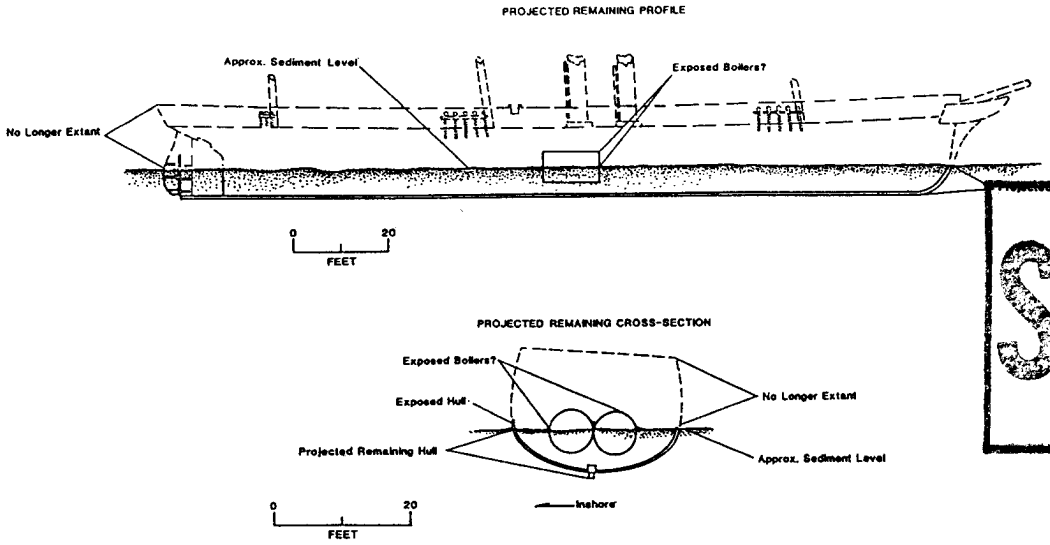
CESAM/PDER-94/001

DOCUMENTATION OF THE CIVIL WAR VESSELS CSS FLORIDA AND USS CUMBERLAND HAMPTON ROADS, VIRGINIA DEPARTMENT OF DEFENSE RESOURCE MANAGEMENT PROGRAM, DEMONSTRATION PROJECT NO. 348

Projected *Florida* Hull Remains



PANAMERICAN CONSULTANTS, INC.
Tuscaloosa, Alabama

FINAL REPORT

MAY 1994

Prepared for:

U.S. ARMY CORPS OF ENGINEERS
Mobile District
Contract No. DACA01-92-D-007, Delivery Order No. 06

On Behalf of:

THE U.S. NAVY
Atlantic Division Naval Facilities Engineering Command
Norfolk, Virginia

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In May 1993, archaeologists conducted underwater archaeological investigations and shipwreck documentation for two sunken Civil War vessels, the C.S.S. Florida and e U.S.S. Cumberland, the remains of which are sunk several hundred feet from each other near Han pton Roads, Virginia. The objective of the examination was to assess the current condition and integrity of the vessels with special attention given to documenting evidence of recent vandalism and looting of the two vessels. Research has revealed unique and colorful histories for each of the vessels. The battle that sealed the *Cumberland's* fate was to signal the advent of technologies that would transform not only the navies

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of the world but the engagements they would fight. Conversely, the *Florida*, one of the most successful Confederate raiders, represented an evolving naval technology that helped to shape the course and duration of the war. While archival research has detailed and defined the vessels and the roles they played, the underwater assessment of the two shipwrecks revealed sites with contrasting characteristics. Although environmental constraints in the form of swift currents and limited visibility prohibited an intensive assessment and mapping regimen in the allotted seven-day study period, it was readily apparent that the *Cumberland* site has been witness to far more destructive forces than the *Florida*. The *Cumberland* manifests itself as disarticulated and almost unrecognizable fragments of the fighting ship she once represented, while the *Florida* retains the intact lower hull of this once proud commerce raider.

The extant historical data for each vessel, the integrity of the respective wrecks, their location in a busy shipping lane, and attendant environmental constraints are all reflected in the long-term management plan for each site. With extensive construction plans and additional historic documents in hand, it is believed that further underwater investigations on the *Cumberland* site would be cost prohibitive for the information that would be obtained and which is most likely contained in extant documents (e.g., construction plans/construction techniques). Unlike the *Cumberland*, it is argued that additional archaeological and historical information could be obtained from the *Florida* site that could be used to address a number of research questions regarding maritime technology and lifeways aboard a Confederate raider, a little known aspect of the Civil War.

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DOCUMENTATION OF THE CIVIL WAR VESSELS CSS FLORIDA AND USS CUMBERLAND HAMPTON ROADS, VIRGINIA DEPARTMENT OF DEFENSE RESOURCE MANAGEMENT PROGRAM DEMONSTRATION PROJECT NO. 348

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Mobile District
Contract No. DACA01-92-D-007
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On Behalf of:

The U.S. Navy
Atlantic Division Naval Facilities Engineering Command
Norfolk, Virginia

Under Contract to:

Law Environmental, Inc.
Kennesaw, Georgia

Prepared by:

Panamerican Consultants, Inc.
Tuscaloosa, Alabama

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May 1994

ABSTRACT

In May 1993, archaeologists conducted underwater archaeological investigations and shipwreck documentation for two sunken Civil War vessels, the C.S.S. Florida and the U.S.S. Cumberland, the remains of which are sunk several hundred feet from each other near Hampton Roads, Virginia. The investigations, performed by Panamerican Consultants, Inc., of Tuscaloosa, Alabama, under contract to Law Environmental, Inc., of Kennesaw, Georgia, were implemented by the U. S. Army Corps of Engineers, Mobile District, on behalf of the U.S. Navy Atlantic Division Naval Facilities Engineering Command. The project was funded and completed under the auspices of the Department of Defense Legacy Resource Management Program as Demonstration Project No. 348.

The objective of the examination was to assess the current condition and integrity of the vessels with special attention given to documenting evidence of recent vandalism and looting of the two vessels. The investigation was performed for the Corps of Engineers in response to their Statement of Work for Delivery Order No. 06, entitled Documentation of the Civil War Vessels the C.S.S. *Florida* and the U.S.S. *Cumberland*, under Contract No. DACA01-92-D-0007.

Research has revealed unique and colorful histories for each of the vessels. The battle that sealed the *Cumberland's* fate was to signal the advent of technologies that would transform not only the navies of the world but the engagements they would fight. Conversely, the *Florida*, one of the most successful Confederate raiders, represented an evolving naval technology that helped to shape the course and duration of the war. While archival research has detailed and defined the vessels and the roles they played, the underwater assessment of the two shipwrecks revealed sites with contrasting characteristics. Although environmental constraints in the form of swift currents and limited visibility prohibited an intensive assessment and mapping regimen in the allotted seven-day study period, it was readily apparent that the *Cumberland* site has been witness to far more destructive forces than the *Florida*. The *Cumberland* manifests itself as disarticulated and almost unrecognizable fragments of the fighting ship she once represented, while the *Florida* retains the intact lower hull of this once proud commerce raider.

The extant historical data for each vessel, the integrity of the respective wrecks, their location in a busy shipping lane, and attendant environmental constraints are all reflected in the long-term management plan for each site. With extensive construction plans and additional historic documents in hand, it is believed that further underwater investigations on the *Cumberland* site would be cost prohibitive for the information that would be obtained and which is most likely contained in extant documents (e.g., construction plans/construction techniques). Unlike the *Cumberland*, it is argued that additional archaeological and historical information could be obtained from the *Florida* site that could be used to address a

number of research questions regarding maritime technology and lifeways aboard a Confederate raider, a little known aspect of the Civil War.

ACKNOWLEDGMENTS

As with all undertakings of this nature, a successful completion is the result of the combined efforts of numerous individuals. Foremost the authors wish to acknowledge both the Mobile District, U.S. Army Corps of Engineers, the U.S. Navy, Atlantic Division Naval Facilities Engineering Command and Law Environmental, Inc., for providing Panamerican with this interesting research opportunity. Many thanks are due Ms. Dottie Gibbens, Mobile District archaeologist and project Diving Supervisor; Dr. Marie Cottrell, archaeologist for the U.S. Navy, Atlantic Division Naval Facilities Engineering Command; and Mr. Chris Knoche of Law Engineering. All lent their full support and guidance during the course of the project.

Personnel with the Hampton Roads Naval Museum must be given the thanks due them for help with historical documents and access to curated artifacts from both vessels. Museum personnel include Ms. Elizabeth Poulliot, Museum Director, Mr. Joseph Judge, and Mr. Robert Haas. Additionally, personnel from the Merseyside Maritime Museum in Liverpool, England, are thanked for providing plans of the *Florida*. A special thanks to Larry Peacock with the Atlantic Division Naval Facilities Engineering Command for his graphic expertise with the brochure.

Finally, the authors wish to acknowledge archaeologists Steve Hack and Jeff Motz. They are thanked for their hard work during the investigation. Also thanked for their efforts are Mr. Mike House, Diving Supervisor with the Mobile District, and Captain Doreen Kopacz, who piloted the *Nina H II*, our project vessel.

This project was funded under the auspices of the Department of Defense Legacy Resource Management Program as Demonstration Project Number 348.

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CHAPTER 1

INTRODUCTION

In May of 1993, archaeologists completed investigations into the history and current condition of two sunken Civil War vessels for the U.S. Navy. The ships, *C.S.S. Florida* and *U.S.S. Cumberland*, whose remains lie several hundred feet from each other near Hampton Roads, Virginia, played significant roles in major events during the Civil War. The investigations, performed by Panamerican Consultants, Inc., of Tuscaloosa, Alabama (PCI), under contract to Law Environmental, Inc., of Kennesaw, Georgia, were implemented by the U. S. Army Corps of Engineers, Mobile District (COE), on behalf of the U.S. Navy Atlantic Division Naval Facilities Engineering Command (LANDTDIV), Norfolk, Virginia. The project was funded and completed under the auspices of the Department of Defense Legacy Resource Managment Program as Demonstration No. 348. The objective of the examination was to assess the current condition and integrity of the vessels, with special attention given to documenting evidence of recent vandalism and looting of the two vessels. The investigation was performed for the COE in response to their Statement of Work for Delivery Order No. 06 (Appendix B), entitled *Documentation of the Civil War Vessels the C.S.S. Florida and the U.S.S. Cumberland*, under Contract No. DACA01-92-D-0007.

The U.S. Navy retains stewardship over its sunken naval vessels. As a part of this stewardship, the Navy applied for and received a grant through the Department of Defense Legacy Resource Management Program. The Legacy program was established by Congress in 1991 to "promote, manage, research, and conserve any historical resources which exist on public lands, facilities, or property held by the Department of Defense." The Legacy Grant, Project No. 348, was utilized to perform scientific underwater investigations of the wrecks in order to ascertain their current condition and to develop, in consultation with the Virginia Department of Historic Resources, a long-term management plan for the two vessels, including site protection/monitoring and a research design for future underwater site investigations.

Located in Virginia state waters of the James River at between 200 and 500 yards off the outer extremities of the waterfront facilities of Newport News, Virginia (Figure 1), both wrecks were severely damaged prior to sinking; both were subject to salvage operations following the Civil War; and both have been adversely affected by virtue that they are located in a turbulent and busy commercial/industrial shipping lane environment. These factors affect the current condition of the vessels and any long-term management goals. Additionally, in the recent past, the two wreck sites have been witness to preliminary archaeological examination, as well as premeditated and destructive vandalism. This has resulted in an increased awareness in some that these sites represent extremely important historic events and artifacts of the Civil War. The past investigations resulted in

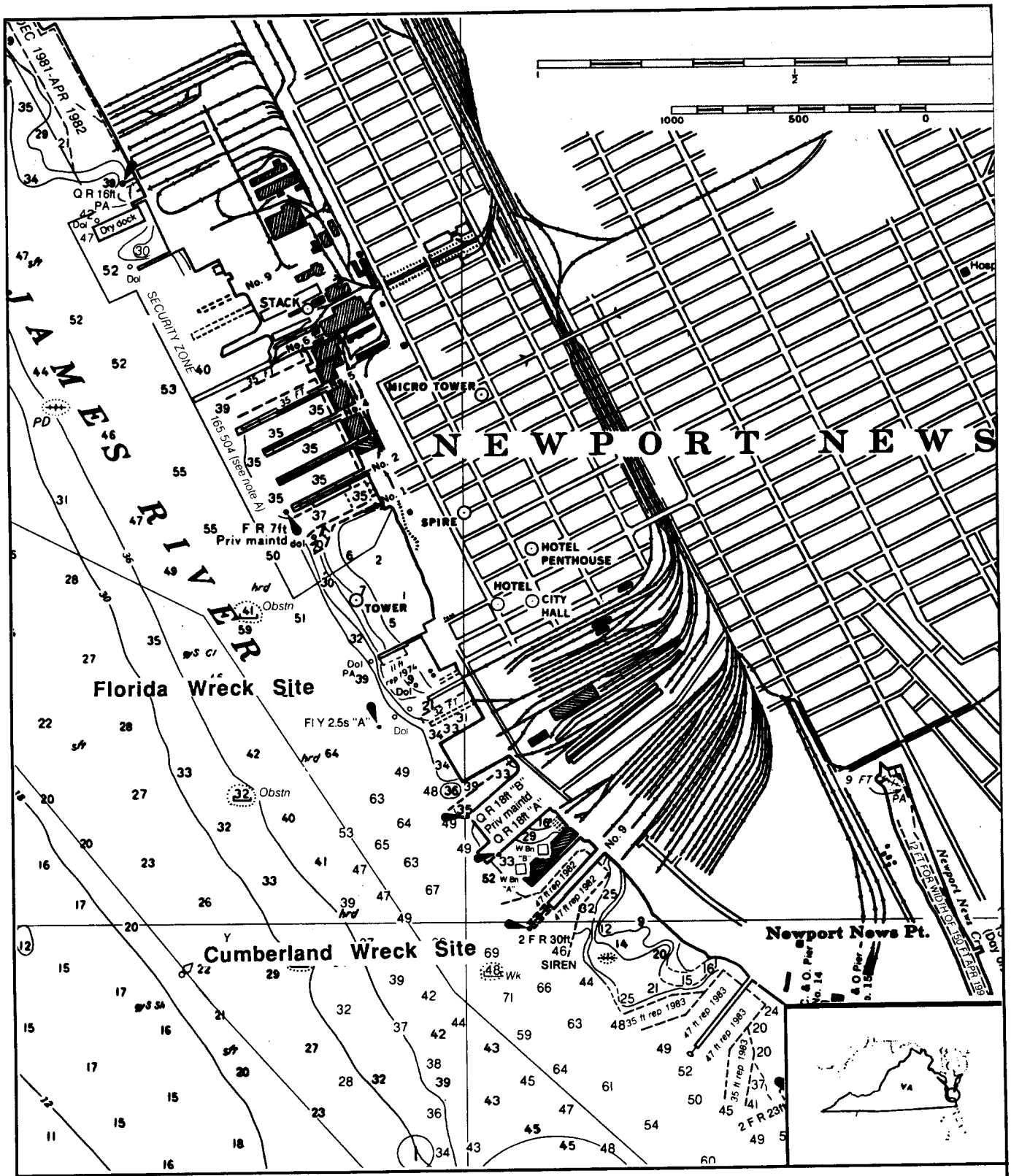


FIGURE 1

PROJECT AREA LOCATION MAP
(1992 Hampton Roads NOAA Chart 12245)

both wreck sites being considered eligible for and subsequently nominated to the National Register of Historic Places by State of Virginia (National Register of Historic Places 1982), while the vandalism resulted in arrests, indictments, and recently, convictions.

Implemented to address site integrity relative to past destructive forces and ongoing looting, as well as to develop long-term management goals, investigative aspects of the present study included archival research and underwater assessment and mapping. Research has revealed unique and colorful histories for each of the vessels: 1) the battle that sealed the *Cumberland's* fate was to signal the advent of technologies that would transform not only the navies of the world, but the engagements they would fight, while 2) the *Florida*, one of the most successful Confederate raiders, represented an evolving naval technology that helped to shape the course and duration of the war.

While archival research has detailed and defined the vessels and the roles they played, underwater assessment of the two shipwrecks has revealed sites with contrasting characteristics. Although environmental constraints in the form of swift currents and limited visibility prohibited an intensive assessment and mapping regimen in the allotted seven-day study period, it was readily apparent that the *Cumberland* site has been witness to far more destructive forces than the *Florida*. The *Cumberland*, Virginia State Shipwreck Archaeological Site 44NN72, manifests itself as disarticulated and almost unrecognizable fragments of the fighting ship she once represented, while the *Florida*, Virginia State Shipwreck Archaeological Site 44NN73, is the intact lower hull of the once-proud commerce raider.

The extant historical record for each vessel, the integrity of the respective wrecks, their location in a busy shipping lane, and attendant environmental constraints, are all reflected in the long-term management plan for each site. With extensive construction plans and additional historic documents in hand, it is believed that further underwater investigations on the *Cumberland* site would be unlikely to produce new data not already available in extant documents (e.g., construction plans/construction techniques). Unlike for the *Cumberland*, it is argued that further useful archaeological information could be obtained from the *Florida* site.

The following sections of this report describe in detail the histories of each vessel, as well as the conduct and results of this study. Recommendations concerning long-term management plans for the preservation and/or recordation of the vessels are provided.

CHAPTER 2

THE USS CUMBERLAND

Historical Setting

While her remains now lie scattered below the waters of the James River, when constructed, the *Cumberland* was a proud and powerful warship reflective of the response of the United States Navy to the challenges in the first half of the nineteenth century. The United States needed to build and maintain a fleet that could hold its own against the navies of the Europe. To do so, she had to keep pace with advances in technology which were occurring ever more rapidly. Finally, there was the problem that haunts governments to this day: limited funding. As a result, the *Cumberland,* as designed, built, and modified over the years, reflected the response of the United States Navy to changes in technology and mission.

Rated a 44-gun frigate, the *Cumberland* drew upon the experiences of United States Navy from its inception (Figure 2). During the Revolutionary War when faced with the vastly superior naval might of Great Britain, the ship designers of the infant navy sought ships which would carry a greater gun weight for their class, yet remain fast enough to avoid battles when outnumbered or confronted with ships of a significantly heavier class. It was only after the war that these plans were given adequate support to be realized. The *Constitution, United States,* and *Congress* were the first three frigates of a series of six commissioned by Congress in 1794 (Beach 1986:27-29; Chapelle 1949:314-319; Davis 1984:123). The success of this design is reflected in the subsequent careers of several of these ships in the Quasi-War with France in the closing years of the eighteenth century (Love 1992:57-72), the War of 1812, and the various conflicts with the Barbary States.

It was on the evident strengths of this ship design that the United States Congress in 1816 authorized the building of nine 44-gun frigates. Eventually all nine were built: the *Brandywine, Potomac, Columbia, Santee, Savannah, Sabine, Raritan, St. Lawrence* and *Cumberland.* This class of ship would come to form the backbone of the U.S. Navy in the 1840s and '50s (Bauer and Roberts 1991:14). Financial constraints delayed work on any of these vessels until 1820, and in the case of the *Cumberland,* funding was not released until 1825. That the design of the *Cumberland* drew heavily on Joshua Humphreys' designs of 1797 was amply demonstrated in 1833 during the repair of the *Constitution,* then at the Boston Navy Yard. It was determined to return her as much as possible to her original lines. Chief Naval Constructor Samuel Humphreys, who visited the yard at this time, recommended that the "thickness of the wales, strings, drifts, clamps, spirkettings was to be identical to *Cumberland's*" (Bearss 1984:673,n.). Furthermore, in their hurry to get the *Constitution* back in service, it was recommended that any necessary

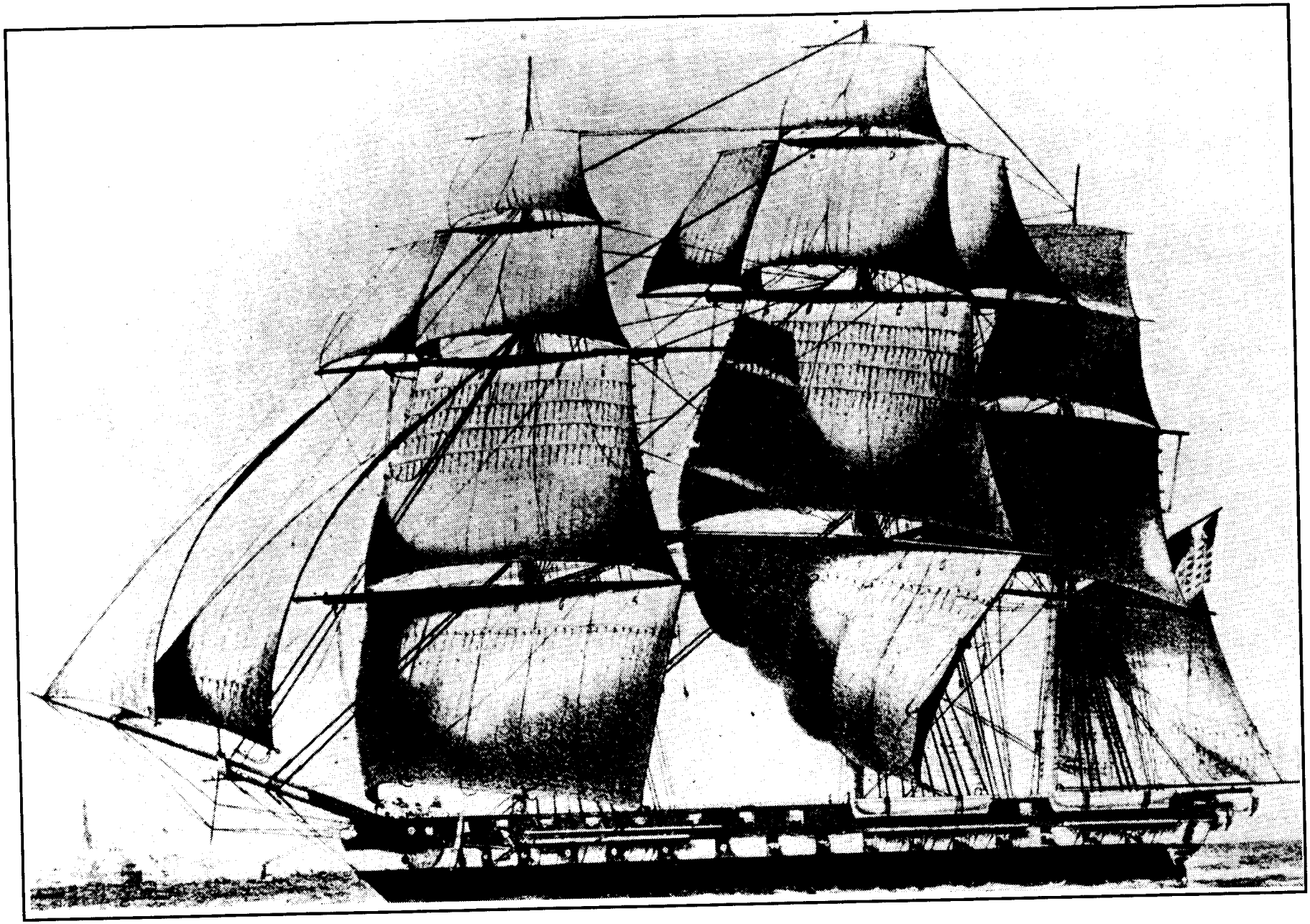


Figure 2. 1843 Lithograph of the *Cumberland* at the Boston Navy Yard (Courtesy of the National Park Service).

masts or spars could be supplied from those already prepared for the *Cumberland* (Bearss 1984:674,n.).

For reasons of financial expediency, many ships of the United States Navy spent considerable periods of time on the stocks in varying stages of completion. In the case of the *Cumberland*, twenty six years would pass from the time her design was approved until she was launched. Though the *Cumberland's* design had been the envy of the British Navy during the first quarter of the nineteenth century, she was undergoing construction and saw service during a period of rapid technological change. These changes would make the *Cumberland* increasingly obsolete and eventually lead to her destruction. For many, the sinking of the *Cumberland* signaled the end of the wooden sailing navy on whose traditions she had drawn.

For the United States Navy, the period from 1815 to 1846 was one of financial constraint and limited mission. Until the war with Mexico, the tasks of the navy were largely limited to suppressing piracy in the West Indies and maintaining a presence on the major trade routes. Without a major challenge, successive administrations found it convenient to reduce or delay the program for the increase in the naval establishment authorized in 1816. Ships were kept just short of completion for extended periods of time. This policy avoided the financial drain of maintaining a large fleet, yet allowed for a rapid expansion in times of crisis.

This approach was not without its drawbacks, however. The early 1800s saw revolutionary advances in both propulsion and weaponry. Because the ships were brought to a state of relative completion shortly after they were laid down, they could not always be readily adapted to meet the rapid advances in technology. The years between 1816 and 1842, when the *Cumberland* was launched saw the introduction of steam propulsion and shell-firing guns in ocean-going vessels by the principal naval powers (Beach 1986:141-143; Chapelle 1949:312; Love 1992:153).

Only one year after authorizing the Potomac class of sailing frigates, Congress authorized the building of two steam frigates in 1817. The introduction of steam power has been well documented elsewhere, but it is important to note that while steam power was recognized for its potential, reliance was still placed upon a sailing navy. The inefficiency of early steam engines required more coal than could be carried for a lengthy cruise. Paddlewheels could not easily take the pounding of the open ocean and were also highly vulnerable to shot and shell. The screw-propeller was not fully accepted. The *Cumberland* had been in service for over a year when the British navy held a trial by tug-of-war between a paddlewheel steamer and a screw-propellor brig (Beach 1986:154-155). Though the test resulted in a clear victory for the screw propellor, this information came too late to help the *Cumberland*. To change the *Cumberland* from a sailing rig to steam propulsion was by this time out of the question. Neither was it clearly desirable. For long cruises, in rough seas, and for simplicity of maintenance, the sailing ship still had many advantages.

In the matter of ordnance, there was greater latitude for adaptation. A shell gun which was no longer restricted to indirect fire had been developed by the French in the early 1800s. Until then, explosive projectiles had been limited to mortars and were unsuited for most naval applications. The improved method, combining a larger firing chamber with a wooden plug affixed to the shell to hold it in a proper orientation, allowed, for the first time, the practical use of explosive shells at sea. Until then, reliance had been placed on solid shot and the associated fragments of shattered woodwork resulting from impact. The bursting charge used in the new guns saw a dramatic increase in destructive power (Beach 1986:196-222; Chapelle 1949:489). The superiority of the shell-firing gun to solid shot was demonstrated to the world in 1853 at the Battle of Sinope. The Russian fleet, armed with shell guns, caught the Turkish fleet at anchor. Equipped with guns that fired only solid shot, the Turkish fleet was annihilated. More striking still was the fact that the Russian fleet was virtually unscathed (Beach 1986:233-234).

In the years after the Tripolitan War and before the Civil War, the United States Navy, though faced with no clear-cut challenges, saw a slow but steady increase in the demands made upon it. The threat of piracy, the acceptance of shared obligations to co-operate with other powers for the suppression of the slave trade, and the promotion of scientific exploration were just some of the activities requiring an active naval policy. These years also saw the expansion of the Merchant Marine, which pushed in ever greater numbers into the farthest waters (Fowler 1990:27,30-33).

The mid 1840s saw a sharp increase in the Navy's responsibilities. The war with Mexico required considerable naval activity. The results of the peace treaty created more. The United States acquired hundreds of miles of coast line on the Pacific Ocean, which, until the building of the Panama Canal in the early Twentieth Century, was for naval purposes, virtually on the other side of the globe (Love 1992:212-213).

Clearly a fleet that could keep at sea for extended periods of time with minimal maintenance was required. While steam propulsion offered increasing advantages, there remained a vital role for an efficient sailing navy responsive to the needs of the United States in these years.

When the Civil War began, the Navy was unprepared and in disarray. Not since the war of 1812 had she faced an opponent so potentially formidable. Indeed the Confederacy would draw on a pool of officers and men who had trained and served on the vessels they would be now striving to sink. These men were intimately aware of the strengths and weaknesses of the individual ships of the regular navy, ships they would now be seeking to take or destroy (Fowler 1990:44; Ammen 1883:6-8).

The Ship

In 1816, the United States Congress authorized the building of nine 44-gun frigates, one of which would eventually become the *Cumberland*. Known as the Potomac Class of frigate, nine were built: the *Brandywine, Potomac, Columbia, Santee, Savannah, Sabine, Raritan, St. Lawrence* and *Cumberland*. Designed by William Doughty, this class was an improved version of an earlier Doughty design, the Guerrier class of frigate laid down in 1813 at the height of the war of 1812. As planned, the frigates were to be 1,708 tons, 175 feet between perpendiculars, with a molded beam of 45 feet drawing a maximum of 22 feet 4 inches. In the case of the *Cumberland*, her final arrangement was 1,726 tons, 175 feet between perpendiculars, with a molded beam of 45 feet drawing a maximum of 21 feet 1 inch (Bauer and Roberts 1991:12; Chapelle 1949:312-332).

Although authorized in 1816, funding was not available for the *Cumberland* until February of 1825. Her keel was laid down in November of the same year, before the completion of the shiphouse, which had to be built especially for her. This left her keel exposed to the elements until July of 1826 when the shiphouse was finally completed. On December 22, 1825, the frigate was officially designated by the board of Commissioners. She was hence forth to be known as the *Cumberland*. By the close of 1826, while little progress had been made on the iron work, considerable progress on the masting and spars had been achieved and the frame was "upsquared and filled in as high as the futtocks & keelson in the floor heads." To complete the vessel, Master Builder Josiah Barker estimated it would require an additional $60,172 for labor and materials (Bearss 1984:435-436,n.). However, over a decade was to pass before the *Cumberland* was launched.

For reasons of financial expediency, the navy had found it attractive to keep several of its vessels in a state of near completion. In this manner, a fleet would be rapidly available in case of hostilities, without the burdensome costs of maintaining a complete naval establishment in peace time. On several occasions from 1826 to 1840, the commandant of the Boston Navy Yard prepared estimates for the completion of the *Cumberland*, which varied from fifty days to six months (Bearss 1984:655,785).

She finally slid down the ways on May 24, 1842. At a cost of just under half a million dollars, she was 175 feet between perpendiculars, with a molded beam of 45 feet, a hold of 14 feet 4 inches, ballast of 60 to 75 tons, capacity for 51,345 gallons of water, and capacity for carrying 6 months worth of provisions (ONR,1921:II,1,69; Emmons 1853:98). Those who served aboard her described her in approving words:

> Her best sailing trim varying from 30 to 36 inches by the stern. Has logged 10 knots per hour by the wind. 1850. Sails, steers, and works well; is easy in motion, and rides easy at her anchors in a sea way. 1850 When light, crank; would recommend 15 or 20 tons more ballast to be

stowed aft. Beat the *Independence* with great ease under a variety of sail and weather. 1851 (Emmons 1853: 98).

When launched, she was armed with twenty 42-pounder carronades, twenty-eight 32-pounders and four eight-inch shell guns referred to as Paixhans (Bearss 1984: 910). Paixhans designates shell-firing guns in general, named after General Henri Joseph Paixhans, who had developed and integrated them into the French army and navy (Chapelle 1949:438). It was in this configuration that the *Cumberland* made her first cruise of the Mediterranean and served in the war with Mexico.

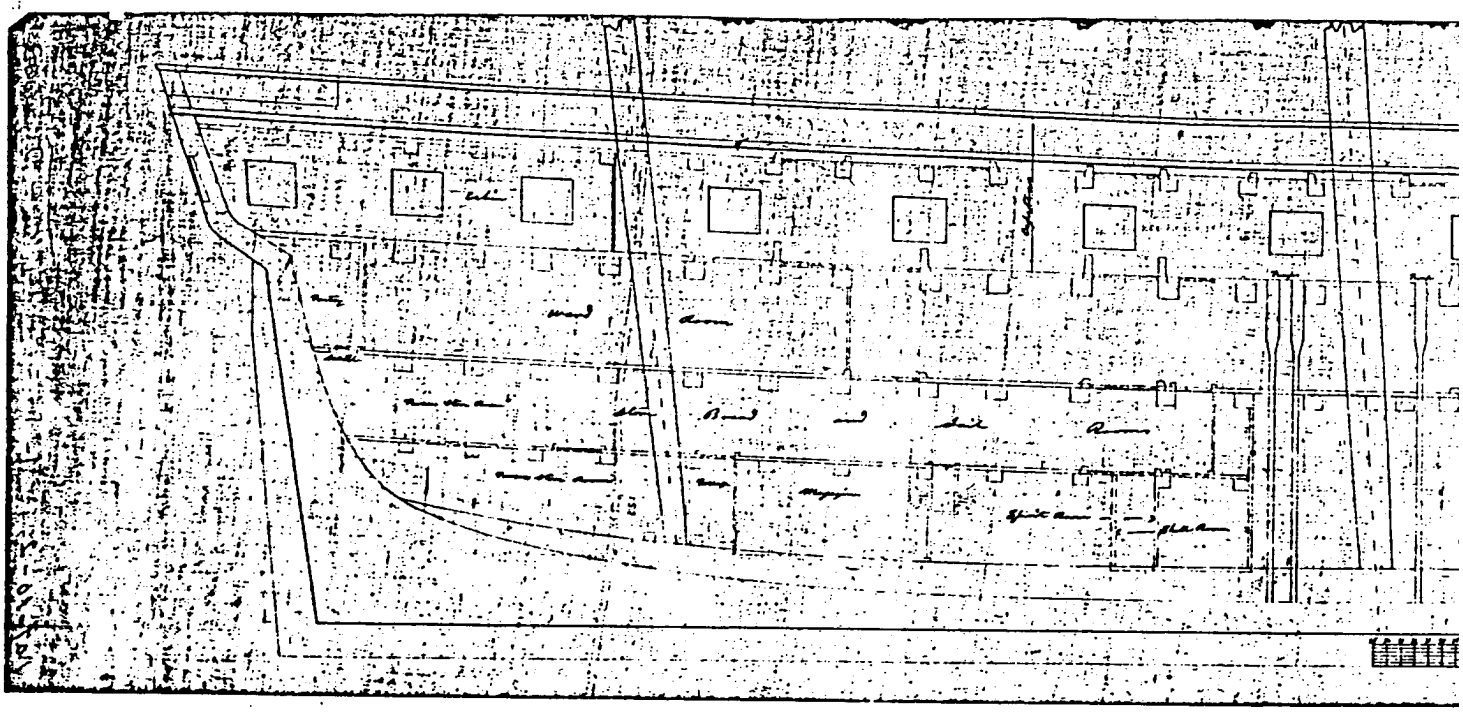
Her armament was altered in 1847 during a repair for damages suffered during the war with Mexico. The 42-pounder carronades were removed, the number of eight-inch shell guns doubled, and forty-two 32-pounders installed. The desire to increase explosive fire power at the expense of the weight of her solid shot broadside would only increase with the coming years.

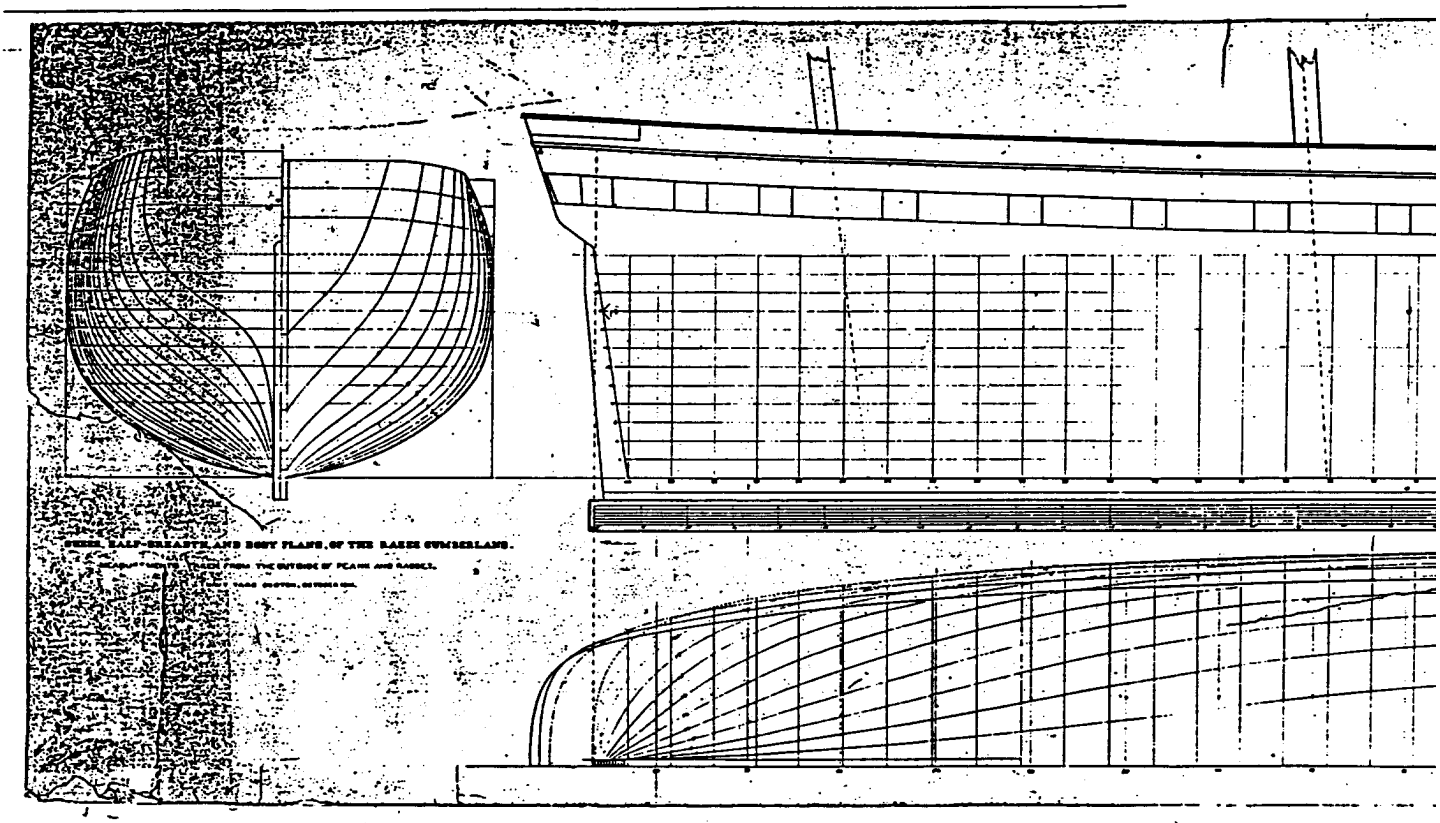
In 1857, the *Cumberland* was razeed. Her plans after modification are presented in Figures 3, 4, and 5. Chapelle considered it a very successful modification making her one of the "best examples of a cut down frigate" (Chapelle 1949:464). The ship was stripped of quarter galleries, spar deck bulwarks, and spar deck armament. Illustrated in Figure 6, her sailing rig remained unchanged. With the resulting reduction of weight and windage, the *Cumberland* became a very fast sailer. Her reduction in armament was achieved without a corresponding loss of firepower; indeed it was increased. Though her forty-two 32-pounder guns were cut back to sixteen and her eight 8-inch shell guns reduced to six, she was now equipped with two 10-inch shell guns mounted on pivots fore and aft. Illustrated in Figure 7, these pivots were constructed of seasoned timber, as were the pivots in all naval vessels of the United States. It was not until the Civil War, when demand far outstripped supply, that iron pivots were designed and constructed (Boynton 1867:295). Though built when fire power was measured in weight of broadside, the *Cumberland* successfully kept pace with the developments in naval ordnance.

In 1860, the last of her solid shot 32-pounders were removed. She was now equipped with shell-firing ordnance only. At this time, she possessed only one pivot-mounted 10-inch gun and a broadside arrangement of twenty-two 9-inch Dahlgrens (Figure 8). With the demands of the Civil War, her armament was changed for the last time in 1862 when a second pivot-mounted gun was reinstalled, this time a rifled 70-pounder. Mounted in the stern, the rifled cannon constituted the most formidable element of her weaponry.

