

Research Report No. 9



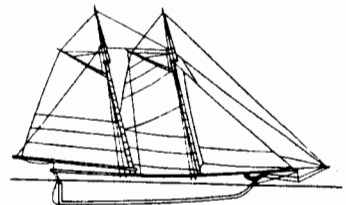
The Cypress Landing Shipwreck
of Chocowinity Bay:
A North Carolina Sail Flat

An Archaeological and Historical Study



Ann M. Merriman

Program in Maritime History and Nautical Archaeology
East Carolina University
Greenville, North Carolina
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Cover: Looking north across the entrance of Chocowinity Bay in the 1890s. Courtesy of the North Carolina Division of Archives and History, Brimley Collection.

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Preface

The Cypress Landing Shipwreck (0017PMR) was discovered accidentally in the spring of 1994 and investigated by North Carolina's Underwater Archaeology Unit in the summer of 1994. The vessel initially appeared to be a centerboard schooner with unusual dimensions, measuring approximately 83 feet by 14 feet with a 28 inch depth of hold. The vessel's extreme length to beam ratio warranted extensive investigation, as it suggested the wreck was purpose-built for a specific cargo type or narrow waterway. East Carolina University's Program in Maritime History and Nautical Archaeology conducted a Phase III excavation of the vessel's port side in June 1995.

Ten days of excavation and documentation revealed the wreck's true dimensions to be 73 by 14 feet. Site significance increased upon the discovery of the vessel's transom bow, thus identifying the vessel as a scow schooner or sail flat. Used extensively in the Great Lakes, the Northeast, and along the Pacific Coast, many historical accounts of scow schooner construction and use in those areas exist, while few archaeological investigations of scow schooners have been undertaken. The Cypress Landing Shipwreck represents the only known scow schooner wreck in North Carolina waters.

Acknowledgments

Many people participated in the Cypress Landing Shipwreck excavation and documentation. Thanks go to James Doughty and Kip Perego of Weyerhaeuser Real Estate Company. Their generous support gave researchers unlimited access to the site and an elegant dive platform. In addition, Weyerhaeuser's monetary support provided funding for extensive historical research, sample testing, and report publication. Robert Smith and Artie Rawls of Wimco Construction also deserve thanks for on-site assistance. Wimco provided secure storage space for pumps, hoses, tanks, and other equipment throughout the project. Wimco's generosity prevented many strained muscles and minimized time spent hauling equipment. Thanks also to Robert M. Chiles of Robert M. Chiles Engineers and Consultants of New Bern for his timely revision of the site plan as it related to the Cypress Landing Marina.

A large group of people associated with North Carolina's maritime community deserve thanks for their assistance with historical research, ship construction information, and report preparation. The staff of North Carolina's Underwater Archaeology Unit provided invaluable advice, historical and archaeological resources, and moral support during the excavation and report preparation. Thanks go to Richard Lawrence, Leslie Bright, Barbara Brooks, Sandy Jackson, Bill Reaves, and Nathan Henry. Special thanks to Julep Gillman-Bryan for her terrific photographs and to Mark Wilde-Ramsing, whose support and assistance with research and editing cannot be overstated. Michael B. Alford, then on staff of North Carolina's Maritime Museum in Beaufort, supplied technical information essential to understanding the vessel's construction. Thanks are also extended to Wilson Angley of the North Carolina Division of Archives and History for his gracious help with historical research and to Lex Turner, a Program in Maritime History and Nautical Archaeology student, who volunteered his services. Thanks to Allen Saltus, Executive Director of the Lake Ponchartrain Basin Maritime Museum in Prairieville, Louisiana, who generously volunteered information. Thanks to Judy Wood of the U.S. Army Corps of Engineers in Savannah and the Program in Maritime History and Nautical Archaeology, for information concerning Georgia sail flats.

Valuable assistance received during a week of historical research in Washington, D.C., made the somewhat tedious process very tolerable, extremely profitable, and often quite enjoyable. The Smithsonian Institution's Paula J. Johnson, Maritime History Specialist in the Division of Transportation in the National Museum of American History provided access to rare publications and resources concerning scow schooners. The Division of Transportation's John Stine provided technical expertise on short notice. The National Gallery of Art's Charles M. Ritchie, Assistant Curator in the Department of Modern Prints and Drawings, provided information vital to this report. Many thanks to the Smithsonian Institution and its talented staff. The National Archives provided research material and thanks go to archivist Rick Peuser of the Archives I Naval and Maritime Reference Branch for his patience and help in locating original documents and allowing access to the *Merchant Vessel Lists of the United States*. Thanks also to Lucy and Jim Ronan for their hospitality.

D. A. Saguto of Colonial Williamsburg assisted in artifact classification, greatly enhancing this report. Thanks also to Lee Newsom of the Center for Archaeological Investigations at Southern Illinois University at Carbondale for her wood identification

and flotation analysis. Thanks to Jim Watson of East Carolina University's Geology Department, who provided the necessary hard hats for students and crew. Thanks to ECU dive safety officers Steve Brodie and Jim Sibthorp for their technical support. Frank Cantelas and Richard Haiduven tackled the final compilation and editing of this report.

