of *Georgia***



Welles' contract was rescinded sometime between 1870 and 1872, even though Welles still claimed to have permission to remove iron from *Georgia* as late as 1872. Welles also suggested that the government engineer in charge of the project should advertise the wreck for sale, presumably for the iron (Belknap, September 12, 1872). As late as 1873, Welles was hoping to obtain more money for a continuation of the salvage operation, but the Treasury Department was no longer interested. The Secretary of the Treasury told local Treasury officials that Welles would not receive more money above and beyond what was called for in his original contracts (Broutwell 1873). In the decades that followed, *Georgia* and its wreck site were largely forgotten, until dredging operations in 1968 rediscovered its location.

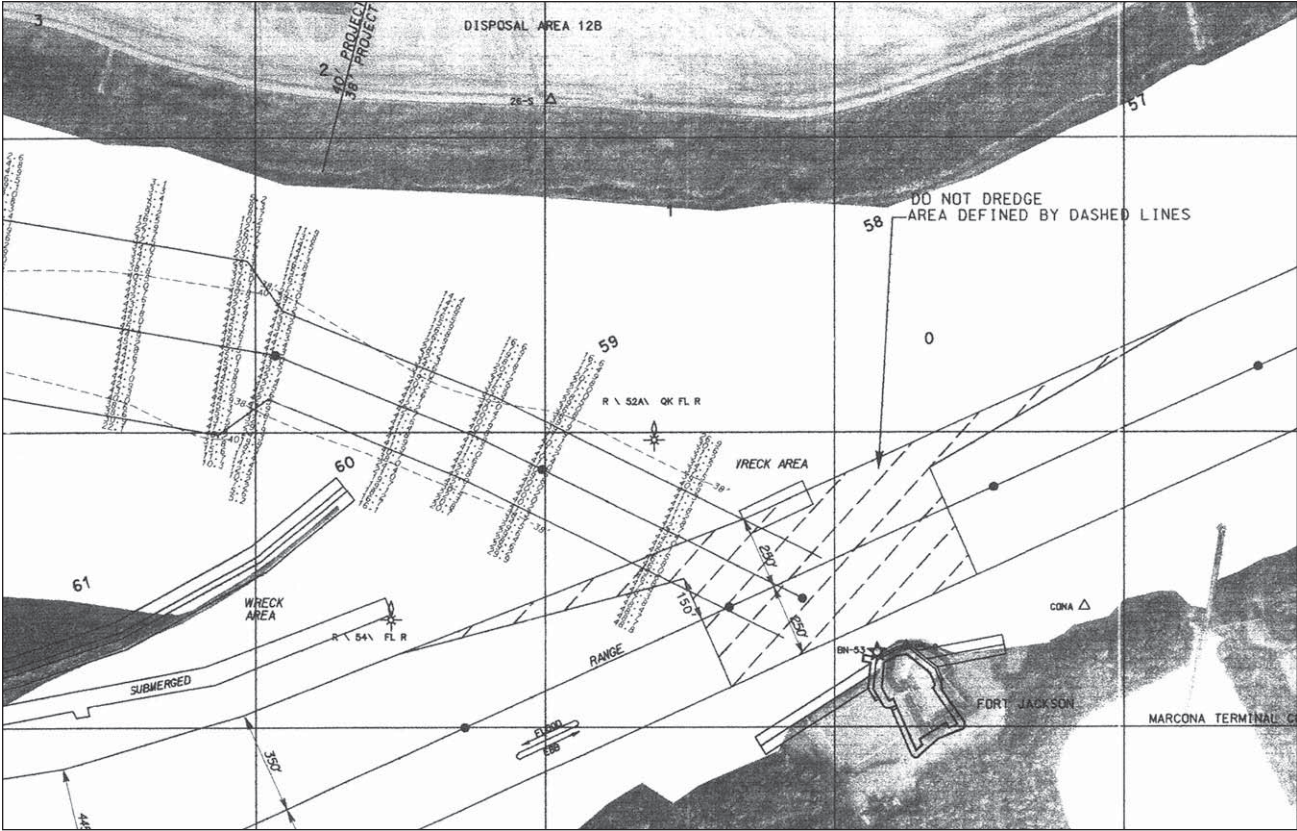
## 2. Twentieth-Century Operations

In 1968 a pipeline dredge working for the U.S. Army Corps of Engineers struck the remains of *Georgia* in 20 feet of water, about 600 feet north of Old Fort Jackson (Lawson 1978a, Pt. 2:13; Garrison et al. 1980:4). The wreck site was immediately buoyed and Navy personnel dove on the site in early 1969. In addition to recovering various timbers from the vessel, the divers determined that even though the superstructure and the upper portion of the vessel appeared to have collapsed, the hull was possibly intact. They estimated the dimensions of the vessel at over 200 feet in length and around 60 feet wide (Garrison et al. 1980:35). Unfortunately, there was virtually no visibility in the river at that depth, and this liability hampered the dive team in judging the wreck site. It was a problem that would plague all subsequent dives.

Other dive teams built on the initial exploration. In the 1970s, the U.S. Army Corps of Engineers and the Cultural Resources Laboratory at Texas A & M conducted a joint reconnaissance and dive that brought up the first artifacts from *Georgia*. These included a ceramic serving bowl and a 6.4-inch Brooke rifle shell (U.S. Army Corps of Engineers c. 1980). In 1986, a Corps of Engineers team brought up two cannons. The first was a 32-pounder cast in 1852 but reworked into a rifled gun and given a band at the muzzle like a Brooke gun, one of the most common type of naval ordnance produced in the Confederacy. The second was a 24-pounder believed to have been cast at A. N. Miller's foundry in Savannah (Babits 1993:30-32; display information, Old Ft. Jackson). All of these artifacts are currently being curated by the Coastal Heritage Society in Savannah.