Service History

After lying on the stocks in a state of near completion for over fifteen years, the Cumberland was launched May 24, 1842, at the Boston Navy Yard. It was only by





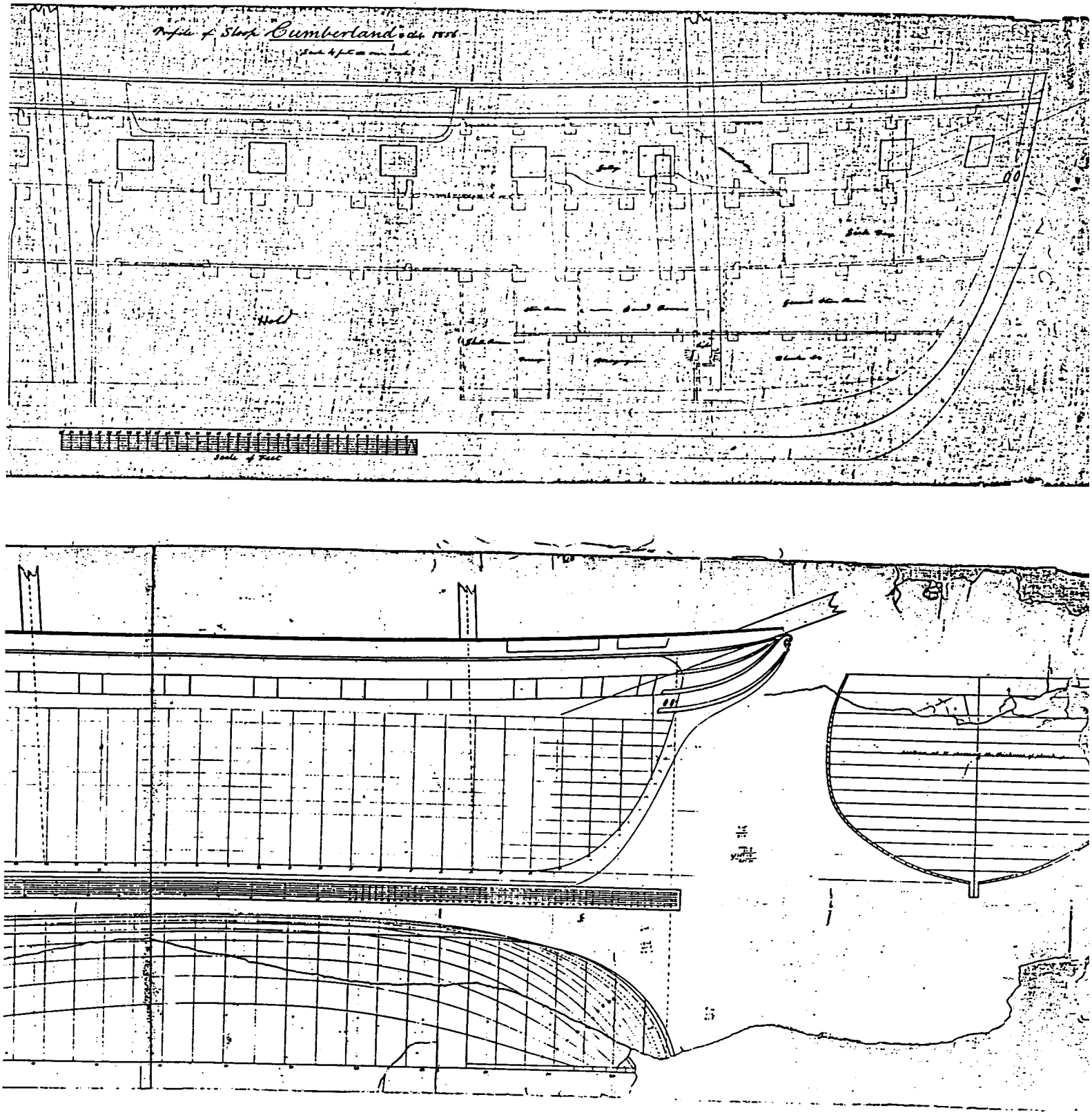


Figure 3

Deck, Sheer, Half-
and Body Plans
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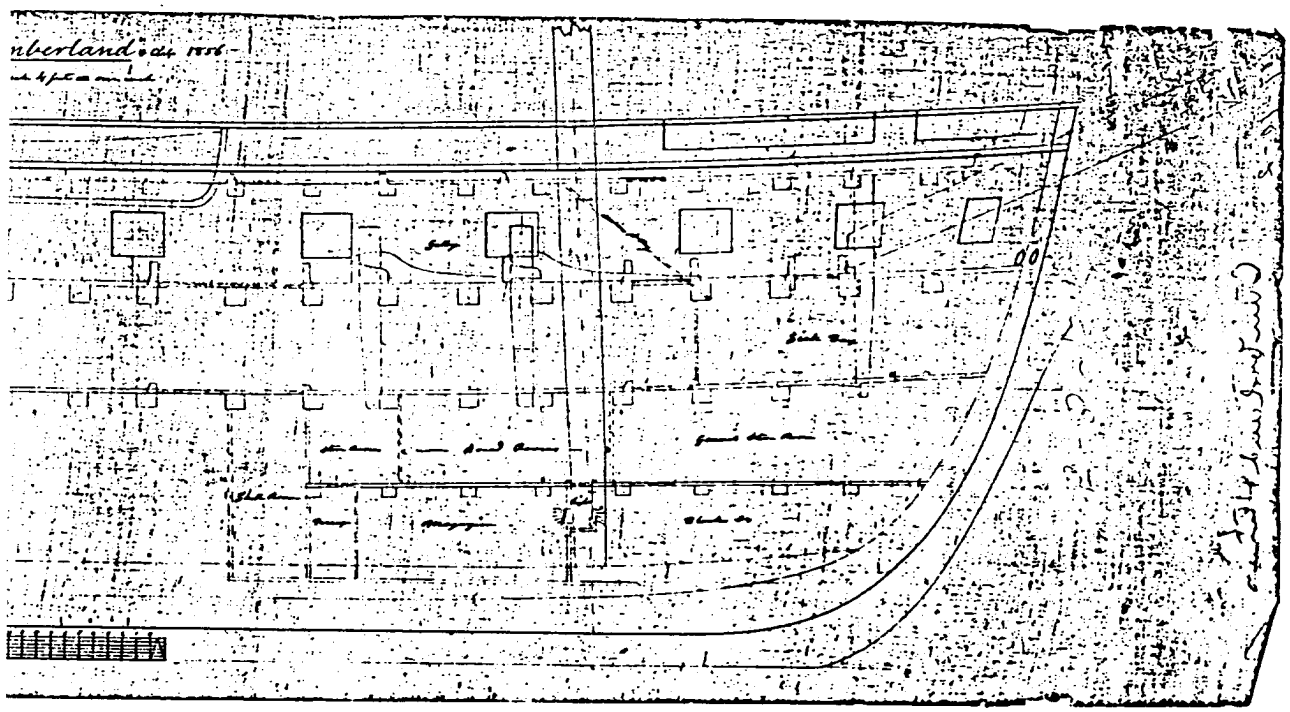
(Courtesy of the Nation



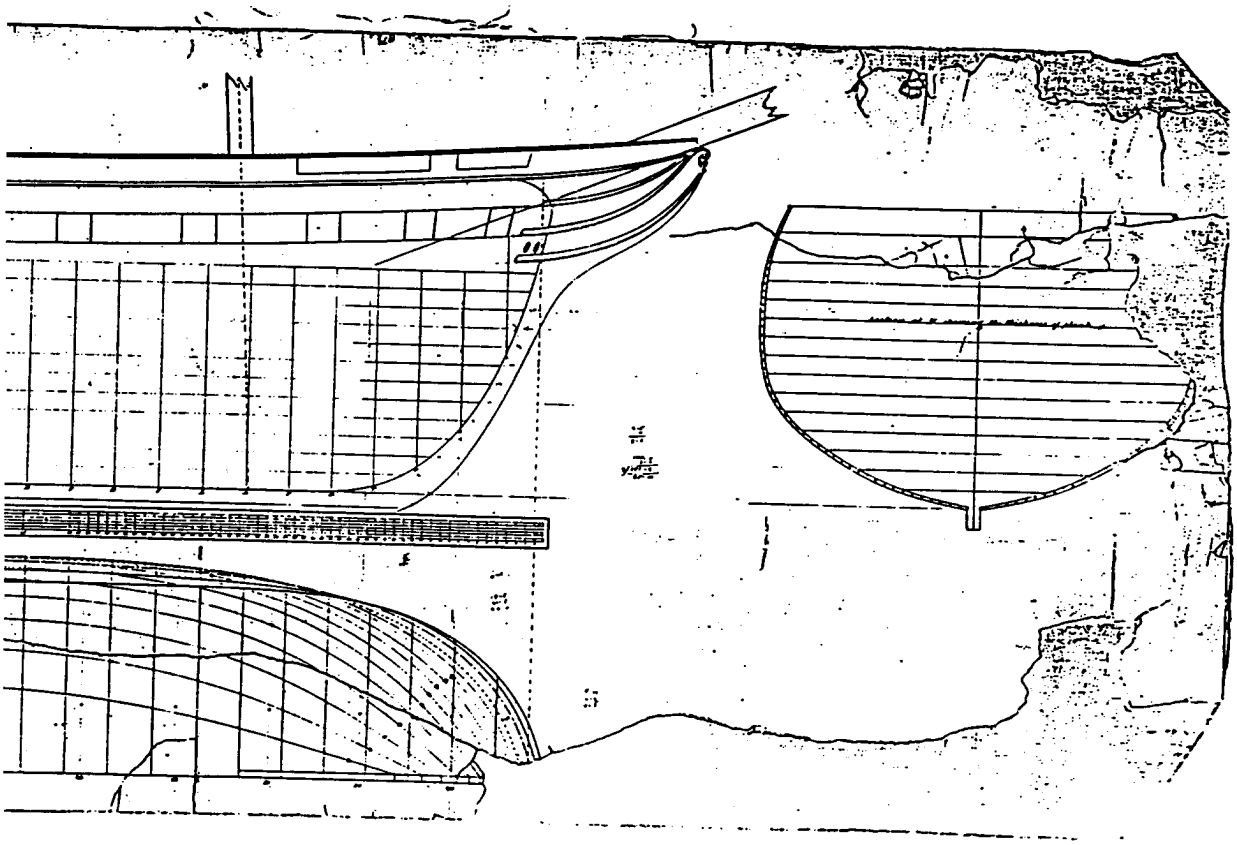
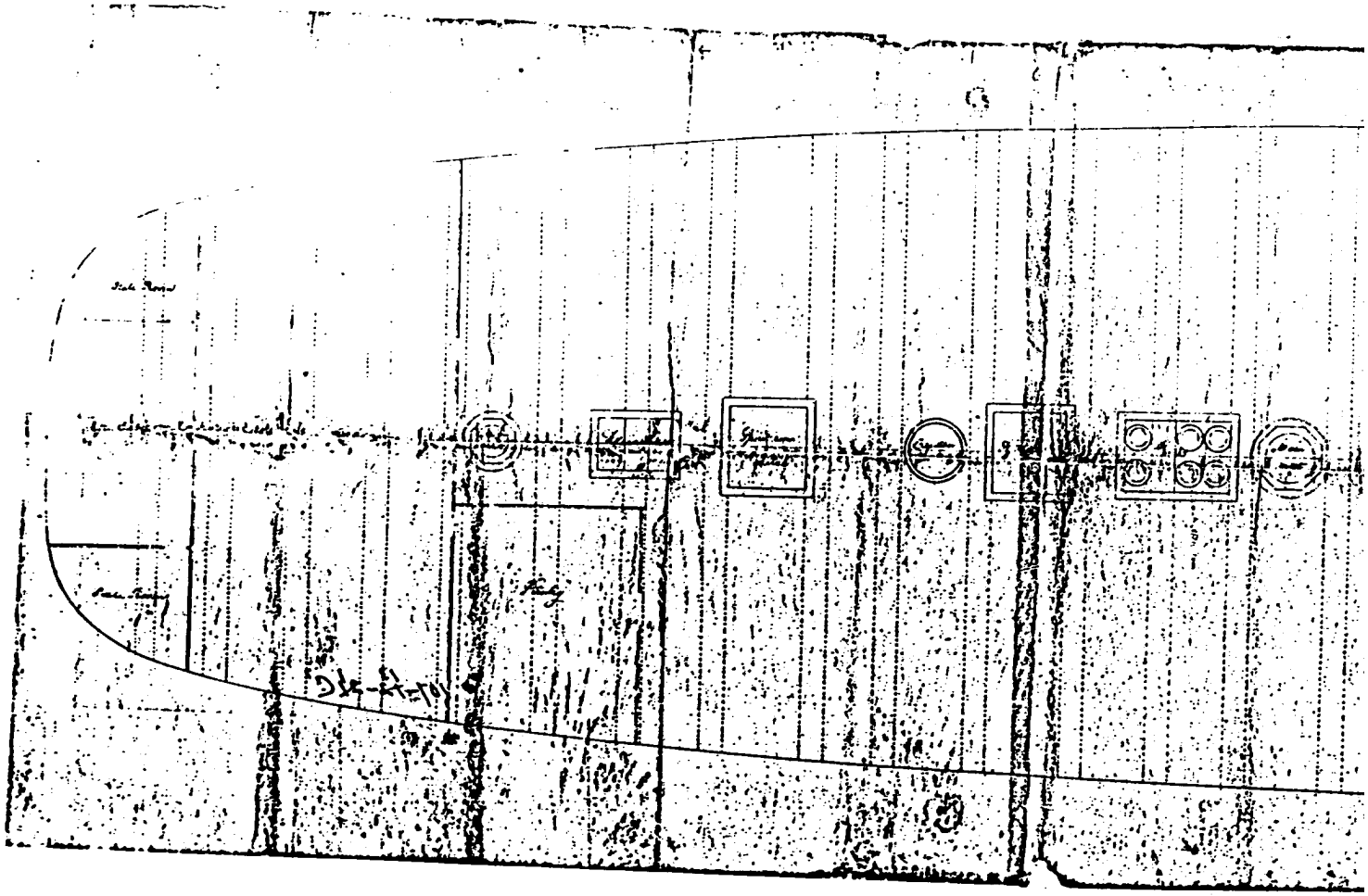
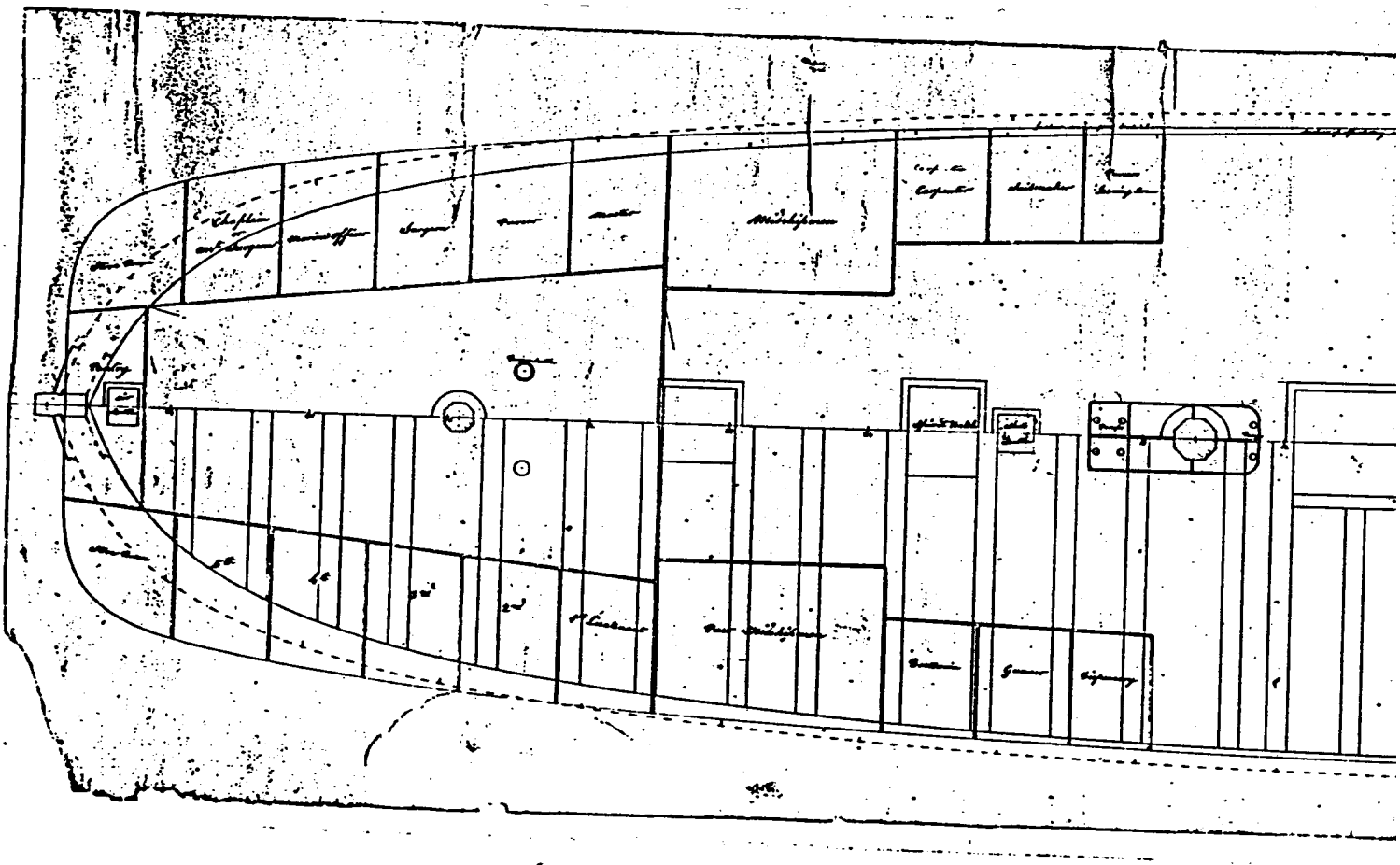
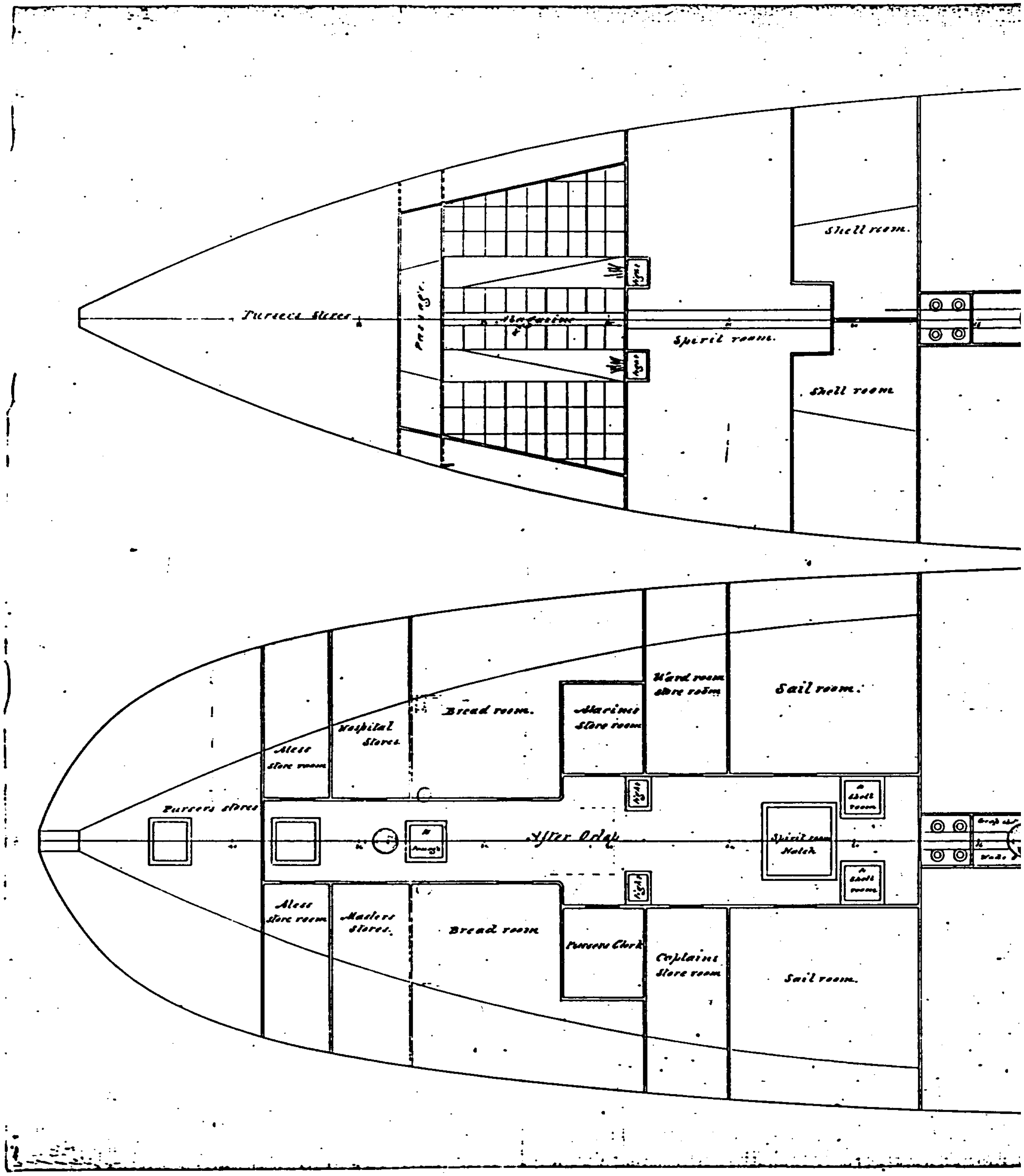


Figure 3

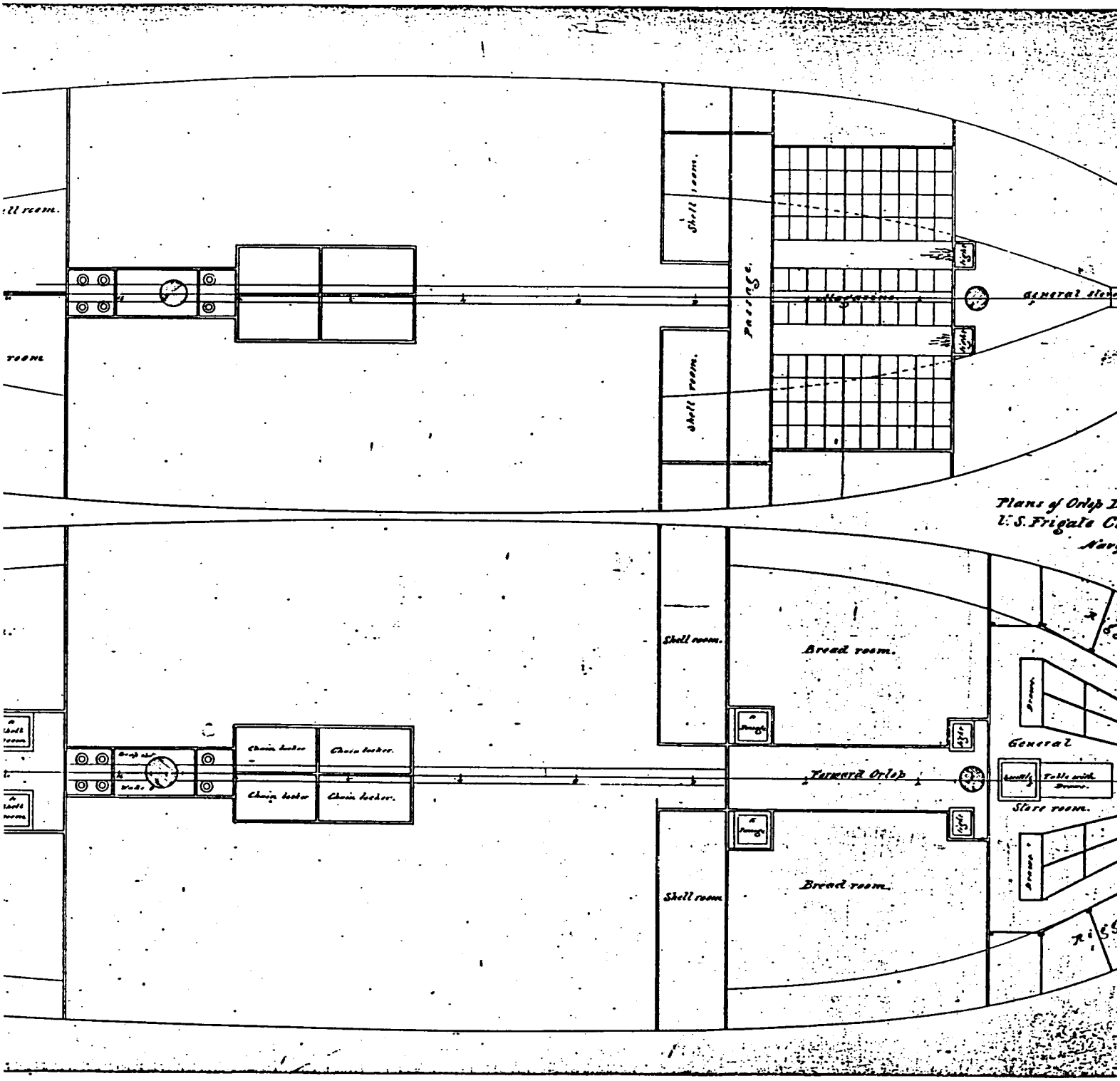
Deck, Sheer, Half-Breadth, and Body Plans of the *Cumberland*
(Courtesy of the National Archives)







Shell room.
Passage
Spirit room.
Shell room
Sail room.
Bread room.
Marines Store room
Hospital Stores.
Mess Store room
After Orlop
Spirit room Hatch
Mess Store room
Masters Stores.
Bread room
Coptains Store room
Sail room.



Orlop Deck and
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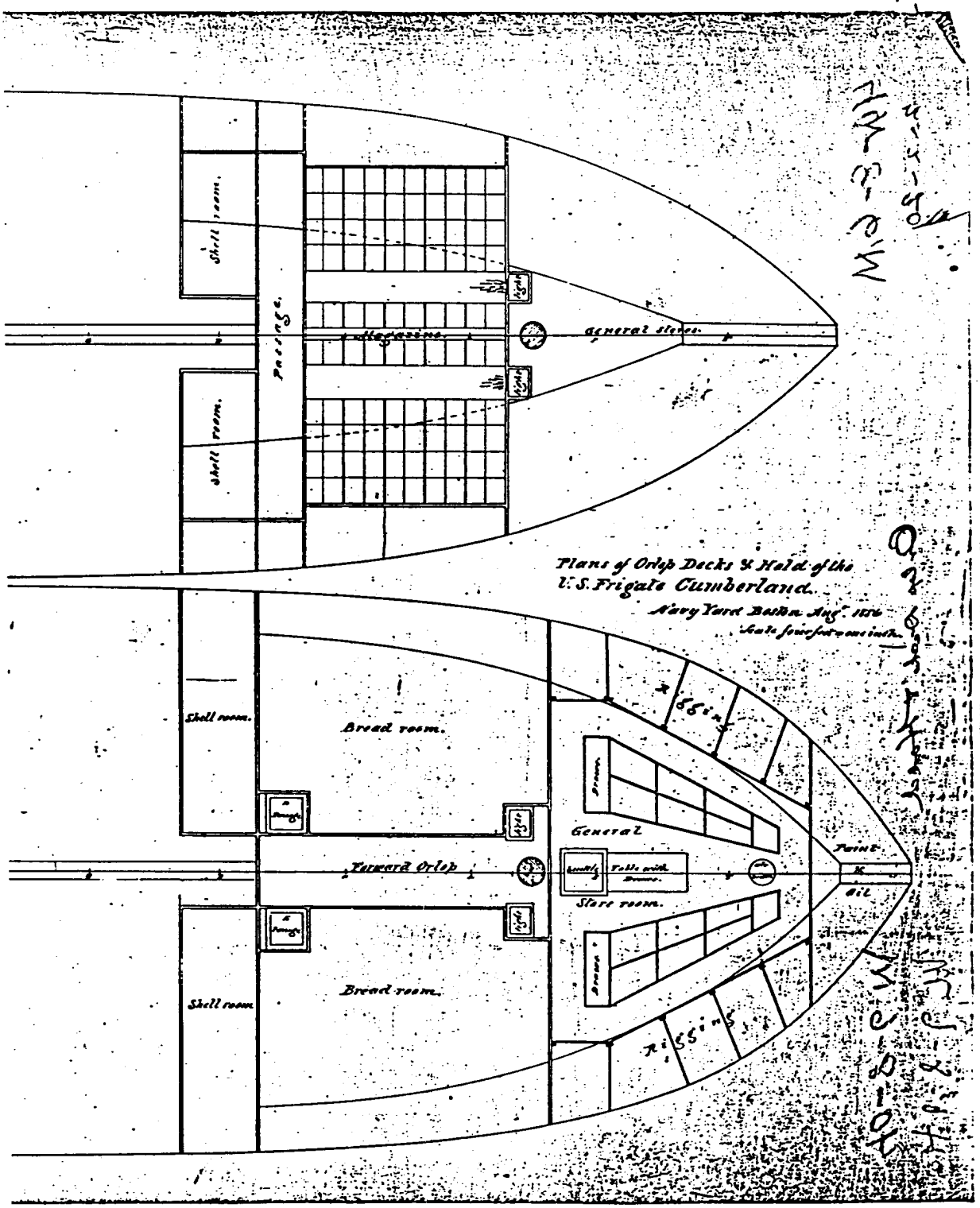
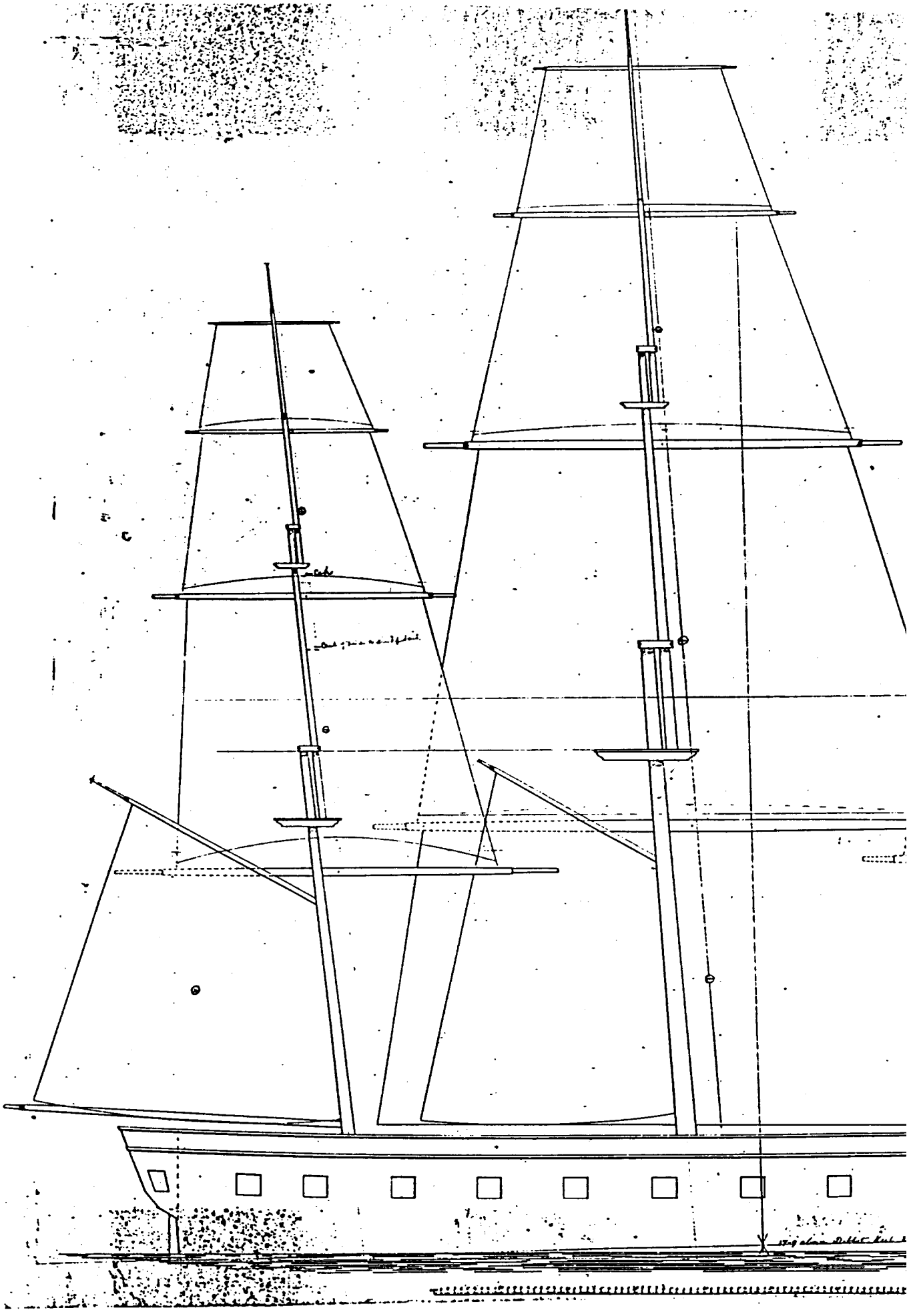
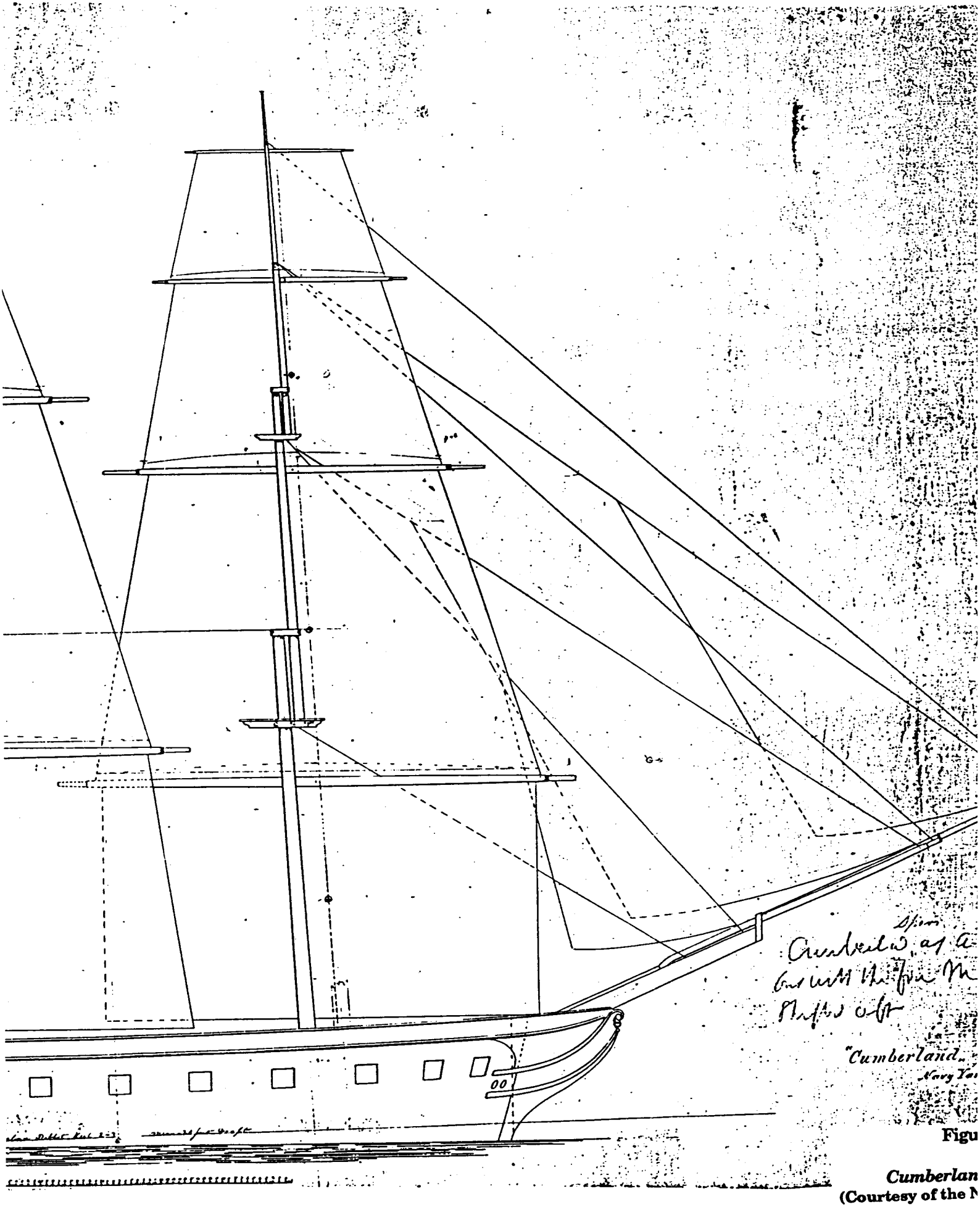


Figure 5

Orlop Deck and Hold Plans of the *Cumberland*
(Courtesy of the National Archives)





"Cumberland..."
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Cumberlan
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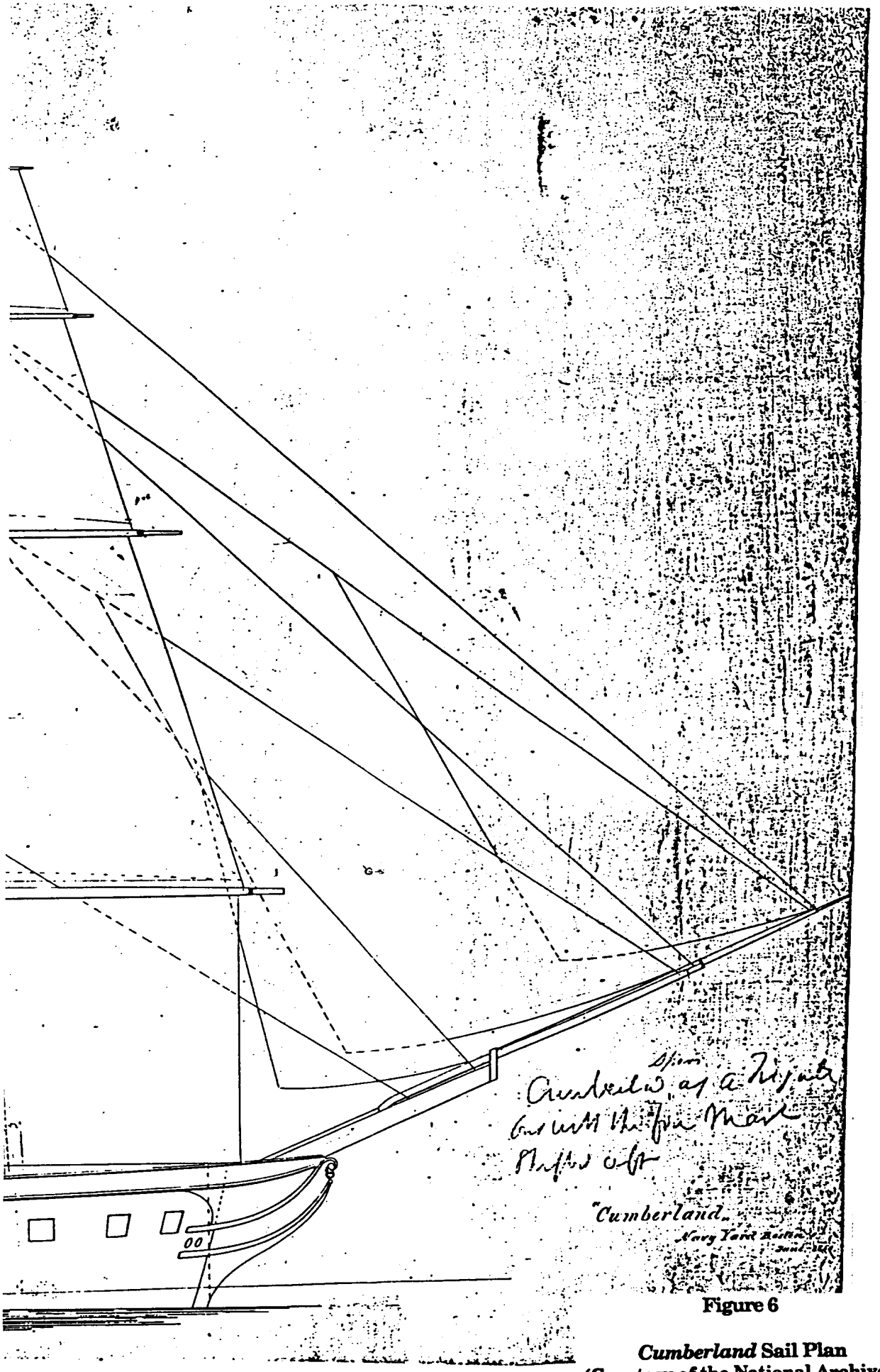
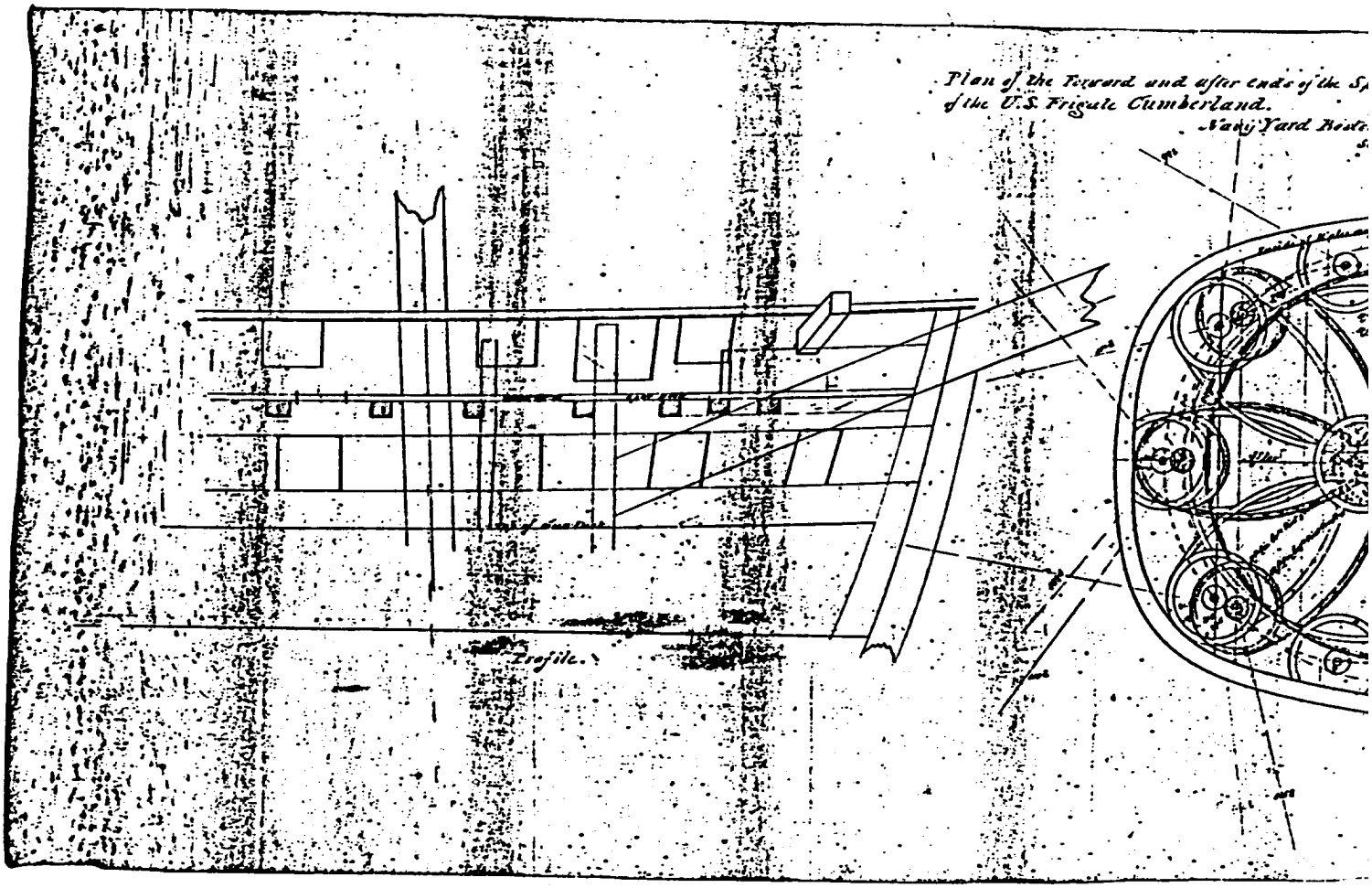


Figure 6

***Cumberland* Sail Plan**
(Courtesy of the National Archives)


Plan of the Forward and after ends of the S
of the U.S. Frigate Cumberland.
Navy Yard Boston
Profile.

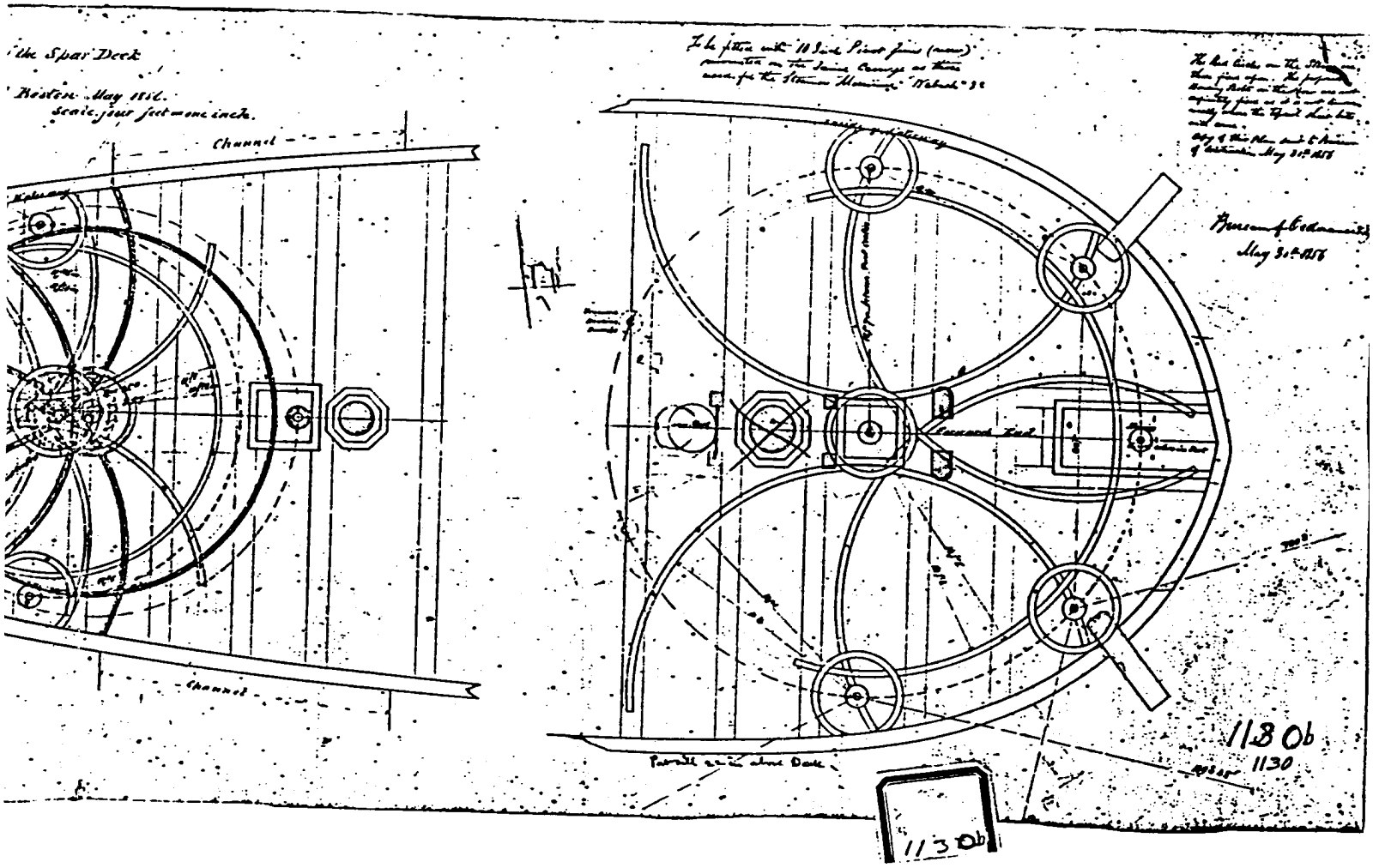


Figure 7

Gun Pivot Plans of the *Cumberland*
(Courtesy of the National Ar

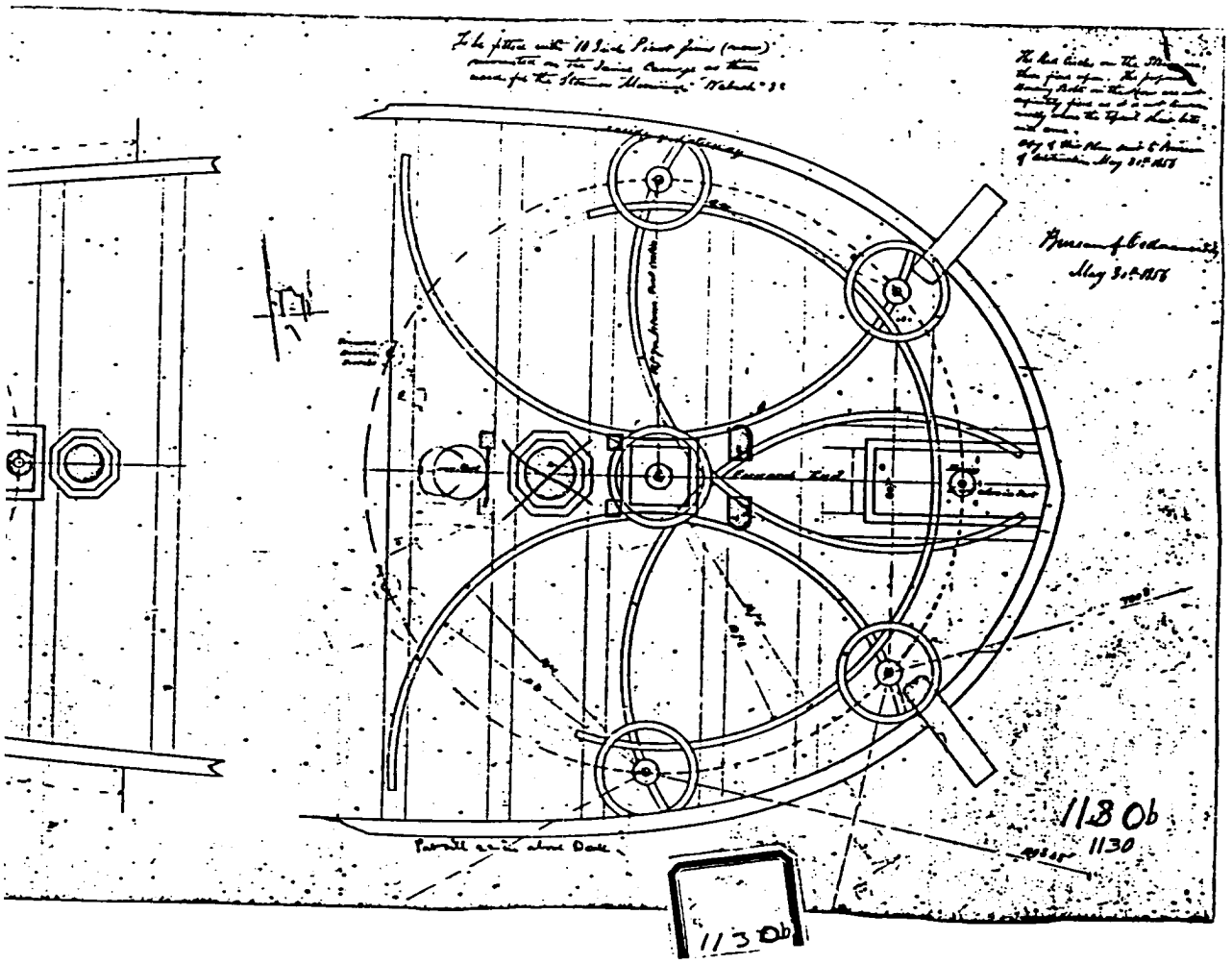


Figure 7

Gun Pivot Plans of the *Cumberland*
(Courtesy of the National Archives)

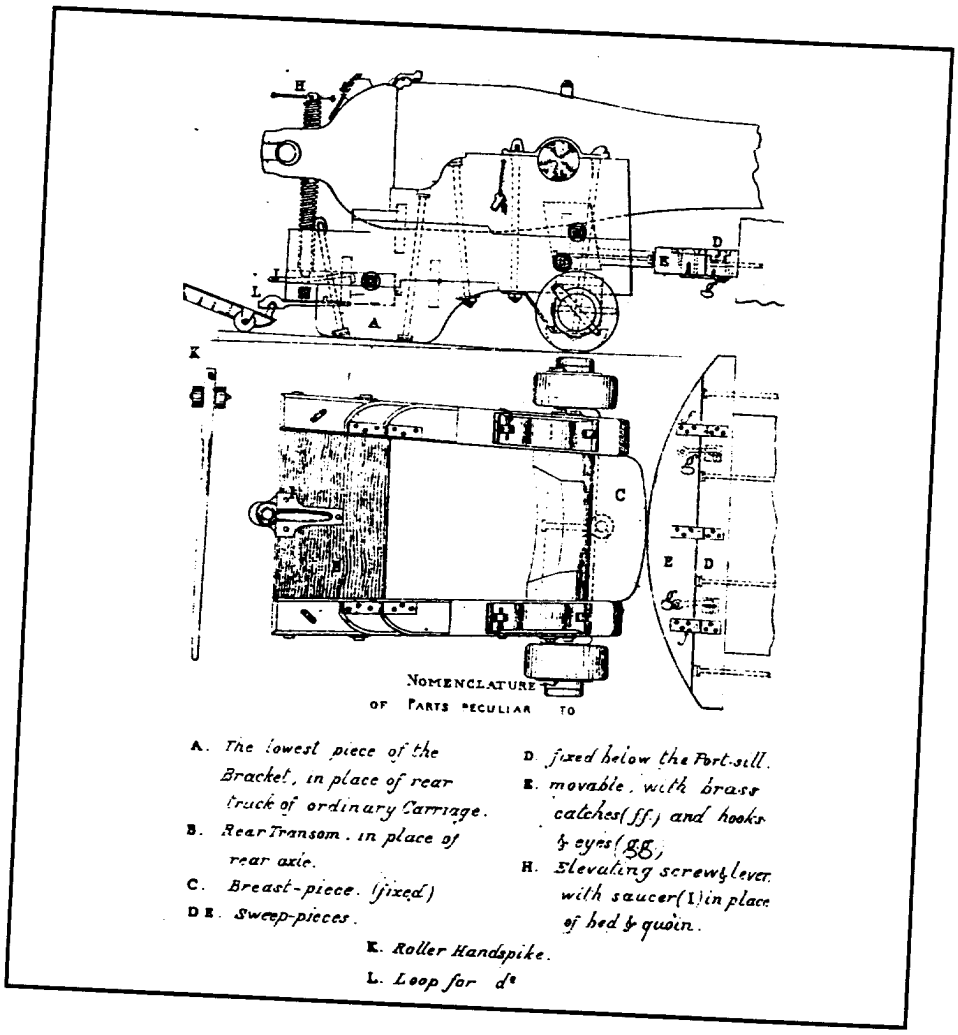


Figure 8. Plan of a 9-inch Dalgren and naval carriage (As presented in Reilly 1991:52).

virtue of the slowness of communications that she did not remain on the stocks even longer. The order to cancel the launch was being written in Washington at about the same moment she was entering the water (Bearss 1984: 806).