Finally, many thanks to field school director Dr. Larry Babits and the participants and graduate assistant crew chiefs for their exceptional work in documenting the Cypress Landing Shipwreck: students Robby Archer, Robert Church, Cissy Deas, Rusty Earl, Glenn Forest, Jeff Gray, Tom Marcinko, Sarah Waters, and crew chiefs Edwin Combs, Rick Jones, Chris Kirby, Annalies Corbin-Kjorness, Fil Ronca, and especially Christopher Olson.

1

Introduction

The Cypress Landing Shipwreck lies on the south shore of Chocowinity Bay, Beaufort County, North Carolina (Plate 1), in one to eight feet of water (Figure 1). Discovered in Spring 1994 during Weyerhaeuser Real Estate Company's Cypress Landing Marina development, a preliminary investigation in July 1994 determined the wreck to be a centerboard sailing vessel (Wilde-Ramsing 1995). Prior to investigation, the vessel contained brick rubble, shell, and soil fill although portions of the centerboard trunk, sternpost, and stern area were exposed.

On 22 May 1995 a seven member advance team from East Carolina University's Program in Maritime History and Nautical Archaeology began preparing the Cypress Landing Shipwreck site. This preliminary work uncovered eight wooden pilings wedged against the wreck's port side, indicating the vessel's purposeful deposition as a breakwater. Dredging during the field school (6-12 June) revealed two more pilings tight against the hull, as well as two horizontal pilings under the vessel's bow. The wreck's square bow identifies the Cypress Landing Shipwreck as a sail flat or scow schooner, the first discovered in North Carolina waters and the first investigated archaeologically in the Southeast.

Construction characteristics and vessel dimensions indicate the Cypress Landing Shipwreck likely could not contend with open, rough waters due to its length to beam ratio (5.2:1) and poor construction. Vessels such as scows and barges with raked ends and flat bottoms have increased buoyancy at their opposite corners, causing stresses leading to hogging or sagging. Further, an extremely long and narrow vessel will twist about its diagonal axis from end to end, causing an unseaworthy tension (Michael B. Alford 1995, pers. comm.). This racking stress "exists in a rolling vessel tending to fracture the union of the frames and the beams. A primary purpose of the knees is to resist this stress" (Bradford 1952:206). During its working life, the Cypress Landing Shipwreck was restricted to the tributary waters of creeks, rivers, canals, and sounds of North Carolina and possibly southern Virginia.



Plate 1. Looking north across the entrance of Chocowinity Bay in the 1890s. Courtesy of the North Carolina Division of Archives and History, Brimley Collection.



Plate 2. The newly constructed Cypress Landing Marina in June 1995. Photograph by Ann Merriman.