The discovery of *Georgia* and subsequent dives triggered a surge of interest in the remains of the Civil War ironclad. The wreck site, located three miles below Savannah and 11 miles above the mouth of the river, lies at the junction of the Back River and the Front River that now serves as the main navigation channel into Savannah (Design Memorandum 1983:I-1). Even though the area is adjacent to the navigation channel, the wreck site is currently off limits to dredging until a plan can be implemented for the long-term care or mitigation of the site (Figure 30).

Figure 30. U.S. Army Corps of Engineers, Savannah District, Map Showing the Location of Georgia







# Summary

The loss of *Georgia* was one of many Confederate losses in December of 1864. It is significant, though, that the vessel was not scuttled due to direct assault, but rather as the result of the surrender of Savannah, approached from the west by Sherman's massive army. Even so, *Georgia* lasted longer than many other, more elaborate ships that were prepared in local shipyards and then sent out to break the Federal blockade. Ships like *Atlanta* were launched with high hopes, but were basically incapable of going head-to-head with the Federal monitors. Either their engines were not powerful enough, or there were other problems associated with vessel construction or armament. Alternatively, *Georgia*, armored with railroad iron and irregularly armed, was acknowledged to be jerry-rigged from the beginning. Even though the construction work was initiated with high expectations, by the time *Georgia* was finished and put under power, it was clear that little could be expected of it as an independent, fully functioning gunboat. To the credit of its creators, they did not push its numerous limitations. Leaky and under-powered, it certainly did not travel far, and it never served as more than a floating battery. Even so, *Georgia* still survived to the very end of Confederate Savannah. In fact, from mid-1862 to December of 1864, it formed part of the defensive line that secured the city from Federal raids and attacks. For the Confederacy, there were few places on land or sea that could claim that level of success.

*Georgia*, resting at the bottom of the Savannah River, is a time capsule for a society and a way of life that has been gone for over 140 years. As useful as *Georgia* may have been to the Confederacy, its final and perhaps greatest contribution will be to our own knowledge of the society that created it in the early days of the Civil War. Such knowledge has the potential to be brought to life with the archaeological studies that have been proposed at the wreck site.



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