Her first assignment was with the Mediterranean Squadron, from 1843 to 1845, under Captain S. L. Breese, where she served as Flagship to the squadron. This posting was a mark of particular distinction rooted in an American practice which had been noted by at least one foreign observer:

> as an instance of the cunning, I will not call it wisdom, which frequently actuates the policy of the Americans. They fit out one of the finest specimens of their shipbuilding in a most complete and expensive style, commanded by their best officers, and manned with a war complement of their choicest seamen. She proceeds to cruise in the Mediterranean, where she falls in with the fleets of the European powers, exhibits before them her magnificent equipment, deploys her various perfections, and leaves them with exaggerated notions of the maritime powers of the country which sent her forth (Barley 1961:65).

The high quality of the men who served during her first tour shows that this was still the practice when the *Cumberland* was launched. The most famous of these men were Andrew Foote and John Dahlgren. Andrew Foote is most often remembered for his command of naval operations on the western rivers during the Civil War. He also lectured and wrote on the African slave trade, based on his experiences while serving as a captain in the African Squadron. He was executive officer aboard the *Cumberland* during this first cruise. Even before the ship had cleared Boston Harbor, some of the crew were flogged for breaking into the stores of spirits and assaulting an officer. Foote had already formed strong opinions on the subject of sailors and alcohol while in charge of the Naval asylum at Philadelphia; as executive officer, he was in a position to do something about it. So successful were his efforts that before he left the ship, the *Cumberland* achieved the distinction of becoming the first temperance ship in the United States Navy. When the *Cumberland* returned home in 1845, her crew and officers petitioned Congress to abolish the whisky ration throughout the service (Bradford 1986:118-120).

Also serving on the *Cumberland* at this time was John A. Dahlgren. It was here that he would have his first experience with shell guns. When commissioned, the *Cumberland* was armed with twenty-eight 32-pounders, twenty 42-pounder carronades and four 8-inch Paixhans shell guns. Dahlgren was directly responsible for the Paixhans. He laid and fired their first volley himself (Bradford 1986:29-30). His fascination with them is evident in his diary:

> The effect on the water was very pretty, the shells dashing the foam high into the air and bounding four and five times on the surface. Though I could not see as distinctly as the officers on the spar-deck, as

the smoke so enveloped us after the discharge, I had the satisfaction of proving a plan for point-blank fire (Dahlgren 1882:87).

Dahlgren would later play a large part in the development of naval ordnance in the United States Navy. In little more than a decade, the results of his work would greatly alter the ship aboard which the above lines were written. The navies of the world were constantly working to improve their fire power. Dahlgren's work with ordnance did much to keep the United States Navy competitive. A sign of his success was that Dahlgren, rather than Paixhans, would become the generic term for shell firing ordnance in the United States Navy.

Between February and December 1846, the *Cumberland* returned to the United States, serving in the Home Squadron during the war with Mexico. She was Commodore David Conners' Flagship until July of 1846 when she grounded on a coral reef and was so badly damaged she had to be sent to Boston for repairs. This mishap fatally delayed the attack on the Mexican warships in the Alvarado River. (King 1989:133; Parker 1883:85; Love 1992:205). During this refit, her armament was improved. Her 42-pounder carronades were removed, the number of her 8-inch shell guns doubled to eight, and her broadside filled out with forty-two 32-pounders. Continuing to serve the Home Squadron, she returned to the United States, carrying Commodore Matthew C. Perry in July 1848.

The *Cumberland* returned as flagship to the Mediterranean from 1849 to 1855. In 1850, she began a series of cruises to show the flag and make palpable United States Naval might and official concern for American mercantile and missionary activities in the Middle East (Field 1969:286-292). In 1853, as tensions increased which would lead to the Crimean War, the *Cumberland* carried Commodore Silas H. Stringham to Constantinople (Field 1969: 242-245).

The navies of the world noted with considerable interest the lessons of the Crimean War. This war saw the use of the ironclad warship and steam power and proved, to any who still doubted, the superiority of the shell-firing gun to solid shot. At the Battle of Sinope, the Russian fleet using shell-firing guns annihilated the Turkish fleet while remaining virtually unscathed (Beach 1986:233-234). The American reaction to these developments in naval ordnance can be seen in the changes made to the *Cumberland.* In 1856, she was razeed, a term taken from the French word *raser* meaning to shave or slice. This involved removing the upper deck of a ship to improve speed and handling abilities while preserving overall strength. It was a technique, ironically enough, used by the British to combat the American frigates of 1812, the same frigates which had inspired so much of the *Cumberland's* design (Chapelle 1949: 464).

Technically no longer a frigate, the *Cumberland* was now a Corvette. She now carried only 24 guns, but her speed and striking power had been substantially increased. A pair of heavy 10-inch shell guns mounted on pivots fore and aft, along with six 8-inch shell guns, made up her main battery, and her previous compliment

of forty-two 32-pounders was reduced to a mere sixteen. The resulting increase in speed due to the reduction in weight and windage made her a good choice for her next posting. From 1857 to 1859, she cruised the coast of Africa as Flagship of the African Squadron, patrolling for the suppression of the slave trade. On this station, her speed would be vital, as slave ships depended on swift sailing to escape capture and maximize profits.

Returning to the United States in 1860, the *Cumberland* became once again the flagship of the Home Squadron. The last of her solid-shot 32-pounders were taken out at this time and replaced with twenty-two 9-inch Dahlgren shell-firing guns (Figure 9). Although one of her pivot guns was also removed, she was a fast and efficient platform for bringing the latest advances in American naval firepower where it was required. She spent the period immediately prior to the Civil War cruising in the Caribbean and the Gulf of Mexico.

At the outbreak of the Civil War, the *Cumberland* was at Norfolk Navy Yard, in Portsmouth, Virginia, having just returned from Vera Cruz, Mexico. The Norfolk Navy Yard was the largest and best equipped Naval facility in the United States. In early April of 1861, the yard was an island of Federal forces surrounded by Confederate troops and sympathizers. To compound an already difficult situation, the yard was under the command of Commodore Charles S. Macauley, whose erratic actions at this time led to charges of drunkenness, and even the most generous minded regarded his behavior as evidence of senility (Beach 1986:246; Selfridge 1924:26). Alarmed at the deteriorating situation at the yard, Secretary of the Navy Gideon Welles ordered Commodore Hiram Paulding to assume command. At the very least, the Secretary hoped to save the ships then at Norfolk. Unfortunately, when Paulding arrived he found that the *Cumberland* was the only vessel that had not been destroyed. Paulding described the situation he found on arrival at the yard in an official report to Wells:

> when she (*Cumberland*) was out of danger from the fire I gave the concerted signal, and in a few minutes afterward the ships and buildings in the yard were in flames. In carrying out the orders of the Department it was my intention to have placed the Vessels named [*Merrimac, Germantown, Plymouth* and *Dolphin*] in the channel to protect it from further obstruction, and, at my convenience, take them under the guns of Fortress Monroe, or send them to sea, as might be most expedient. Greatly to my regret, however, I found that these vessels had all been scuttled about two or three hours before my arrival, and were sinking so fast that they could not be saved. ...when all arrangements had been made and the tide served to remove the frigate *Cumberland*, I took her in tow (Boynton 1867:35).

The importance of the *Cumberland* in the eyes of the participants was indicated ironically by the Confederate attempt to use her as a bargaining piece. Paulding continued:

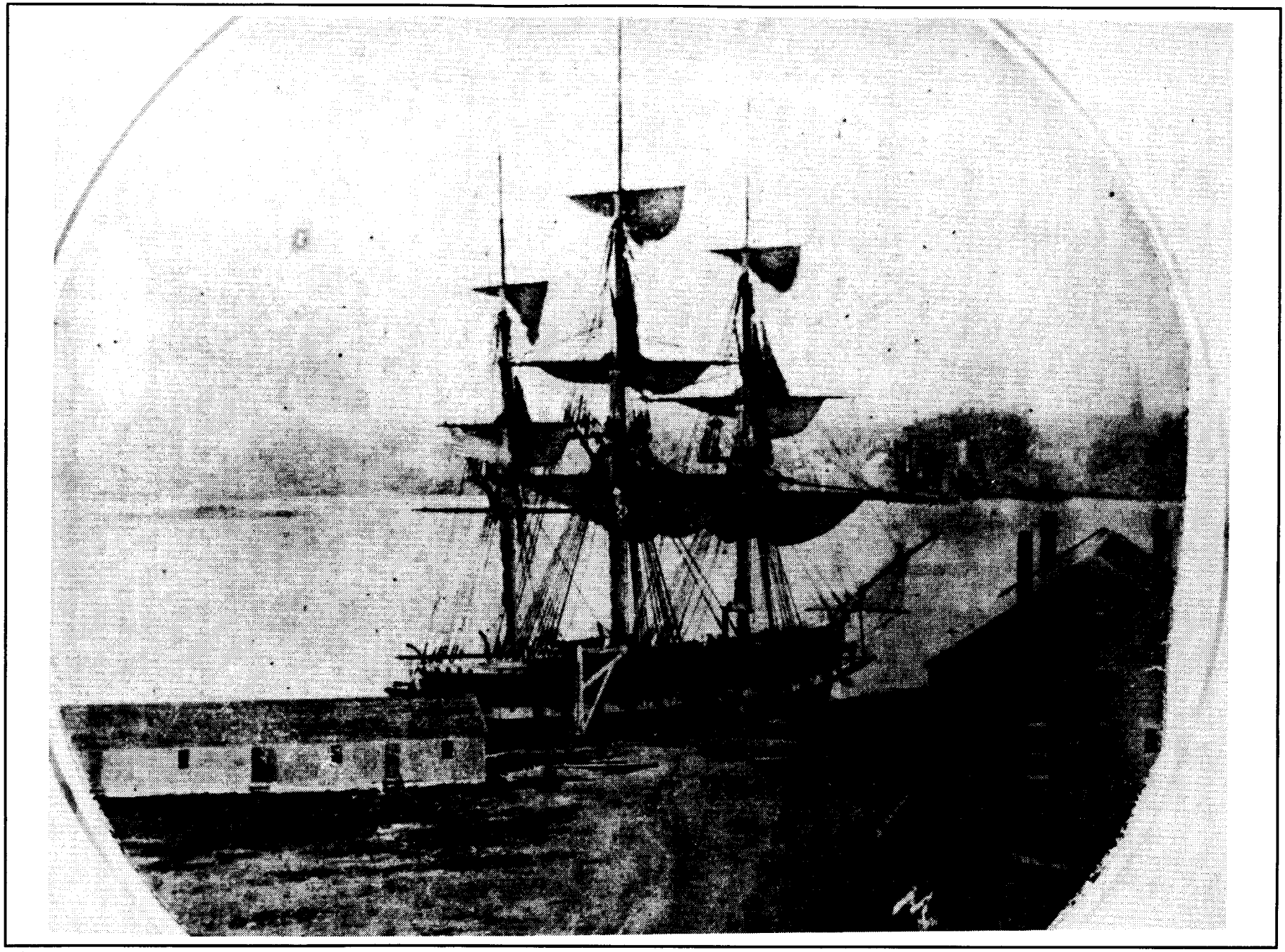


Figure 9. 1860 Photograph of the *Cumberland* at the Portsmouth, New Hampshire, Navy Yard possibly undergoing her armament refit (Courtesy of the Naval Historical Foundation).

> Soon after my arrival at the navy-yard a flag of truce came from General Taliaferro, commanding the military forces of Virginia. The purport of his message was, 'that to save the effusion of blood, the general would permit the *Cumberland* to leave the port unmolested, if the destruction of public property should be discontinued.' To this I responded, that any act of violence on their part devolve upon them the consequences.
>
> In coming out with the *Cumberland* she brought-up in crossing the wrecks off Sewall's Point, and hung for some hours, and was finally dragged off by the chartered tugs Yankee and Keystone State (Boynton 1867:35).

The capture of the yard on the night of April 20, 1861, by the Confederacy was a serious blow to the Union Navy. Saving the *Cumberland* was one of the few positive results of what had otherwise been a disaster. Lost at this time were the *Pennsylvania, Columbus, Delaware, New York, Merrimac, United States, Columbia, Raritan, Plymouth, Germantown, and Dolphin,* as well as over 2,000 pieces of heavy ordnance and stores of all kinds. Although the *Pennsylvania,* rated as a 120-gun ship of the line, was the largest warship built by the United States up to that time, it was the 50-gun screw steamer *Merrimac* which was source of the greatest concern. Nor, as events would demonstrate in less than a year, was this concern unfounded. The scuttling of the *Merrimac* was a significant loss to the Union Navy. For the *Cumberland,* the fact that the job was only partially done would prove to be a disaster.

The *Cumberland* was assigned to the North Atlantic Blockading Squadron where she shared the duties of the squadron. It was from the *Cumberland* that commander of the Home Squadron promulgated the proclamation of the Blockade in Virginia and North Carolina waters on April 27, 1861 (ORN II,2,59). She gave force to that proclamation by successfully taking prizes carrying cotton, coal, wood, hay, tobacco and military stores (Headly 1867:577-600). Indeed, it was only four days after the the burning of the Norfolk Navy Yard that the *Cumberland* captured her first vessel, appropriately enough loaded with gun carriages (Selfridge 1924:36; Headly 1867:586). The *Cumberland* was soon after sent to Boston where her copper sheathing was repaired, as it had been badly damaged by the obstructions encountered while leaving Norfolk on the night of April 20, 1861 (Selfridge 1924:37-38). She was back on duty at Hampton Roads, however, in time to participate in the assault on Hatteras Inlet. On August 26, 1861, she sailed under the command of Commodore Stringham as part of a combined operation to gain control of the inlet. While the operation was a success and the *Cumberland* was employed with effect, the disadvantages of relying on sail power alone were becoming all too apparent. Thomas Selfridge, who served as a lieutenant aboard the *Cumberland* from September of 1860 until her sinking, noted that the "Cumberland not having any steam power, stood offshore as a precaution against threatening weather, and was therefore late in joining in the bombardment" (Selfridge 1924:39). The *Cumberland* had to be towed with her sails furled during much of the battle (Fowler 1990:61-65).

Her ordnance had been repeatedly altered to make her capable of facing more modern opponents, but the age of the sailing ship of war was coming to a close. The *Cumberland* had been altered as far as was possible. She would find her inferiority against the latest developments in warship design would only increase. Not only was steam propulsion becoming the rule among ships of war, attention was now being focused on armoring vessels to make them invulnerable to shot and shell.

The Battle of Hampton Roads

On Saturday, March 8, 1862, the *Cumberland* was lying at anchor in the the channel near Hampton Roads, separated from the more powerful elements of the Federal squadron. It was a station she had kept for some time. Her task, with the assistance of the *Congress*, was to bottle up the James River Squadron, the Confederate squadron consisting of the gun boats *Patrick Henry, Jamestown* and *Teaser*. The atmosphere among the Union forces was almost relaxed, considering their position was in sight of a hostile shore. The rest of the Federal squadron, *Minnesota, Roanoke* and *St. Lawrence*, was out of sight near Old Point Comfort. The *St. Lawrence* was a sister ship to the *Cumberland*, though like the *Congress* she still maintained the lines she had when she left the ways. The *Roanoke*, though a screw steam ship, was relying on sail power. Her main shaft was under going repair at the Brooklyn Naval Yard. Only the *Minnesota* was capable of self propulsion.

The atmosphere of calm among the Union forces that morning stood in contrast to the mounting tension in Washington. The press had served to keep both sides well informed about the relative progress in fitting out the*Monitor*. The race to finish the ironclad warship had been described in detail (Flannders 1982:42-44; Beach 1986:250). It was the extraordinary efforts and the strong sense of urgency which showed just how clearly perceived were the vulnerabilities of wooden vessels such as the *Cumberland* when faced with a steam-powered ironclad. As early as January 24, 1862, Secretary of the Navy Gideon Wells had written to Commodore Goldsborough, directing the *Congress* to be sent to Boston as soon as possible. At 10:00 in the evening of March 7, 1862, Secretary Wells sent the following telegram to Captain Marston:

> Send the *St. Lawrence, Congress*, and *Cumberland* immediately into the Potomac River. Let the disposition of the remainder of the vessels at Hampton Roads be made according to your best judgement, after consultation with General Wool. Use steam to tow them up. I will also try and send a couple of steamers from Baltimore to assist. Let there be no Delay (National Archives 1883:I,9,18).

In less than twenty-four hours, the Secretary of the Navy's alarm would prove all too justified, but in the case of the *Congress* and the *Cumberland*, no longer relevant.

At 11:00 in the morning March 8, 1862, the *Merrimac* accompanied by the gunboats *Beaufort* and *Raleigh,* got under way and stood toward the blockading squadron. She was built upon the salvaged hull and machinery of the *Merrimac* scuttled at Norfolk the year before (Figure 10). Renamed the *Virginia,* she had lost all vestiges of her sailing rig; her upper works were completely covered over with iron plate, and a triangular wedge of iron had been mounted on her bow as a ram. Instead of her fifty guns, she now carried only ten, a pair of 7-inch Brooke rifles, another pair of 6.4-inch Brooke rifles and six 9-inch smooth-bore Dahlgren shell guns. Underpowered even before her immersion at Norfolk, the engines were for once running well, providing four to six knots (Beach 1986:280; Flanders 1982:63).

Captain Franklin Buchanan had taken command only a few days before, and most of the crew left the dock that day, believing it would only be to test her engines and handling abilities. They had good reason. In the words of Catsby Jones, her executive officer, the *Merrimac* was in less than a complete state of readiness for battle:

> The lower part of the shield forward was only immersed two inches instead of two feet as intended, and there was but one inch of iron on the hull. The port shutters, etc. were unfinished. The *Virginia* was unseaworthy; her engines were unreliable,...there was no regular concerted movement with the Army (Hoehling 1976:99).

H. Aston Ramsay, acting chief engineer, had never been happy with the engines, and he knew them well, having been an assistant engineer on the *Merrimac* in her previous incarnation. He states that:

> from my past experience with this vessel, I am of the opinion that they [the engines] cannot be relied upon. During a cruise of two years whilst I was attached to this ship in the United States Service they were continually breaking down, at times when least expected." When she returned the Chief Engineer reported that all experiments to improve their working and reliability had failed, and as the defects were radical, embracing the entire engines, recommended that they should be removed from the vessel (Fowler 1982:70).

For all her faults, she would prove overwhelmingly superior to the ships she faced that day. As she made down river, Captain Buchanan inquired of Ramsay if the engines and boilers would survive a collision. His next words made apparent his reasons for asking. "I am going to ram the *Cumberland.* I am told she has the new rifled guns, the only ones in their whole fleet we have cause to fear. The moment we are in the Roads I'm going to make right for her and ram her" (Hoehling 1976:100). The *Cumberland* had indeed installed a new rifled 70-pounder on her stern pivot just a few months before. The effort to make her more formidable had served also to single her out for destruction.

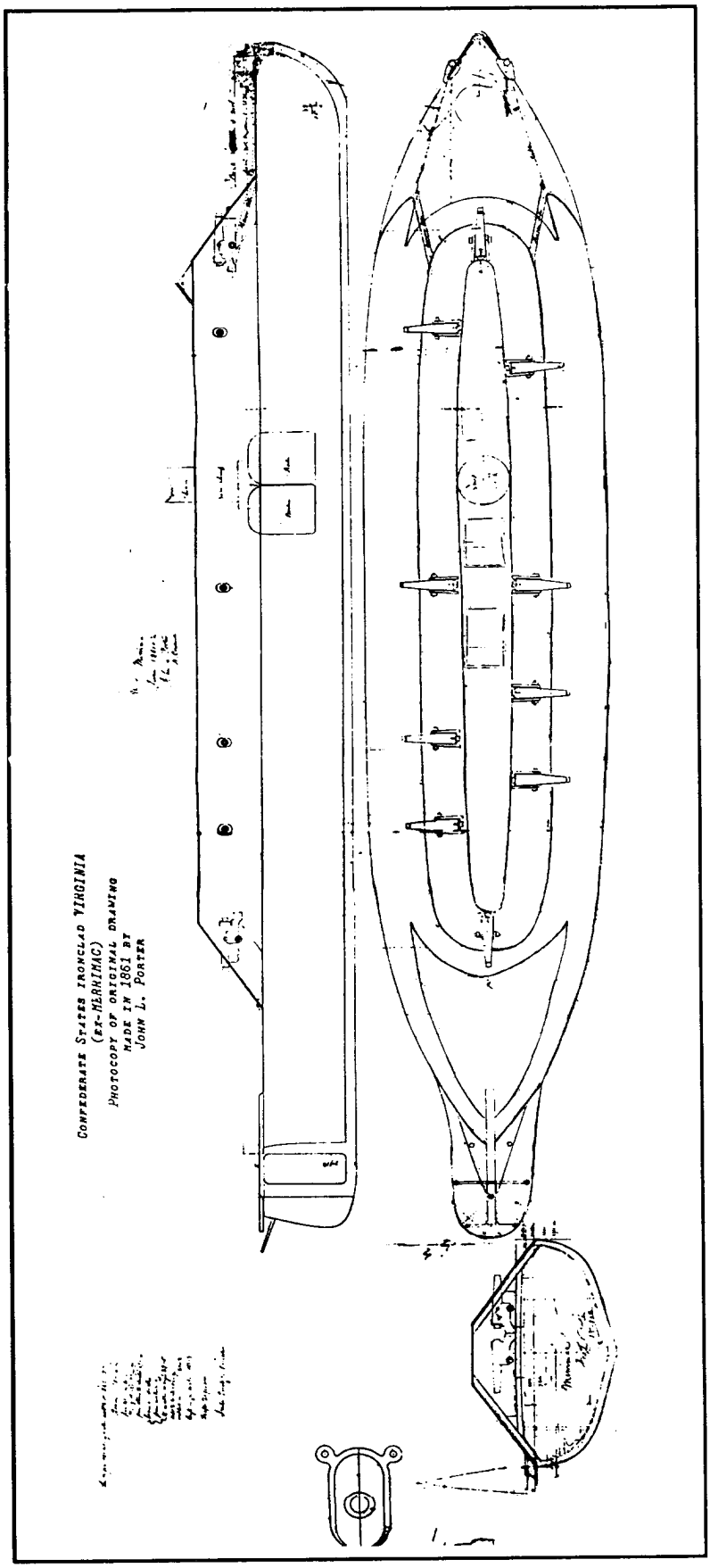


Figure 10. Plan of the *Virginia*, ex-*Merrimac* (As presented in Flanders 1982).

At 12:40, smoke from the *Merrimac* was sighted from the *Cumberland* and a signal made apprising the rest of the fleet of the ironclad's approach. Because of her deep draught, it was necessary for the *Merrimac* to keep to the center of the channel. This required passing behind Newport News Point, and for a time the men and officers of the *Cumberland* thought the *Merrimac* was making for the rest of the fleet. When she reappeared just before 2:00, her destination could no longer be in doubt. The disposition of the fleet in two separate groups meant that the *Cumberland* and *Congress* would face the attack unsupported, save for those shore batteries capable of bearing on the scene of engagement. Now aware of the *Merrimac's* target, the rest of the fleet strove to join them. Tugs had to be summoned to tow both the *Roanoke* and *St. Lawrence* if they were to have any hope at all of reaching the battle.

It was not only the dispositions taken by the Union forces which favored the *Merrimac*. The wind was negligible, and as the *Merrimac* came within range, the tide began to turn slack. Without assistance from a steam-powered vessel, sailing ships, which comprised four of the five vessels in the squadron, were virtually immobilized. One of the first actions taken by the *Cumberland* was to furl her sails, which had been set in order to dry. She would fight at anchor because that was her best remaining option.

True to his earlier statement to Ramsay, Buchanan made directly for the *Cumberland*. To do so, he had to pass the *Congress*. Laid down thirteen years after the *Cumberland*, she was the last sailing frigate built by the United States. She was a fast sailer and considered one of the most successful versions of American ship design in the frigate class. However, unlike the *Cumberland*, she had remained unaltered since then (Davis 1984:121-125; Bauer 1991:14-15). Her full broadside of 32-pounders and 8-inch shell guns, fired at a range of only a few hundred yards resulted in shot "bouncing on her mailed sides like India-rubber, apparently making not the least impression" (Davis 1975:89). The solid shot simply rebounded from the *Merrimac*, and the shells exploded away from the hull without penetrating. The *Merrimac* did not even pause to engage, simply returning fire as she passed on toward the *Cumberland*. Even the small amount of attention given to the *Congress*, was devastating. Dr. Edward Shippen, ship's surgeon aboard the *Congress* recorded the damage:

> One of her shells dismounted an eight-inch gun and either killed or wounded every one of the gun's crew, while the slaughter at the other guns was fearful. There were comparatively few wounded, the fragments of the huge shells she threw killing outright as a general thing. Our clean and handsome gun-deck was in an instant changed into a slaughter pen, with lopped-off legs and arms and bleeding, blackened bodies scattered about by the shells...(Hoeling 1976:107).

The disparity in firepower had been observed by the *Cumberland*, but it was hoped that her more powerful armament and especially her new rifled cannon

would allow her to compete on more equal terms. The most powerful cannon, however, is of little use if it cannot be brought to bear. Thomas Selfridge, who was Officer of the Deck that day, later wrote:

> I firmly believe that sheer determination to conquer would have prevailed over the armor and ram of the *Merrimac*, but for the handicap of sail motive power. The *Cumberland* had placed springs on the anchor which now failed her because the turn of the tide having swung the *Cumberland* athwart the channel; thus bringing the springs in line with the keel. Three times the gun deck divisions were sent from one battery to another without gaining any opening, while the head rigging prevented the 10-inch forecastle pivot gun from firing. At last the *Merrimac's* bearing changed sufficiently to starboard to permit our opening fire with a few 9-inch guns and the bow pivot gun... The *Merrimac* continued to lay about 300 yards sharp on the starboard bow, raking the *Cumberland* with every shot from her broadsides, while we could only reply by extreme train with the few guns already mentioned (Selfridge 1924:46-47).

For some fifteen minutes, the *Merrimac* continued to pound the *Cumberland* from this advantageous position, spreading destruction among ship and crew (Beach 1986:284). "The shot and shell from the *Merrimac* crashed through the wooden sides of the *Cumberland* as if they had been made of paper... Several shot and shell entered on one side and passed out through the other carrying everything before them..." (O'Neil 1922:866). Every first and second captain of the first gun division was dead or wounded (Selfridge 1924:48). Aboard the *Merrimac*, the effects of the *Cumberland's* fire were felt primarily as a terrible racket, as shot "struck our [Merrimac] sloping sides" and was "deflected upward to burst harmlessly in the air, or rolled down and fell hissing in the water, dashing spray up into our ports" (Ramsay 1912:11).

Although suffering terribly from a fire to which she could only partially respond, the *Cumberland* continued to fight, showing no signs of slackening or willingness to surrender. Buchanan now determined to finish her by ramming. Still on the starboard bow quarter, the *Merrimac* made her best speed towards the *Cumberland*. The wind was still uncooperative and the tide slack; the ship's pilot A.B. Smith found that "it was impossible to get out of her [Merrimac] way" (Davis 1975: 89).

At just after 2:30, the two ships came together, and the 1,500-pound iron ram projecting two feet from the stem of the *Merrimac* pierced the side of the *Cumberland*, leaving a large hole just below the water line under the starboard bow anchor (Figure 11). The ship immediately began to settle, pulling the bow of the *Merrimac* down with it. Buchanan had the ship backing as powerfully as her engines could manage when the ram broke away, remaining imbedded in the side of the *Cumberland*.

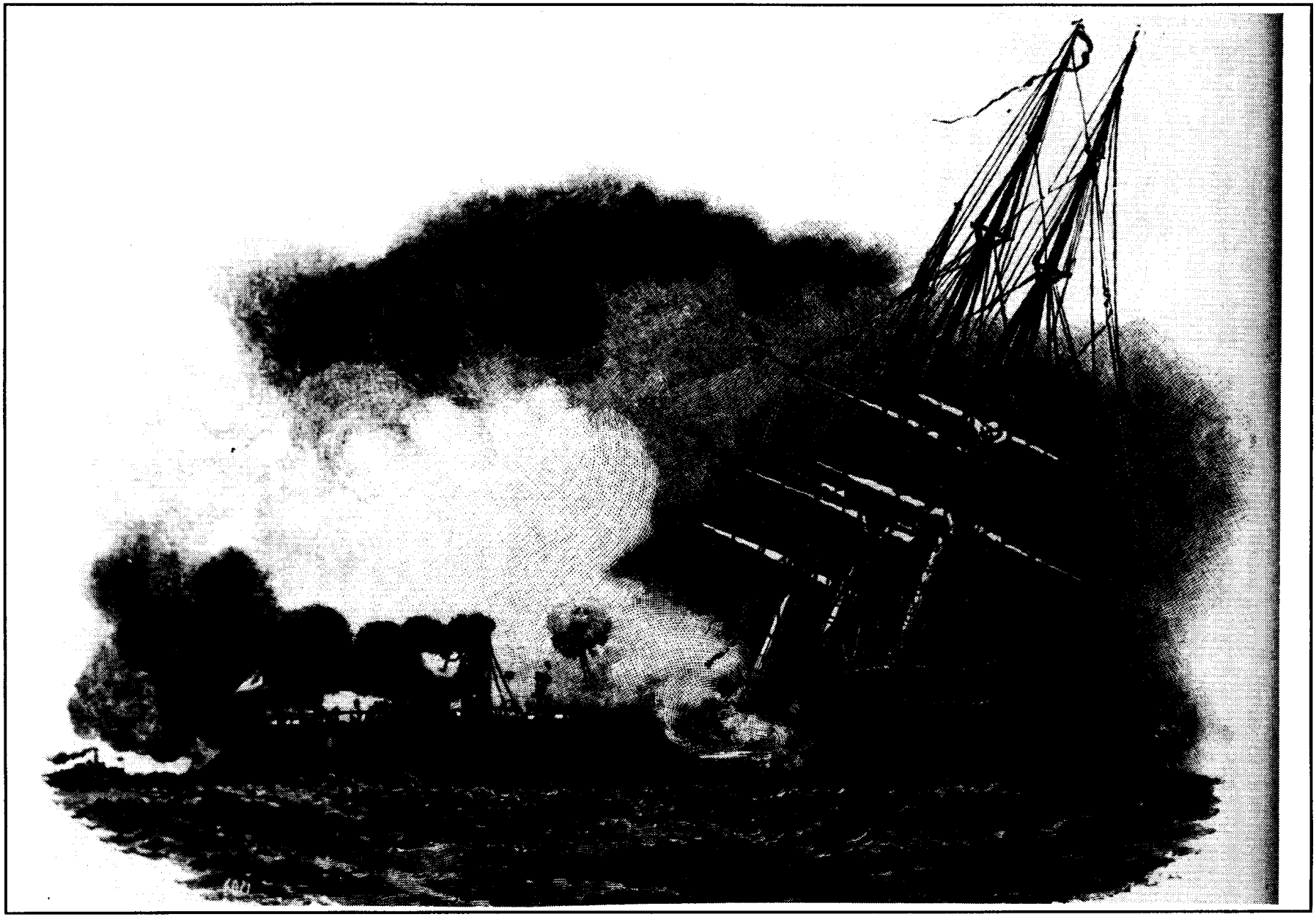


Figure 11. Lithograph of the *Merrimac* ramming the *Cumberland* (Courtesy of the Hampton Roads Naval Museum).

In the ramming and her subsequent efforts to free herself, the *Merrimac* had swung around so that the two ships were now broadside to broadside. It was at this time that the *Merrimac* suffered the greatest injuries she would receive during the entire two-day battle at Hampton Roads. A shot struck her forward port broadside gun, breaking off the muzzle and several feet of the chase, killing one and wounding several more. It was broken off so short that each subsequent shot from the gun set the wood surrounding the gunport ablaze. Another man was killed by a fragment of the anchor chain which was shot away. The muzzle of the after starboard broadside gun was also broken this time (Tindall 1923:31). Nor was this all; her boats were shattered, her flagstaffs smashed, and her smoke stack so badly riddled that engine performance, already less than ideal, was further degraded (Fowler 1982:79; Selfridge 1924:50; O"Neil 1922:865-866; Davis 1975:96).

None of this, however, could make any difference to the fate of the *Cumberland*. Though the pumps were manned, the ship continued to settle, forcing powder to be removed from the forward magazine to the berth deck to keep the gun crews supplied. She attempted to slip her cable, but the men sent to operate the forward compressor to take the strain off the shackle were all killed or wounded. By time it was discovered, the *Cumberland* had become too waterlogged to be moved (O"Neil 1922:866; Selfridge 1924:51). Sinking by the bow with her stern rising, her guns were fired until lack of powder, men to man them or rising water forced their abandonment. The order was given to abandon ship, as water was already "pouring in through the bridle ports" (Selfridge 1924:52). The last shot was fired from the forward pivot gun.

Still on board were the dead and wounded who could not be brought up in time to get the clear of the ship. Cannons were rolling free, and the pivot guns swinging about with the motion of the ship. The rifled 70-pounder broke loose and bounced over the side, crushing one of the crew still floundering in the water (Tindall 1923:31).

The *Cumberland* had gone into battle with 376 men on board. Only thirty of the wounded were saved. Many of the wounded were still trapped below deck when the ship went down. In all, 121 men were carried down with the sinking vessel. The tenacity with which the ship had been fought was recognized by friend and foe alike. The editor of the *Norfolk Day Book*, who witnessed the battle, wrote in his column, offering this tribute two days after the battle:

> A gallant man fought that ship. Gun after gun he fired, lower and lower sunk his ship--his last discharge from his pivot gun-the ship lurches to starboard, now to port, his flag streams out wildly, and now the *Cumberland* goes down on her beam ends, at once a monument and an epitaph of the gallant men who fought her (Tindall 1923:30).

The rest of the Union fleet had not been idle. But at the time the *Merrimac* turned away from the sinking *Cumberland*, all four of the remaining federal vessels

had run aground. When it became clear that the *Cumberland* was doomed and her own ordnance virtually useless, the *Congress* slipped her cable and was taken in tow. If the *Cumberland* had been practically immobilized throughout the battle, the *Congress* was now doubly so. She soon struck her flag. However, an effective fire was maintained from the shore, preventing the Confederates from taking possession. At least one of those shore batteries was now manned by a pugnacious if sodden crew from the *Cumberland* (Davis 1975).

Determined that if the *Congress* could not be captured she would be destroyed, Buchanan ordered her set afire. Hot shot from the *Merrimac* soon had the *Congress* burning out of control. Buchanan, who had been wounded by small arms fire, turned over command to Catsby Jones at this time with a final order to destroy the *Minnesota*. The approach of darkness and the dangers of maneuvering in the shallow water where the *Minnesota* had grounded caused Jones to break off the action, confident that the job could be better accomplished in daylight with a night's rest and repair (Davis 1975:104, 116-117).

That day as the battle was still raging at Hampton Roads, the *Monitor* had come within sight of Cape Henry and by later that night would be along side the *Minnesota* (Daly 1964:31). As illustrated in Figures 12 and 13, the *Merrimac's* battle the next day with the *Monitor* is well recorded in great detail. While the *Monitor* could no longer affect the *Cumberland's* fate, the opposite was not equally true. Thomas Selfridge, who had served so creditably as the *Cumberland's* last Officer of the Deck, was chosen to assume command of the *Monitor* after her captain John L. Worden was blinded during the engagement on March 9. He summed up his impression of the *Cumberland's* contribution to the Battle of Hampton Roads in these words:

> Considering the odds against the *Cumberland* there could have been no dishonor in an early surrender. But what would have been the result? Fresh from the surrender, the *Merrimac* would have destroyed the fine frigate *Minnesota*, which had grounded on her way to assist the *Cumberland*; then the capture of the remaining Federal ships in Hampton Roads, consisting of the frigate *Roanoke*, which had lost her screw, and the sailing frigate *St. Lawrence* would have easily accomplished [sic] during the afternoon of March 8th, and the *Monitor* arriving late that night in bad condition after a stormy passage from New York, would have found herself alone.
>
> But for the assistance rendered by the *Minnesota* in getting the *Monitor* ready for action, the latter could not have put up such a good fight as she did on the morning following her arrival. If the *Merrimack's* smokestacks had been intact, the handicap which she suffered of not being able to maneuver as handily as the *Monitor* would have been much reduced; and when the opportunity to ram presented itself she is likely to have have struck the *Monitor* squarely instead of a glancing

Figure 12. Birds eye lithograph of the Battle of Hampton Roads (Courtesy of the Hampton Roads Naval Museum).

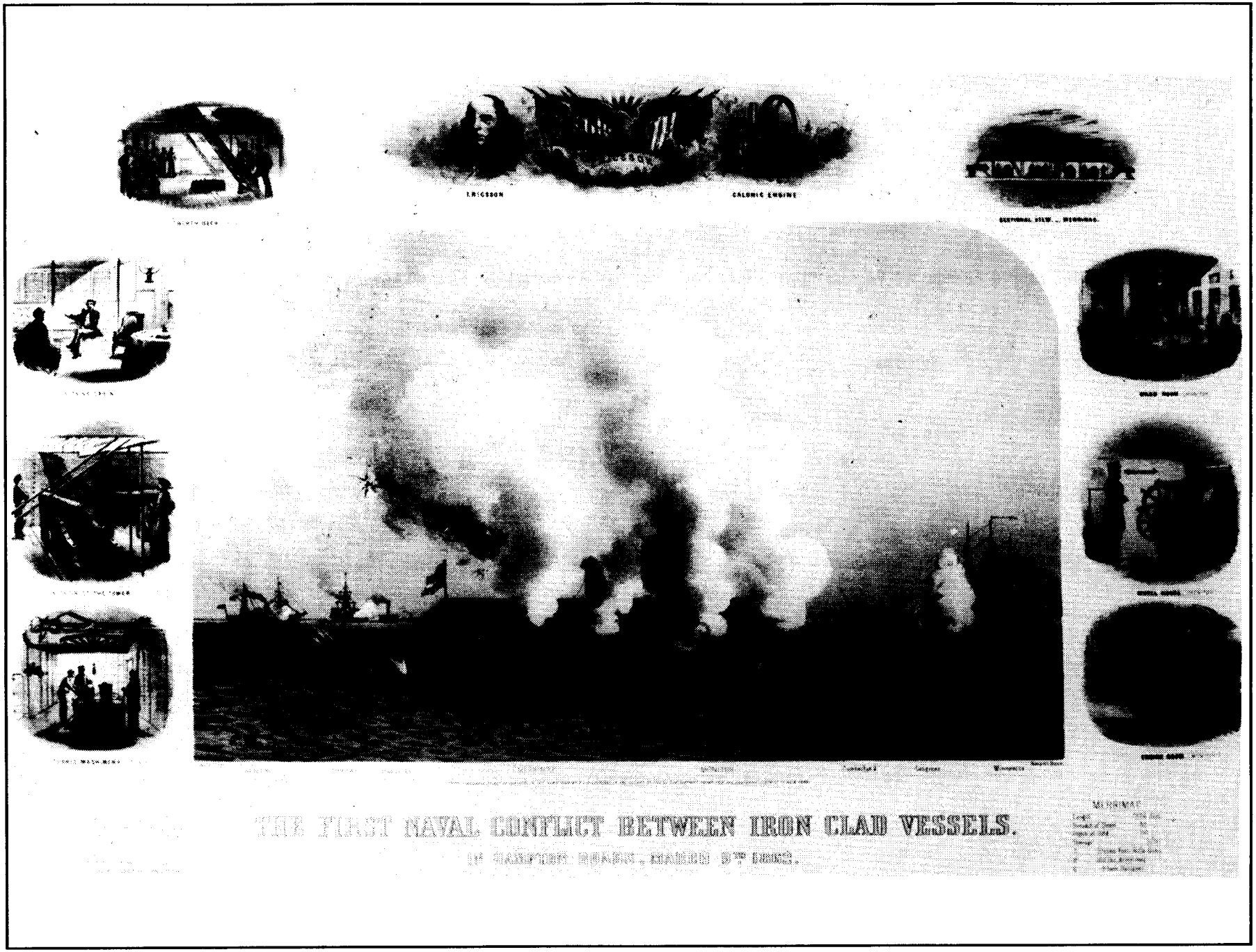


Figure 13. Lithograph of the famous engagement between the *Merrimac* and *Monitor* (Courtesy of the Hampton Roads Naval Museum).

> blow. Moreover if the *Merrimac's* ram had been in place, it is my belief, formed after an inspection of the *Monitor* only a few days later that even a glancing blow would have sunk the *Monitor*. Therefore I am firmly convinced that the great sacrifice made for the honor of the flag by the crew of the *Cumberland*, though it failed to save their ship, resulted in the much greater achievement of saving the fleet, if not the Union (Selfridge 1924:54-56).

The *Cumberland* now rested at the bottom of the channel off Newport News in over fifty feet of water, with just the upper portion of her masts showing from which her flag still flew. But her rest was not to remain undisturbed. Although she had been clearly out-classed by her opponent, the Navy still felt she remained too valuable a ship to ignore. Less than a month passed before plans for salvaging her were under way (National Archives 1921:I, 7, 186). The *Cumberland* was to be addressed before all others, and the contractor was to receive $8,000 "for removing the *Cumberland* and delivering her whole with all she has on board at the Gosport Navy Yard" (National Archives Record Group 45, 177, 4685, 4724). These plans, however, were overly optimistic. The work proceeded with varying degrees of enthusiasm for over a year, and as late as August, 1863, efforts to raise the *Cumberland* were still under way (National Archives Record Group 45, 177, 4911, 4900; National Archives 1921:1, 29, 635). Although still soliciting bids for the recovery of the *Cumberland* as late as November, 1864, it was becoming increasingly clear that the Navy had lost the services of the *Cumberland* for good, and in 1867, the wreck was sold (Bauer 1991:14; National Archives Record Group 45). The *Cumberland* was hence forth regarded as an investment. George B. West, a native of Newport News wrote in 1906:

> I have often been on the boats that worked on the Cumberland, first by a German named West and then by a company of Detroit, Michigan, which purchased her from West and which brought down a great many of the Great Lakes divers to try to secure the $40,000 in gold said to be in an iron chest in the paymaster's stateroom (Bradley 1979:8).

No gold was recovered, and efforts to salvage the wreck ceased. The indignities suffered by the *Cumberland* were not restricted to salvers, however. The *Cumberland* lay at the bottom of James River in the deepest part of the channel only a few hundred yard from active commercial docking facilities. West further recalled that "When...dredging around the wharves, the government allowed the mud to be dropped into this hole in the channel, no doubt now the boat [Cumberland] is entirely covered with mud" (Bradley 1979:8). In 1909, the steam ship *Queen Willimena* snagged her anchor while over the *Cumberland*, and when the anchor was finally brought up, 180 fathoms of stud-link chain stamped with the Washington Navy Yard's mark were found still entangled. To this day, her resting place remains an area of considerable commercial and military shipping activity. Nor has she ceased to be regarded by some as a potential source of wealth.