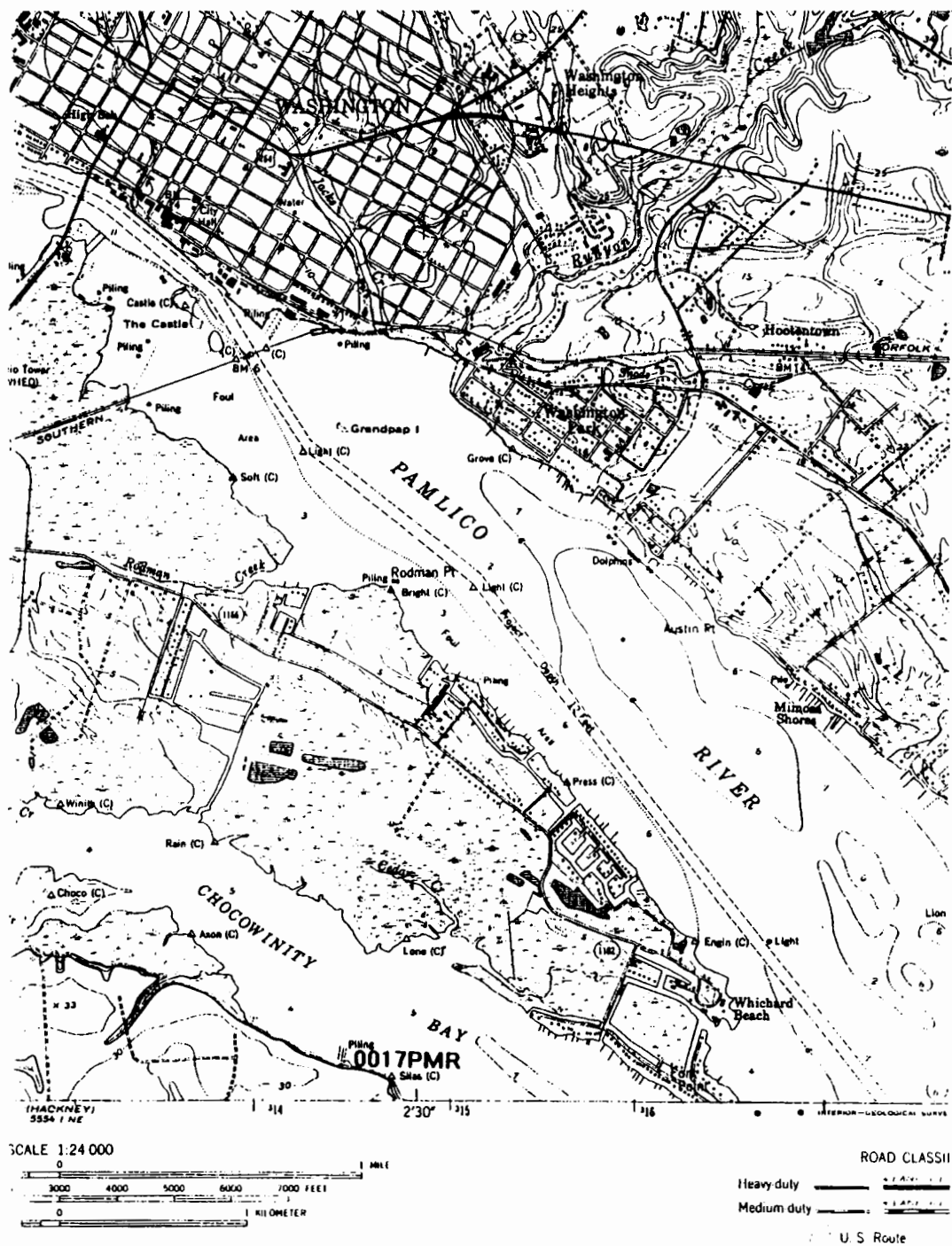


Figure 1. The location of the Cypress Landing Shipwreck on the 1951 USGS 7.5' Chocowinity Quadrangle Map.

2

Previous Archaeological Work

In 1988 Tidewater Atlantic Research, Inc. (TAR) of Washington, North Carolina carried out three archaeological investigations at the Cypress Landing development. The first of two terrestrial projects focused on 875 acres planned for development by the Weyerhaeuser Real Estate Company on Chocowinity Bay's south shore. This preliminary survey of June and July 1988 utilized shovel testing to locate 29 prehistoric and historic archaeological sites. Additional concentrated shovel tests and test units uncovered Early and Middle Woodland occupation sites with diagnostic ceramics, a late eighteenth or early nineteenth century site, two nineteenth century sites, four late nineteenth or early twentieth century sites, three nineteenth century tar kilns, and four nineteenth century brick kilns (Tidewater Atlantic Research 1988c:vi).

The North Carolina Office of State Archaeology reviewed TAR's initial findings for sites of historical and archaeological significance, and cited many possibly eligible for inclusion on the National Register of Historic Places. With the state's recommendations in mind, TAR's second terrestrial investigation in the area centered on the previously discovered brick and tar kilns. Between October and December 1988, documentation focused on recording kiln design, construction, and use by mapping and drawing exposed features. TAR collected artifacts and brick samples for analysis (Tidewater Atlantic Research 1988b:1, 44). Extensive historical research undertaken by TAR revealed that the area known as site "D" was a brickyard that belonged to Darlan Wall in 1902. Site "D" includes the small point where the Cypress Landing Shipwreck lies and extends uphill toward the south (Tidewater Atlantic Research 1988c:29, 56-57).

During October 1988, TAR conducted a remote sensing underwater archaeological survey at the proposed Cypress Landing Marina Complex site in Chocowinity Bay. TAR used a Mini-Ranger positioning system with three reference stations located on the Pamlico River and Chocowinity Bay's north and south shores to establish survey area boundaries. TAR used 16 search lanes spaced 18 or less meters apart to search the area. A magnetometer and side-scan sonar identified one magnetic and one acoustic anomaly in the survey area. Divers investigated these anomalies and identified them as "cut logs and a four foot piece of railroad rail." The team also examined an abandoned dock located nearby. The dock structure consisted of one double row and three single rows of pilings. Upon completion of these visual inspections, TAR concluded the proposed Cypress Landing Marina construction area contained no "historically or archaeologically significant submerged cultural resources" (Tidewater Atlantic Research 1988c:1, 5, 16, 18).

The abandoned dock structure TAR investigated apparently correlates with a feature labeled "pilings" on the 1951 Chocowinity Quadrangle map (Figure 1). This obstruction required removal during Weyerhaeuser's marina construction. During extrication of the old pier pilings, the Cypress Landing Shipwreck's exposed wooden rudder was pulled away from the stern.

Informed of the wreck's discovery, staff members of North Carolina's Underwater Archaeology Unit (UAU) investigated the site and took preliminary measurements on 8 July 1994 (Figure 2). On 31 August 1994, the UAU returned to the site with

Robert M. Chiles of Robert M. Chiles Engineers and Consultants. They surveyed the area and located the wreck on the Cypress Landing Marina plan (Figure 3). The UAU recommended Weyerhaeuser Real Estate Company alter its marina construction plans in compliance with the Abandoned Shipwreck Act of 1987 and preserve the shipwreck *in situ*. The UAU also recommended that a future investigation be conducted as time and personnel became available to precisely determine the vessel's length, possible origins, and identity (Wilde-Ramsing 1995). The preliminary inspection of the Cypress Landing Shipwreck site suggested it was probably a centerboard schooner measuring 83 feet by 14 feet. These dimensions seemed most unusual given other centerboard vessels examined in North Carolina (Underwater Archaeology Unit Shipwreck Files).