CHAPTER 3

THE CSS FLORIDA

Confederate Commerce Raiders and Global Aspects of the American Civil War

During the Civil War, the Confederate States resorted to a two-pronged naval strategy designed to 1) destroy and disrupt Union merchant shipping and 2) raise the Federal blockade from Southern ports (Spencer 1983:3). The first aim of the strategy was calculated to be commercially detrimental to the North and help, along with the newest types of armored warships, to achieve the second goal by drawing Federal naval vessels from blockading duties, thereby relaxing the North's stranglehold on Southern trade. Agricultural products, general manufactured goods, and war material could thereby more freely enter and leave the South.

Two distinct types of ships were required to achieve these objectives. The first, cruisers or commerce raiders (Figure 14), were vessels that had to be swift and possess a potential for prodigious bursts of speed by which to extricate themselves from compromising situations. They had to be versatile, capable of being propelled by steam, sail, or a combination of both. They required long-range cruising capability to maximize their time at sea preying on Union merchantmen and to enable them to make efficient and safe use of far-flung foreign and, occasionally, domestic coaling and provisioning depots. Though by definition commerce raiders had to avoid confrontations with enemy warships, they needed to be well enough armed that, if such encounters occurred, they were capable of effectively defending themselves while extricating themselves from harm's way.

Vessels designed to help raise the Union blockade were generally patterned after ironclads similar to France's *Gloire* (Spencer 1983:64-66, 68). Strategists in the South realized that the construction of a navy from scratch was a daunting task, yet it afforded the opportunity to tailor a part of its sea service for particular aims and to counter the obvious strengths of its adversary. Stephen R. Mallory, Confederate States Secretary of the Navy stated that:

> The United States have a constructed Navy; we have a Navy to construct, and as we cannot hope to compete with them in the number of their ships--the results of three-quarters of a century--wisdom and policy require us to build our ships in reference to those of the enemy, and that we should, in their construction, compensate by their offensive and defensive power for the inequality of numbers. This it is confidently believed can be accomplished by building plated or ironclad ships, a class of war vessels which has attracted much attention and elicited great research in England and France within the last five years (quoted in Spencer 1983:3).

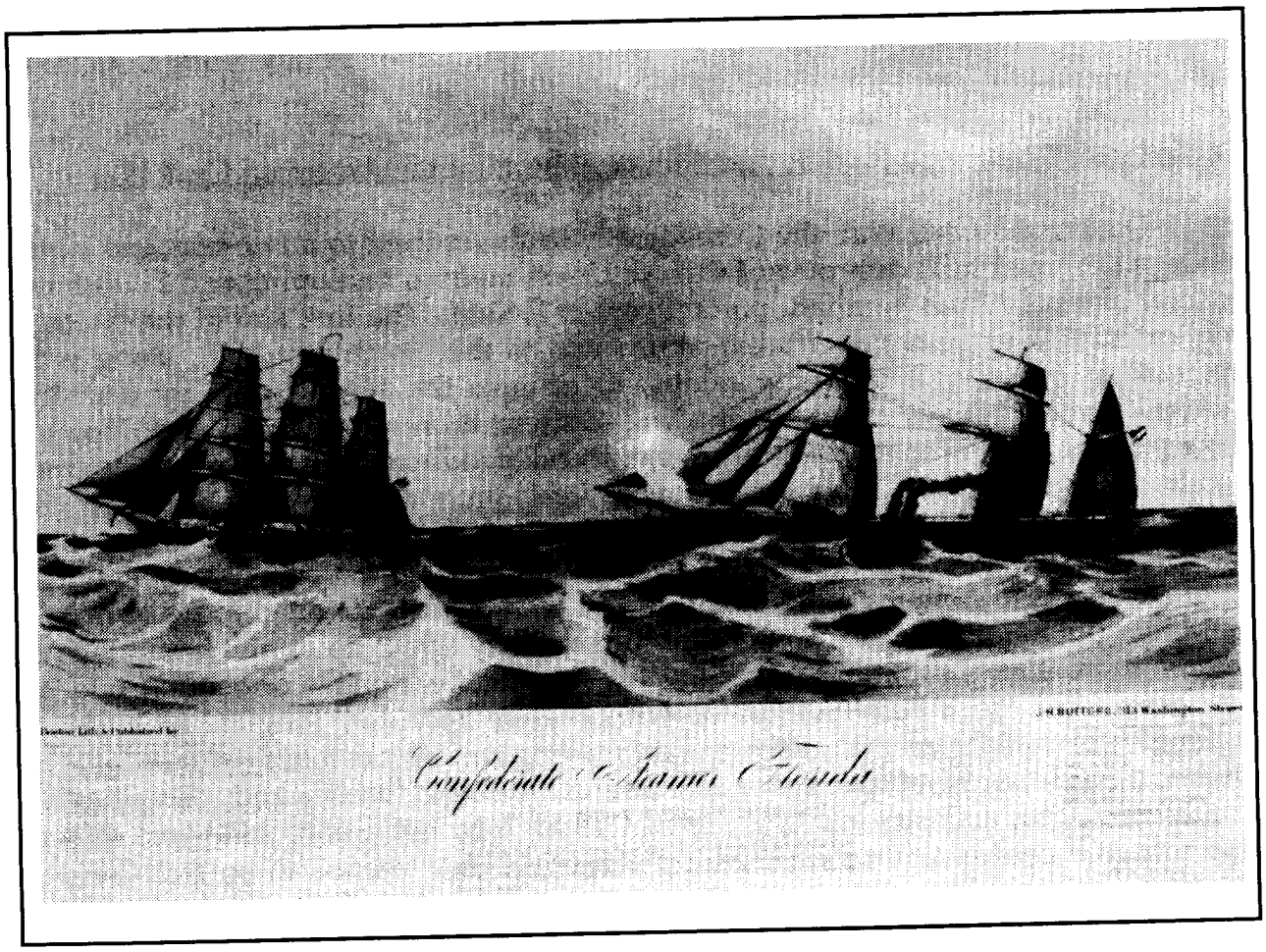


Figure 14. Painting of the *Florida* taking a prize on the high seas (Courtesy of the Naval Historical Center).

Mallory obtained permission from the Confederate Congress to purchase or build in England or France "one or two war steamers of the most modern and improved description, with a powerful armament and fully equipped for service" (quoted in Spencer 1983:3).

Secretary Mallory selected two agents, charged them with acquiring or having built both commerce raiders and ironclads in England or France, and sent them to Europe. James D. Bulloch, a civilian but formerly a U.S. Navy officer, was made responsible for the acquisition of commerce raiders and was commissioned as Lieutenant in the Confederate States Navy (CSN). As such, he was the first Confederate Navy officer assigned to Europe and, as events would prove, Bulloch was one of the single best personnel choices Mallory ever made. Mallory's selection of Lt. James H. North, CSN, as the agent responsible for securing ironclads in Europe, was another story entirely. Because of a number of character defects that rendered him essentially ineffective, North proved to be the worst possible choice for the crucial task.

At the beginning of the Civil War, the Confederate States Navy was in the unenviable position of being a sea service without warships. It was simply not possible for the South to manufacture purpose-built warships at a rate approaching that possible in the North. One way to partially offset this critical discrepancy was to instigate a strategy of *guerre de course*, or general commerce raiding. Essentially, this is a form of naval guerilla warfare that is characteristically resorted to by warring nations with navies comparatively weaker than those of their adversaries. The Confederacy began arming and commissioning merchant vessels for this strategic use as soon as hostilities commenced. Concerning the effectiveness of the this strategy, Owsley states that:

> It is only when all the damage done by the cruisers is totaled that the real significance of these ships is understood. They could not win the war alone, but they were a factor in the battle of attrition. If the Confederacy had done one-tenth as well in other areas, she would likely have been victorious. Their long range effect was disastrous for the United States merchant fleet, and they were certainly the most successful element of the Confederate Navy (1987:164).

Throughout the Civil War, 12 vessels were commissioned as Confederate cruisers, excluding prizes converted to this use. Of this number, only five, *Alabama, Florida, Shenandoah, Sumter,* and *Tallahassee,* were significantly effective (Naval History Division 1971:xxi). Combined, the 12 vessels accounted for a loss to the U. S. merchant marine of over 200 ships with cargoes valued between $15.5 to as high as $46 million, depending on the reference consulted (Owsley 1987:161; Scharf 1969[1887]:782; Watts 1988:220).

War risk insurance premiums increased by as much as 900% (Hayes 1993:5), even though all the damage inflicted amounted to less than 1% of the total value of

Union maritime commerce (Navy History Division 1971:xxi). Another result of the commerce raiders' activities was that many ship owners were forced to either idle their vessels or register them under foreign flags. Consequently, the U. S. merchant fleet declined dramatically; over 1,000 vessels transfered their registry. Some 5,200,000 tons of shipping were American registered at the beginning of the war and, by its conclusion, only 1,600,000 tons remained under the U. S. flag--a reduction of more than two-thirds (Hayes 1993:6).

Long-range repercussions to the U. S. economy stemming from this fact have been particularly significant. The U. S. Merchant Marine has never recovered from these devastating blows which caused America to "turn away from the sea" (Owsley 1987:9-10, 160-161, 163). In a very real sense, "the [Rebel] cruisers were more effective than any other single effort made by the Confederacy during the war" (Owsley 1987:10).

The political ramifications of the South's *guerre de course* were particularly convoluted. Rebel cruisers operating at a global scale on international waters and in the territorial waters of ostensibly neutral nations created intense flurries of activity in capitals around the world. Various levels of political intrigue and diplomatic moves and countermoves were employed by those attempting to either thwart or facilitate Confederate commerce raiding. For example, the North's repeated use of diplomatically arranged delays and purposeful stalling led to logistic and political nightmares for raider commanders and other representatives of the South. Of greatest importance, such tactics resulted in the loss of valuable cruising time and undoubtedly reduced the number of prizes the raiders were able to take and/or destroy.

In the course of the South's war on Union merchant shipping, a number of minor, and some major, violations of neutrality and other international laws unavoidably resulted. Neither side in the exchange was blameless in this regard. Part of the political fallout included the necessity for fundamental redefinitions of formerly mutually accepted and understood international terms, clauses, and accords directly affecting the conduct of war (see discussion below).

The social impacts of Rebel commerce raiding were extremely important considerations. Public morale was as important for the conduct of war then as it is now. Southern warships preying on merchant vessels in U. S. territorial waters and on the high seas heightened general public anxieties, especially along the Atlantic seaboard north of Norfolk.

The seemingly incessant attacks on the U. S. Merchant Marine added greatly to the "war weariness" of the North while the same activities significantly lifted Confederate sentiments. It was understood by most Southerners that the commerce raiders "can do but little in the way of materially turning the tide of war, but...can do something to illustrate the spirit and energy of our people...." Moreover, they could "repay upon the enemy some of the injuries his vastly superior forces alone had

enabled him to inflict upon the states of the Confederacy" (James D. Bulloch to John N. Maffitt, quoted in Naval History Division 1971:II 38 and Spencer 1983:47).

The strategic value of the Confederate commerce raiders was of paramount importance. Indeed, it was principally for this reason that they were commissioned. As a direct result of their activities and in an effort to bring the "piratical" fiends to justice, Union vessels were necessarily diverted from other duties. Thus, the support for the campaigns in which they were originally involved was lessened to that degree. It has been estimated that Rebel cruisers directly or indirectly caused Federal ships equal to ten times their own tonnage to be diverted in this manner (Owsley 1987:160).

Of less direct consequence, but of great importance nonetheless, the actions of Confederate cruisers, particularly *Alabama* and *Florida*, and their methods of logistical supply and operation, served as models for similar vessels in more modern conflicts. There can be little doubt that German U-boat commanders were rapt students of this aspect of the history of naval warfare. In fact, two of the uninhabited islands often used by Confederate raiders, Fernando de Noronha and Rocas in the South Atlantic, were frequented by German submarines on patrol in that area nearly one hundred years later. When considered jointly, the Rebel commerce raiders were responsible for inflicting much more damage to the U. S. than "any other class of military investment made by the Confederacy" (Owsley 1987:8, 10).

The Conception, Birth, and Life of CSS *Florida*

The history of CSS *Florida* is one of the most fascinating stories from the annals of the Civil War. It includes all the riveting elements required in the best tradition of great adventure movies! There was abundant subterfuge and deception, premeditated unlawful international activities, human daring, personalities of heroic proportions, and base, petty individuals. The tale is rife with incidents of courage and bravado, imagination and adaptation, inspiration and cunning, cruelty, disease and death, and sheer luck.

After the outbreak of the Civil War, the South began assembly of a commerce raiding fleet. Following his appointment by Bulloch, James H. North had been sent on a scouting expedition to the Union for potential raiders (Spencer 1983:19-20). Apparently, some Yankee ship owners were willing to sell to the South, regardless of the existing state of war. However, it proved impossible to buy or have constructed suitable vessels in Northern or Canadian ports, and the Confederacy turned to Europe for its fleet. Liverpool was ideally suited as a source of ships to be used as commerce raiders or cruisers (and for other purposes eventually, e.g. Laird rams). One strong affinity was that the Confederate government's loyal and supportive financial agents in Europe, Fraser, Trenholm and Co., were headquartered there. This company was partly owned by concerns in Charleston,

South Carolina. Liverpool was a major entrepôt for cotton, as well as an export center for British and European manufactures destined for Rebel states. As a result, its business and financial interests had developed deep ties with the "cotton kingdom" of the American South (Merli 1970:61). In addition, a significant concentration of pro-South supporters lived in the Liverpool area. Most importantly, Liverpool was, and still is, the site of one of Europe's major shipbuilding industries.

During the war, Liverpool was a principal stage on which a number of dramas were enacted by players from North, South, England, and elsewhere. One of the key performers in the Liverpool theater was James D. Bulloch, the Confederate States Navy's representative in Europe. He was a fascinating individual--driven, imaginative, industrious, and circumspect--and a tremendously valuable asset for the South. His first order of business on arrival in England was to make contact with Fraser, Trenholm and Company. Bulloch readily established a strong and lasting relationship with Charles K. Prioleau, the finance firm's resident manager in Liverpool. To get the Confederacy's ship acquisition and building program off to a rapid start, Fraser, Trenholm and Co. advanced credit before Richmond could actually send funds to Europe. The firm's strong support and the invaluable counsel of its principals was consistently relied upon: "...throughout the war it remained one of the Confederacy's chief foreign assets" (Merli 1970:62).

Within a few weeks after arriving in England in June 1861, Bulloch had negotiated the construction of the first of two specifically designed commerce raiders (*Florida*, ex-*Oreto)* to be built there for the South. Before the end of his second month, he had contracted with John Laird and Sons for the construction of the second raider (*Alabama*) that was to be built to Bulloch's own design. Within five months, he had successfully "demonstrated the feasibility of transoceanic shipments to the South by way of Bermuda." On the same voyage, he highlighted the "porous ineffectiveness" of the Union blockade by easily slipping into Savannah with a government subsidized shipload of war material assembled in England (Merli 1970:63).

The activities of Bulloch and other agents of both the South and North in England and Europe, generally, were constrained by national and international neutrality laws. These were statutes by which proclamations regarding neutrality were issued in response to the outbreak of hostilities between the United States and the Confederacy. They were designed to protect the interests of neutral nations and level the global playing field for the two contestants in the Civil War. Great Britain's Foreign Enlistment Act of 1819 specified that British subjects were forbidden to build, equip, fit out or arm belligerent vessels; they could not enlist on belligerent vessels or contribute to their fighting abilities, nor contract to make repairs on belligerent vessels in excess of simply rendering them seaworthy. They were prohibited from selling coal to belligerent vessels more frequently than once every ninety days, and then only in sufficient quantities for a direct voyage to a

home port. They were strictly forbidden from facilitating the making of war by one belligerent on another from British soil or any crown possessions.

French neutrality laws (based on a series of enactments from 1681 to 1852) contained essentially the same specific points as Britain's Foreign Enlistment Act, with several significant exceptions. The sale of coal to belligerents by French subjects was unrestrained, and belligerent vessels could remain in French ports for a maximum of 24 hours unless specific repairs were required. Moreover, the adjudication of belligerent prizes was disallowed. Great Britain soon adopted the last two provisions in an effort to further distance itself from the conflict.

The Declaration of Paris of 1856, an international accord signed by Britain, France, Austria, Russia, Prussia, Turkey, and Sardinia, "abolished privateering, allowed neutral shipping of non-contraband materials to belligerents, and stated explicitly that for a blockade to be legal and binding, it had to be effective; that is, blockaded ports had to be patrolled by warships of the blockading nation" (Reynolds 1974:351).

In order to effectively sidestep provisions of the various neutrality laws, the South resorted to subterfuge and made advantageous use of numerous legal loopholes. For instance, the dockside name of the first vessel built for the Confederacy in England was *Oreto*. She was ostensibly being constructed for the Italian or Spanish navy; at least, that was the cover story invented by Bulloch and others. A local agent of a prominent Palermo shipping firm was persuaded to supervise construction of the vessel. The builders were never informed of the true purpose or real owners of ship; all arrangements had been made in Bulloch's name only.

Oreto's (or, eventually, *Florida's*) design was based on a British dispatch gunboat model of William C. Miller and Sons Company of Liverpool. This plan was modified by making an addition to the vessel's length and a significant increase in its sail area. The resulting design called for a three-masted, bark-rigged wooden hulled vessel with a length overall of 191 feet, a beam of 27 feet, and a depth of hold of 14 feet. The ship's displacement was close to 700 tons. Figures 15 and 16 illustrate deck plans, profile, and lines of the *Florida* produced from the original builders model.

Oreto was built entirely of wood. Though wooden ships were more expensive than iron ships because of the timber shortage in Britain, they were far easier to repair in foreign ports (Owsley 1987:18). Since wooden vessels were comparatively versatile and could be easily converted for a number of uses, it was more difficult to determine the builder's ultimate purpose than for specifically constructed iron-hulled ships. Also, the decks of iron ships were not as strong as those of wooden vessels--an important consideration when mounting cannon on board. This model was chosen because it possessed most of the required characteristics of hull shape, performance potential, and stability as gun platform.

Importantly, Miller and Sons already had scale plans of this type of craft, which could save considerable time, effort, and expense leading up to construction (Owsley 1987:19).

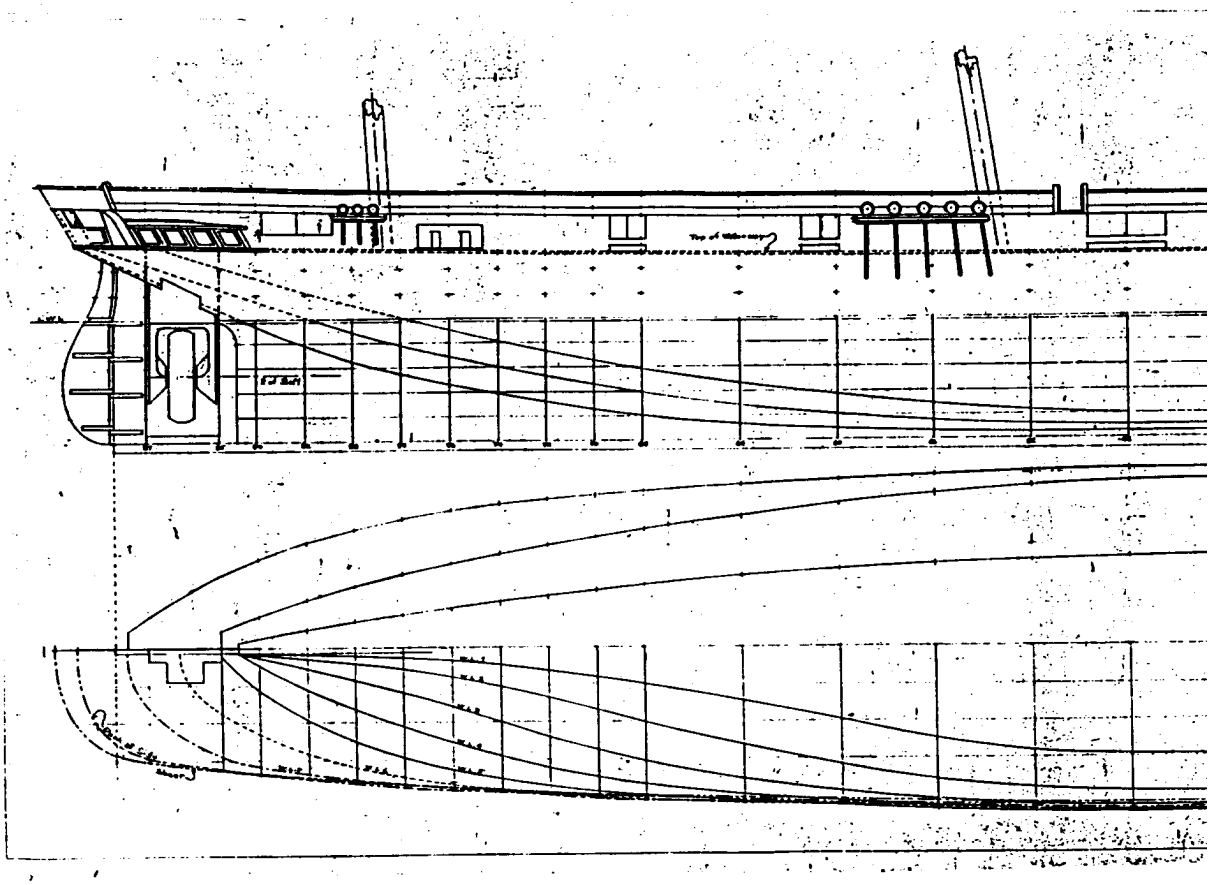
There were several reasons for constructing vessels with increased length and coal-carrying capacity. Confederate cruisers could not depend on their own ports because of the Union blockade, and the fact that they were not allowed into foreign ports for refueling and resupplying more frequently than once every ninety days due to neutrality laws, further strengthened their need for increased range. From an economic and military standpoint, the less time spent in ports and the more days at sea, the more damage commerce raiders could inflict on enemy shipping (Owsley 1987:18-19).

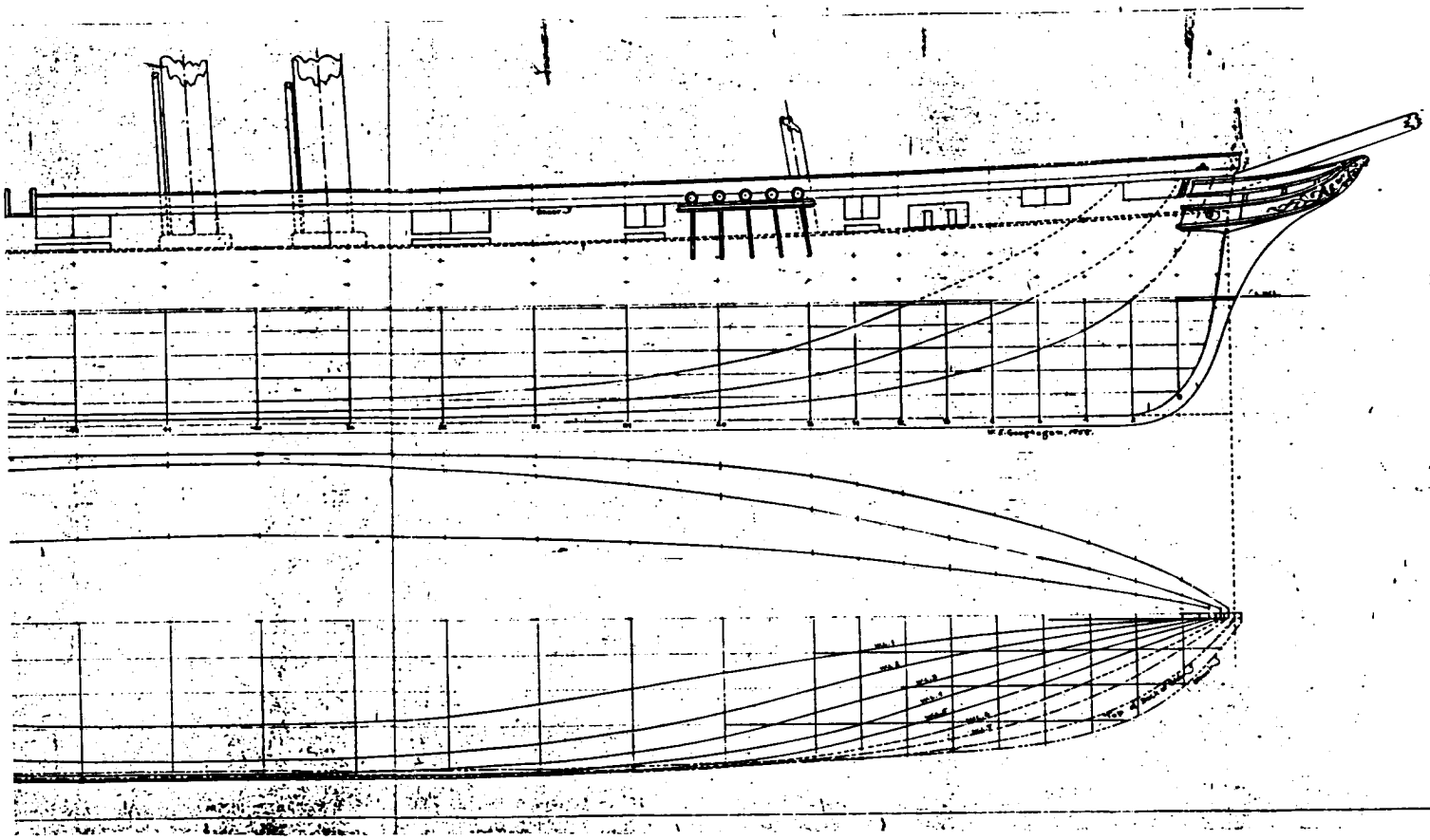
The production and installation of *Oreto's* machinery was sub-contracted to Fawcett, Preston, and Company of Liverpool. She was equipped with two 100-horsepower horizontal direct-acting steam engines with 42-inch diameter pistons and a two-foot stroke. *Oreto* was fitted with a unique double bladed screw propeller that was retractable when not in use, thus reducing drag and maximizing the propulsive efficiency of her sail rig. She sported a pair of smoke stacks set amidships that were collapsible and could be lowered to the weather deck (Figure 17). This capability came in very handy several times during her sea service and may well have prevented the ship's untimely demise (see below).

Bulloch's eventual plans called for *Florida* to be armed with six 6-inch Blakely rifles, two 7-inch Blakely rifles on pivots fore and aft of the twin stacks amidships, and one 12-pound Howitzer. With this configuration of ordnance, she fired a total broadside of 360 pounds (Owsley 1987:190).

Construction of *Oreto* (*Florida*) and Laird No. 290 (*Alabama*) severely overextended the Confederate financial resources then available. Bulloch was forced to return to Richmond to confer with superiors and establish easier methods of transfer of funds and firmer payment arrangements. He bought the steamer *Fingal*, loaded it with war material, and successfully ran through the Union blockade at Savannah. One aspect of the story is significant here: The heavily laden *Fingal* ran aground in the Savannah River and Lt. John N. Maffitt, CSN, an experienced blockade runner, was on hand to offer assistance. Bulloch was impressed enough to suggest to the Navy Department in Richmond that Maffitt be assigned to command one of raiders then under construction in England (Stern 1992:114).

Bulloch's five-month absence from England (October 1861 to March 1862) resulted in a serious crisis concerning the command of the first British-built ship. Bulloch himself was originally to have assumed her command, but knowing that the vessel might be completed before his return to England, he made alternative arrangements. Charles Prioleau of Fraser, Trenholm and Co. had been given power of attorney by Bulloch before his departure from Liverpool and was instructed to





Body

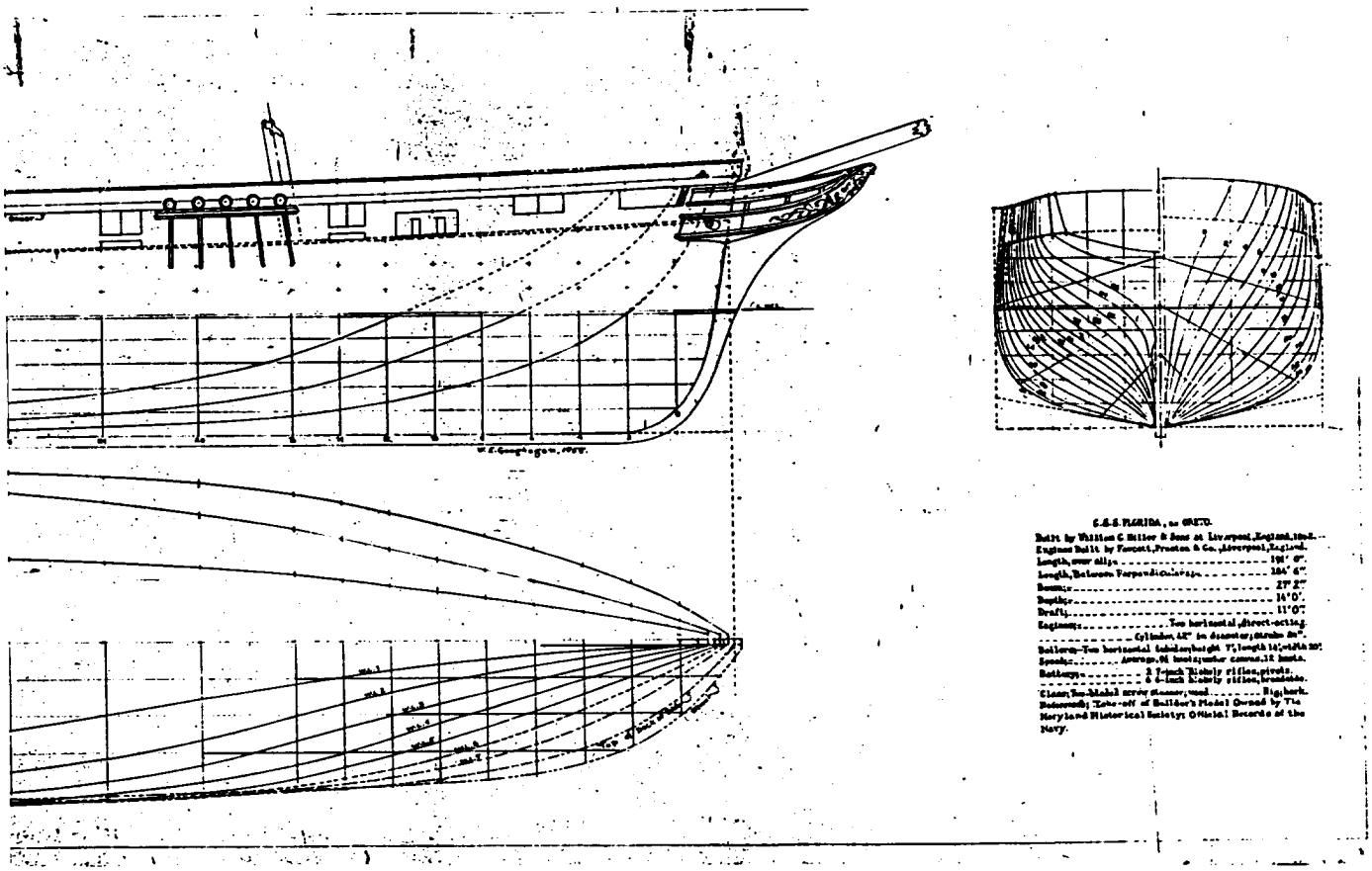
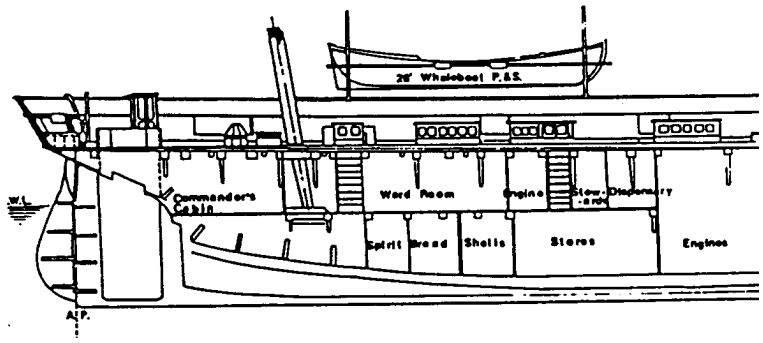
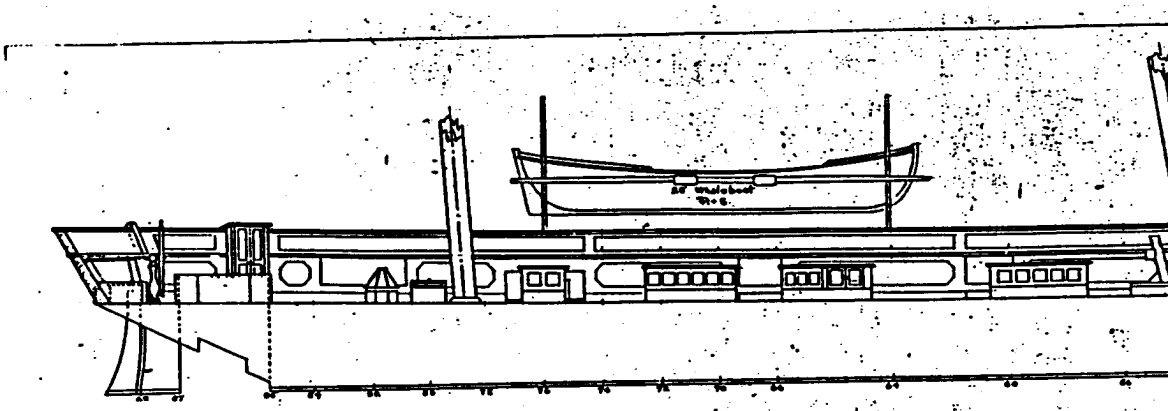
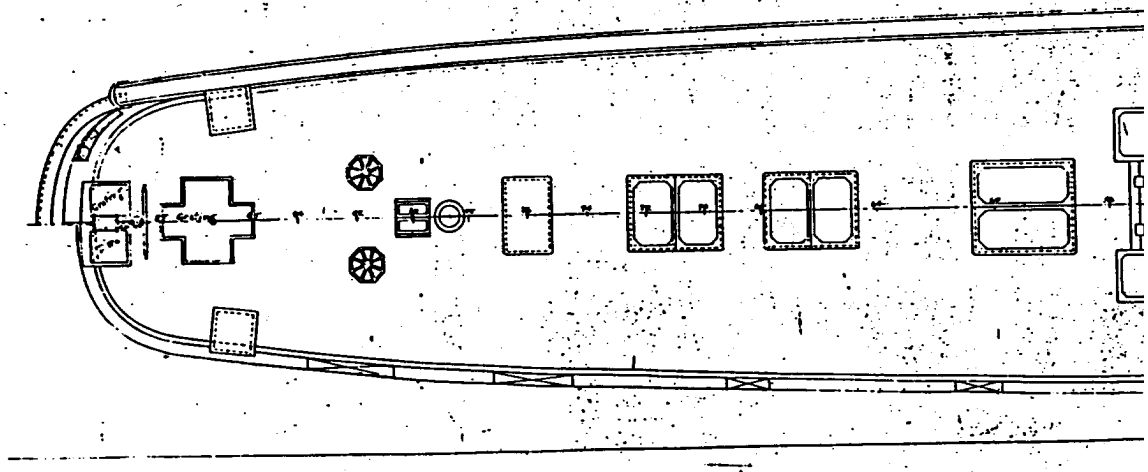


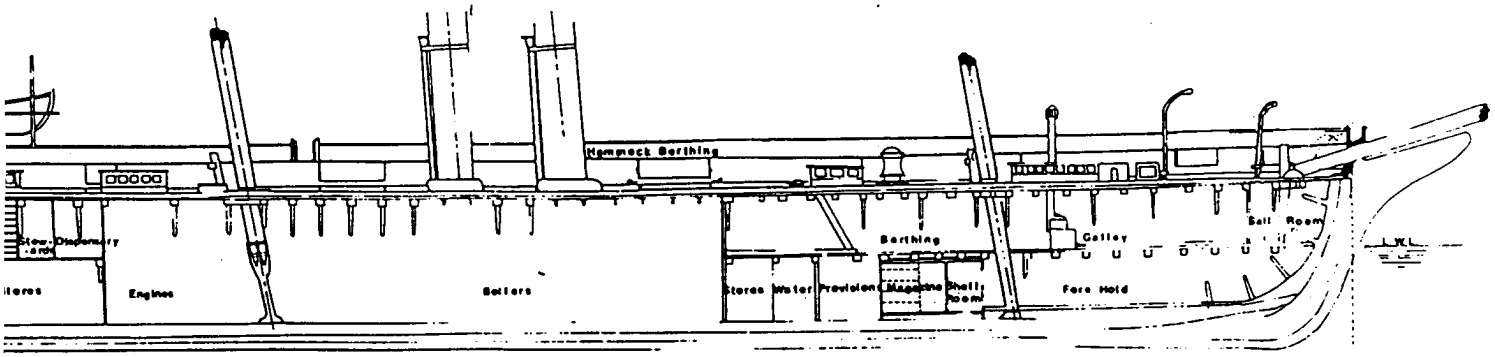
Figure 15

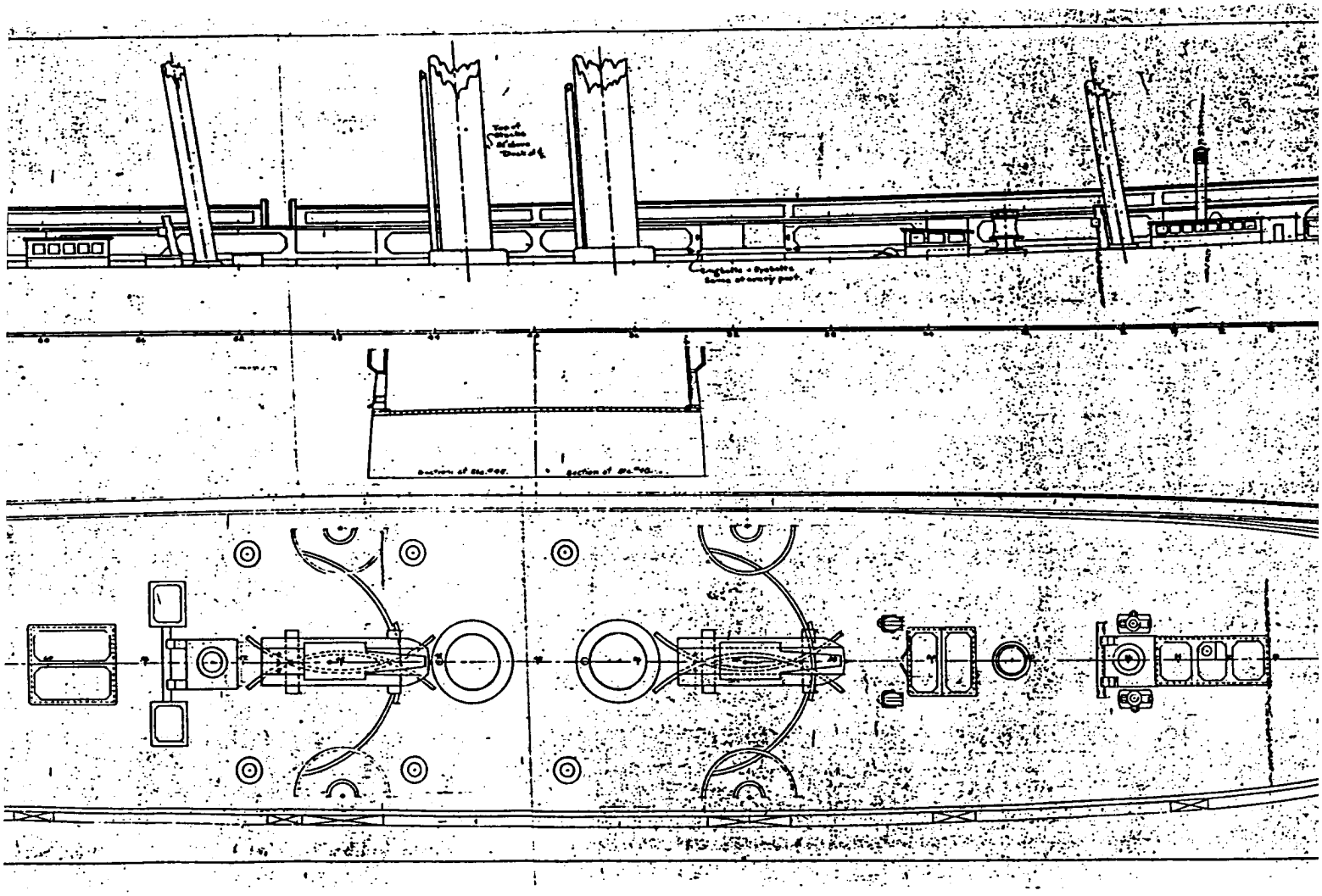
Body, Sheer, and Half-Breadth Plans of the *Florida*
(Courtesy of the Merseyside Maritime Museum)


28' Whaleboat P.&S.
Commander's Cabin
Ward Room
Engine
Store
Dispensary
Spirit
Bread
Shells
Stores
Engines
W.L.
A.P.


28' Whaleboat P.&S.







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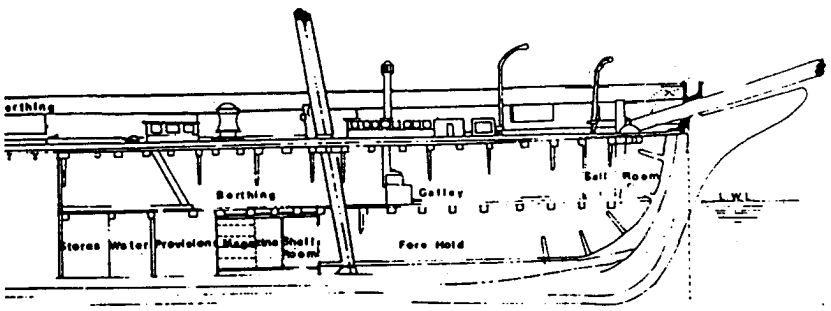

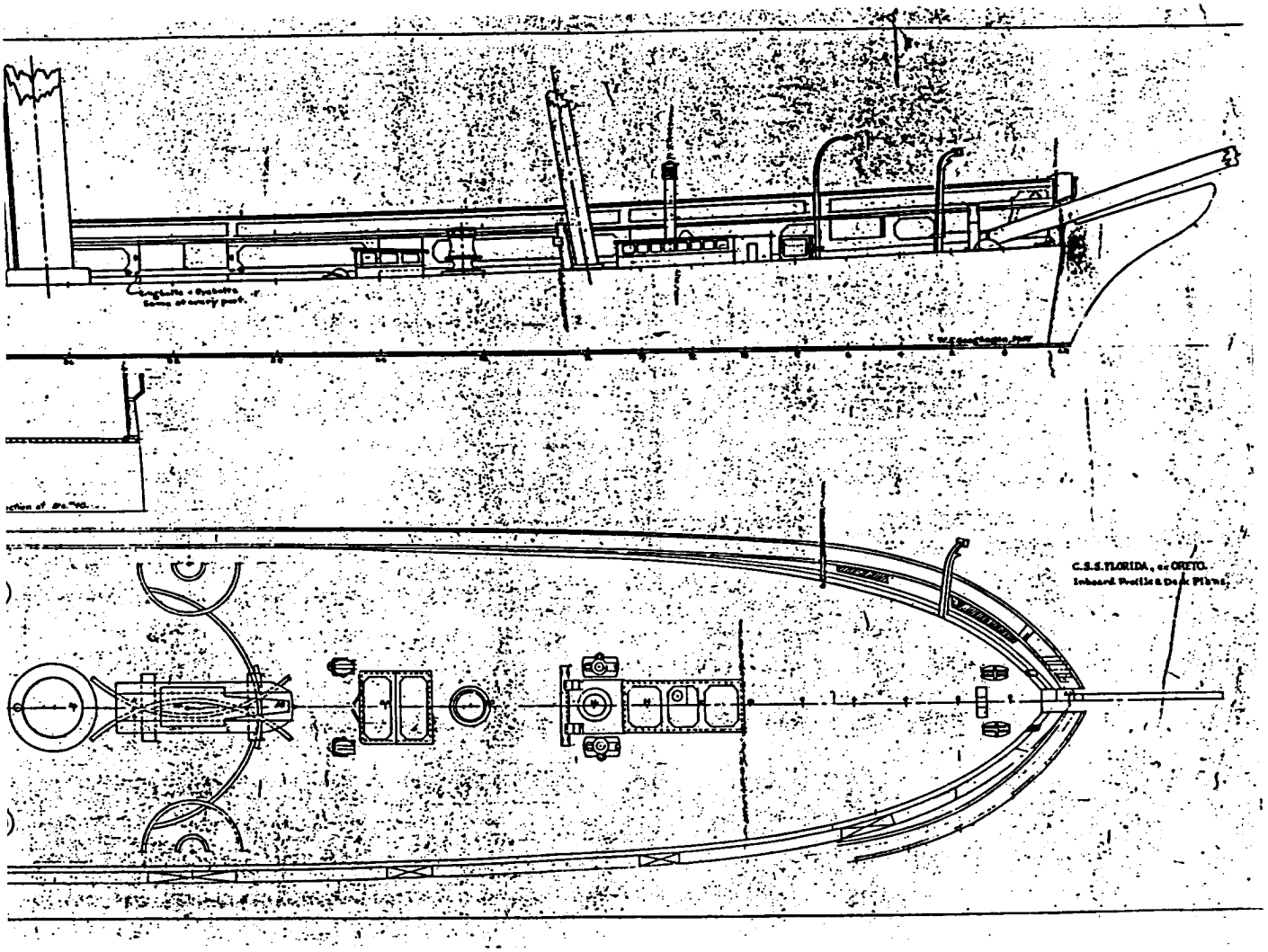

Figure 16

Profile, Gun Deck and Deck Plans of the *Florida*
(Profile and gun deck plan courtesy of the Merseyside Maritime Museum, deck plan as presented in Owsley 1987)

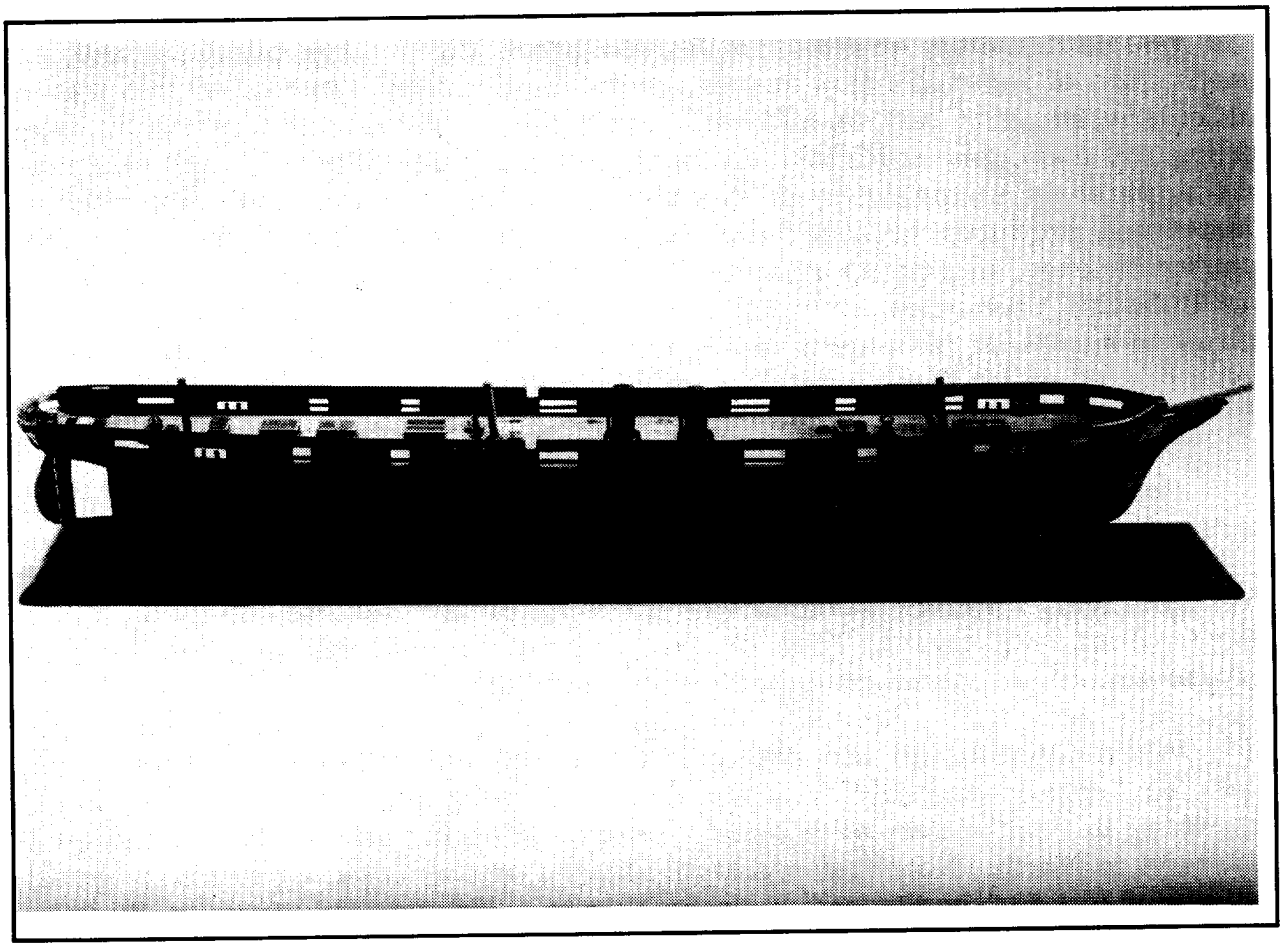

Figure 17. Photograph of the original builder's model of the *Florida* (Courtesy of the Mariner's Museum).

deliver *Oreto* to any Confederate naval officer available when the ship was ready to depart.