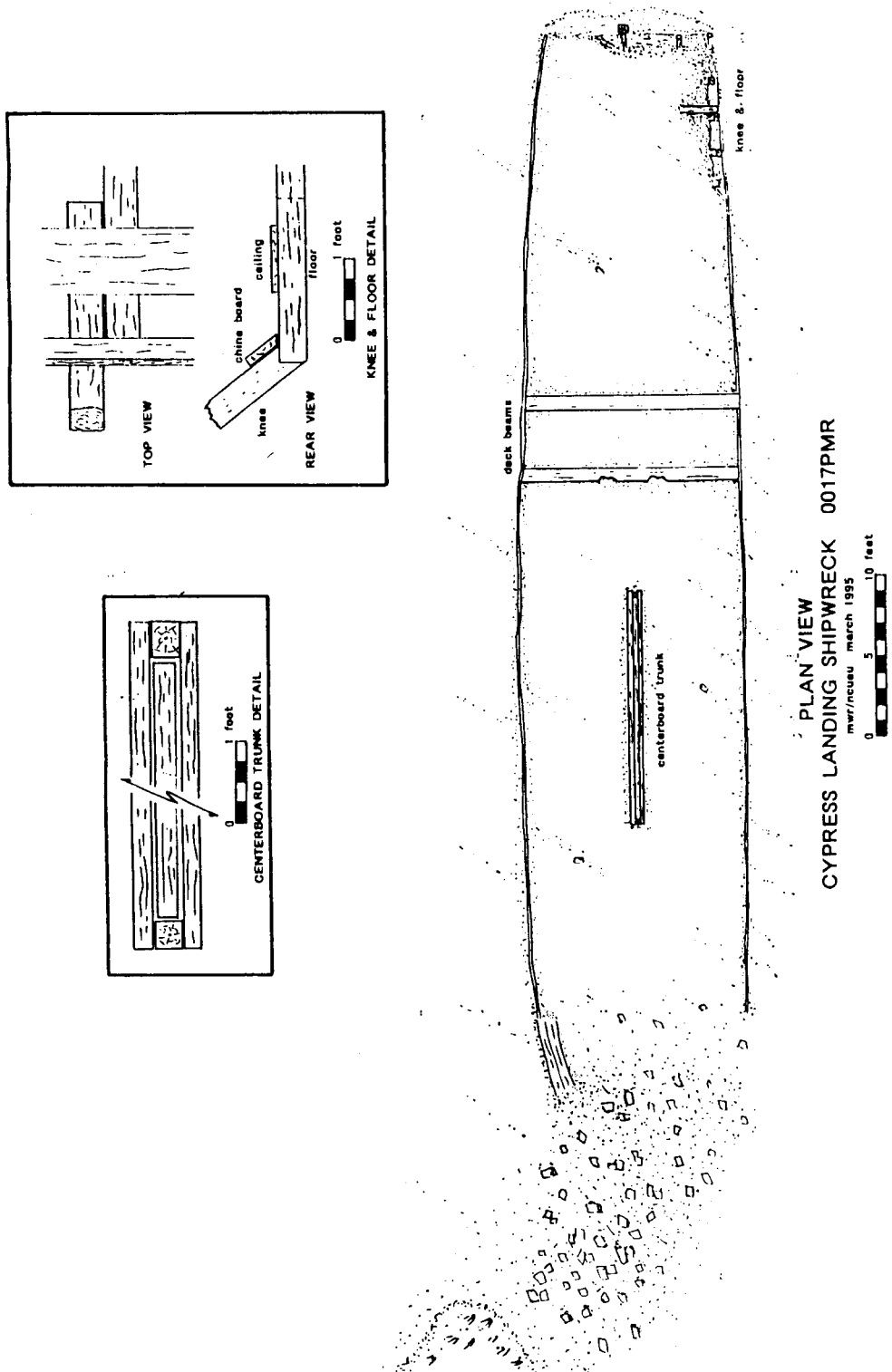


Figure 2. Preliminary plan view of the Cypress Landing Shipwreck recorded by the North Carolina Underwater Archaeology Unit. Drawn by Mark Wilde-Ramsing.