Lt. James H. North had been selected as commander for the second British-built vessel, *Alabama*, and was in Europe arranging for the purchase and/or construction of ironclad naval vessels for the Confederacy. In reality, this was a particularly daunting task that North was simply not capable of tackling; he was particularly ineffective at his job. Lt. North had a number of conflicts with Bulloch that apparently stemmed from resentments about his superior's formidable competence, productiveness, and organization. These were in stark contrast to his own inefficiency, incompetence, and disorganization. Exacerbating the situation was Bulloch's promotion over him to Commander CSN, furthered by Bulloch's refusal to surrender his papers and plans to North before his trip to Richmond. North had asked for them, ostensibly, so that if some accident befell Bulloch on his trip to the South, the work would continue uninterrupted.

Bulloch had informed North of plans for the *Oreto* (*Florida*) and implied that he might be appointed her "fortunate" commander. Indeed, while Bulloch was in Richmond, eventual command of *Oreto* was transferred to North because naval authorities feared Bulloch would not return to England to assume command at her delivery from the shipyard. These orders never made it to North, who continued to prepare himself to assume command of the second ship.

When construction and fitting of *Oreto* was completed and the ship was ready to depart, especially with suspicious Union diplomats and spies doing everything in their powers to delay departure or cause her seizure, Prioleau offered command to North. North refused and indicated he was adhering to his (original) orders and thought she was still Bulloch's ship to command. Additionally, Prioleau insisted that *Oreto* be taken out of British territory completely unarmed and with no other war material on board. In spite of British neutrality laws stipulating exactly such conditions, Lt. North unwisely declined "to take charge of an empty ship" (Merli 1970:67). After his return to Britain, Bulloch once again offered North command of *Oreto*, but he refused again, this time more out of spite and because of ill will rather than for any viable military reasons.

The U. S. State Department made every effort in its power to inhibit the global activities of Confederate commerce raiders and naval vessels. It informed its representative at various capitals around the world to proclaim the official U. S. position that all civilian and military representatives of the South were to be considered outlaws in active rebellion against the legally constituted government of their country. As a result, all ships flying the Confederate flag were outright pirates that should definitely not be supplied at any port and should, they suggested, be interned for the duration of hostilities in their current port of call. Much to the State Department's chagrin, a number of countries officially recognized the Confederacy as a belligerent in a legitimate civil war and not merely as an "organization" of outlaws. This fell far short of being an official recognition of

independent nation status. The size of Confederate armies and the organization of its government were criteria considered for this recognition. Also, the establishment of the Union blockade, as per Lincoln's proclamation, in Southern ports added in securing this recognition. According to international convention, a nation cannot blockade its own ports; therefore, Southern ports were non-U. S. and the Confederacy was deserving of limited political recognition. Consequently, Rebel vessels were allowed to resupply and repair in foreign ports without any modifications to their armaments, adhering to any other specifications deemed appropriate.

Liverpool attorney F.S. Hull was retained by Bulloch early on to analyze the legal issues involved in a then hypothetical, but, certainly, imminent test of the Foreign Enlistment Act of 1819 and other binding, but re-interpretable, neutrality laws. Actually, this analysis was used to help devise methods of avoiding trouble with British authorities (Owsley 1987:20-21), something Bulloch was intent on from the outset. Understandably, he wanted to draw as little attention to his activities as possible. Hull's consultations with prominent British legal minds regarding the status of Confederate ships constructed in England resulted in a consensus "that a ship could be legally built, regardless of the intended use of such a vessel, provided the ship was not equipped [with guns and ammunition] for war within British waters" (Owsley 1987:20-21).

By strictly adhering to this consensus and being very circumspect with building contractors about the ultimate purpose of these vessels, Bulloch was able to avoid British seizure of both *Oreto* and No. 290, *Alabama* (Owsley 1987:21). Apparently, Bulloch successfully diverted attention and suspicion. The U. S. Minister to Britain, Charles F. Adams, did not show particular interest in *Oreto* until some four months after construction began. By the following month, Adams was convinced Confederate vessels were being constructed in England, but he was uncertain which ships were involved; his intelligence reports were speculative and filled with errors concerning vessel names and details of construction (Owsley 1987:21).

Thomas H. Dudley, United States Consul in Liverpool, finally had enough firm doubts about the vessel to forward to Adams in London, who in turn made demands on Lord John Russell, the British Foreign Secretary. An investigation ensued in which the builders honestly claimed that, as far as they knew, she was intended for the Italian government. Customs authorities stated that because *Oreto* looked like a gunboat, she raised suspicions and had been closely watched; they too had been told she was to be sold to Italy and really had no reason to believe otherwise. Obviously, Bulloch's circumspection and secrecy were very effective. Customs officials noted that "regardless of who owned the vessel, she could not be seized because she had violated no law...had no guns, gun carriages, or munitions of any kind on board and, therefore, was a perfectly legal ship" (Owsley 1987:22).

Lord Russell and Consul Dudley arranged for continued surveillance of *Oreto*, but Dudley's investigations produced no firm evidence by which Britain could seize and condemn the vessel. Russell eventually learned that the Italian government knew nothing of the ship, and he told U. S. Minister Adams that if it could be proved she was a warship, she would be seized and condemned. To prove that, however, she must be armed (Owsley 1987:23). Thus, Russell's and his government's opinions of a violation of the Foreign Enlistment Act mirrored the consensus previously provided to Bulloch by his lawyers. The discovery of the true nature of *Oreto* was simply made too late for Minister Adams, or anyone else, to "conclude any action against her while she was still in Britain, although the later trial of the vessel at Nassau would indicate this made little difference" (Owsley 1987:23).

Bulloch returned to Liverpool in March, 1862, from his five-month trip to the Confederacy to find *Oreto* still in Liverpool. He was certain she should have left before his return, and it was now absolutely imperative that she get to sea as quickly as possible. Certainly she could not have remained there, her construction completed for more than a month, without attracting unwanted official attention. Bulloch engaged an English merchant captain, James Duguid, and crew to take *Oreto* to her supposed owners in Palermo. All appropriate sailing articles for that voyage were filed with a stop in Palermo enroute to the West Indies.

Bulloch had cunningly crafted a plan to get ships built or acquired in Britain into the service of the Confederacy without violating any British neutrality obligations. The vessels were to depart without any types of weaponry or war material on board. Artillery, munitions, and accoutrements were sent out on separate vessels, and arming and supplying took place clandestinely at a prearranged rendezvous. This scenario was utilized successfully by Bulloch for a number of vessels, including *Oreto* and *Alabama*.

Bulloch resorted to other ruses to avoid heightening United States and British anxiety levels and to confuse the intent of departure from curious eyes and ears. *Oreto* had previously been taken on a number of excursions out of port. On March 22, 1862, she again left the River Mersey anchorage with flags aflutter and several ladies and other visitors on board for what appeared to the numerous casual and few curious observers on shore to be just another trial run. Unbeknownst to any of them, she had already officially cleared port and was outbound (Owsley 1987:24).

The ladies and most visitors were ferried to shore in small boats prior to leaving the harbor. All but one of the remainder disembarked in the pilot boat. This gentleman, "Mister" John Low, was actually a Confederate States Navy Lieutenant hand picked by Bulloch to protect Confederate interests and assure delivery of the ship to Lt. John N. Maffitt or, if Maffitt were unavailable, any other qualified CSN officer awaiting assignment in Nassau. In addition, he was instructed to compile a detailed log of the ship's performance under sail and steam (Merli

1970:68-69). Low recorded an average speed made good under sail of 12 knots, with a maximum speed of 13.5 knots; average speed under steam was 9.5 knots, with a maximum of 10.5 knots (Merli 1970:70).

Only the officers on board were aware that the vessel's destination was not Palermo, as officially recorded. After some ten days at sea, the crew realized they should have reached Gibraltar; understandably, tensions on board began to escalate. Low was seen by the crew to have as much apparent authority as Capt. Duguid, and running without lights the last four nights of the voyage served only to heighten suspicions and tensions still further. *Oreto* arrived at Nassau on April 28, 1862, 37 days out of Liverpool. The crew was not given customary shoreleave after arrival, and this, along with the crew's insistence that they be told the true destination of the ship, led to near mutiny (Owsley 1987:24-26).

A large proportion of the crew quit after arrival in the Bahamas. It was rumored that they were enticed with Yankee gold to leave *Oreto* and afterward related intriguing information to port officials (Merli 1970:70). Or, as Owsley (1987:26-27) states, the crew was ordered off the ship by Capt. Duguid after disputes regarding his breaking of the original shipping articles and payment of final wages reached a crescendo. Some crewmembers reportedly went to a Royal Navy commander. The extent of their revelations to him is unknown, but this officer was a principal in subsequent events in that port.

The appearance of the suspicious ship in Nassau Harbor was the cause of considerable concern for Union diplomats. Samuel Whiting, U. S. Consul at Nassau, repeatedly claimed that *Oreto* was being armed for hostilities against his country in direct violation of neutrality conventions and demanded that British officials immediately seize the vessel (Owsley 1987:24).

The first British inspection in response to Whiting's demands was on May 1. Results from this and at least two subsequent inspections revealed that although *Oreto* had shot lockers and magazines but lacked cargo space, she was unarmed and, therefore, definitely not in violation. She was, in essence, a purpose-built warship awaiting instruments of war, but because she lacked those destructive implements, she was not legally a warship and could be neither held nor condemned. This was a very convenient loophole utilized repeatedly by the Confederacy. However, pressure from Consul Whiting, Royal Navy officers involved in surveillance of the ship, and others finally resulted in the British Governor ordering the first of three seizures of the vessel in Nassau for supposed violation of the Foreign Enlistment Act (Merli 1970:70-72; Owsley 1987:25-30; Spencer 1983:44).

Requests by the United States Consul for the matter to be tried before an admiralty court were quickly granted by the Governor. Before the court could condemn the vessel, three facts had to be proven: 1) that alleged equipping of the vessel with war materiel had been carried out within the jurisdiction of the court; 2) that there had been intent for the vessel to be employed by the Confederacy; and 3)

that there had been express intent to commit overtly hostile acts against U. S. citizens (Merli 1970:71).

Crown lawyers were incapable of proving any of these facts, and the admiralty court released the vessel to its owners on August 7, 1862, with the stipulation that there had been reasonable grounds for seizure, and all parties were to pay their own court costs. Here was yet another vindication of the legal opinion obtained from Bulloch's lawyers in preparation for just such occurrences and of Bulloch's foresight, generally. This finding essentially nullified the British Foreign Enlistment Act of 1819, for there was little chance of the intent to arm another vessel as a belligerent ever being so strong as in the case against *Oreto* . Therefore, with such a precedent firmly established, no similar prosecutions were likely to be instigated and, if initiated, were certainly doomed to fail (Merli 1970:71-72).

Meanwhile, Maffitt, who because of inherent communications problems between the South and its European agents, was as yet unaware of his next assignment as commander of the newly delivered Confederate cruiser. He had routinely arrived in Nassau in the course of his blockade running duties and, when he learned of his new orders, readily accepted command of *Oreto*. He immediately initiated decisive actions to extract the ship from the increasingly perilous legal conditions in port.

As per Bulloch's plan to legally arm the first British-built commerce raider, the steamer *Bahama* had arrived in Nassau separately from Scotland in early May with a load of armaments, ammunition, and other ordnance supplies for *Oreto*. Lt. Low, very skeptical of the positive outcome of the events then unfolding in Nassau, cautiously ordered her valuable and potentially damning cargo stored in a bonded warehouse (Merli 1970:70). Pending the successful outcome of the admiralty trial, the ordnance was loaded aboard the schooner *Prince Albert*, and she was spirited out of the harbor to await *Oreto* at a nearby uninhabited island (Owsley 1987:32).

Maffitt had assumed complete command of the vessel, a fact that he had requested to be confirmed by Confederate naval authorities--there was still a bit of confusion about who was, in fact, supposed to be in command--and within 24 hours of the admiralty court's decision and subsequent release of *Oreto*, the ship hastily departed from Nassau. However, surveillance by Union and British operatives had been so intense, he had been unable to load arms or equipment or recruit a complete crew, for crew recruitment would have been in violation of neutrality conventions. He was forced to sail with 20 hastily acquired men rather than the normal complement of 130 (Stern 1992:115).

Of course, the presence of *Oreto* in the Bahamas, her transparent cover story, and the high-profile trial had attracted the attention of the U. S. Navy, which had diverted a number of warships to patrol the area in hopes of capturing her before she could commence active raiding. Maffitt knew of this, and it was impossible to overlook the presence of *R. R. Culyer*, a U. S. steamer observing *Oreto* in Nassau

harbor. When Maffitt took *Oreto* out of port on the day following the court decision, *Culyer* went in pursuit. Maffitt, quickly realizing this, anchored his ship near a British warship at the harbor entrance. *Culyer* steamed around *Oreto* several times, and, for some reason, the commander of HMS *Petrel* ordered the Union vessel to return to the harbor or leave British territorial waters; thus *Culyer* put out to sea. Maffitt feinted a course to the northwest for Charleston, South Carolina, which *Culyer* mirrored, but *Oreto* was quickly brought up to anchor in the shadow of Hog Island, present day Frazer's Hog Cay, about 36 miles northwest of Nassau. When *Culyer* soon slipped over the horizon, Maffitt upped anchor and turned *Oreto* westward, coasted along the island, and turned south at its western tip. *Prince Albert* met with the steamer there and was taken in tow to Green Cay, an uninhabited island some 75 miles south by east of Nassau. Because of the small crew size, rendered even smaller by the dreaded outbreak of yellow fever they had been exposed to in Nassau, the laborious task of trans-shipping the six 6-inch and two 7-inch Blakely rifles, the 12-pound Howitzer, and their mounts, munitions, and other stores in the blazing August sun required seven days to complete. Even officers were forced to join the backbreaking efforts. Before they completed the transfer, one man had died of yellow fever and several others were completely incapacitated by the malady.

Finally, loaded with all her armaments, except for key gun components (rammers, sponges, sights, quoins, and elevating screws) that were unexplainably not aboard the tender, *Oreto* was officially commissioned as CSS *Florida* on August 17, 1862, and sailed under a Confederate flag for the first time. However, she did not then sail proud: the missing critical gun components rendered the cruiser unarmed and defenseless, and her bedraggled skeleton crew (13 men, 14 officers) carried the scourge of yellow fever with them. As yellow fever continued to spread among the crew, it soon became obvious that the ship was in peril. Two days after her commissioning, Maffitt was forced to put *Florida* into the Cuban port of Cardenas for medical assistance (Owsley 1987: 35-36; Stern 1992:115).

Maffitt, as well as most of the crew, was stricken with yellow fever and all those afflicted were removed by the Spanish authorities to hospital facilities ashore. Maffitt was so delirious with fever that he had no recollection of the week of August 22-29 (Stern 1992:115). Six crewmen died and were buried there, including Maffitt's stepson. The sickly crew was supplemented by a dozen recruits signed on in Cardenas and a sympathetic Georgian surgeon who had resigned his position with the Spanish government and came aboard as ship's doctor (Owsley 1987:36).

Meanwhile, the Union navy had learned of the *Florida's* location, and a number of warships were prowling outside Cardenas. Maffitt was resigned to sail to Havana to pick up more crew and, hopefully, enough of the missing ordnance components to make a few guns serviceable. *Florida* was able to slip out of Cardenas on August 31 as the Union warships pursued and fired on a Spanish mail steamer they had mistaken for *Florida*.

She arrived in Havana the next morning but found no potential crewmen available and the Spanish government unwilling to furnish any supplies that would make her guns functional (Owsley 1987:37). Thus thwarted, Maffitt decided to run the ship to the nearest Confederate port, Mobile, Alabama, for crew and supplies. He had been informed that there were only three Union vessels presently blockading the tricky entrance to that port. *Florida* cautiously left Havana on the evening of September 1, skirting the north coast of Cuba until well clear of the area and the several Union warships known to be patrolling there. The voyage north across the Gulf of Mexico was uneventful.

On the afternoon of September 4, *Florida* sighted Fort Morgan at Mobile Bay and two of the three ships in the blockading squadron. The steamers *Oneida* and *Winona* were strategically located astride the entrance to the main channel. Effectively unarmed and with minimal functional crew, Maffitt, who was feverish and had to be carried to his command post on deck, decided on a daring plan to attempt to fool his adversary.

Florida was built on a British gunboat design, and to even the interested observer, she was as good as British (Figure 18). Combined with fallout from a recent affair involving a U. S. vessel firing on, boarding, and removing Confederate diplomats from an unarmed British merchantman, Maffitt figured that the proper measure of confusion might cause the Union commander to hesitate before opening fire on a seemingly British ship (Owsley 1987:38-39; Merli 1970:72, 74-85). He ordered the British flag hoisted, and he steamed toward the guardships, making directly at *Oneida*, the squadron flagship, as if to properly request permission to pass the blockade. *Oneida* moved to intercept and, when *Florida* failed to reduce speed, was forced to back down. As *Florida* closed to within 100 yards, the first warning shot was fired across her bow. When she did not show any indication of altering her course, the second warning shot was fired, followed closely by a full broadside from *Oneida* at point blank range (Owsley 1987:38-42; Stern 1992:116).

A murderous barrage erupted as the Union vessels--the third guardship had by now joined the fray--pounded *Florida* with concentrated fire as she sped past them into the bay. Most of the initial damage to *Florida* was in her standing and running rigging. However, the Union gunners were able to strike her in more vulnerable areas. An 11-inch shell entered the port hull about three feet above the waterline, passed through the port coal bunkers, and struck the port forward boiler, taking off one man's head and wounding nine others as it traveled down the berth deck. Had this shell exploded, which it failed to do, it would probably have ended *Florida's* career (Stern 1992:116). Immediately after, several other shells, including another 11-inch shell from *Oneida*, exploded in other parts of the hull and caused more damage to the rigging. Maffitt ordered the British colors struck and the Confederate flag run up. There was some slight delay in carrying out this command, as shrapnel was flying in such profusion that the helmsman charged with the task lost a forefinger to it. *Florida* was under fire for less than 30 minutes

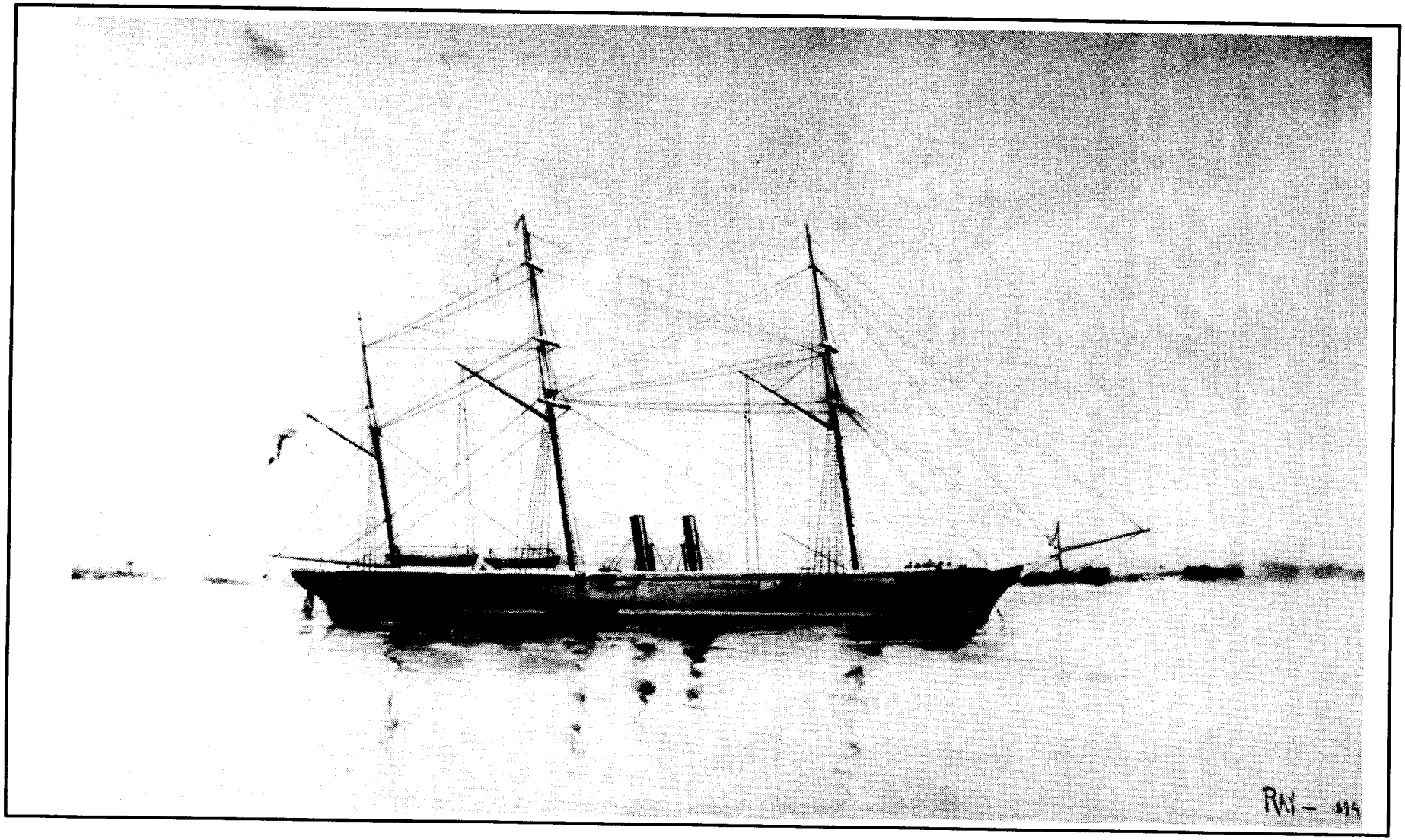

Figure 18. Painting of the *Florida* (Courtesy of the Hampton Roads Naval Museum).

before she hurried out of range of the pursuing ships and anchored under the protection of the guns at Fort Morgan (Owsley 1987:41).

Because *Florida* was already past the blockade before the real action started, the pursuing Union warships were forced to run after her in line. In this configuration only the lead ship, *Oneida*, could fire. To accomplish this she had to pull out of line, bring her broadside to bear, then steer back in line and resume the pursuit. Such maneuvers were time consuming and allowed *Florida* to pull continuously further away. *Winona* was unable to fire throughout the chase for fear of hitting *Oneida* (Owsley 1987:40).

Lt. Maffitt stated that *Florida* survived the run into Mobile Bay because of her superior speed and the relative calmness of bay waters on that particular afternoon. With any seas at all, the 11-inch hole in the port side just above the waterline would have brought more water in than could have been dispelled by the ship's pumps (Stern 1992:116).

A measure of the damage inflicted on *Florida* during her "perilous and splendid rush..." (Scharf 1969[1887]:536) into Mobile Bay can be gained from the fact that it took three and one-half months to effect her repairs (Stern 1992:116).

However, all of this time was not spent in repair. Initially, *Florida* and her crew were placed under quarantine for nearly a month. There were delays due to shortages of skilled workers and ordnance and other military supplies. Such shortages were symptomatic of Confederate operations even during this fairly early stage of the war. Moreover, the entire operation was made logistically more difficult by the fact that *Florida's* deep draft forced her to anchor some 28 miles south of Mobile, necessitating the transport of personnel, tools, and ship's machinery (Owsley 1987:43).

During her stay in Mobile, *Florida* received a full complement of officers and crew. Because of the high public profile of his recent activities, Maffitt attracted the best young men in Confederate naval service (Stern 1992:116). The crew was largely composed of relatively new men drawn from the merchant service. The time spent in Mobile was undoubtedly put to good use in training these new recruits (Owsley 1987:46).

Maffitt took the opportunity to purge his command of incompetents. A number of unacceptable officers acquired in Nassau were replaced. He remarked that his officers, while young, would no doubt become outstanding officers. He was particularly pleased with the appointment of Lt. C. W. Read, whom he had personally requested. Read had distinguished himself during the defense of New Orleans on the ram *Arkansas* (a vessel equipped with ramming capabilities) during her daring escapades on the Mississippi River, and he became one of the most outstanding young Confederate naval officers (Owsley 1987:46). He certainly played

an important role later in the *Florida's* history as commander of one of her most productive offspring (see below).

By Christmas 1862, *Florida* was well enough repaired to flex a little muscle. On December 24, she engaged in a long-range duel with the Federal ship *New London*. Apparently, Maffitt intended to drill the new crew at general quarters with the real enemy as a practice target (Scharf 1969[1887]:532). By January 10, 1863, *Florida* was ready for sea service. However, she was forced to wait for appropriately foul weather to cover her departure and enable her to escape through the blockade that had been strengthened to at least nine ships in anticipation of her eventual departure. While maneuvering in Mobile Bay, she was twice grounded and had to be partially unloaded before she could be freed from the bottom (Owsley 1987:47-48; Stern 1992:128).

On the evening of January 16, 1863, a blustery winter rainstorm enveloped Mobile Bay. Though Maffitt needed bad weather, this rain so limited visibility that navigation was not safe, especially in light of *Florida's* recent spate of groundings. About 2:00 a.m. the following morning, the rain slackened, leaving a dense surface mist. Maffitt knew it was time to make his move. *Florida* passed the first Federal guardship lying inside the bar at 2:40 a.m.; he soon passed a second, but as he approached the third vessel, flames and embers from soft dusty coal shot out of the stacks (Stern 1992:128). *Florida* was sighted, and Maffitt ordered full steam and all sails set. He easily outdistanced his pursuers.

Later that morning, a very large warship, the *Brooklyn*, was sighted, and *Florida's* course was altered. She passed so close to the vessel, however, that she could easily have been badly damaged by her guns. But *Brooklyn's* crew mistook her for another Union steamer in their fleet and withheld their fire. Around 5:00 p.m. that afternoon, two other Federal ships were sighted, one of which was the *R. R. Culyer*, supposedly faster than *Florida* and the vessel which she had eluded on her way out of Nassau the previous August. Before he could be sighted in the rapidly dimming light, Maffitt employed an ingenious ruse. He had all sail taken in, shut down the boilers, and had *Florida's* collapsible smoke stacks laid back on deck. Maffitt hoped to escape detection by depending on the relative invisibility of *Florida's* low-lying hull in the deep, gloomy troughs of the rough sea. *Culyer* passed by without noticing Maffitt's ghost ship and, once he felt she was far enough away, he made steam and headed south. During this run, *Florida* logged a record speed of 14.5 knots, the best of her 32-month existence (Owsley 1987:48).

The First Cruise

In preparation for her first cruise, Secretary Mallory had issued general orders to Lt. Maffitt regarding possible targets of opportunity (Owsley 1987:47). He left the areas of operation to Maffitt's discretion and proposed taking one or two vessels carrying California gold. Such valuable prizes might be particularly useful to the

Confederacy because both the monetary and propaganda values of their loss would adversely impact the North's finances and credit. Mallory suggested that Maffitt destroy most of *Florida's* prizes because of the infeasibility of running them in through the Union blockade. Because *Florida* and other Confederate cruisers were absolutely dependent on foreign ports for resupply, he cautioned Maffitt not to offend any nation's neutrality, especially that of Britain.

The first prize was taken only two days out of Mobile. The brig *Estelle*, valued at $130,000, was seized and burned. Having depleted his coal in the run out of Mobile and wanting to begin his mission with full bunkers, Maffitt made for Havana to resupply. He was able to accomplish this with little difficulty, sensing, in fact, a distinct pro-Southern sentiment among the populace (Owsley 1987:51).

There were, however, protests and pressures from the U. S. Consul General in Havana regarding neutrality violations and other essentially non-substantive issues designed to disrupt the resupply of *Florida* and her sister ships. This is only one of the first instances of the use of this type of tactic employed by the United States government with ever-increasing frequency and force throughout the war. In fact, they had been developed in England during *Florida's* construction. Early on in the conflict, pro-Rebel sentiments ran high in numerous areas of the Caribbean, Atlantic, and Europe. However, as the Civil War progressed and the South's fortunes of war were severely devalued in the eyes of once strong supporters, both outright assistance to Confederate commerce raiders and resistance to pressures from the Federal government notably declined.

After leaving Havana, Maffitt discovered that the coal he had obtained there was worthless, only able to make steam for a speed of some three knots (Owsley 1987:52). He turned toward Nassau, arrived, entered and was given permission to load coal and depart within 24 hours.

Loose on the high seas and actively engaged in raiding in the sea lanes of the western central Atlantic, she had several brushes with Union warships on the prowl for blockade runners. The tactics employed by Maffitt in one of these encounters is indicative of the imaginative and daring way in which he consistently operated. Early one evening, a large steamer was sighted off the starboard beam, and she apparently spotted *Florida* at about the same time--the steamer changed course and increased speed to intercept the raider. Maffitt ordered steam cut, boiler fires banked, and the hinged smoke stacks lowered to the weather deck. Thus, in the darkness, *Florida* appeared to be a schooner-rigged ship. The steamer *Vanderbilt*, one of the Federal Navy's largest, fastest, and most formidable warships, closed and circled *Florida*. She failed to recognize the very vessel for which she was hunting, classified her as a West Indian trader, and steamed off into the night, leaving the grinning Maffitt in her wake (Owsley 1987:54).

Only a few days later in waters further south, *Florida* captured the single most valuable prize taken by any Confederate commerce raider. The clipper ship *Jacob*

Bell was seized enroute from China to New York on February 12, 1863 (Figure 19). The vessel and her cargo of 1380 tons of select teas and about 10,000 boxes of firecrackers were valued at $1,500,000 to $2,000,000. After removal of passengers, personal belongings, and useable stores, she was torched (Owsley 1987: 54-55; Stern 1992:128, 129; Scharf 1969[1887]:792).

Florida re-coaled and resupplied at Barbados and continued her operations in the area, ranging south. On March 6, 1863, she captured *Star of Peace*, a clipper ship with a cargo of 1,000 tons of saltpeter for the Union army in Boston. Her stores were liberated, and she was used as target practice by *Florida's* gun crews, then burned. *Florida* was 20 miles away when the volatile cargo went up; Maffitt remarked that the explosion lit up the night sky as if it were daylight (Owsley 1987:58).

Lapwing, an American-flagged bark loaded with good coal, was captured later in the same month. Because of the coal she carried, ten tons of which were immediately trans-shipped, Maffit decided to use *Lapwig* as a tender for *Florida*. This vessel served as a satellite raider that indirectly increased the *Florida's* coverage and effectiveness. The tender was equipped with a prize crew and as many armaments and munitions as could be spared from the *Florida*. *Lapwing*, commanded by Lt. Averett and manned by two other officers and a crew of 15, began her career as a commerce raider rather unsuccessfully. She was a poor sailer and lagged far behind *Florida*. They rejoined briefly several weeks later, and during this meeting, Maffitt determined that *Lapwing* was a liability due to her slowness. He resolved to burn her. After getting all her coal off-loaded; he arranged a rendezvous for that purpose at the island of Fernando de Noronha, a Brazilian holding and frequent stopover of elusive vessels.

Before reaching the rendezvous, *Lapwing* chanced on the U. S. ship *Kate Dyer* out of Antwerp. Her captain fell for a classic ruse. Most ships had not taken *Lapwing* seriously: her single 12-pound Howitzer was relatively ineffective, and she could be easily outrun. To make her appear more powerful and threatening a mock cannon was constructed. Her crew cut a spar that was then painted black, mounted on carriage wheels found in her cargo, installed on deck, and dramatically covered with a tarp. When Lt. Averett fired a warning shot from the 12-pounder over *Kate Dyer's* stern, her captain, seeing the formidable weapon partially covered on deck, immediately heaved to and surrendered. He is reported to have been particularly upset at having been duped by a "quaker" gun (Owsley 1987:68). Because *Kate Dyer* was carrying a neutral cargo, Maffitt bonded her for $40,000.

Bonding was commonly used by all Confederate raiders; an alternative to the destruction of a prize. A bond was a document signed by the captain of the prize stating that the ship had been captured, agreeing to pay a specified amount based on the ship's value for its release. The bonds were due at a specified period (usually six months) after the close of hostilities. However, because of the Confederacy's defeat, these bonds were, of course, never paid and were worth about as much as Confederate dollars. At the time, bonds were tallied as calculable losses by ship

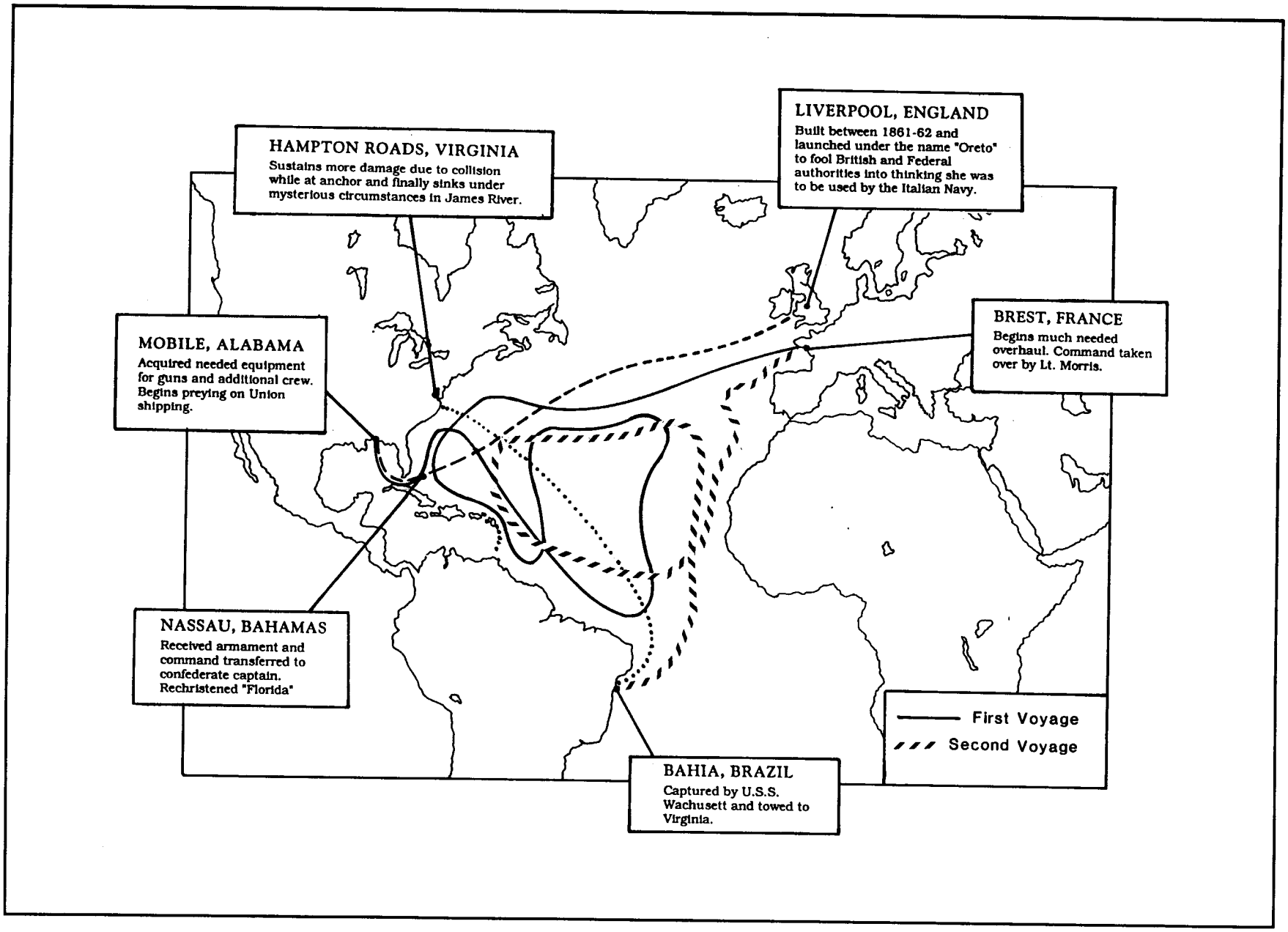

Figure 19. *Florida's* sailing route (Courtesy of the Atlantic Division Naval Facilities Engineering Command).

owners. A prize was bonded if the ship carried verifiably neutral cargo, carried too many passengers for the raider to safely accommodate, or to transport prisoners taken off other, less fortunate prizes, from the raider to shore (Owsley 1987:68-69).

Lapwing continued cruising off the Brazilian coast, but took no other American ships. She rendezvoused with *Florida* off Fernando de Noronha, where the Howitzer and most of the crew were removed. She was ordered to Rocas Island 80 miles west of Noronha to await *Florida* and transfer the remaining coal. After 30 days of waiting without a sign of *Florida* and running short on supplies, the acting master took her to Barbados where *Lapwing* was burned just offshore on June 20, 1863. The crew took passage to England and rejoined *Florida* during her extended refit in Brest, France (Owsley 1987:67-70).

The second satellite raider produced by *Florida* during her first cruise proved far more significant to the war effort. In fact, the "*Florida* was breeding offspring that were to be almost as dangerous as she was herself" (Stern 1992:128). In May, Maffitt captured the brig *Clarence* of Baltimore, loaded with coffee. Lt. C. W. Read wished to take the vessel, cargo, and legitimate ship's papers and try to enter Hampton Roads and, ideally, take a Federal gunboat or burn shipping there. Maffitt agreed to his plan and outfitted *Clarence* with a Howitzer and supplies so she could take prizes enroute. Read set a course for the Capes of Chesapeake Bay and soon found that *Clarence* was a slow sailer. He was able to take six vessels in a little over a month of raiding along the Atlantic seaboard, including a ship bound from New York to Matamoros, Mexico, with a cargo of arms and clothing for Confederate forces in Texas. Two vessels were taken by flying the Union flag upside down—a distress signal -- and boarding them when they closed in to render aid. One of these was *Tacony*, a bark which was found on investigation of its log to be a handy sailer. Read resolved to transfer his operations to *Tacony* and torched *Clarence* (Owsley 1987:78-81). Thus, *Florida's* offspring were begetting offspring of their own.

Tacony raided merchant shipping on the eastern coast of North America for 13 days before she, too, was burned after Read had again transferred his command to another vessel. In that time she seized 16 vessels, many of them fishing schooners like *Archer*, Read's final raider command and *Florida's* "great granddaughter." Read's tactics of switching command from ship to ship kept Union forces well confused and off his trail. At one point, there were over 40 U. S. warships and chartered vessels searching for *Tacony*, but that ship no longer existed. Read and his crew were eventually captured off Portland, Maine on June 26, 1863. They had entered the port, taken a revenue cutter by stealth, fled to the open sea with civilian vessels in hot pursuit, and engaged the lead chase-boat with the cutter's 32-pound gun. Not being able to locate the cutter's shot locker, they soon ran out of ammunition and abandoned ship after setting fire to the cutter. They were picked up out of the water, and the remainder of their comrades were taken from *Archer*, which was located and captured further east (Owsley 1987:81-91). Thus ended "the most brilliant daredevil cruise of the war" (Merli 1970:73). Read's raids on the coastal commerce of the United States caused panic among the general population

from Norfolk to Maine; engaged a formidable number of Union warships in his pursuit; and was a severe irritant to the United States Navy. Lt. Read and his men were "certainly the most profitable military investment ever made by the South..." (Owsley 1987:91).

Meanwhile, after outfitting *Clarence*, Maffitt and *Florida* entered Pernambuco, Brazil, for maintenance and resupply. They were granted an extended stay of four days to accomplish repairs to the propulsion system. The Governor of Pernambuco confided in Maffitt that he was under considerable pressure from United States government representatives to make things as tough as possible for all Confederate commerce raiders. He also informed Maffitt that three Federal warships were due to arrive in several days and he could not guarantee *Florida's* safety in that case (Owsley 1987:65-66). Maffitt had her ready to leave on the fourth day.

It was during this same month of May, 1863, that the first communiques circulated from U. S. Ambassador to Brazil, James W. Webb, to Secretary of State, William Seward, suggesting that if U. S. Navy commanders were to sink a Confederate raider within a Brazilian port, Brazil's ruffled feathers could be easily smoothed with a "handsome apology" (Owsley 1987:151; Hayes 1993:7-8).

After leaving Pernambuco, *Florida* tarried in Brazilian waters waiting in vain for her prearranged meeting with *Lapwing*. She took several prizes during this period, including the *Benjamin F. Hoxie* out of Mexico to England with silver bars and logwood valued at $105,000 (Owsley 1987:71). Maffitt went to Bermuda and then cruised off New York City, taking a number of ships. He learned from New York newspapers of the commotion being caused by Read's raiding on the New England coast and wisely decided not to remain in those waters too long, due to increased Union naval activity intent on capturing Read (Owsley 1987:72). In mid July, Maffitt was again in Bermuda; *Florida* was beginning to show distinct signs of mechanical wear and tear. He effected emergency repairs and departed after eight days.

Three weeks and two prizes later, *Florida* was again in need of repair. Maffitt wanted to take her to an English port for a complete overhaul, but with his recent stop in Bermuda, entry to another British port would be in violation of the 90-day rule. Therefore, Maffitt was forced to consider a French port for repairs: parts could be fairly easily obtained from Britain, and France was friendly to the Confederacy. Therefore, Maffitt chose the Channel port of Brest because it would be most difficult to effectively blockade (Owsley 1987:75). To make the necessary political and logistical arrangements in advance of their arrival, Maffitt landed Lt. Averett at Cork, Ireland, who was to proceed to France and enlist the help of the Confederate agent there, John Slidell (Owsley 1987:76). *Florida* arrived in Brest, France, on August 23, 1863, "silhouetted against the flames of his latest victim," the ship *Anglo Saxon*, which he had captured and burned in the English Channel (Spencer 1983:165).

By all measures, *Florida's* first commerce raiding cruise was phenomenally successful (Figure 20). She alone had captured 24 prizes, of which 19 were destroyed and five bonded. The total valuation of these prizes has been recently estimated at better than $4,000,000. Over a period of 218 days, *Florida* seized an average of one ship every 9.1 days.

When considering her satellite raiders, the cumulative figures for *Florida's* first cruise are even more impressive. Together, *Lapwing, Clarence, Tacony,* and *Archer* captured 23 vessels, destroying 15, bonding seven, and allowing one (*Archer*) to be recaptured. The total value of these vessels approached $1,000,000. What is truly staggering is the rate at which the satellites took prizes in comparison to their mother ship. *Lapwing* captured and bonded only one vessel, so it does not figure in this analysis. However, *Clarence* seized six vessels in 37 days, or an average of one prize taken every 6.2 days. *Tacony* accumulated the really phenomenal figures: with an active sea service, as a raide, in 13 days, she took 16 vessels, averaging one prize every 0.8 days. During one five-day period, she seized 13 of her 16 total. This results in a capture rate of one prize every 0.4 days!

Immediately after entering Brest harbor on August 23, 1863, Maffitt requested permission to resupply and repair *Florida*. She was granted the same rights as merchant ships, could take on any and all supplies required, and could contract with any private firm for the necessary repairs to her engines, copper sheathing, and general refurbishment. However, Maffitt was not allowed to increase his ship's armament, manpower, or armor (Owsley 1987:92; Spencer 1983:166). It soon became apparent that there were no commercial repair facilities up to the task, and Maffitt sought permission for the work to be performed at a government dock. This request, too, was granted with the caveats that all costs incurred be paid promptly and all munitions be off-loaded prior to entering the dockyard (Owsley 1987:92-93).