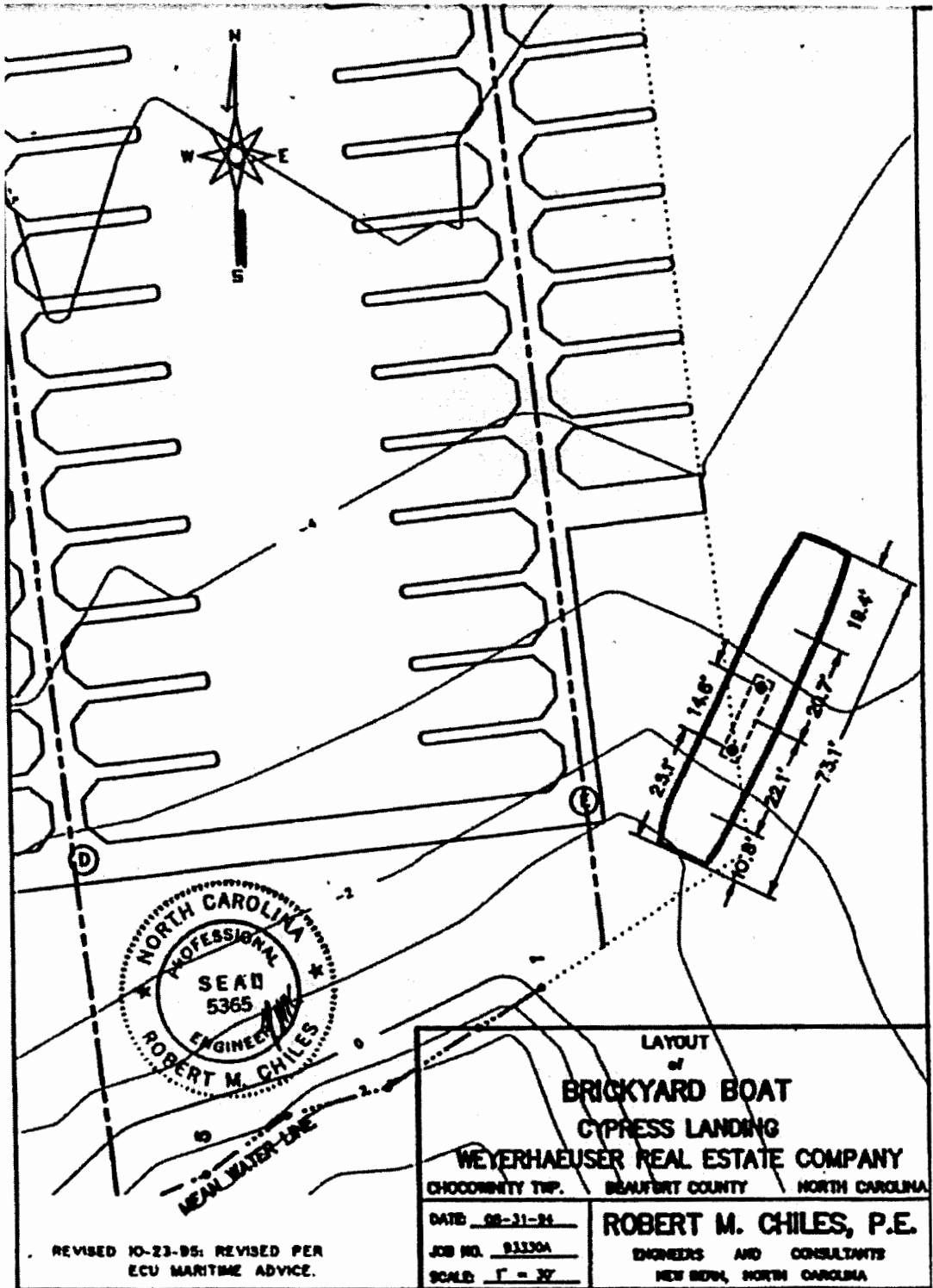


Figure 3. Revised layout of the Cypress Landing Shipwreck and the marina complex. Courtesy of Robert M. Chiles.

3

Research Design

In 1995 East Carolina University's Program in Maritime History and Nautical Archaeology conducted a field school on the Cypress Landing Shipwreck site. Students and staff members documented the vessel's features for two reasons. First, the vessel's unusual dimensions warranted further historical and archaeological investigation to determine precise length, purpose, and significance. Second, the wreck environment's shallow nature and partial visibility were useful teaching tools for an underwater archaeological field school. The research design addressed questions raised by data collected during initial site investigations and served as a guide for excavation and wreck documentation. From this information, researchers formulated hypotheses about vessel construction characteristics and vessel type identification.

Hypotheses

Preliminary site inspections determined the wreck had a centerboard trunk, rudder, and a flat bottom. These characteristics suggested a possible sailing schooner or sharpie, as these vessel types exhibited similar construction characteristics. On 13 March 1817 shipwright Elijah Cornell of Martin County, North Carolina wrote a letter to his brother Ezra and mentioned a centerboard included in a vessel under construction:

I finished the Vessel that I was at to good satisfaction the oner sold her. I am building another for the same man and have got her well forward...she is to be a vessel with a Leabour in the Middle which people here are not acquainted with but I think it will introduce the fashon here which will be a grate advantage to this Country the navigation be shole (Cornell 1817).

Connecticut businessman George Ives introduced the sharpie to North Carolina in 1876 (Alford 1990:5). This evidence indicates centerboard design and sharpie construction to be nineteenth century developments in North Carolina. Therefore, the Cypress Landing Shipwreck is most likely of nineteenth century construction.

If the wreck is a schooner, the vessel should have two or more mast steps located in close proximity to the centerboard trunk and likely angled to rake its masts aft. This design trait developed "probably...to make...poorly made sails stand better, but finally it became a custom. In many craft with fine ends, the rake of the masts also may have eased the pitching" (Chapelle 1935:224). Sharpies generally carried their masts close to 90 degrees, with the foremast placed very far forward (Parker 1994:134).

A typical nineteenth century schooner had floor ceiling and bottom planking that ran parallel to the keel, and a transom stern. Preliminary work on the Cypress Landing Shipwreck indicated longitudinal hull planks and a transom stern (Wilde-Ramsing 1995). Sharpies, essentially large skiffs, had athwartships planking, no keel, and a round stern (Alford 1990:2, 5, 8). Since the largest known sharpie did not exceed 40 feet, the wreck's

estimated 83 feet length suggested it was a schooner (Parker 1994:4). Finally, considering the Cypress Landing Shipwreck's combination of sharpie and schooner characteristics, the wreck might be a schooner with the sharpie characteristics of a flat bottom, hard chine, and low freeboard.

Ancillary queries may also be made concerning the Cypress Landing Shipwreck. The April 1995 preliminary site investigation located a piling protruding from the bottom surface, wedging the vessel in place near the stem's port side. An important site feature, this piling and the location of other pilings in relation to each other may strongly support a hypothesis that the wreck was sunk intentionally as a breakwater. Identification of wood samples from the wreck's keel, keelson, mast steps, frames, floor ceiling, outer hull planking, and centerboard may indicate the vessel's geographical origin. Other samples from the vessel's bilge area may contain organic materials indicating a place of origin or datable diagnostic ceramic artifacts.

Methodology

The 1995 field school staff set the goal of documenting pertinent vessel construction characteristics with minimal hull exposure or damage to the site within a limited time frame. Excavation of the vessel's port side facilitated documentation of one-half of the Cypress Landing Shipwreck. The port side was chosen because it was more exposed than the starboard, appeared to have less brick rubble covering the stern area, and had one visible piling wedged next to the hull near the stem.

Seven graduate students in the Program in Maritime History and Nautical Archaeology, one visiting undergraduate student, six graduate student crew chiefs, and two project directors participated in the excavation that documented the Cypress Landing Shipwreck. Prior to on-site training in wreck documentation, students participated in dive training and techniques involved in recording underwater sites in limited visibility. At the same time, crew chiefs began site preparation by dredging out the wreck's hull and establishing a baseline along the hull's length. Once students were on-site, dredging and recording proceeded simultaneously (Plates 3 and 4).

Systematic excavation commenced on visible features such as the sternpost and centerboard, and proceeded along the vessel's center. Overburden removal proceeded forward along the keelson toward the centerboard trunk. A second dredge was employed to excavate the centerboard trunk area. Later dredging exposed the wreck's port side ceiling planking, deck beams, and the stem. Dredging continued throughout the project as questions arose concerning specific wreck sections.

Since baseline placement occurred prior to wreck exposure, it did not follow the centerline. After further dredging and mapping revealed the wreck's centerline and the baseline's relation to it, all measurements were ultimately related to the keelsons. Rectification of incorrect measurements occurred in two ways. First, the dock's straight edge provided reference points for triangulation of the wreck's crucial features, and student drawings provided verification of features when merged together on the site plan. In every case, wreck features such as plank width, centerboard, mast partners, mast steps, and frames provided reference points to insure accurate rendition of the vessel.

Assigned a specific vessel area or feature, students utilized their previous training for vessel recording. Upon complete documentation of their area, students recorded



Plate 3. Chocowinity Bay looking northeast. The shipwreck site is located off the dock on the right side of the photograph. Photograph by Julep Gillman-Bryan.



Plate 4. View looking southeast toward shore; the Cypress Landing Shipwreck site is situated off the slip, below the dredge pump, on the left side of the photograph. Photograph by Julep Gillman-Bryan.



Plate 5. Preliminary measurements are placed on the site plan. Photograph by Julep Gillman-Bryan.

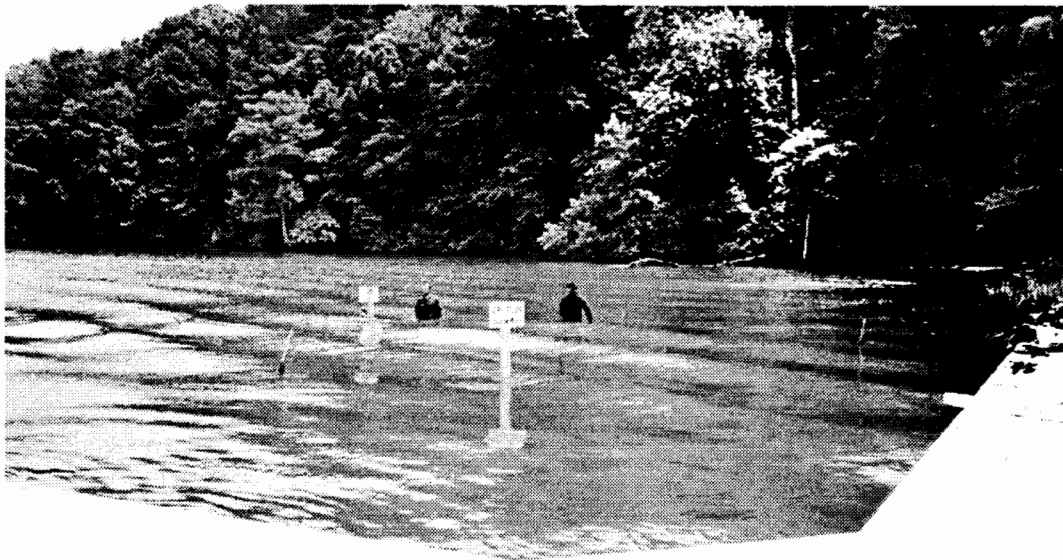


Plate 6. Protective signs being placed around the wreck after backfilling. Photograph by Ann Merriman.