U. S. government representatives, of course, instigated a nearly continuous stream of protests and harangued French officials with all types of increasingly vehement censures, outright threats, and requests for reconsideration of various questions pertinent to key neutrality issues. For example, the U. S. considered *Florida* a privateer, and France had agreed in the Declaration of Paris not to respect privateers. The French rejected this claim with the argument that *Florida* was a commissioned vessel and therefore a warship entitled to make any navigational repairs necessary (Owsley 1987:95). Another protest by Union officials was that the repairs on her steam machinery were neither necessary nor justifiably handled in a neutral port. After all, she had seized as many prizes under sail as under steam. In partial response to this protest, Napoleon III offered that "Because a duck can swim is no reason why his wings should be cut" (Margolin 1981:53).

Such tactics were yet more examples of the diplomatic pressures being brought to bear by the North in partial answer to the considerable problems and increasing losses attributable to *Florida* and her sister ships. There was also a

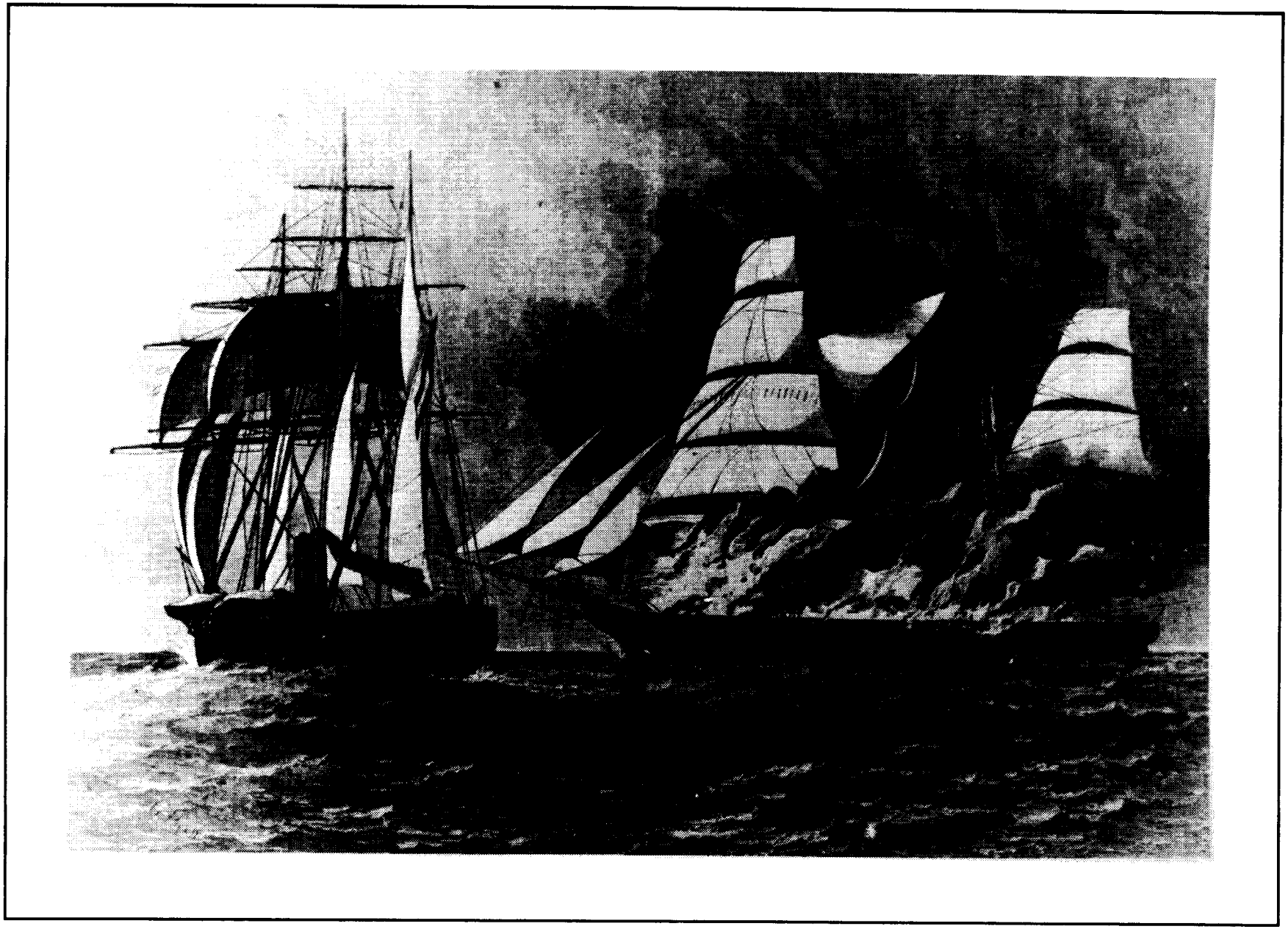

Figure 20. ***Florida*** **capturing the** ***Jacob Bell*** **(Courtesy of the Hampton Roads Naval Museum).**

frustration factor to consider: for three years Confederate raiders had been eluding capture by utilizing what the U. S. government considered to be legal technicalities--and that was going to change (Hayes 1993:7).

The time required to complete all repairs to *Florida* was estimated at 18 days. This assessment proved completely unrealistic, as she underwent repairs in Brest for nearly six months. The repairs were far more extensive and time consuming than first thought, and the French engineers, mechanics, and laborers were not familiar with her equipment. In exasperation, Maffitt was forced to contact Bulloch in England, who immediately brought representatives of the builders of the ship and engines to Brest to supervise the work (Owsley 1987:103-104; Spencer 1983:166). The excessive delays were very costly, both for the repairs and funds required to maintain the ship and crew. British reports estimated the repair costs at $135,000 francs and the maintenance expenditures more than $300,000 francs (Owsley 1987:93).

The delays exposed *Florida* to a number of potential threats. She was subjected to nearly continual Union surveillance, the fickle fortunes of war and wartime diplomacy were changing , and personnel problems erupted on board. *Florida* attracted considerable Federal interest, but it was the rapt attention of one vessel particularly--USS *Kearsarge*--that eventually led to problems for other Confederate vessels, especially *Alabama*. The constant diplomatic pressures from the U. S. Department of State on foreign governments was becoming effective. Restrictions on the use of neutral facilities by belligerents were tightened, and enforcement was strengthened. Moreover, several Confederate vessels under construction in foreign ports were seized.

Personnel problems aboard *Florida* were more immediately troublesome. Maffitt asked to be relieved of command due to ill health, and serious discipline problems arose among the crew. A portion of the crew was discharged following disputes concerning the change of command and contempt for junior officers (Owsley 1987:98-99). They had to be replaced by inexperienced crewmen. J. N. Barney took command from Maffitt and supervised most of *Florida's* repairs in Brest. However, he was forced to resign for health reasons in early 1864. Lt. Charles M. Morris relieved Barney of command and was faced with the formidable task of shaking down an extensively repaired ship and training an untried, undermanned crew in preparation for the rigors of commerce raiding (Owsley 1987:98-104; Spencer 1983:167-168).

Florida purchased new gun tackle, fuses for shells, new carriages and slides for the pivot guns, and a substantial assortment of other ordnance supplies while at Brest. She was not, however, able to receive those purchases there. Some days after her uneventful departure from Brest on 10 February 1864, a steam tug rendezvoused with *Florida*, and the trans-shipment of goods was accomplished (Owsley 1987:97, 111).

The Second Cruise

Newly equipped, though sluggish in performance, and newly manned, though slightly short-handed, *Florida* set out on her second, and final, commerce raiding cruise in the Atlantic Ocean under a new commander.

Out of Brest, Morris set course for Funchal in the Madeira Islands, taking no prizes en route and, in fact, making few contacts with other ships. As a result, her whereabouts remained a mystery in spite of several Federal warships actively engaged in hunting her. In Funchal, requests for coal and provisions were coldly met with restrictions on the amount of coal that could be obtained within a 24-hour period. Pleas by Morris to extend the period and up the quantity of coal fell on deaf ears. Again, pressure from U. S. diplomats created logistical problems for *Florida* (Owsley 1987:113-114).

After leaving Funchal, she made for Tenerife where Morris completed his coaling without problem. *Florida* cruised for about three weeks after departing Tenerife with no unusual activity; several vessels were sighted, though none flew the U. S. flag. She captured *Avon* of Boston, a particularly uninteresting guano carrier out of the Howland Islands, and used her for gun practice. Several more weeks passed in which a number of ships were boarded, but none proved to be of American registry. In late April 1864, she arrived in Martinique for resupply of coal and provisions; this completed, she set a course for Bermuda.

Personnel problems on board, especially among his engineering staff, were causing increased concern for Morris. He was forced to send a communication to Secretary Mallory via Lt. Averett, who was landed on Bermuda and instructed to deliver the message that *Florida* was in need of engineers and money. Lack of prizes had forced Morris to operate with fewer funds than desirable, and considerable money had been spent on coal and supplies. Morris expected the men and monies in about one month at Bermuda (Owsley 1987:115-119). During that time several prizes were taken in the vicinity of Bermuda.

On June 18, 1864, *Florida* entered St. Georges, Bermuda, where most of the requested replacement engineers and money were waiting, as well as a message which conveyed Mallory's agreement to Morris's plan to conduct a coastal raid on United States shipping. The plan excluded the Gulf of Mexico, and outlined a number of general goals for the second cruise. Among these were suggestions to consider taking the single blockading steamers off St. Mark's and Apalachicola, Florida, and making a raid on the New England fisheries in the style of *Tacony* (Owsley 1987:122-124). Awaiting the arrival of the final replacement engineer, Morris continued to operate in the Bermuda area, seizing one prize.

By early July, Morris gave up waiting for the engineer and proceeded westward for the coastal shipping lanes of the United States. Thus began one of *Florida's* most successful raids; July 10, 1864, was the single busiest and most

productive day of her entire career. On that day she captured four vessels, including *Electric Spark*, the only steamer taken by *Florida*. *Electric Spark* was a new propeller steamer from Philadelphia valued at nearly $1,000,000. She was scuttled only some 70 miles off the Capes of Delaware. If prizes taken during the two previous days are included, this three-day period in July accounted for more than half of all the vessels captured by *Florida* in her entire second cruise (Owsley 1987:124-130).

Following the flurry of success in U. S. coastal waters, *Florida* made a long and exceedingly uneventful voyage to Tenerife. This probably precipitated a high level of discontent on board that eventually led to an unsuccessful mutiny and a shipboard trial. For Lt. Morris, the events emphasized how badly the crew was in need of immediate shore leave. The psychological condition of the crew and Morris's intent to grant them liberty as soon as possible was undoubtedly a factor in the eventual seizure of *Florida* in Bahia, Brazil, where Morris granted shore leave in spite of the ominous presence of a U. S. warship in the same port (Owsley 1987:134-135). Meanwhile, *Florida* had continued her cruise for two more weeks without success; on September 26, she captured and burned the bark *Mandamis* of Baltimore. This was the last prize taken by the Confederate cruiser.

On October 4, 1864, *Florida* entered the harbor at Bahia, Brazil, and ended her second cruise. This cruise was much less successful than the first for numerous reasons. There were far fewer U. S. ships at sea in 1864 than 1863 because part of Mallory's original two-pronged naval strategy was working. Union commerce had been disrupted to a considerable degree, and its merchant fleet was either laid up in American ports or had been driven to other flags (Margolin 1981:53; Owsley 1987:135-136). Another factor stems from Morris having been a less aggressive, less imaginative, and less daring commander than was Maffitt.

During 240 days of active sea service, *Florida* captured 13 prizes. This equates to an average of one ship captured every 18.5 days, though one impressive spate resulted in seven vessels taken in three days during her raid on coastal U. S. shipping. The capture rate for the second cruise is approximately one half that of the first when considering *Florida* alone. If the prizes of her satellite raiders are included in the calculations, *Florida's* capture rate for the second cruise was only one third as productive as the first. Of her 13 prizes, *Florida* destroyed 11 and bonded two; the total value of shipping taken exceeded $1,500,000.

Controversial Capture and Sinking

Florida arrived at Bahia, Brazil, on the evening of October 4, 1864, with a disaffected crew badly in need of shore leave and with machinery requiring moderate repairs. The presence in port of the Federal warship *Wachusett* concerned Lt. Morris and his crew, but international neutrality conventions, which had been largely adhered to by both North and South, specified certain conduct in such cases that precluded harassment and armed engagement in neutral ports. Legally then,

some measure of protection from wanton acts of aggression was provided for vessels and crews of belligerent nations that found themselves sharing neutral port facilities. Following this reasoning and because there had been no violations by the Yankees of neutral ports, the Rebels' concerns were allayed.

Napoleon Collins, in command of *Wachusett*, and his crew noticed the arrival of the suspicious steamer and set out to determine her identity. In order to arouse the least suspicion, the Federal sailors approached *Florida* and asked her name, falsely giving the identity of their own vessel as HMS *Curlew*. The Rebels fell for the ploy and rightly identified their craft. Collins, on learning that the long sought for *Florida* was within sight in the same port and, potentially, within his grasp, ordered steam made and cleared his ship for action (Owsley 1962:45-56 and 1987:137). It was to be three long, tense days before any actions resulted from the encounter.

The following morning, a Brazilian officer boarded *Florida* to make the usual inquiries on the present intentions of her captain and any special requirements she might have for which an extension of the standing 24-hour limit might be requested. The Brazilian government initially granted a stay in port of 48 hours and, after inspection of the machinery by the port engineer, a stay of no more than four days was allowed to carry out necessary repairs to her boilers (Owsely 1962:46 and 1987:138).

Morris was granted an interview with the Bahian provincial president, who voiced fears regarding an armed conflict in his territorial waters. Morris assured President da Silva that he had no intentions of provoking a fight with *Wachusett*, and he respected Brazil's neutrality. There would be no trouble from him, and Morris was assured that the same was true of *Wachusett* and her commander (Owsley 1962:46-47, 1987:138). A Brazilian admiral present at the meeting smartly suggested moving *Florida* nearer shore to an anchorage that would place a Brazilian warship between the belligerent vessels. Morris readily agreed, and *Florida* was moved. Feeling confident in the officially "guaranteed" safety of Brazil during yet another of what were becoming rather routine stops in her ports, Morris gave half the complement shore leave on the afternoon of October 5. Early that evening, one of *Wachusett's* boats, carrying United States Consul at Bahia, Thomas F. Wilson, attempted to deliver a message to Lt. Morris on *Florida*, but he refused to accept it due to an improper address (it stated "sloop" *Florida* rather than "CSS" *Florida*) and an incorrect title for him (Stern 1992:215). An attempt to deliver the same message was made the following morning and it, too, was refused for the same reasons. Morris learned that the missive was actually a challenge to engage *Wachusett*. Morris replied that he would not intitiate or evade a confrontation but would, if outside Brazilian waters, do his damnedest to destroy her (Owsley 1962:47 and 1987:139).

United States Minister to Brazil, J. Watson Webb, whose name figures prominently in this chapter of *Florida's* history, seems to have served as instigator

and driving force behind the Confederate cruiser's eventual capture. As stated previously, letters encouraging the taking of Confederate commerce raiders in Brazilian ports, in spite of international neutrality conventions to the contrary, were sent by Minister Webb to U.S. Secretary of State William H. Seward as early as May 1863 (Hayes 1993:7-8; Owsley 1962:52-53 and 1987:151). Some time prior to the October encounter in Bahia, Webb himself encouraged Commander Wilson in the presence of four officers from *Wachusett* to attack, ram, or otherwise sink any Confederate cruisers in Brazilian ports, and he would easily assuage the South American government (Hayes 1993:8; Owsley 1962:52-53 and 1987:150-151). Consul Wilson, who served under Minister Webb, was, of course, privy to his communications and urgings and apparently shared his patriotic fervor.

When he learned of *Florida's* arrival in Bahia, Wilson met with Commander Collins aboard *Wachusett* and attempted to convince him to take action against the Rebel ship. During the ensuing discussion, they concluded that *Florida's* greater speed relative to *Wachusett* made it imperative to attempt her capture in port. Collins, to his benefit, honorably resisted what was undoubtedly a keen temptation to engage and capture or disable *Florida* because of an apparently stronger reluctance to violate Brazil's neutrality.

When Collins initially refused to attack *Florida,* Wilson voiced his intention to sink her by finding a vessel in Bahia with which she could be rammed. He enticed several members of *Wachusett's* crew to assist him in this effort. A suitable vessel could not be found in working order, and the plan was abandoned (Owsley 1962:47-48 and 1987:139-140).

On the afternoon of October 6, as Lt. Morris and the remainder of Florida's crew began their shore leave, Wilson returned to *Wachusett* to again harrangue Collins about attacking the Confederate raider. Obviously, Commander Collins' resistance to the idea was beaten down by Consul Wilson's indomitable persistence. Collins agreed to call a meeting of *Wachusett's* officers to poll them on the issue. With only one dissenting opinion, all his officers indicated to Collins their strong insistence that an attempt be made to take *Florida* in Bahia. The results of this meeting crystallized Collins' resolve, and he decided to attack *Florida* early the next morning. Consul Wilson remained on board *Wachusett* because of Collins' reluctance to let anyone off the ship, lest a leak of the plan occur; for the attack on *Florida* to succeed, the element of surprise was critical.

Early on the morning of October 7, *Wachusett* quietly got underway and headed toward *Florida* some 0.6 miles distant; she ghosted past Brazilian navy vessels at anchor between herself and her quarry. Under a full head of steam, *Wachusett* struck *Florida* a glancing blow on her starboard quarter, damaging her bulwarks and carrying away mizzen mast and main yard. *Wachusett* backed away, Collins no doubt hoping that *Florida* would sink after the separation, but the impact had not fatally wounded her. As they drew apart, *Wachusett* received sporadic small arms fire; she answered with a volley of the same, followed by a discharge of

the two largest cannon in her broadside. According to Collins' later testimony, the cannon were fired contrary to his express orders to withold their use unless in answer to Confederate cannon fire (Owsley 1962:48 and 1987:141; Stern 1992:215).

Commander Collins then called for *Florida's* immediate and unconditional surrender, or she would receive more of the same. Lt. T. K. Porter, in command of the cruiser in Lt. Morris' absence on shore, knew his ship was in peril; only half his crew was on board and, ironically, her guns were unloaded as a precaution against "accidental" firing on the Union warship by overzealous Confederates. There was no way the guns could be reloaded before being devastated by the repeated discharge of *Wachusett's* ordnance, especially at point blank range. After a brief consultation with other junior officers on board who agreed that resistance was futile, Porter surrendered his sword and *Florida's* colors to Collins on *Wachusett*. Collins sent a prize crew aboard her without delay, and the 12 officers and 58 men then constituting her crew were made prisoners (Owsley 1987:141-142).

Wachusett attached a hawser and towed *Florida* out of harbor. Brazilian military forces, rudely awakened by the attack, began firing on *Wachusett* during her departure, without effect. The Federal ship did not return fire, and she slipped out to sea with her prize in tow (Hayes 1993:10; Owsley 1962:49 and 1987:142; Stern 1992:215).

Damage to *Florida* was moderate, to *Wachusett*, minimal. There were three Union casualties, one of them critical. *Florida's* casualties were more serious: 15 men had jumped overboard when Lt. Porter announced the surrender. Of this number, nine were shot and killed by Union sailors while in the water. Several other fatalities and one seriously injured Rebel officer were reported (Owsley 1987:143).

Consul Wilson returned to the United States aboard *Wachusett*. He was fortunate to have been able to do so: once Brazilians learned of the wanton violation of their country's neutrality, protests erupted in Bahia and elsewhere and quickly turned violent. The U. S. Consulate in Bahia was ransacked, and Wilson, if he had been present, would surely have been in jeopardy (Owsley 1987:143; Hayes 1993:11).

Wachusett and *Florida* arrived in Newport News, Virginia, on November 12, 1864. She was anchored in Hampton Roads under supposedly watchful eyes at Fort Monroe, and a guard was set on board. The short life of the daring Rebel cruiser was drawing inexorably toward a controversial end.

International reaction to the seizure and violation of Brazil's neutrality was vociferous. Understandably, the Confederacy and Brazil were outraged; European nations were no less adamant in their repudiation of the deed. One English commentator exemplified the European view of the seizure in a superbly sarcastic rejoinder:

> But the daring genius of the Yankee supplies us the something from South America that is news indeed. Everyone knows what tremendous sticklers for 'neutral rights' the United States have ever shown themselves, and they have claimed and obtained compensation from almost every nation under the sun for alleged infractions of them. With such a people surely neutral harbors should be respected. But the chivalrous commander of the 'Wachusett' thinks otherwise; he boards the 'Florida' in the harbor of [Bahia], and carries her off as a prize, and the New York press applauds the deed as a glorious triumph (quoted in Owsley 1962:53 and 1987:152).

Brazil demanded the return of *Florida* and release of all men held prisoner. In a powerful comparison to an earlier incident in which precedents for such actions were supposedly established, the Brazilian charge d'affaires to the United States cited the case of the British ship *Grange*. In a blatant violation of U. S. neutrality, she was seized in Delaware Bay in 1793 by the French frigate *L'Embuscade*. The United States demanded her immediate return and the release of all persons found on board. France quickly complied (Owsley 1987:152-153; Hayes 1993:10-12).

While ministers of state railed, *Florida's* fate was being sealed. The American public's reaction to the seizure was so overwhelmingly positive--a forceful indication of the Confederate raiders' influence on public morale--that the U. S. government found itself in a difficult position. International pressures to return the vessel and crew to Brazil and hence, the Confederacy, were offset by joyous public and military relief at the elimination of a major threat to merchant shipping concerns and the obvious propaganda benefits associated with *Florida's* capture. CSS *Florida* could neither be returned nor kept: the intriguing events which subsequently unfolded from November 12 to 28, 1864 and their outcome were simply the logically dictated solution to a vexing problem (Hayes 1993;12-24; Owsley 1987:147-150; Margolin 1981:54). Although circumstantial, it appears that the events were not coincidences, accidents, or acts of God. The most likely explanation is that they were the premeditated acts of men.

On the evening of November 19, 1864, as *Florida* lay at anchor in Hampton Roads near Fort Monroe, the small guard crew aboard the captured Rebel cruiser cursed the fierce easterly gale that had suddenly sprung up. The seas were rough and the tide was flowing strongly; an anchor watch was posted as a precaution. A Union army transport ship, *Alliance*, also at anchor in the roadstead, attempted to get underway without using her steam engines. Bad weather and lack of steerage caused *Alliance* to lose control; she careened into *Florida*, the waves tossing them forcefully together several times before *Alliance* slipped off down wind (Hayes 1993:12-13; Owsley 1987:147-148).

The commander of the guard detachment noted that *Florida's* leakage rate increased from five inches per hour to eight inches as a direct result of the collision. However, this rate, though troublesome, was steady and easily handled by *Florida's* numerous pumps, principally its auxiliary steam pump (Hayes 1993:13).

Five days later, Admiral David Porter ordered *Florida* moved further up Hampton Roads and anchored about one half mile directly off Newport News, near where USS *Cumberland* was lost almost 33 months earlier. This was far enough out to allow her to get up steam if *Florida* dragged anchor and close enough to USS *Atlanta* (the *Fingal* , a converted ex-blockade runner captured from the Rebels), for her crew to render aid if needed.

Porter also issued orders that, on their face, appeared to insure the welfare of the craft. In fact, some of them may have been cleverly concocted to actually prevent *Florida* from being saved from sinking (Hayes 1993; Owsely 1987). He commanded the sails taken down, dried, and stored belowdeck to prevent rot, leaving her without auxiliary propulsive power. Five days' supply of coal was to be kept on board continuously in case icing prevented resupply, keeping her well loaded with enough weight to insure rapid sinking. *Florida's* boilers were to sustain at least eight pounds per square inch of steam to provide power for emergency maneuvering and for pumps, which were to be kept in good repair. A careful topside watch was ordered to prevent unauthorized access to the prize (Hayes 1993:14-15).

At 11:00 p.m. on November 27, *Florida's* auxiliary pump failed. Assistant engineers on watch immediately tried to repair it, for this pump was keeping the consistent eight-inch per hour leak in check. Their efforts were unsuccessful. A half hour later, the engineer in charge, William Lannan, was awakened and told of the problem. Lannan managed to get the auxiliary pump operational but only partially so; it was not capable of controlling the steady influx of water (Hayes 1993:16).

Sometime shortly after midnight on November 28, Lannan ordered his two assistants to the fireroom to get up steam in preparation to move *Florida* if necessary, leaving him alone in the engineroom. Shortly thereafter, a sudden, dramatic, and unexplained increase in the rate of leakage took place. The guard's commander was informed of the seriousness of the situation more than one hour after the onset of the much heavier flooding. All hands were called to deck to man the pair of hand-operated deck pumps, but only one of them was functional. *Atlanta,* anchored nearby, was hailed and immediate aid was requested. Within minutes, the water level was high enough in the fireroom to drown the fires and eliminate the possibility of *Florida's* moving on her own power (Hayes 1993:16-17; Owsley 1987:148-149).

Atlanta's captain arrived with two boat-loads of men to assist efforts to save *Florida;* it was readily apparent she was in imminent danger of sinking. At 3:30 a.m.

the water level had risen over the berthing deck, and salvageable materials were ordered off the ship. One and one half hours later, the spar deck was awash, and the order to abandon ship was issued. By 7:15 a.m., the once swift and menacing Confederate raider was now sloppily rolling in swells in the slow death dance some ships are forced to perform. A steam tug pulled alongside and made ready to tow *Florida* to shallower water where she could be more easily salvaged or, at least, be less a navigation hazard. Suddenly, only 15 minutes later, *Florida* relinquished her hold on the surface and came to rest in about 60 feet of water, her mast tops projecting eerily into the gray morning sky (Hayes 1993:17; Stern 1992:216).

After an official inquiry into her loss, the U.S. Navy board convened for the investigation concluded that the principal cause was the accidental failure of the auxiliary steam pump. Human negligence was deemed only partially contributory because of the excessive delay of the engineroom watch informing the engineer that the pump had failed (Hayes 1993:17; Owsley 1987:148-149). However, this conclusion flies in the face of common sense and the facts. In a close re-examination of the testimony from the inquiry, Hayes (1993) reveals numerous glaring flaws and inconsistencies in William Lannan's statements and questions his veracity, as a result. Lannan was unattended in the engineroom for a sufficient length of time to effectively sabotage *Florida* by opening her sea cocks. Porter's standing orders for *Florida*, mentioned previously, have also been skeptically examined, especially since there was no such questioning by the board of inquiry of the seemingly too convenient nature of some of these orders (Hayes 1993; Owsley 1987).

One particularly damning piece of the puzzle is based on hearsay evidence provided by John N. Maffitt, *Florida's* original Rebel commander. Some years after the war, Maffitt had a conversation with Admiral Porter in which the latter conveyed the content of a discussion at which he, President Lincoln, and Secretary of State Seward were present. Lincoln, spurred by heated protests from foreign governments over *Florida's* seizure, voiced complete exasperation with the situation. Seward, too, was distressed and stated a wish that *Florida* would simply disappear. Porter, never one to shy away from direct action when called for, inquired if he had meant that, and when Seward affirmed that he had, declared that it would be done. The Admiral admitted placing an engineer, presumably Lannan, on board *Florida* in Hampton Roads with specific orders to open the sea cocks late on an evening and not to "...leave the engine-room until the water [was] up to [his] chin. At sunrise that rebel craft [had to] be a thing of the past, resting on the bottom of the sea" (quoted in Hayes 1993:20). While Maffitt's motives in relating these statements may easily be suspect, Porter's purported comments to him certainly fit the facts of *Florida's* mysterious loss.

The political, legal, and military actions precipitated and myriad questions raised by the activities of *Florida* and her sister ships called for fundamental re-evaluations and redefinitions of formerly acceptable conduct by belligerent nations. The U. S. flexed enough naval, political, and diplomatic muscle to allow it to:

> reinterpret international law to suit its own needs—the common attitude of nations commanding the sea during wartime. The Lincoln government had generally adhered to the principles of the 1856 Declaration of Paris which the United States had not signed, leading to the final collapse of privateering as a device of naval warfare and increasing the rule of the effective blockade....The North had firmly adhered to freedom of the seas in principle but had elected to violate neutral shipping whenever contraband was suspected of being carried....[O]ne cruiser had actually entered the harbor of Bahia, Brazil, in October 1864 to seize the successful rebel raider Florida . Such instances, usually repudiated officially, all pointed to a growing reality of total war, namely, that all goods enabled a nation to make war and that therefore the old distinction for contraband items was becoming obsolete. And neutrality itself might even be a fiction in total war and with it the notion of free trade in wartime. Thus the Civil War signaled the end of more than wooden sailing warships (Reynolds 1974:394-395).

In effect, the last vestiges of the refined, gentlemanly, and rather chivalrous Western conduct of naval warfare had come unceremoniously and irrevocably to an end.

The number of prizes taken by *Florida* and her three satellite raiders was second only to *Alabama* and her sole auxiliary. However, the total value of *Florida's* prizes may well have exceeded those of the more famous cruiser. Regardless of the seeming successes of the Confederate commerce raiders, at least one prominent naval theoretician discounts their effects.

Alfred Thayer Mahan (1987 [1890]) argues that the degree of success enjoyed by Confederate cruisers must be qualified with the understanding that they could not have done so well if they had faced a navy not so myopically intent on blockading Rebel ports and, thus, having committed its vessels principally to that course of action. For the South, the Union navy was simply unstoppable, and even though cruisers damaged Federal merchant shipping, "it did not in the least influence or retard the event of the war" (Mahan 1987[1890]:137).

CHAPTER 4

PREVIOUS INVESTIGATIONS

The current project, both its inception and subsequent investigative techniques, is based to a large degree on the conduct and results of several past investigations. These past projects not only located the wreck sites of both the *Florida* and *Cumberland*, but they positively identified the remains of these important Civil War vessels. The previous investigations and their respective findings are as follows.

In the summer of 1980, the National Underwater and Marine Agency (NUMA) and the Virginia Research Center for Archaeology (VRCA) performed a remote sensing survey and physical search for the wrecks off lower Newport News. The survey, which employed a magnetometer, failed to locate the wreck sites (Underwater Archaeological Joint Ventures 1982).

Directed by the popular author Clive Cussler, NUMA then contracted with Underwater Archaeological Join Ventures (UAJV) to locate and identify the wreck locations in 1981. Employing oral accounts from local watermen, a remote sensing survey was conducted off lower Newport News. The survey resulted in the location of two significant targets, one situated off Pier C and one situated off the Horne Brother's shipyard. Subsequent diving on the positions confirmed the presence of two significant wrecks, and the recovery of numerous artifacts supported the identification of the vessels as the *Florida* and *Cumberland* (Underwater Archaeological Joint Ventures 1982).

Located off the Horne Brother's shipyard, the intact remains of the *Florida* were found to be in excess of 135 feet with scattered hull debris continuing both fore and aft. Illustrated in Figure 21, the wreck was composed primarily of the lower hull, which rested on an even keel. Features observed and recorded on the Horne Brothers site included:

> a 121 foot section of hull on the inshore side composed of 6.5 x 7 inch frames, 3 inch ceiling and 5 inch outer planking; a 16 foot section of hull on the offshore side; a small scuttle in the deck with a 13 inch inner diameter; a large iron object 11 feet x 5 feet 6 inches consisting of two adjacent cylinders which may be boilers; and directly inshore of this, a copper alloy through fitting 4.5 inches inner diameter, possibly an intake valve for the boilers. Among the other observed and recorded features are 2 hatchways, 2 feet 8 inches and 5 feet wide, for and aft respectively of a massive, flat, circular iron object 4 feet 3 inches in diameter (Underwater Archaeological Joint Ventures 1982).

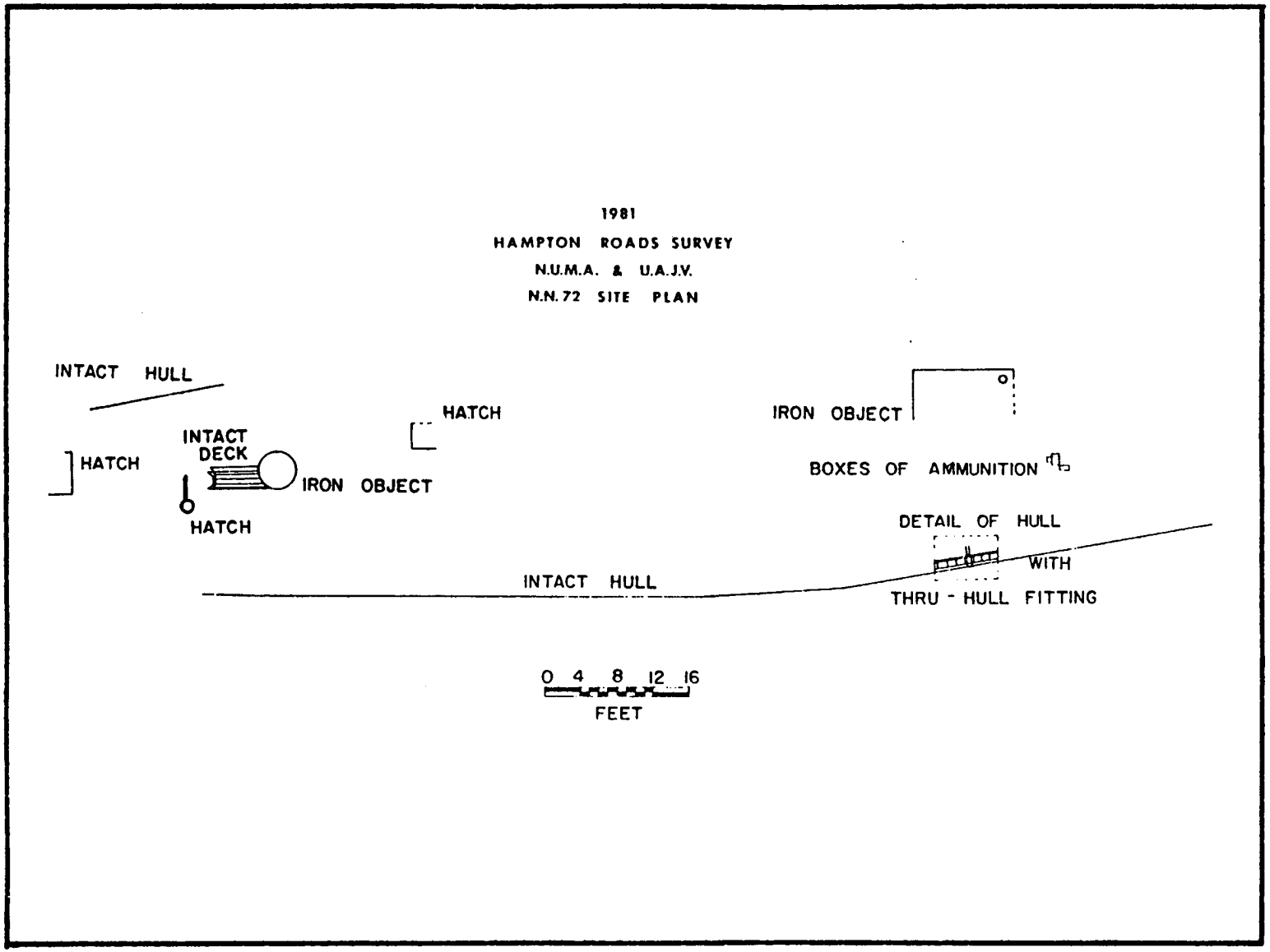

Figure 21. 1981 *Florida* Site Plan (As Presented in Underwater Archaeological Joint Ventures 1982).

As stated in their report, one factor which contributed significantly to their ability to gather information from the site was the fact that there was very little sedimentary overburden in most areas examined, with the exception of the largely buried upriver end (Underwater Archaeological Joint Ventures 1982).

Unlike the *Florida* wreck site, the Pier C site, which would prove to be the remains of the *Cumberland*, was not intact. This was due in part to the damage sustained in the battle that she fought with the *Merrimac* and the degree of salvage to which she was subject. Significant features observed on the site included the shaft of a large anchor, intact decking, and a long section of bilge pump pipe (Underwater Archaeological Joint Ventures 1982).

Numerous artifacts, which helped to identify the vessels, were recovered from both wreck sites. Presented in Appendix A, items recovered included, fasteners, fittings, rigging, apothecary vessels, glass bottles, a ship's bell, an assortment of miltary and naval paraphernalia mostly related to the use of small arms, and objects related to the use of heavy ordnance including cannon fuses, a wooden sabot and gun calipers (Underwater Archaeological Joint Ventures 1982). The artifacts were subsequently transferred to the Hampton Roads Naval Museum at Norfolk, Virginia.

The findings of the 1981 survey resulted in the ships being nominated to the National Register of Historic Places (NRHP). NRHP forms were completed for each vessel and submitted in 1982. The wecks were found eligible in 1983 but not listed on the NRHP (National Register of Historic Places 1982).

Three diving investigations were conducted on the *Cumberland* site by the Navy Mobile Diving and Salvage Unit Two (MOBDIVSALU TWO). Under the direction of Commander Naval Base Norfolk and with the assistance of the Hampton Roads Naval Museum (HRNM), the studies were conducted in 1983 and 1985. Apart from the recovery of a few artifacts, the studies realized that the vessel was severely impacted (Hapmton Roads Naval Museum 1983, 1985, 1987).

In 1986, Tidewater Atlantic Research (TAR) was contracted to conduct a magnetic and acoustic remote sensing survey of the remains of the *Cumberland* and the *Florida*. Illustrated in Figures 22 and 23, remote sensing data characterizations of the Florida and *Cumberland* indicated that the *Florida* had a high degree of structural preservation and the *Cumberland* remains appeared disarticualted (Watts 1987). On the basis of Watts report, a mapping project employing a Sonic High Accuracy Ranging and Positioning System (SHARPS) was conducted on the *Cumberland* by the HRNM and MOBDIVSALU TWO. Although working only sporadically during the 19-day investigation, enough data was collected to produce a preliminary site map. Illustrated in Figure 24, the SHARPS map shows a concentrated but disarticulated assemblage of vessel components and artifacts (Hampton Roads Naval Museum 1987).

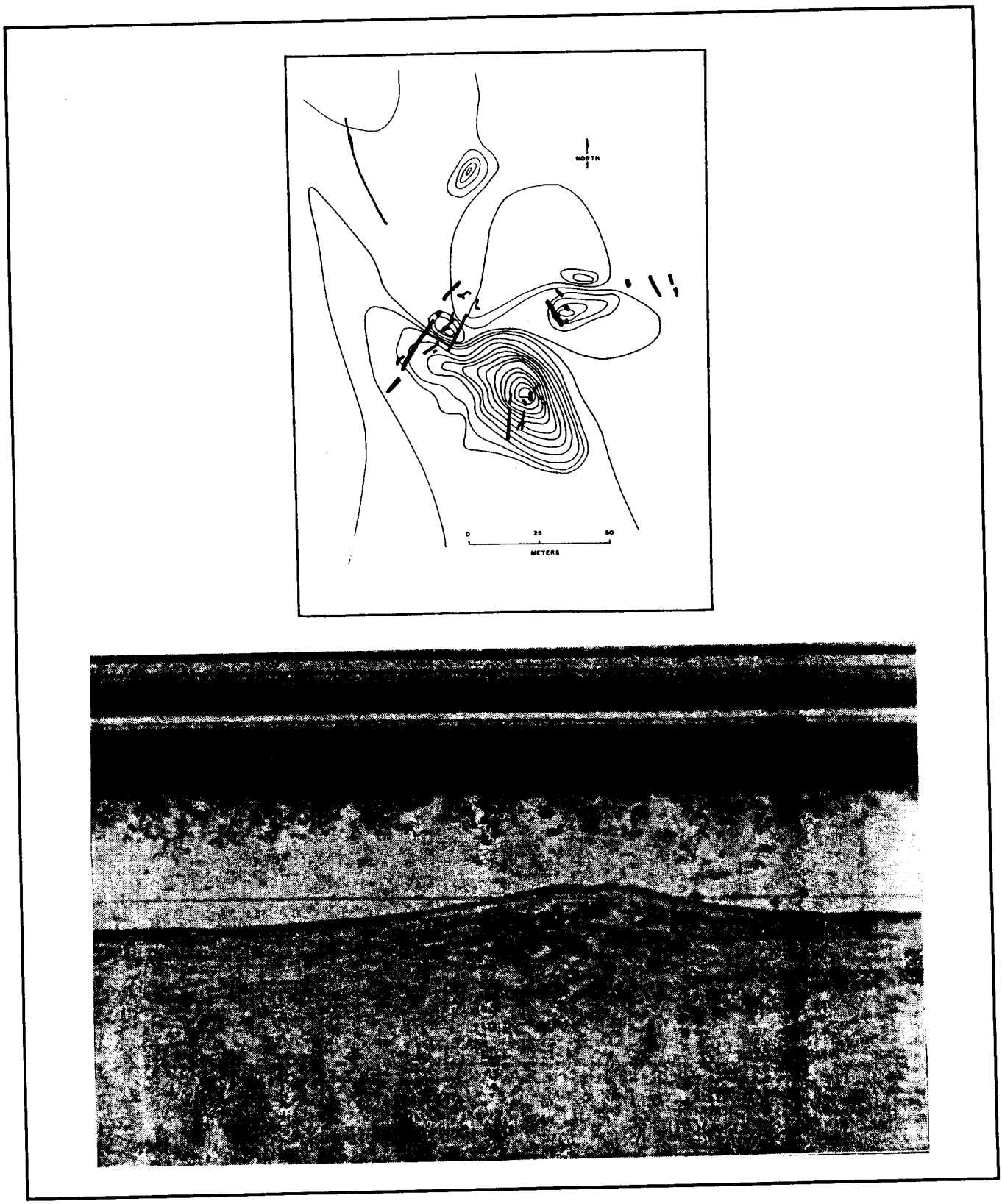

Figure 22. ***Cumberland*** **site sonargram and magnetic contour map (As presented in Watts 1987).**

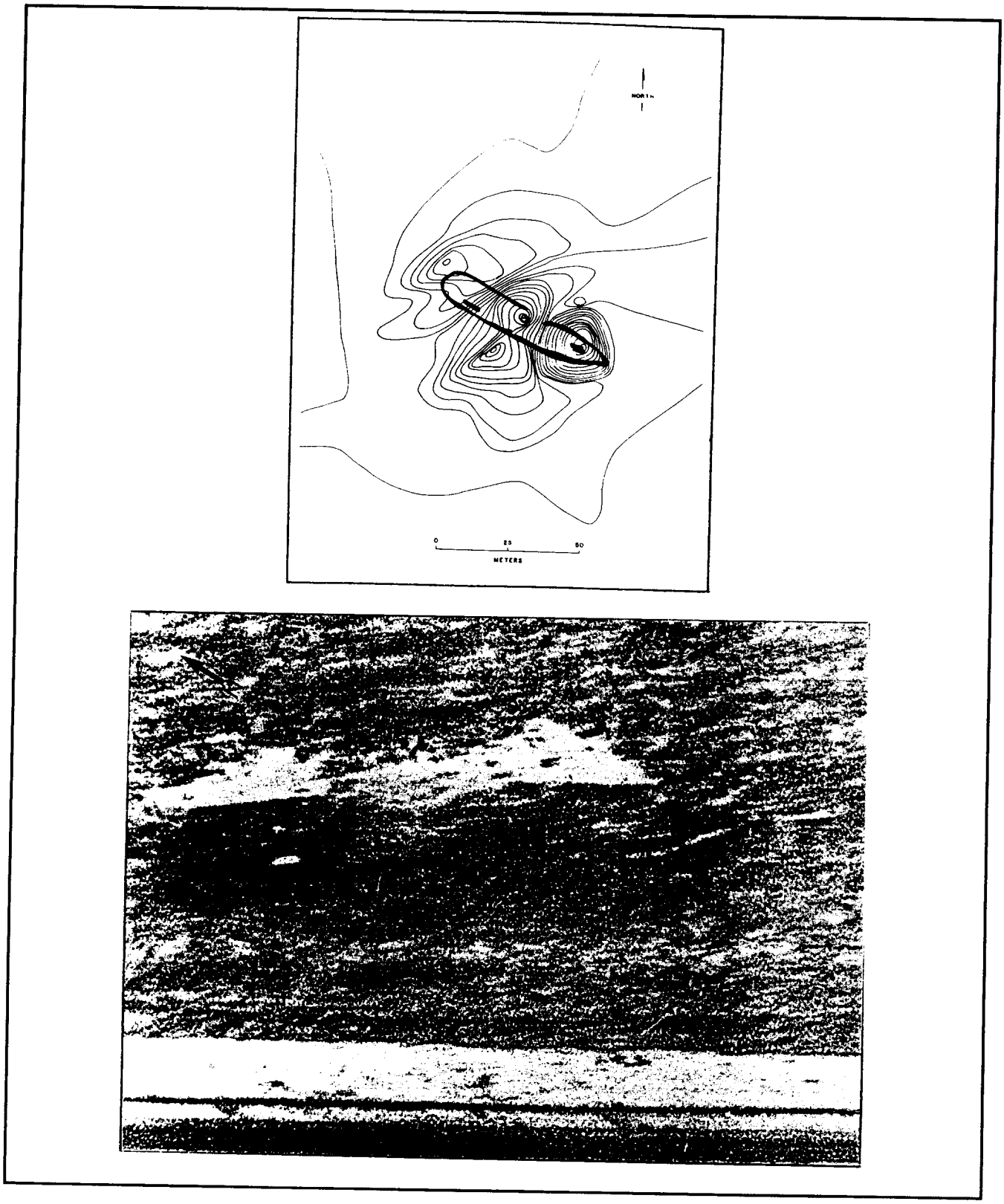

Figure 23. ***Florida*** **site sonargram and magnetic contour map (As presented in Watts 1987).**

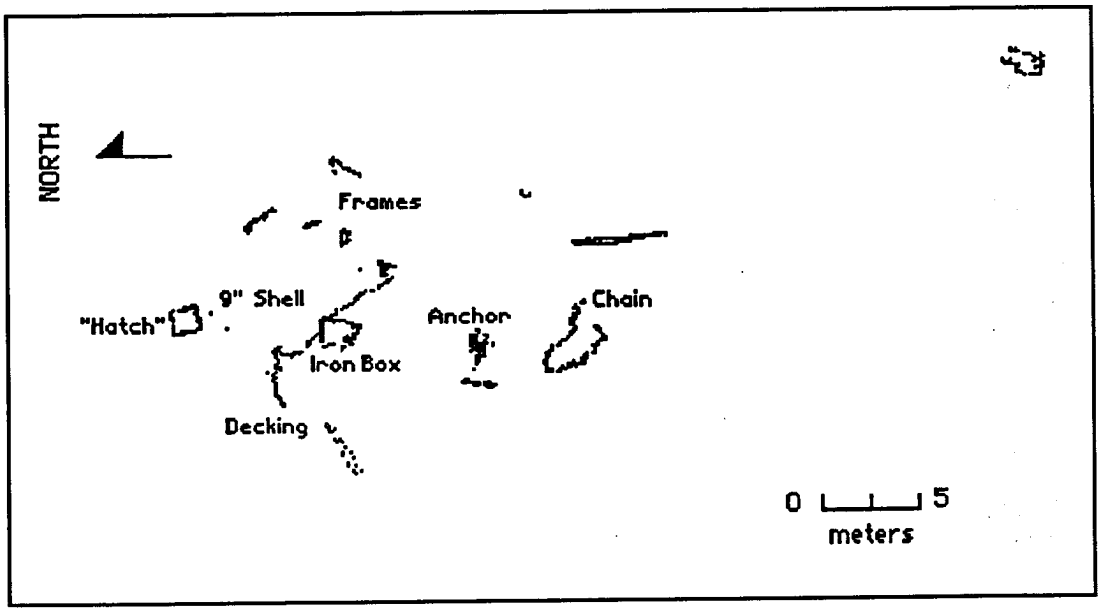

Figure 24. SHARPS generated *Cumberland* site map (As presented in Hampton Roads Naval Museum 1987).