Plate 7. Protective signs around the wreck are highly visible from the dock and the bay. Photograph by Ann Merriman.

their drawings to scale in student notebooks. Crew chiefs and project directors checked these drawings; questions not resolved led to a re-examination of the student's assigned work area. Students then placed corrected scale drawings on the site's base map (Plate 5). At this stage, if students recognized additional discrepancies because adjoining map units did not agree, mappers re-entered the water after consultation to resolve these problems.

Upon completion of the excavation, most field school participants moved to a different wreck site investigation. A small crew remained to backfill the Cypress Landing Shipwreck site. Backfilling consisted of placing previously excavated and documented timbers into the hull and covering them with brick rubble. Excavated material pumped back over the vessel with dredges re-buried the entire site. Upon prior arrangement with Weyerhaeuser Real Estate Company, the UAU placed protective signs reading "Caution Shallow Water" around the wreck site (Plates 6 and 7).

4

Findings

The Cypress Landing Shipwreck is 73 feet long, 14 feet in the beam, and 27.25 inches in the hold. It has a transom bow and stern, flat bottom, centerboard, centerboard trunk, forward decking, and a hard chine. The double blunt end construction and two angled mast steps suggests the wreck was a sailing scow rigged as a schooner. Further, the vessel's very shallow depth likens it to flatboats that plied the waters of eastern North Carolina throughout the nineteenth century.

Excavation revealed stratigraphy within the vessel. Brick rubble removed from upper portions of wreck fill contained partial bricks haphazardly deposited inside the hull. Complete and carefully arranged bricks of a seemingly different type than those composing the brick rubble fill were found layered three deep in the stern area (Figure 4). These bricks might have been cargo, ballast, or a covering for the ceiling planking. Bricks of southern United States origin usually measured 9 inches long, 4.5 inches wide, and 2.5 inches thick. While not every brick was measured, representative samples were smaller in length and width, but similar in thickness to southern brick (Gurke 1987:118).

Wreck examination proceeded from stern to bow (Figure 5). As work progressed and understanding of the vessel increased, a hypothesis developed that the vessel exhibited "bottom first" construction. This construction technique was associated with nineteenth century North Carolina flat-bottomed boatbuilding and longitudinally planked vessels; the bottom was constructed first with the sides added later (Alford 1990:2).

The following description of salient wreck features follows that suggested by Steffy (1994:241-243). However, Steffy describes ship and boat construction while the vessel under investigation has many construction characteristics associated with barges and flats. Thus, a combined construction terminology for barges, flats, and ships more accurately describes the Cypress Landing Shipwreck's characteristics.

Keel

The intact lower hull was completely buried. This made examination of the keel or the underside of the hull impossible.

Sternpost

The sternpost measured 4.4 feet from the point it disappeared into silt to its broken top. It had two iron gudgeon straps placed 1.2 feet apart on its aft side. Located 2.5 feet below the sternpost's top, the upper gudgeon strap measured 2.25 inches wide and 1.8 feet long, and was attached to the deadwood with a drift pin (Figure 6a). The bottom gudgeon strap measured 4.75 inches wide and 1.3 feet long (exclusive of pintle hole), and was attached to the sternpost with a drift pin. The gudgeons did not have a band with a solid block for the pintle hole. Instead, the band was simply bent over a mandrel to cre-