Although not an archaeological investigation, "work" in the form of premeditated looting was conducted on both sites in 1989. Employing clam tongs, two local watermen "clammed" numerous artifacts from the wreck sites and sold them to two artifact dealers. The dealers in turn mounted many artifacts, and melted down copper alloy fasteners to make "commemorative" belt buckles, all for sale in Civil War magazines and trade shows (Appendix A). Numerous artifacts, however, went unconserved and were consequently severely damaged. An investigation into the illegal acts was conducted by the Federal Bureau of Investigation, in cooperation with The Confederate Naval Historical Society. The investigation resulted in the arrest of all four individuals. They were subsequently tried and pleaded quilty. At the time of report production, sentencing had not taken place (Virginia Pilot 1983).

CHAPTER 5

INVESTIGATIVE PROCEDURES

This section, which describes in detail the procedures employed during the investigation, is presented not only to familiarize readers with the environmental constraints encountered and the equipment, personnel, and methods used, but to aid future researchers if further work is implemented on the wreck sites. A discussion of how the underwater investigations were conducted follows.

Field investigations of the two shipwrecks were conducted by a crew of five plus boat crew, with various supervisors and observers over seven days during the period of May 22-28, 1993. The field investigations involved relocation of the two sites and the examination of each wreck by archaeologists. The sites were relocated by utilizing positioning information provided in the reports of previous projects and through interpretation of that information into angle and distance measurements from a known survey point. Two remote sensing instruments were used to confirm site location: a proton precession magnetometer to determine the presence of magnetic anomalies, and a recording survey fathometer to determine the presence of anomalous features on the river bed. Once each site had been relocated and its potential presence confirmed, diving operations commenced, utilizing a Surface Supplied Air system. This project was conducted for the purpose of documenting and evaluating the archaeological sites represented by these two Civil War shipwrecks.

Personnel

Personnel on this project consisted of an archaeological dive team from Panamerican Consultants, Inc. (PCI), the crew of the project diving vessel, and various representatives from organizations involved with the project, including the United States Army Corps of Engineers and the United States Navy.

The archaeological dive team was headed by Stephen R. James, PCI, who was principal investigator for the project. This dive team always consisted of a minimum of five members: a diving supervisor, a diver, a standby diver, a tender, and a communications operator. Each dive team member met the training and qualification requirements established in ER 385-1-86. Stephen James served as the principal diving supervisor; James A. Duff acted as nautical archaeologist, PCI; Steve Hack and Jeff Motz, archaeological divers, PCI; and, Todd Hannahs, nautical archaeologist, working under contract to PCI. All of these dive team members had completed a training course for diving certification, were current in Red Cross training and certification for first aid and cardio-pulmonary resuscitation, and, shortly before the beginning of the project, passed a physical examination conducted by a medical doctor for the purpose of ascertaining fitness for diving. Throughout

the diving phase of this investigation, the project diving vessel was operated by Doreen Kopacz, an experienced and licensed local captain. Captain Kopacz was assisted by deck hand William Payne. The principal representative of the Corps of Engineers was Dottie Gibbens, who participated as COE diving supervisor during the first portion of the project. The position of COE diving supervisor was taken over by Mike House during the last days in the field, insuring that a Corps diving supervisor was present on each day of diving.

Both Gibbens and House were fully qualified COE diving supervisors, who had completed extensive training and certification by the Corps in that capacity. Marie Cottrel was aboard for one day of observation as the principal representative for United States Navy. Similarly, Chris Knoche with Law Environmental, Inc., of Kennesaw, Georgia, was aboard for a day of observation, as was David Cooper, Wisconsin State Underwater Archaeologist, on temporary assignment with the United States Naval Historical Center, Washington, D.C.

Equipment

Archaeological investigations of the *Florida* and the *Cumberland* made use of an array equipment in order to safely and effectively conduct underwater operations at the two sites. Equipment utilized included a vessel suitable for diving operations; survey instruments, including a total-station survey instrument together with a magnetometer and recording fathometer, for locating and confirming the positions of the two wreck sites; and a complete Surface Supplied Air (SSA) diving system.

The vessel utilized for diving operations was the *Nina H II*, a 50-foot, heavily-built, wooden charter fishing vessel with a diesel power plant. This vessel was of a size and type appropriate for diving and provided a stable work platform with ample covered deck space (Figure 25). For diving operations, the vessel was equipped with a safe and substantial dive ladder, which was securely mounted at the stern for the use by divers when entering and leaving the water. The *Nina H II* was chartered locally and operated out of her home port at Willoughby Bay Marina in Norfolk. This dive vessel carried its own spare parts kit, tool kit, first aid supplies, and potable water; these were supplemented by similar supplies provided by PCI. In addition to carrying various necessary supplies, the *Nina H II* conformed to all U.S. Coast Guard specifications according to class and had on board all required safety equipment.

Positioning of the survey vessel over the reported sites of the *Florida* and the *Cumberland* was accomplished through the use of three instruments: a shore-based Geodimeter 422 total-station as the primary positioning instrument; both a Geometrics 866 proton precession magnetometer; and a Raytheon Model DE-719C recording survey fathometer to confirm site position. The total-station survey instrument was used to place reference buoys at the reported locations of the two shipwrecks through angle and distance measurements from a known point. The

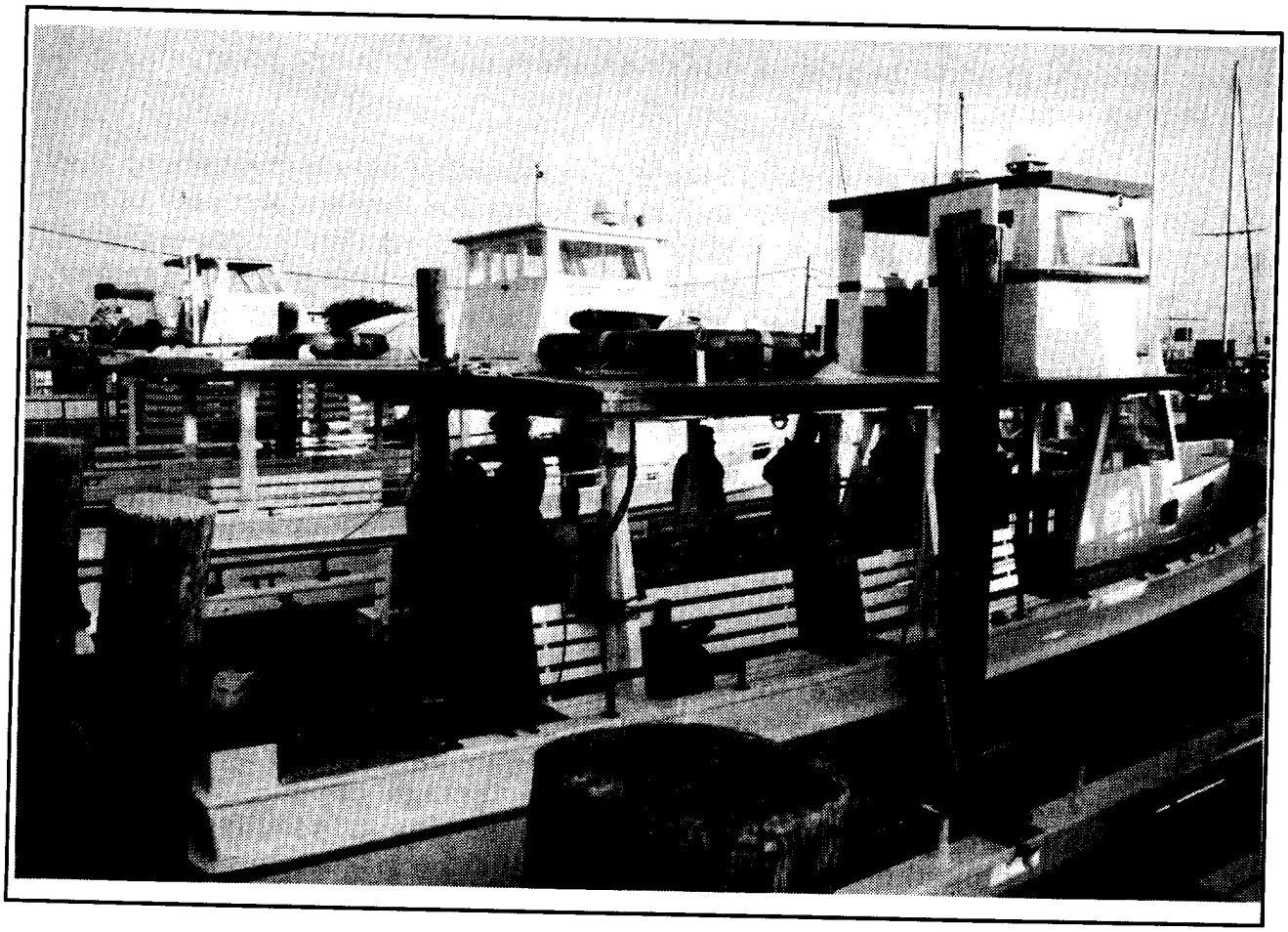

Figure 25. The project vessel, *Nina H II.*

magnetometer was used to confirm the location of the wrecks relative to the reference buoys through recording the magnetic field, including anomalies generated by wreck components, surrounding a buoy. The fathometer was used as an additional check on site location through recording vertical profiles of the bottom intended to show anomalous acoustic features such as might be produced by wreckage projecting above the bottom.

The Geodimeter is an infrared-based, programmable survey instrument with tracking and data-dump capabilities that has a repeatable distance accuracy of 0.02 foot. The range of the Geodimeter 422 is 2.0 miles under standard clear conditions, with the three prism infrared reflector assembly utilized on this project. The total station prism, which reflects an infrared beam used to accurately determine distance through return-time measurements, was mounted on the survey vessel and oriented with the prisms facing the shore-based total station. Positioning and navigational information was relayed between the project vessel and the total station operator through two-way radio communication. The primary function of the Geodimeter total-station was to establish the accurate placement of reference buoys through angle and distance measurements at the reported positions of the two Civil War wrecks (Figure 26).

A Geometrics 866 marine survey proton precession magnetometer with a G-801 marine sensor was used to confirm buoyed site locations. Briefly, the magnetometer, through the sensor, measures and records the Earth's ambient magnetic field and the presence of magnetic anomalies generated by ferrous masses and various other sources. As the sensor passes through the magnetic anomaly surrounding a ferrous mass, the intensity of that anomaly is recorded (at one-second intervals for this project) on the strip chart printout of the magnetometer. The strip chart printout records data both digitally and graphically, indicating the ambient background field and the character and amplitude of anomalies in gammas, the standard unit of magnetic measurement. The ability of the magnetometer to record magnetic anomalies, the sources of which may be related to submerged cultural resources such as shipwrecks, has caused the instrument to become the primary remote sensing tool used by marine archaeologists. While it is not possible to specifically identify a ferrous source by its magnetic field, it is possible to predict shape, mass and alignment characteristics of anomaly sources based on the anomaly's magnetic signature. Interpretation of magnetic data can provide an indication of the likelihood of the presence or absence of submerged cultural resources. Specifically, the ferrous components of submerged historic vessels tend to produce magnetic signatures that differ from those characteristic of isolated pieces of debris or modern construction.

As an additional confirmation of site location, a Raytheon Model DE-719C recording survey fathometer was employed. The fathometer is an acoustic instrument for determining depths, which works on the principle of measuring time elapsed between the transmission of a sound from a transducer directed toward, and the return of an echo from, the bottom. The data collected by the

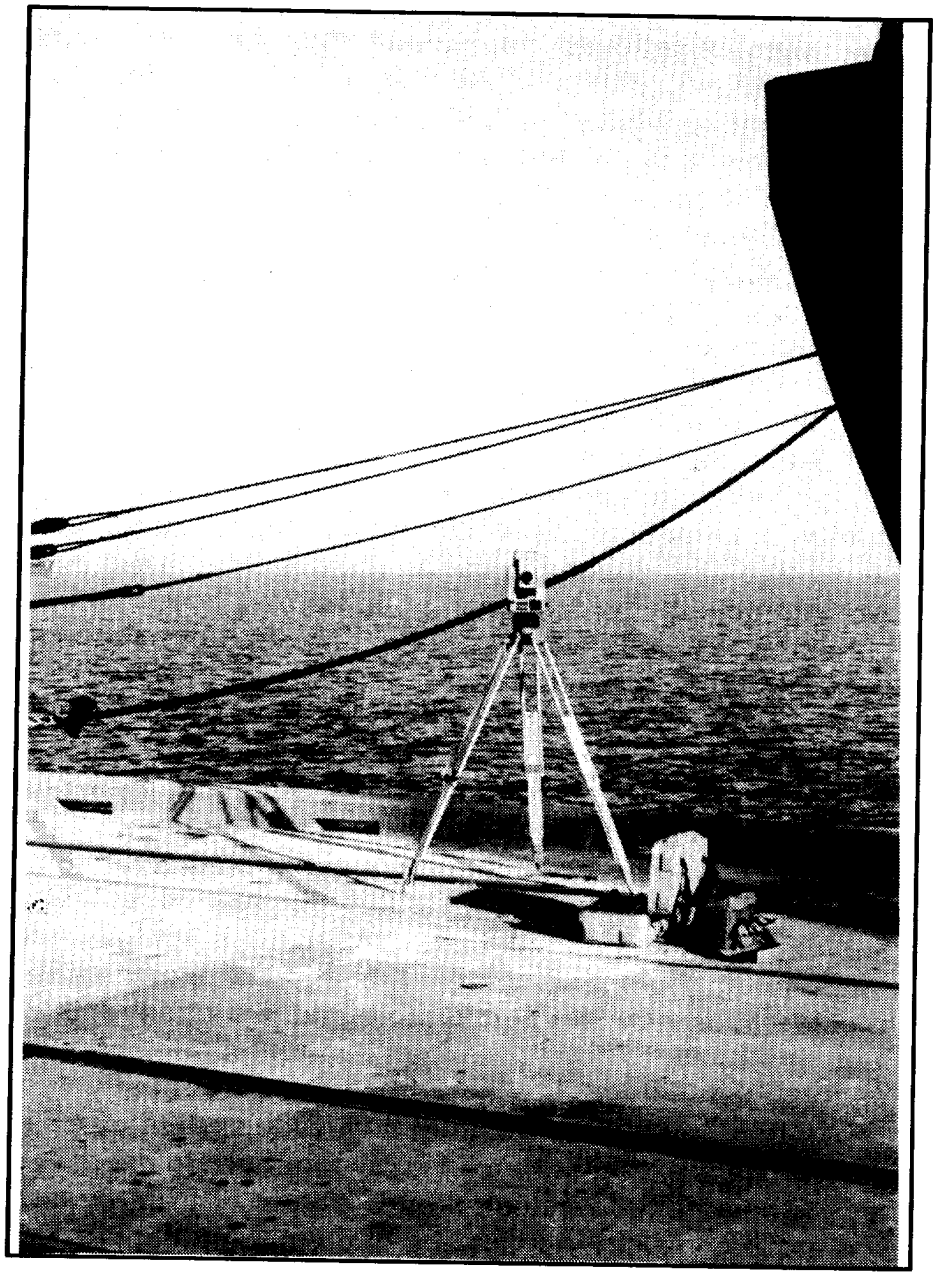

Figure 26. Geodimeter Total Station on Pier C.

fathometer is continuously recorded on a paper strip chart, producing an image representing a thin vertical profile of the bottom directly beneath the track of the survey vessel. The Raytheon Model DE-719C recording survey fathometer was used to record vertical profiles of the bottom on survey lines run in the vicinity of site buoys placed through angle and distance measurements from the total-station survey instrument. The acoustic record produced was examined for anomalous acoustic features produced by wreckage projecting above the bottom or laying beneath the bottom but producing a signal return indicating a material differing from the surrounding sediments.

Throughout this investigation, diving operations were conducted utilizing a Surface Supplied Air (SSA) diving system. Although SCUBA diving had been considered as an option for this project, SSA diving was the sole method used, due to the inherent safety and more efficient working operations provided by the direct diver-to-surface air-line and communications (Figure 27). The SSA system was composed of two complete diving sets, each with 200 foot hoses, and a dive helmet, with either a Heliox-18 or a KMB-10 band mask. These masks were equipped with non-return valves that were checked for proper function prior to each dive. The helmets were maintained according to manufacturer's specifications, and only approved spare parts were used for replacements. The dive masks were under current certifications with copies of those certifications having been provided to the COE Mobile District Diving Officer prior to the commencement of diving operations. In addition to dive helmets, divers using SSA wore a safety harness with a release attachment connected to the umbilicals; bail-out cylinders connected to the helmets; weight belts equipped with quick-release buckles; and protective gear, such as wet suits, boots and gloves, which were worn during all diving operations in consideration of water temperature and potentially hazardous marine life and wreckage.

Air for SSA diving was provided from a cascade system of no less than two 240 cubic foot 'K'-bottles, together with a 72 cubic foot backup cylinder connected to the surface manifold as an emergency air source in case of primary air failure. The breathing air was acquired from local vendors, and copies of the vendor's certificates of air quality were obtained. Air cylinders were stored upright on deck in a ventilated area. Breathing air cylinders, both on-line and stored for later use, were protected from excessive heat and securely lashed to prevent any movement. The diving supervisor monitored the air supply system during each dive to insure that air pressure was correctly maintained and adequate reserve air always available. Pressure gauges and check valves were included in the air supply system as appropriate and as required. The air supply hoses used were Gates 33 H/B commercial dive hose, which has a working pressure at least equal to the working pressure of the air supply system and a rated bursting pressure at least four times greater than operating pressure or at least 80 PSI over bottom (gauge) pressure. These hoses are kink-resistant and were equipped with corrosion resistant fittings. As with the dive masks, the dive hoses used were under current certifications, with copies of these certifications having been provided to the COE Mobile District

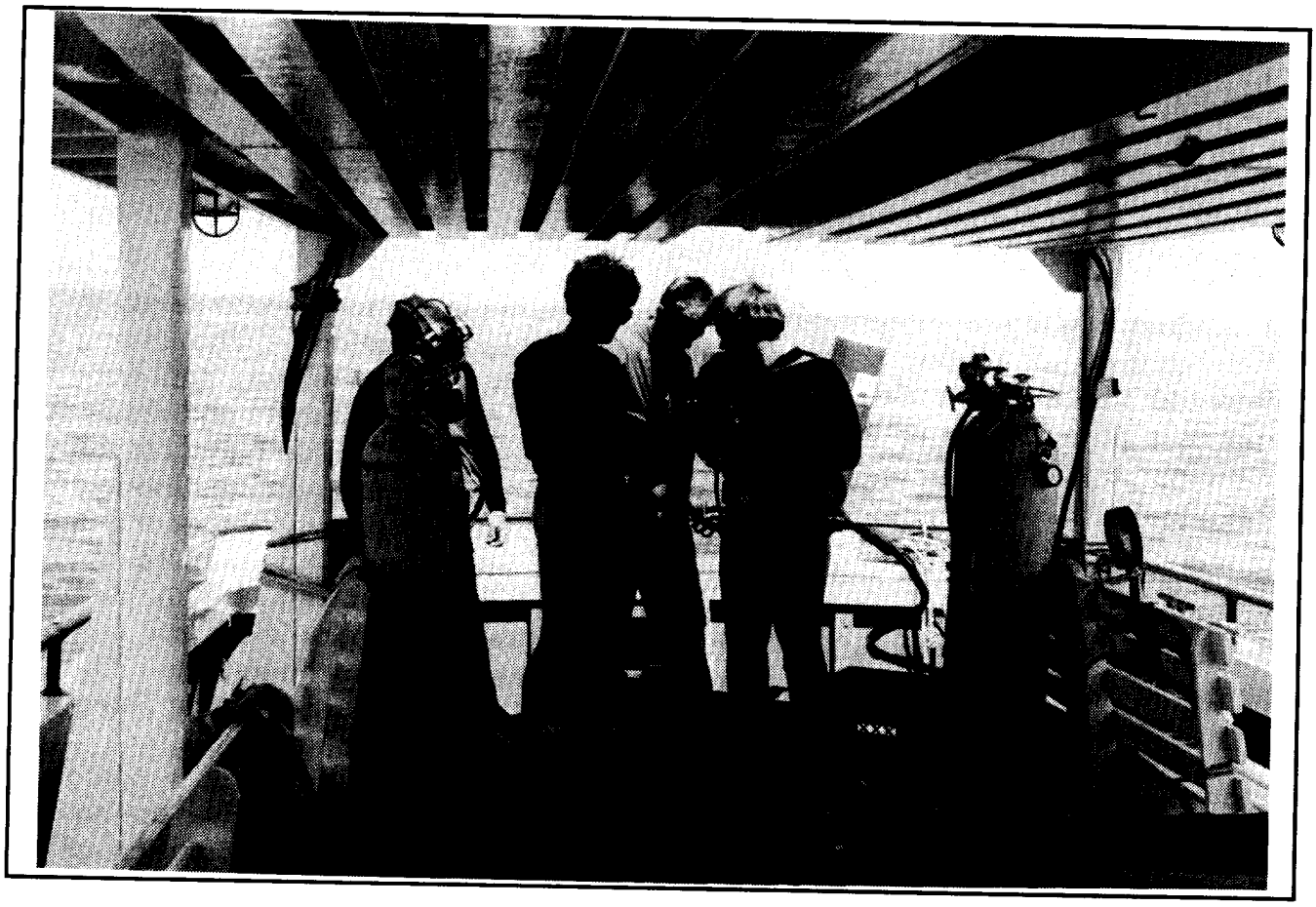

Figure 27. Diving operations

Diving Officer, prior to the commencement of diving operations. The air supply hoses were securely integrated with a safety line of 3/8 inch polypropylene rope to form the diver umbilicals. The 200-foot umbilicals were marked in 10 foot increments from the diver ends. When not in use, umbilicals were over-under coiled to reduce or prevent twists and/or kinks. Air supply hoses were blown clear at the start and end of each diving day, and the hose ends, together with all exposed air supply fittings, were capped or taped when not in use. All equipment used during diving operations was inspected prior to each dive.

Safety Considerations

Safety was a primary goal of this project, and diver safety was given priority in all decisions and actions undertaken during diving operations. The diving operations for this project met all federal requirements for safe diving and were performed in accordance with the U.S. Army Corps of Engineers "Safety and Health Requirements Manual" EM385-1-1, dated October 1992; with the U.S. Navy Diving Manual; and with PCI's "Diving Safety Program for Submerged Cultural Resource Investigation" as appropriate. During all diving operations conducted as part of this project, all persons diving and working under the auspices of PCI followed the operating procedures set forth in the project Dive Safety Plan, which had been submitted to and approved by the Diving Safety Officer of the Mobile District, U.S. Army Corps of Engineers, prior to the commencement of field operations. The Corps actively participated in insuring diving safety by maintaining a Diving Safety Officer on board the project vessel throughout diving operations.

Diving was only by Surface Supplied Air (SSA) and was restricted to the no-decompression limits. In calculating no-decompression limits and duration of dives, the next greater time and next greater depth on the latest edition of standard U.S. Navy Diving Tables were used. As stated, SCUBA diving, although proposed for use on this project, was not utilized, as limited underwater visibility, jagged wreckage, strong currents, and time constraints due to depth and no-decompression diving limits were unfavorable for safe SCUBA diving operations. The safety features of SSA were considered essential for working in conditions of minimal underwater visibility and potentially strong currents. Due to the diving conditions, the voice communication between diver and surface provided by SSA was considered essential and was maintained throughout each dive. If voice communication had been lost on any dive, the dive would have been terminated and the diver immediately brought to the surface.

On the first day of diving operations, Saturday, May 22, 1993, project participants were thoroughly briefed on the content and objectives of the Dive Safety Plan at a specific project safety meeting conducted before the dive vessel left the dock. Emergency procedures were presented, and all participants were made familiar with safety and first aid supplies, evacuation routes, and the local emergency facilities and their phone numbers and radio contacts. It was made clear

that all diving was voluntary and that any dive team member had the option to decline to dive at any time. All dive team members were informed that it was their obligation to immediately bring to the attention of the diving supervisor any existing, arising or potential threats to diver safety. Operating procedures were established at the dive safety meeting to insure the safety of project personnel. Periodically during the project, the dive team reviewed the Dive Safety Plan at briefings deemed necessary by the diving supervisor. Additionally, safety and planning sessions preceded diving operations each day. These sessions included discussion of safety aspects, potential hazards, tasks to be undertaken, emergency procedures, and any necessary modifications to operating procedures.

Appropriate emergency facilities were contacted and notified of the project prior to diving operations. The U.S. Coast Guard was notified of working dates and location prior to initiation of fieldwork. The Coast Guard was, as well, contacted twice daily by radio, once when the project vessel reached the project area, to inform them that project personnel would be anchored and conducting diving operations, and again at the end of the day, to inform them that diving operations for that day had been concluded.

While the effective and efficient completion of archaeological goals and objectives was pursued in the face of sigificant operational constraints, the safety of project personnel was always maintained as a priority, and diver safety was considered first in all decisions and actions undertaken during diving operations.

Operational Constraints

A number of natural and artificial constraints impeded the progress of this shipwreck documentation project. Among the natural constraints were water depth over the wreck sites, limited underwater visibility, strong underwater currents, and particularly, adverse weather conditions, each of which, at times, either restricted the ability of divers to work or prevented diving operations from being safely conducted. The artificial constraints on the project included vessel traffic through the project area and commercial clamming operations conducted on or near the sites. While the artificial constraints never precluded diving, they frequently delayed operations by either preventing the project dive vessel from entering the project area or by temporarily blocking the anchorage at a wreck site. These unusual operational constraints, in addition to normal equipment problems and operational delays, cost the project a considerable portion of the limited time available to conduct the project.

Although vessel traffic and commercial clamming operations never prevented work on either of the two sites, these two activities proved to be a common nuisance during work in the project area. On five of the seven days available for diving operations, the project was delayed by vessels working in or transiting through the project area. On May 23, the project lost 15 minutes while the

Lykes Lines cargo ship *Joseph Lykes* departed a nearby dock and passed through the project area. On May 26, the project lost 45 minutes while a Navy vessel transited the project area after leaving dry dock. May 27 suffered a number of short delays during magnetometer positioning runs on the *Cumberland* site; at the start of the day, three clammers were found working on or near the *Cumberland* and another on the *Florida* site; a short time later, a Navy vessel headed upriver through the project area, causing a delay of almost 20 minutes; and an additional delay at the end of the magnetometer runs was caused by the passage through the project area of both a containership and barge-tow (Figure 28). Finally, on May 28, operations were again delayed by the presence of a commercial clammer working directly over the wreck of the *Cumberland*. These artificial constraints caused delays in the diving operations and reduced time available for diving that was already severely restricted by natural constraints.

Water depth over the two wreck sites was a significant constraint on diving and diving safety throughout the project. Depths over the each of the wrecks were accurately measured at the beginning of each dive, averaging 63.6 foot over the *Florida* and 67.4 foot over the *Cumberland*. As the Diving Safety Plan approved for this project by the Corps of Engineers Diving Safety Officer properly restricted diving to within the no-decompression limits, with an additional safety factor of computing dive times utilizing next greater time and next greater depth, individual dives were limited to a maximum of forty minutes following the moment the diver began his descent. To insure that a diver was out of the water within the maximum time allowed, the diver's return from the bottom was scheduled for 35 minutes following the moment the diver began his descent. These time restrictions dictated by depth, coupled with time necessary for activities such as descent to the bottom and recording depth and travel across the bottom, limited the total effective working time on each dive to an absolute maximum of 20 to 30 minutes.

Within the limited time on the bottom that a diver had, the diver's efforts at documenting the wrecks were constrained by limited underwater visibility and tidal currents. Underwater visibility was a constant problem on every dive. The maximum recorded visibility during the project was two feet while the majority of dives on both sites were limited to visibility of less than one foot and as low as two inches. Additionally, the very light sediment that covered both wreck sites could be stirred up by the activity of a diver, raising clouds of silt that, at times, reduced visibility to zero. Poor visibility constantly impeded the diver's ability to examine and record the wrecks and severely hindered or prevented attempts at photographic documentation.

A far more serious constraint on project diving was the tidal currents that regularly ran through the project area. While a light current might clear away clouds of silt raised by a diver's activities, the strong currents common to the area could increase in force to the point where a dive would have to be terminated or diving operations suspended. These tidal currents were found to be capable of rapid change during the first dive on the site of the *Florida* when, during the course of

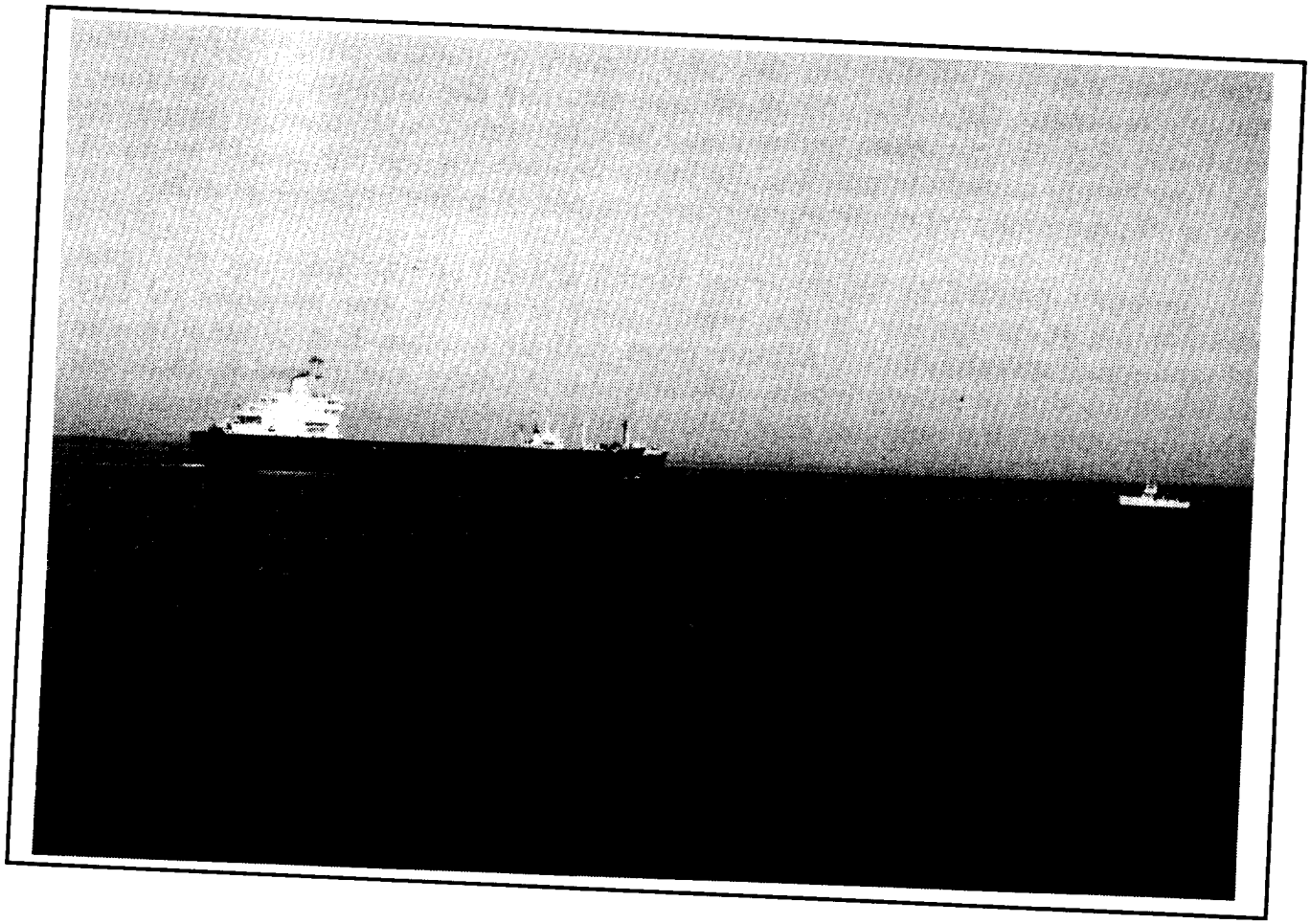

Figure 28. Commercial shipping activities in the project area. Project vessel is transitting on right.

that dive, the current increased in strength from being almost imperceptible to being too strong to allow further diving that day. On three occasions during the project, increasing current strength caused the early termination of dives; while two of these aborted dives lost only minimal bottom time, the third was terminated before the diver was able to reach to bottom. Following that cancelled dive, a period of almost three hours was lost waiting for the tidal current to slacken with the next tide change. A similar three-hour block of time was lost the following day between "windows" of slack time when diving could be safely conducted. Similar periods of tidal flow strong enough to pull the site buoys beneath the surface caused hours of delay in the mornings before diving operations could be safely begun (Figure 29).

Weather proved to be the most significant constraint affecting the time available for investigation of the wrecks and impeding the progress of this archaeological investigation. Almost three full days were lost to underwater investigations due to strong winds. On May 24, the crew was forced to abandon diving operations after only one dive, which had been delayed due to problems with anchoring caused by the wind, which when southwest from across the lower James River reached a reported 18 knots and blew cross current. On both May 25 and May 28, the last project day available for diving, vessel and crew arrived in the project area only to be forced back to dock by west-to-southwest winds of 15 to 20+ knots. These three "weather days" caused the loss of almost half of the seven days available for the underwater investigations of the two Civil War shipwreck sites. Future projects conducted on sites in the Hampton Roads area should be planned for periods when weather can be predicted to be more favorable. Perhaps during late summer or early fall, the advantage of weak weather fronts and light rains may result in reducing time lost to strong winds.

Site Positioning and Position Confirmation

The procedures for relocating both the *Florida* and the *Cumberland* sites were the same. From positioning information provided in the report from a previous project on the wrecks, calculations were made for angle and distance measurements to the sites from a known survey point (Watts 1987). With that information the Geodimeter total-station was used to guide the survey vessel and to drop a reference buoy on the reported location. Two remote sensing instruments were then used to confirm site location. A proton precession magnetometer and recording fathometer were then employed to search for the presence of magnetic anomalies and anomalous river bed features indicative of shipwreck sites as confirmation of the accuracy of the positioning information. Once each reported site had been relocated and the potential presence of the wrecks confirmed by remote sensing, the diving operations commenced, providing definitive confirmation of the location of each Civil War shipwreck.

Preliminary to all positioning efforts on the wreck sites, it was necessary to secure permission from the Newport News Port Authority for access to Pier C

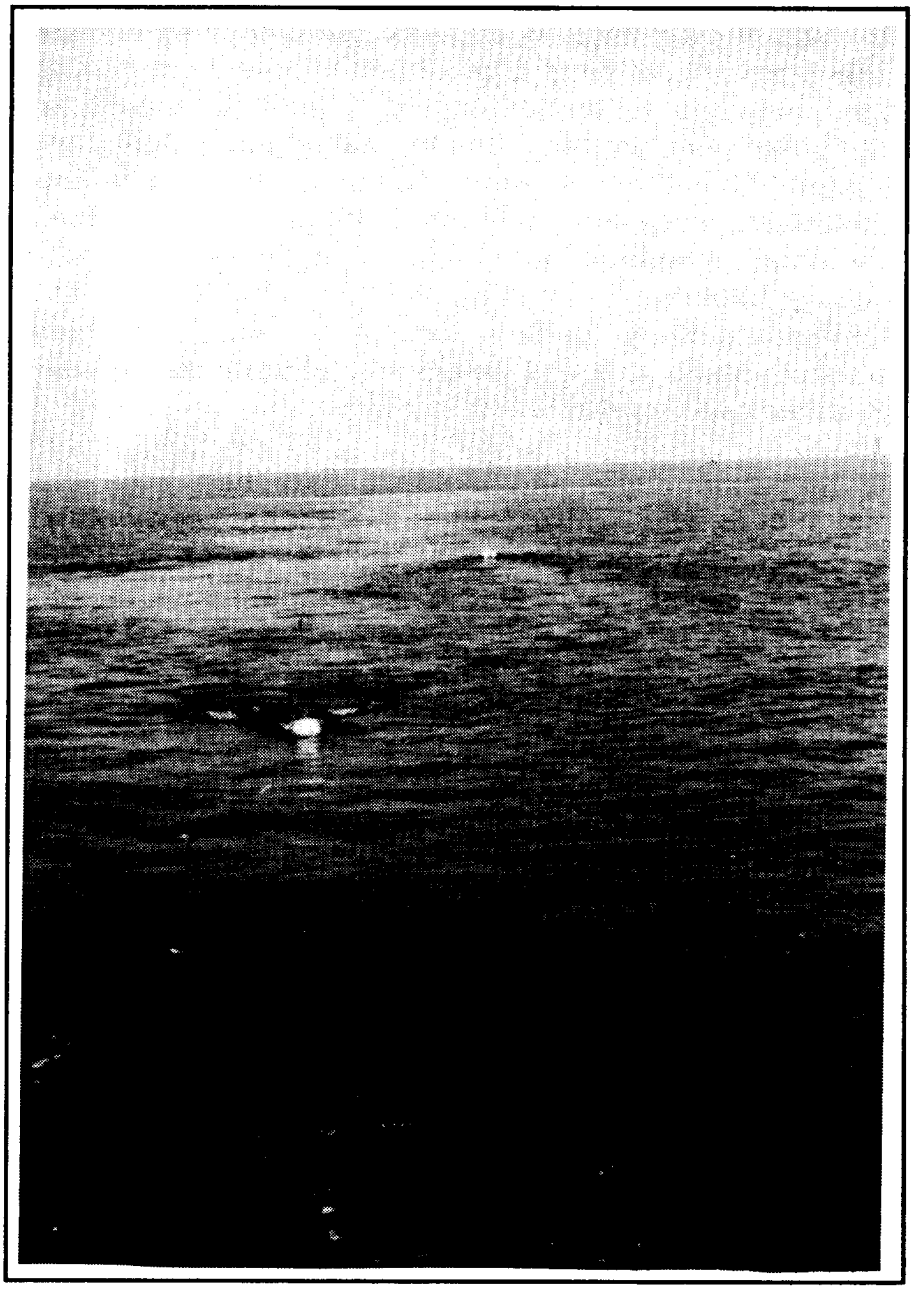

Figure 29. Photograph of the currents on site buoy. Magnetometer buoy is in foreground.

(Figure 30), a location with a clear view of both target areas and that contained one of two survey stations used in the 1987 remote sensing investigation project (Watts). In order to place buoys at the locations reported by Watts, it was necessary to translate Motorola MiniRanger two station triangulation data into an angle and distance to each wreck for the single station Geodimeter survey instrument used on this project. This would have been a relatively simple task, had there been an unobstructed view between the station on Pier C and the second station on the McAllister dock to the west, as had been the case during that previous project. However, two large U.S. Navy transports had been moored in the line of site between the two stations, completely blocking sight between the McAllister station and the Pier C station, as well as the McAllister station view of the wreck sites. Through establishing intermediate survey points around the two transport ships (one in the McAllister parking lot and another on Pier B) to trigonometrically connect the two survey stations, it was possible to calculate the necessary angle and distance for each of the two reported wreck locations.

Once the necessary angle and distance data had been calculated, the Geodimeter total-station was utilized to provide the positioning information necessary for the crew on the project vessel to buoy the two sites. This was begun by setting the Geodimeter on the Pier C station and, with a backsite on a zero point aligned with Pier C by locking the Geodimeter onto the calculated angle for a wreck. With radio communication maintained between survey station and survey vessel, the vessel was then run either directly toward or away from the Geodimeter on the set angle, with the total station triple prism assembly always kept facing toward the Pier C station. When the Geodimeter recorded the survey vessel at the appropriate distance from the station, that information was relayed to the vessel, and a buoy was dropped to mark the calculated wreck site. The survey vessel was then maneuvered up to the buoy, and angle and distance were checked. If the buoy location was found to be incorrect, the buoy was retrieved and the procedure repeated. If the buoy placement was found to be in the correct location, the Geodimeter was secured and remote sensing confirmation of the wreck site begun.

The remote sensing confirmation of each wreck location was accomplished through the use of a Geometrics 866 magnetometer and a Raytheon Model DE-719C recording survey fathometer. With a reference buoy accurately placed at the calculated position of a wreck, these two remote sensing instruments were operated along survey lines run relative to that buoy. The magnetometer was assembled, and its marine sensor was deployed astern of the vessel at a measured 30 feet aft of the transom. The magnetometer was set to record readings at one-second intervals and to display the 50/500 gamma scale on the strip chart. The fathometer transducer was mounted to a pipe and secured to the side of the project vessel. The survey lines were primarily run parallel to the shore but with additional cross lines run at a right angle to the shoreline. At each of the buoyed wreck locations, magnetic anomalies and bottom features consistent with the presence of a shipwreck were recorded, providing confirmation of the accuracy of recorded positions and the calculated

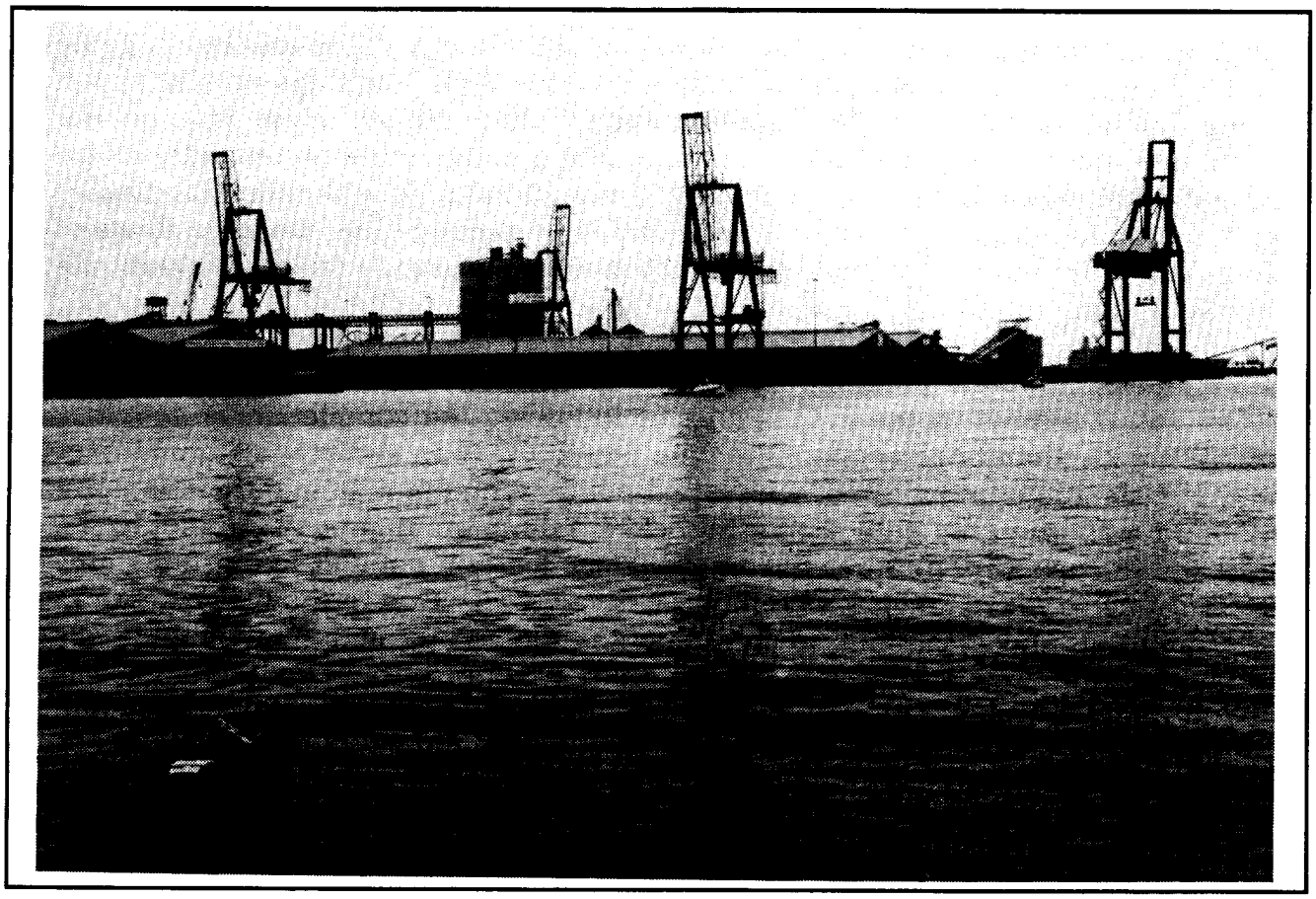

Figure 30. View of Pier C positioning location from the *Florida* wreck site.

positioning data. Ultimate confirmation of the wreck locations was accomplished with the subsequent diving operations at each site.

Diving Operations

Diving operations took place from May 22 to 28, 1993 (a total of 7 days) on each day that weather and conditions permitted safe diving. As presented in Table 1, a total of fifteen dives were completed on the two Civil War shipwreck sites, ten on the *Florida* and five on the *Cumberland*. Of these fifteen dives, one on the *Florida* and one on the *Cumberland* were terminated early for safety considerations. The remainder of the dives ran at between 27 and 38 minutes in duration, averaging slightly over 35 minutes per dive. These dives were accomplished between flows of strong tidal currents during periods of slack water that usually lasted between one and two hours.

Diving operations were preceded by notification of the Coast Guard, either as the project vessel arrived in the project area or following the completion of activities preliminary to diving operations. The dive vessel was then securely anchored over the wreck site to be investigated, with a two-point anchoring system. The two-point anchoring was primarily with the vessel held firmly in an alignment parallel to the shore and in such a position relative to the wreck location buoy as to place the area intended for the diver to work astern of the dive vessel. Due to the water depth in the project area and the strong tidal currents that flowed through it, anchoring was commonly a difficult task that required repeated efforts. Once the vessel was securely anchored, both an international diving flag (Alpha flag) and a civilian "diver-down" flag (red with white diagonal stripe) were raised in prominent display above the diving vessel. When diving operations were concluded, the international diving flag (Alpha flag) and a civilian "diver-down" flag (red with white diagonal stripe) were raised in prominent display above the diving vessel. When diving operations were concluded, the international diving flag and civilian "diver-down" flag were lowered, the anchors raised, the Coast Guard informed of the the conclusion of diving operations, and the dive vessel returned to dock at the Wiloughby Bay Marina while the diving equipment was disassembled and secured.

All diving was done by Surface Supplied Air (SSA), with only one diver in the water at a time. Whenever a diver was in the water, a standby, or safety, diver was on deck fully suited with dive helmet in hand and prepared to dive in the event of an emergency. Each SSA diver had a full-time dive-tender responsible for the critical job of handling the diver umbilical. Additionally, the tender assisted the diver with his equipment and checking, to ensure that the diver was properly rigged and adjusted immediately before the diver entered the water. The diver and the diving supervisor conducted a communications check prior to the diver entering the water on each dive. The diver checked the rig for proper function before entering the water, immediately upon submerging, while descending and upon reaching the bottom before conducting any work. The tender held the diver's hose

with the proper tension at all times during the dive to permit the tender and diver to transmit and receive "pull-signals" as needed, particularly in the event of a loss of radio communication. At any time that a diver's umbilical became fouled, all work ceased and the umbilical was cleared, and the hazard that caused the fouling was evaluated before work was resumed. Upon completion of a dive and prior to the commencement of the next dive, the returning diver was required to inform the dive supervisor about diving conditions observed and specifically about any hazards or potential hazards encountered. Divers remained awake for at least one hour following completion of a dive as a precaution in the event that the symptoms of a diving disease occurred.

Table 1

Dive Record
Purpose and Work Accomplished

Dive No.	Dive Time	Purpose	Work Accomplished
CSS FLORIDA			
1	0:30	Search for wreck.	Find wreck.
2	0:36	Search for wreck.	Find scattered iron & wood.
3	0:38	Search for wreck.	Find articulated wreckage.
4	0:38	Investigate wreck.	Place buoy; examine & record wreck.
5	0:37	Investigate wreck.	Examine and record wreck.
6	0:33	Lay travel line.	Dive canceled: strong current.
7	0:27	Video wreck.	Video wreck. Dive canceled: strong current.
8	0:08	Lay travel line.	Dive canceled: strong current.
9	0:35	Video wreck.	Video wreck.
10	0:37	Video wreck.	Video wreck to limit of camera lights.
	5:19 = Total Dive Time		
USS CUMBERLAND			
11	0:36	Search for wreck.	Find articulated wreckage.
12	0:38	Investigate wreck.	Locate misc pieces of wreckage.
13	0:11	Investigate wreck.	Dive cancelled: communications failure.
14	0:37	Investigate wreck.	Locate misc pieces of wreckage.
15	0:34	Video wreck.	Video and record wreck.
	2:36 = Total Dive Time		

Underwater archaeological investigation of each shipwreck began with a visual assessment by divers to determine site orientation, integrity and site dynamics, such as visibility, depth, currents and sediment types. These initial assessments were conducted with circle searches in which the diver utilized the dive rig umbilical to walk predetermined arcs across the wreck and surrounding areas. It had been proposed that, following initial assessment, divers were to establish datum points and position a grid line between those points and across each wreck in order to facilitate mapping. Once on-site diving operations had begun, it was determined that conditions were such that datum points and grid lines would be excessively time consuming and the operation was, therefore, altered to divers examining, measuring and recording components of the wrecks and the relative positions of those components to one another. In order to document buried portions of the wrecks, it had been planned for divers to conduct hydraulic probing to determine thickness of overburden and to delineate the maximum extent of sub-bottom wreck remains. Again, site conditions were found to be such that hydraulic probing was considered to be both too time consuming and, more importantly, too great an additional hazard to be conducted. Divers conducted video documentation of the wrecks with results that were severely limited by the low visibility. Due to restricted visibility, still-camera photography was not conducted. While it had been planned for divers to retrieve any artifacts encountered that were judged to be unique, or that were considered to be at risk of unauthorized removal if not recovered, no such artifacts were encountered during diving operations.

CHAPTER 6

RESULTS

As indicated in the Investigative Procedures section, the short duration of the project, coupled with the environmental constraints of wind and tidal currents, allowed only a brief inspection of each wreck site. The investigation of both vessels commenced with the deployment of a locational buoy positioned with the Geodimeter. Once buoyed, a brief magnetometer survey was conducted to confirm the presence of the wreck site, as well as the accuracy of the positioning system. Upon completion of locational refinement procedures, archaeological assessment of each wreck site began. The results of the archaeological assessment for each vessel are as follows.

USS CUMBERLAND

A total of only five dives was accomplished on the wreck site of the *Cumberland*, the investigated area covering approximately 150 feet by 100 feet. As a result of these dives, it was realized, as it was by other researchers before us, that the site is extremely disarticulated. The remains have been impacted not only by its fateful battle with the *Merrimac*, but from destructive salvage attempts and more modern impacts in the form of clamming activities, anchoring of tankers, and deposition of dredge material.

Submerged in water depths between 62 and 70 feet, the site is characterized as small sections of wreckage situated in scoured-out depressions, with an almost "bomb crater" feel to the bottom. While the depressions or craters are assumed to be a result of tidal scouring, it is possible that the depressions are due to a combination of both dumped dredge material and scouring. They are not thought to be a result of clamming. An enormous quantity of dredge material was reported by George West to have been dumped on the site after post-war salvage efforts prompting him to state that "no doubt now the boat is entirely covered over" (Margollin 1987:84; Underwater Archaeological Joint Ventures 1982:11). What may be dredge material in the form of rock and rubble was observed over a large area of the wreck site. The rock was 3 feet in diameter or less, although some pieces were at least body length in size. One 8-inch diameter, semi-angular piece that was recovered (albeit recovered for its small size) appeared to be a shale or slate. As of this writing, it is unknown what the *Cumberland* employed for ballast. And while it is possible that the rock represents ballast, its scattered and rubble-like nature, as opposed to a concentrated pile, argues against its identification as ballast.

Given the limited number of dives on the *Cumberland*, it was not possible to produce a site plan. In addition, wreckage we did encounter could not be absolutely correlated to the SHARPS plan produced by the 1987 survey and presented in Figure

24. An iron box, 4 feet by 2.5 feet and protruding 2 feet from the bottom sediment, with iron straps or bands on its upper edge and corners, was located. Without a top and empty of contents, it may represent one of two boxes with similar characteristics located during the 1983 survey (Hampton Roads Naval Museum 1987:8). Numerous disarticulated timbers and metal fragments from the vessel, as well as intrusive items such as pilings, and wire rope were observed throughout the investigated area.

Situated approximately 10 feet from the iron box was a run of frames and some planking covered by marine life in the form of weed, gorgonias, and crabs. This section measured at least 10 feet in length and protruded from the bottom 5 feet. The section was composed of some unknown type of machinery with large frame timbers, some nearly 12 inches square. Four-inch-thick planks were visible in the sediment at the base of the wreckage. The upper surfaces of the timbers on this section are eroded, but some wood, especially the large timbers, have smooth well-preserved surfaces. This section of wreckage is semi-articulated and is indistinguishable as to component type or hull area (e.g., outer hull, inner stanchions, etc.). However, only iron fasteners were observed, and their presence and the lack of copper alloy fasteners indicates that this is an internal or above water-line vessel component.

CSS FLORIDA

Unlike the *Cumberland* site, which was extremely disarticulated, the wreck site of the *Florida* appears to be relatively intact. As illustrated in Figure 31, the Projected Remaining Profile and Cross-Section, observations made during the ten dives conducted on the site indicated that the wreck is composed primarily of the lower hull. Divers encountered findings similar to NUMA'S 1981 investigation, including a long run of intact hull, and what appear to be boilers or engine machinery. NUMA's findings included:

> a 121 foot section of hull on the inshore side composed of 6.5 x 7 inch frames, 3 inch ceiling and 5 inch outer planking; a 16 foot section of hull on the offshore side; a small scuttle in the deck with a 13 inch inner diameter; a large iron object 11 feet x 5 feet 6 inches consisting of two adjacent cylinders which may be boilers; and directly inshore of this, a copper alloy through fitting 4.5 inches inner diameter, possibly an intake valve for the boilers. Among the other observed and recorded features are 2 hatchways, 2 feet 8 inches and 5 feet wide, for and aft respectively of a massive, flat, circular iron object 4 feet 3 inches in diameter (Underwater Archaeological Joint Ventures 1982).

In contrast to NUMA's investigation, which found very little sedimentary overburden in most areas examined (Underwater Archaeological Joint Ventures 1982:11), our project found no unburied wreckage components, except the inshore

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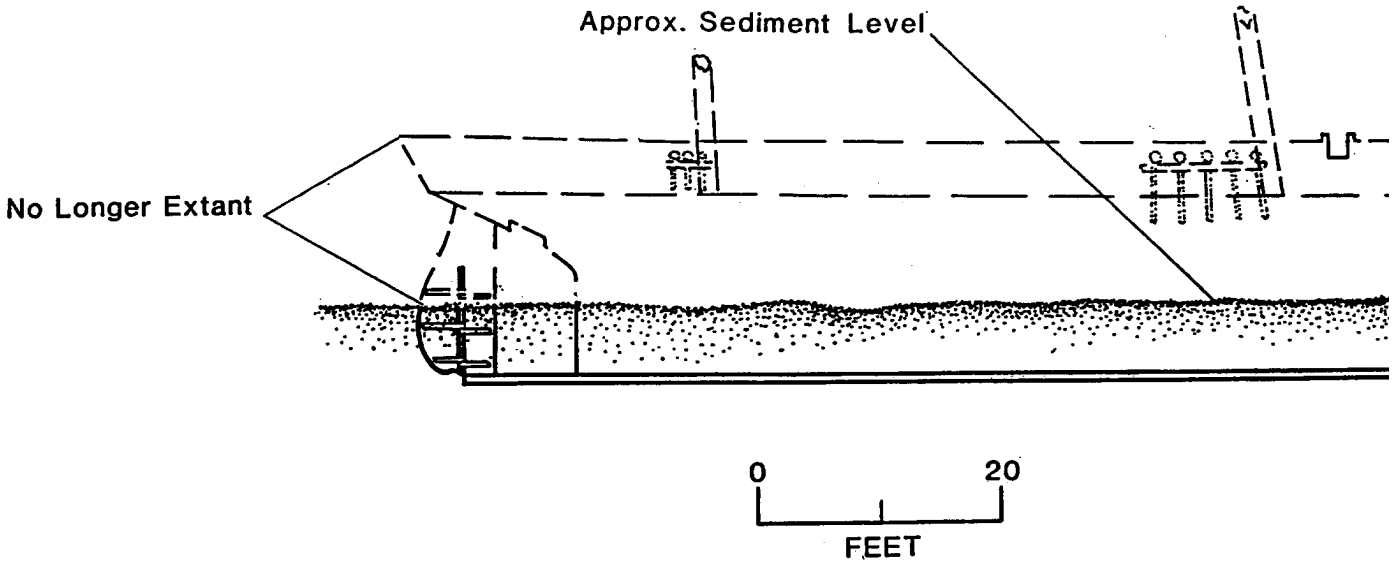

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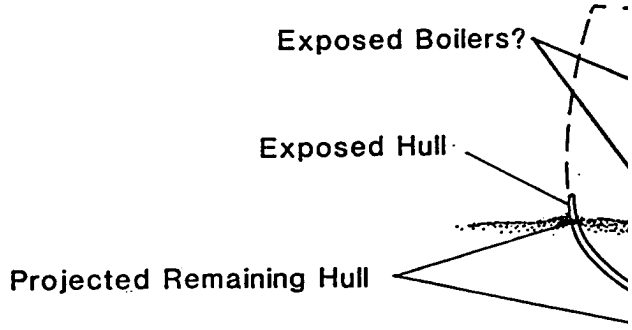
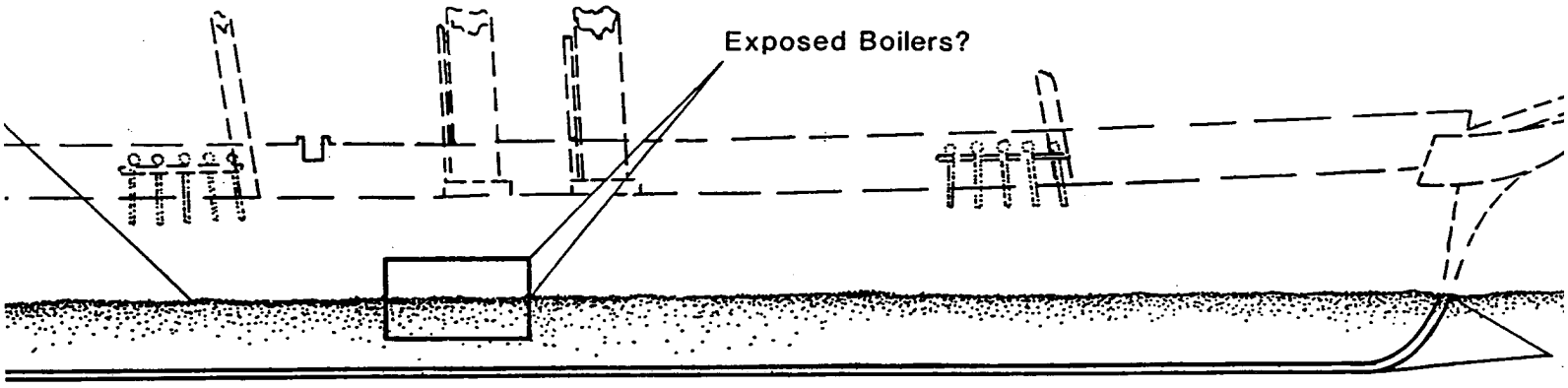
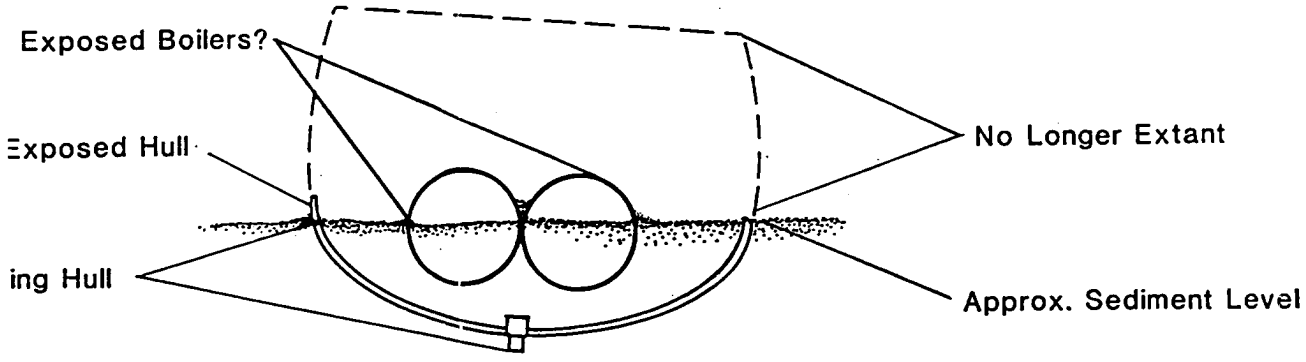


PROJECTED REMAINING PROFILE



PROJECTED REMAINING CROSS-SECTION



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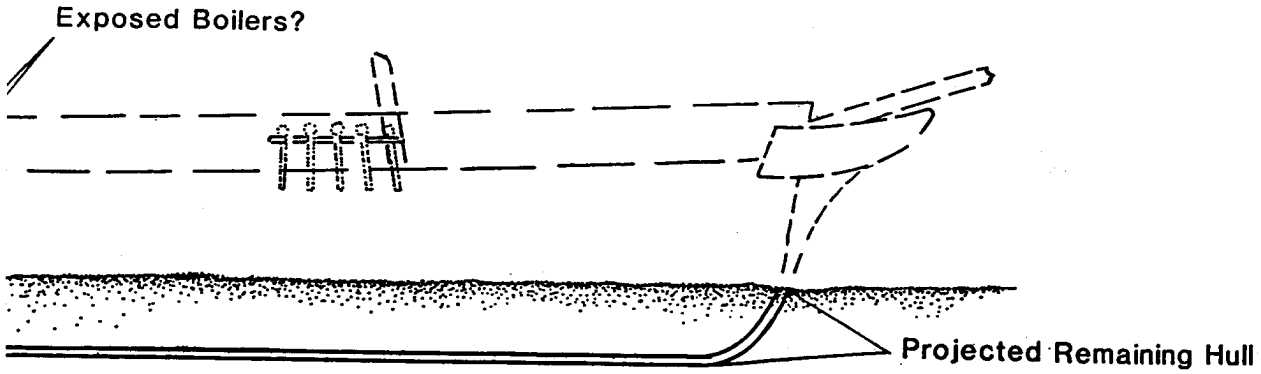
Inshore

OFILE



-SECTION

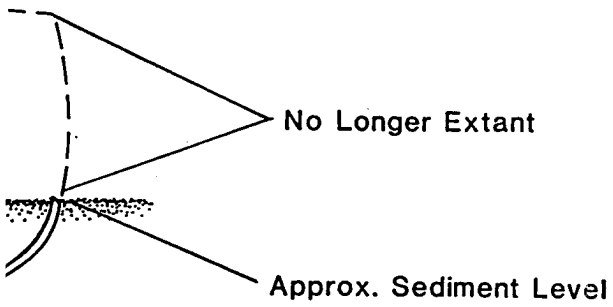


Figure 31

Projected *Florida* Hull Remains

run of hull and what are thought represent the top of the vessel's dual, 7-foot diameter, circular boilers. An exposed 80-foot run-of-hull, composed of frames, ceiling, and hull planks with attached copper alloy sheathing, was followed and measured, with both ends disappearing into bottom sediments. The run-of-hull projects into the water column up to four feet in places (Figure 31 should be compared to NUMA's Figure 21). In contrast to the exposed 135 feet recorded in 1981, the 80-foot run-of-hull, and the fact that our project found no unburied wreckage components, besides the boilers, argue that the wreck has undergone a period of sediment acretion.

Situated on the upriver end of exposed hull is a 4-inch, copper alloy collared cylinder or through fitting, possibly a water intake for the boiler feed pump. Opposite this fitting within the hull are what are believed to be the exposed tops of the boilers. Their top three feet exposed, the boilers are adjacent cylinders, each measuring approximately 7 feet in diameter. Plan dimensions state that the boilers were "two horizontal, tubular; height 7 feet, length 14 feet, width of 20 feet" (See Figure 15). The upriver ends of the "boilers" are concave, and their opposite ends are buried. A 6 inch diameter pipe, valve, or fitting projects from one boiler.

A modern, stockless anchor with chain was found embedded in the outer side of the down-river end of the extant hull, silent evidence of the impacts that the vessel has undergone and which continue to erode her integrity.

A ten-foot-square section of exposed ceiling was observed inshore from the anchor. The presence of ceiling, the "feel" of the curvature of the exposed portion of copper-clad hull side, and height of the boilers minus their exposed top three feet, argues that what remains of the *Florida* is turn-of-the-bilge down. However, this differs with observations made by the 1981 investigation, from which Margollin states that "the features observed on the deck of the Horne Brothers Site cannot easily be compared with documented characteristics of the commerce raider. The corresponding level on the *Florida* would have to be the berth deck..." (1987:54).

It is felt that the differing projections on remaining hull may be a case in which both are correct. It is possible that varying levels exist along the vessel's length, with the differing projections one argument for further investigation. Whatever the case, the *Florida* appears to have undergone a gradual disintegration rather than violent dismemberment, with the area in and surrounding the hull rich in artifacts. Furthermore, the amount of vessel observed is evidence that important vessel components, such as the rudder and propeller, should be extant and in situ.

In closing, the lack of visible artifacts encountered at both wreck sites during the present study as opposed to the artifacts observed and recovered in past studies should be addressed. The 1981 NUMA investigation, as did the Naval Museum surveys, recovered numerous artifacts of varying type, all in a seemingly excellent state of preservation (Hampton Roads Naval Museum 1987; Margollin 1987;

Underwater Archaeological Joint Ventures 1982). However, in the ensuing reports there was no discussion as to the provenience of the artifacts, such as buried versus surface artifacts, nor was there any discussion as to retrieval method (e.g. excavation versus surface collection). If these artifacts were recovered from the surface, it is unclear why artifacts in a similar setting were not observed during the present investigation. The answers may lie in the fact that in contrast to NUMA's investigation, which found very little sedimentary overburden in most areas examined (Underwater Archaeological Joint Ventures 1982:11), our project found no unburied wreckage components, except the inshore run of hull. It is possible that the wreck experiences exposure and coverage episodes, a phenomena witnessed on other wreck sites (James et al. 1991a:61, 1991b:31).

CHAPTER 7

CONCLUSIONS AND RECOMMENDATIONS

Research has revealed unique and colorful histories for each of the vessels; the battle which sealed the *Cumberland's* fate was to signal the advent of technologies that would transform not only the navies of the world but the engagements they would fight, and the *Florida*, one of the most successful Confederate raiders, represented an evolving naval technology which helped to shape the course and duration of the war. While archival research has illuminated the vessels and the roles they played, underwater assessment of the two shipwrecks has revealed sites with contrasting characteristics. Although environmental constraints in the form of swift currents and limited visibility prohibited an intensive assessment and mapping regimen in the allotted seven day study period, it was readily apparent that the *Cumberland* site has been witness to far more destructive forces than the *Florida*. The *Cumberland* manifests itself as disarticulated and almost unrecognizable fragments of the fighting ship she once represented, while the *Florida* is the intact lower hull of the once proud commerce raider.

Apart from assessing the present condition of the wrecks, a major component of this study was the development of a long-term management plan for both sites. In order to realistically formulate and institute a successful plan, the extant historical data for each vessel, the integrity of the respective wrecks, their location in a busy shipping lane, and the attendant environmental constraints must all be reflected in that plan. With extensive construction plans and additional historic documents in hand, it is believed that further underwater investigations on the *Cumberland* site would be cost prohibitive for the information that would be obtained and which is most likely contained in extant documents (e.g., construction plans/construction techniques). Therefore, further work on the *Cumberland* at this time is not recommended. Lacking the structural integrity of the *Florida*, the *Cumberland* still represents a significant historical site, especially in light of the fact that it is the final resting place of over 100 men of the United States Navy. It is recommended that a plan of preservation through protection should be adopted for this site.

Unlike the *Cumberland*, the integrity of the *Florida* site, the lack of her original construction plans, the historical significance of the vessel type, and her gradual but continuing disintegration, argue not only for site protection but intensive archaeological data recovery.

Although environmental impacts to the sites cannot be mitigated, the long-term management plan adopted must address the aspect of impacts from commercial shipping. Vessel traffic associated with the adjacent coal and transshipment piers cannot be restricted for protection of the sites. However,

commercial clamming, as illustrated in Figure 32, should be prohibited in this area. As discussed, local watermen conducted destructive, illegal, and premeditated clamming on the sites in order to retrieve artifacts for resale, and watermen continue to clam on these sites, albeit for legitimate purposes. We witnessed several clammers working the sites, presumably for clams, with at least one clammer bringing timbers to the surface. Protection of the sites cannot be achieved if clammers are allowed to fish the area of the wreck sites. Therefore, regulations restricting clamming must be considered as part of site preservation.

Other aspects that a management goal should address and possibly incorporate include site monitoring and prohibition of anchoring. Relative to the latter, although a modern anchor was found embedded in the *Florida's* hull, it is unknown if vessel anchoring is allowed at present in this area. The status for anchoring (e.g., prohibited, allowed) must be ascertained for the immediate site area, and, if anchoring is permitted, provisions for its prohibition should be studied and adopted if legally possible.

Site monitoring is another option that has been discussed for inclusion in the long-term management plan for the two wreck sites. However, given the environmental constraints at the sites relative to costs-versus-work accomplished, it is believed that any short term underwater investigation would be ineffective in determining recent impacts and current site integrity. In reality, the data of both sites is, at this time, relatively incomplete, making any archaeological monitoring based on that data impossible. Rather, a comprehensive and lengthy investigation for each site would first have to be undertaken for any future site-over-time comparisons to be accurately posited.

As stated above, it is believed that additional underwater investigations on the *Cumberland* site would be cost prohibitive for the information that would be obtained and, therefore, further work on the *Cumberland* at this time is not recommended. This conclusion also applies to monitoring of the site. Unlike the *Cumberland*, the integrity of the *Florida* site is such that future monitoring could allow a determination that the wreck is undergoing further degradation from various forces, natural or man-made. The next step would then be for the management plan to address those impacts especially in regard to the man-made ones. However, as stated, monitoring would have to be preceded by an intensive and comprehensive study of the site to develop a data base. This investigation would be expensive, and would, in turn, be followed by additional expenses in the form of continued monitoring. Given that monitoring would be preceded by an intensive study, it is felt that site mitigation in the form of a data recovery be adopted rather than the intensive study and successive investigations monitoring entails.

If elected, data recovery at the wreck of the *Florida* should be conducted in accordance with a detailed data recovery plan. As the plans that exist for the *Florida* were only recently produced from the builders' model, research should attempt to

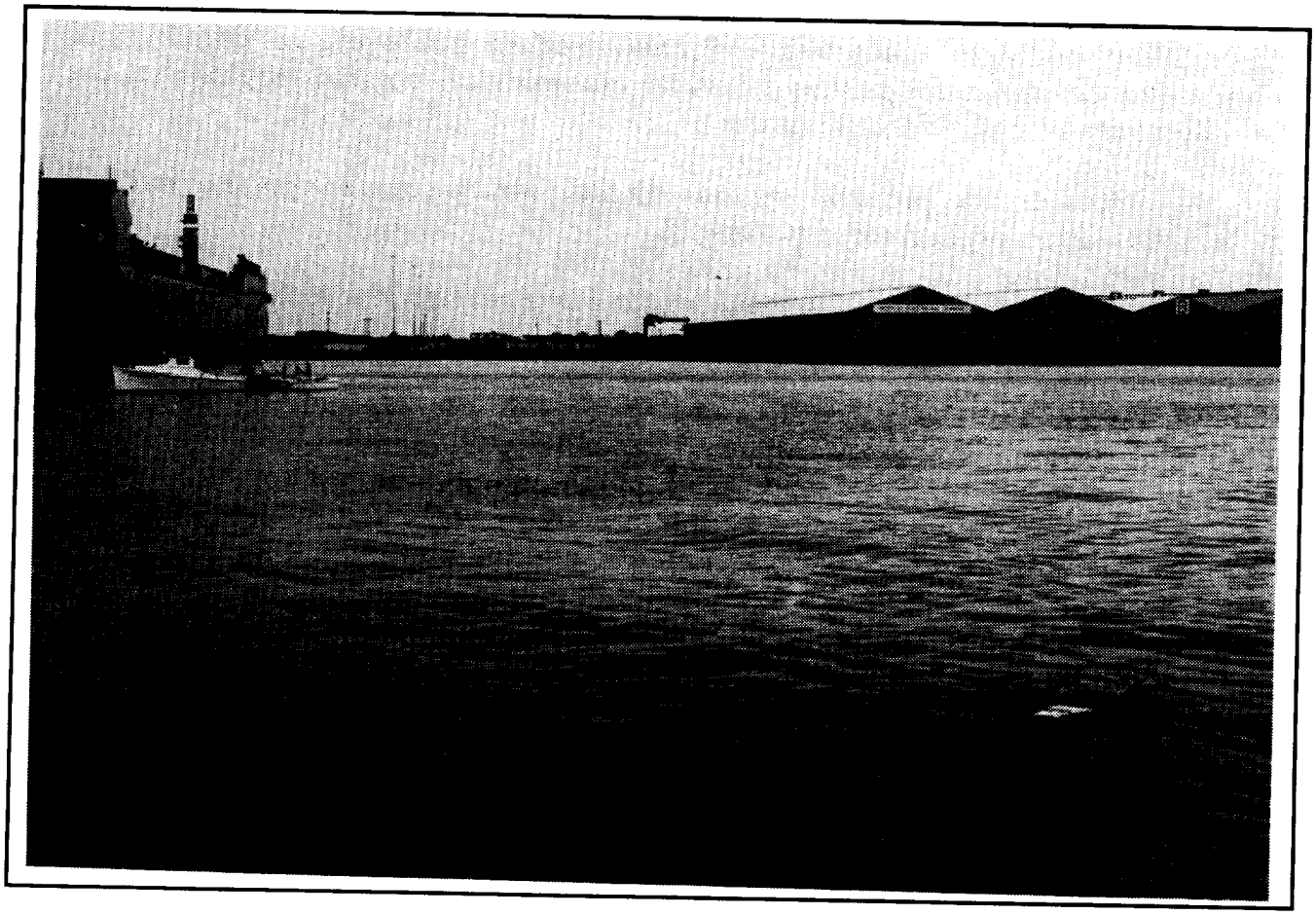


Figure 32. Photograph showing clamming activies adjacent to the *Florida* wreck site. Site buoy is in the foreground.

collect information relating specifically to the construction of the *Florida*, and the information should be compared and contrasted to published or unpublished information on commerce raiders. Several archeological research topics that the Data Recovery Plan should include are:

1. How do the physical remains of the *Florida* compare to the archival information on her construction?

2. How do the physical remains of the *Florida* reflect the historical accounts of her loss and subsequent history?

3. What do the physical remains of the *Florida* tell us about her construction and use, her cargo and her crew?

4. A comparative overview of the technology employed in the *Florida* and its role in influencing changes in maritime technology.

In order to address these and other specific aspects, the fieldwork on the *Florida* should involve two phases. One of these would consist of a program of site mapping using, where possible, remote-sensing and photographic equipment, and the other would involve on-site excavation, as well as artifact and sample retrieval.

The initial phase of site mapping should involve a controlled side-scan sonar survey over the wreck. This effort is to collect information which would augment those side-scan records already obtained on the wreck. The survey would attempt to capture the wreck's image from a number of different directions and at various distances in order to maximize the interpretive value of the sonagrams. The side-scan sonar used should be a 500 kHz system in order to obtain the high resolution needed to identify wreck features.

The second phase of data recovery would involve diver examination, mapping, excavation, and artifact and sample retrieval. Divers should carefully examine and record a selected number of wreck structural elements. The selection of these will be based on the results of the mapping effort (e.g. location of bow and stern), as well as the results of past investigations. Detailed information on construction techniques should be collected if possible. Areas that must be located and recorded include the extant boiler and engine area, and especially the retractable propellor and its through-hull housing. Scantling information, such as frame and plank dimensions, spacing, and fastening patterns should be collected.

Subsurface excavation should be conducted with hydraulic probe and dredge, and air lift. Artifacts for recovery should be carefully selected to include those that have significant interpretive value. Additionally, representative fasteners and wood samples should be collected. No effort should be made to raise for conservation large items or components of the vessel (e.g., boilers), or ordnance such as cannon unless monies are available. It is estimated on past experience that

the boilers alone would take over $30,000 to conserve. Raising them would require a very large crane and floating platform (e.g., 100-ton crane and barge), the cost of which would most likely double the cost of the entire project. However, the decision to raise such large artifacts, such as a cannon or anchor, should be based on the historical and archaeological significance of what is found and, as stated, available monies.

In closing, it should be stated that the optimum weather time of the year for data recovery is late July through August and into September (e.g., lack of weather fronts and adverse winds). Additionally, the work platform must be permanently anchored above the wreck site for the duration of the project to preclude daily anchoring, and loss of the permanent datum required by the archaeological divers.

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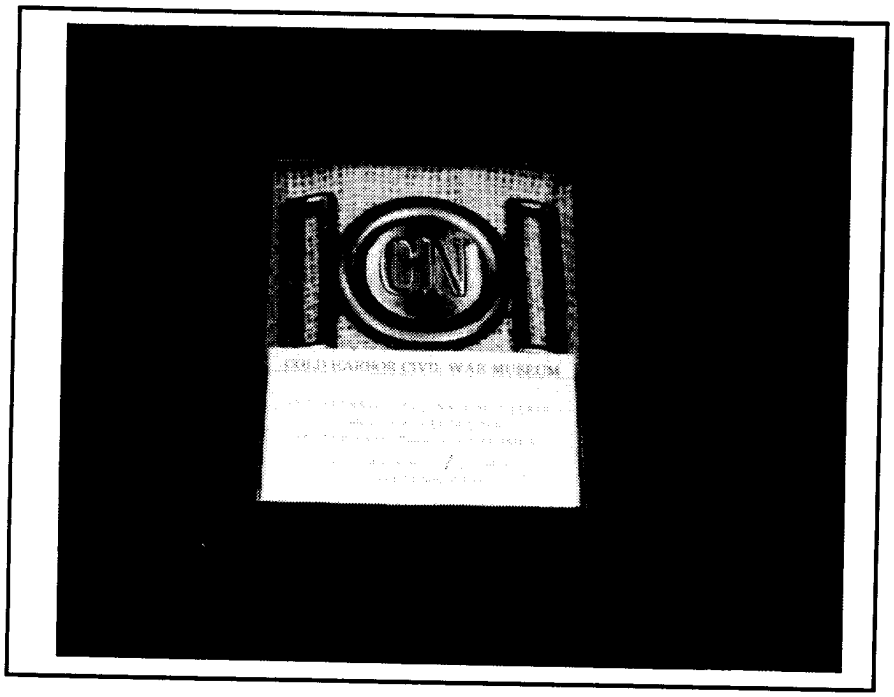
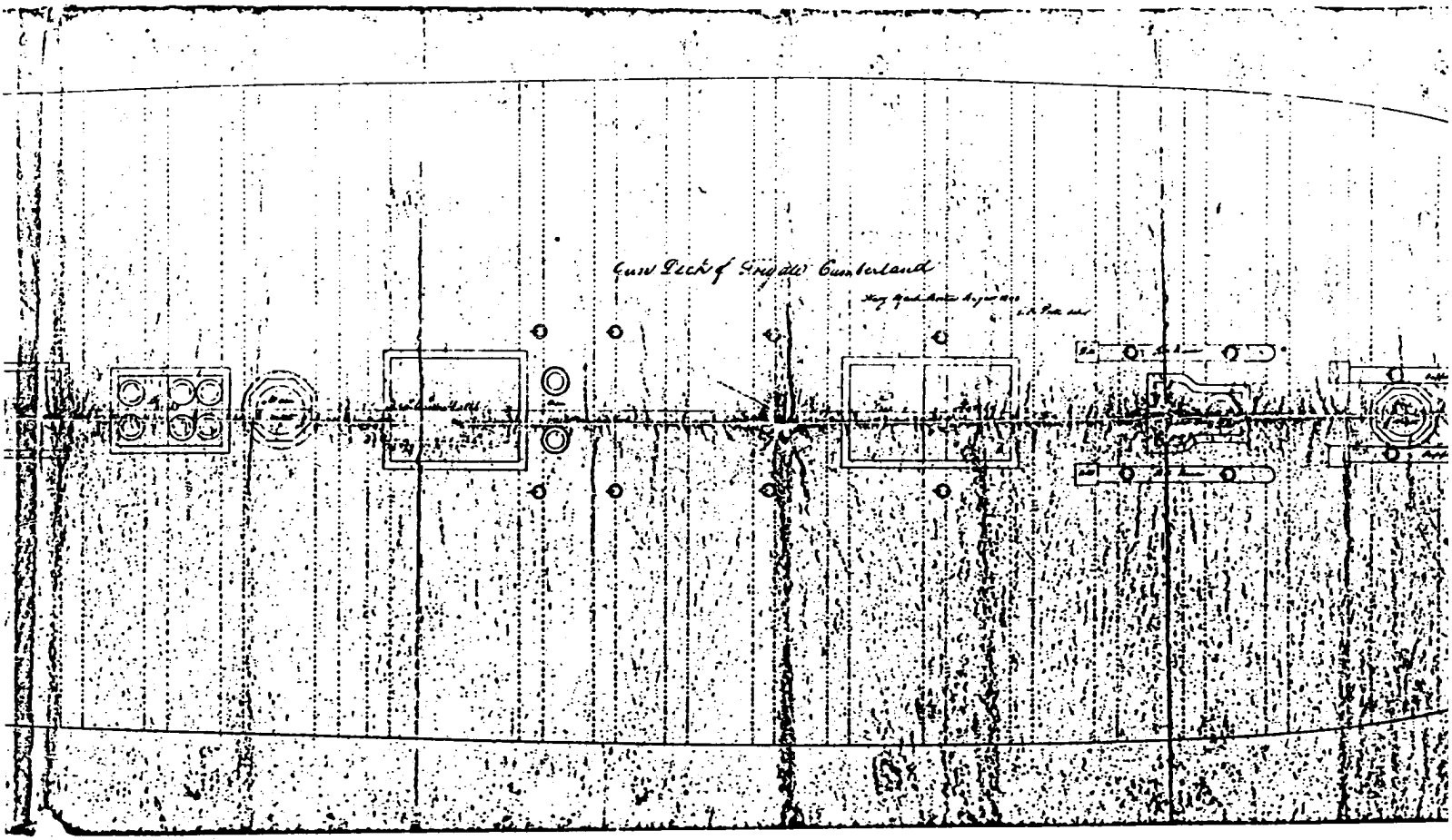
APPENDIX A

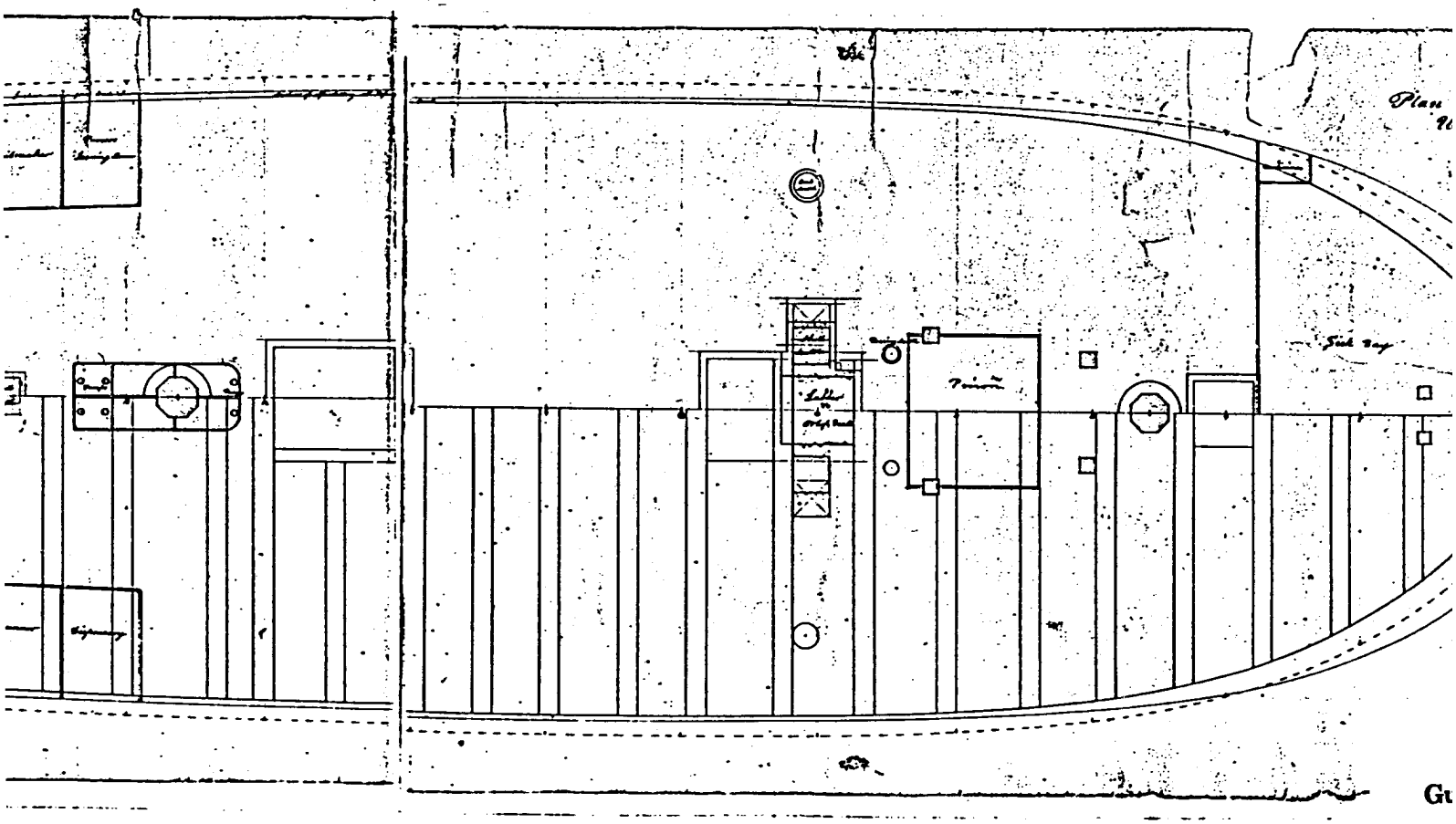
Recovered Artifact Examples



Reproduced belt buckle from melted dowm copper alloy fasteners obtained from the *Florida* by salvors.

Armament related artifacts (e.g., gun calipers) recovered by NUMA from the *Cumberland* (Underwater Archaeological Joint Ventures 1982).





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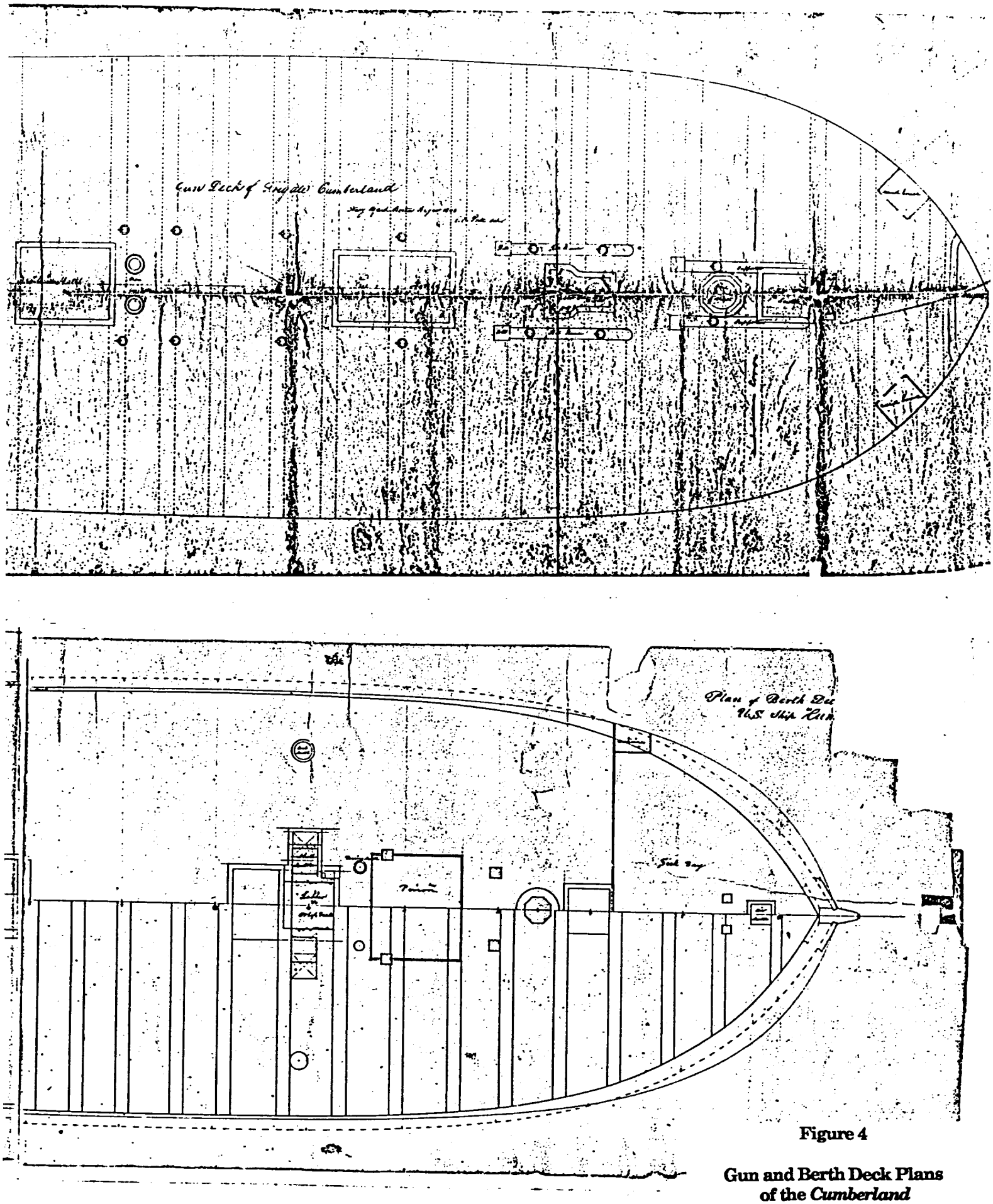

Figure 4

Gun and Berth Deck Plans of the *Cumberland* (Courtesy of the National Archives)