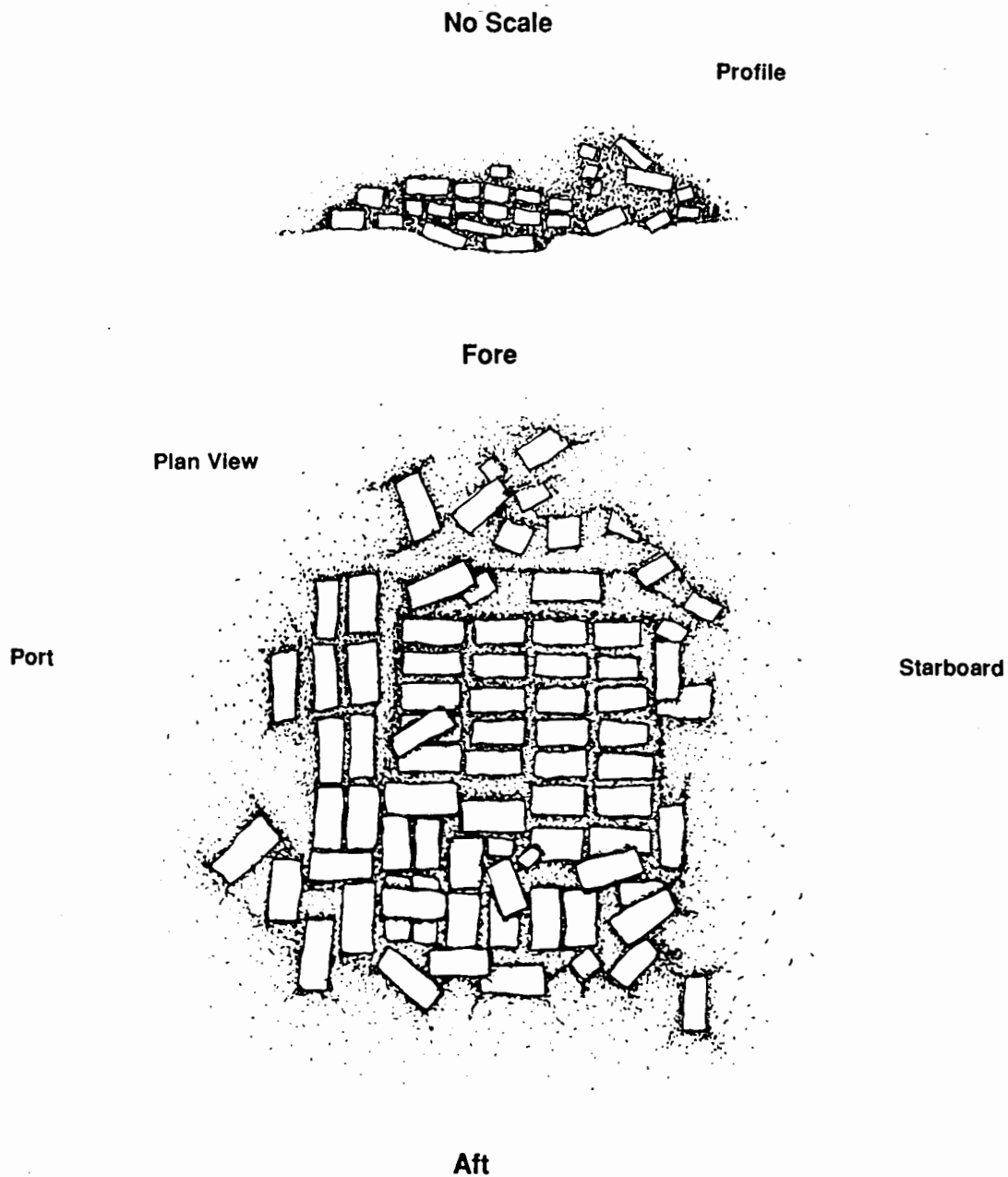


Figure 4. Brick found in the vessel's stern was carefully laid in the bottom. Drawn by Ann Merriman.

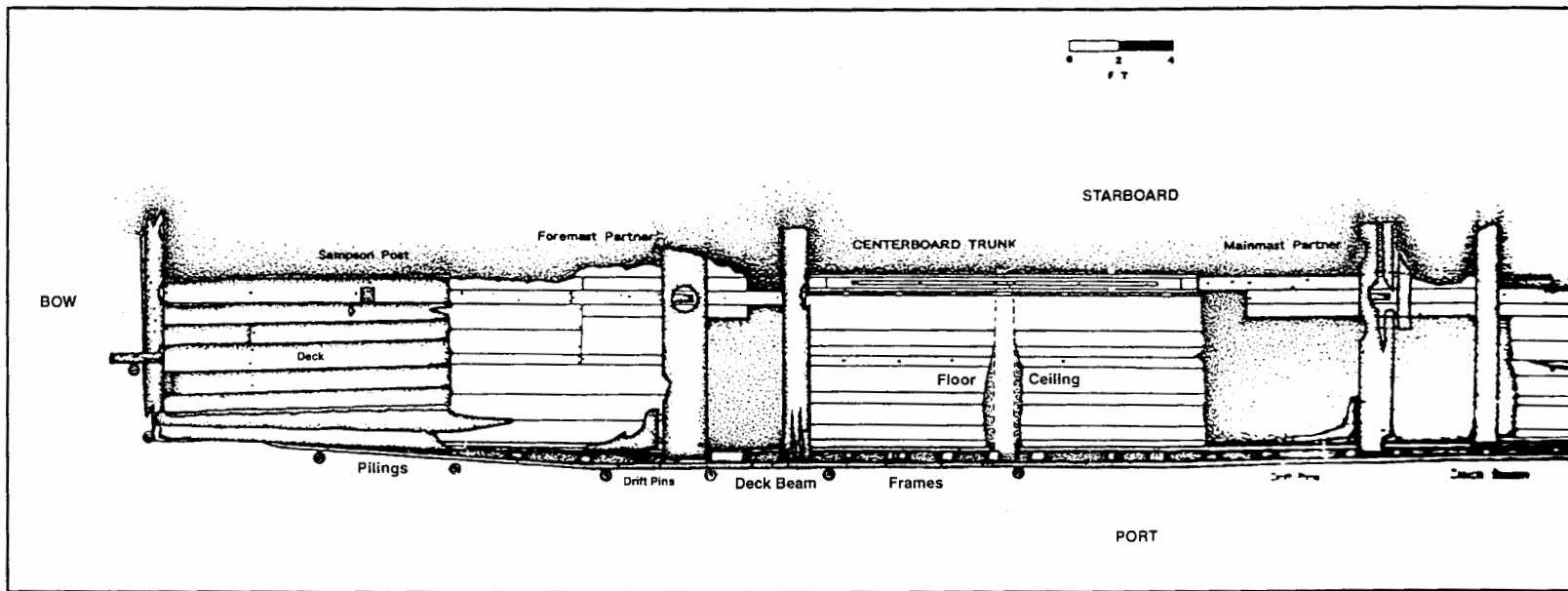
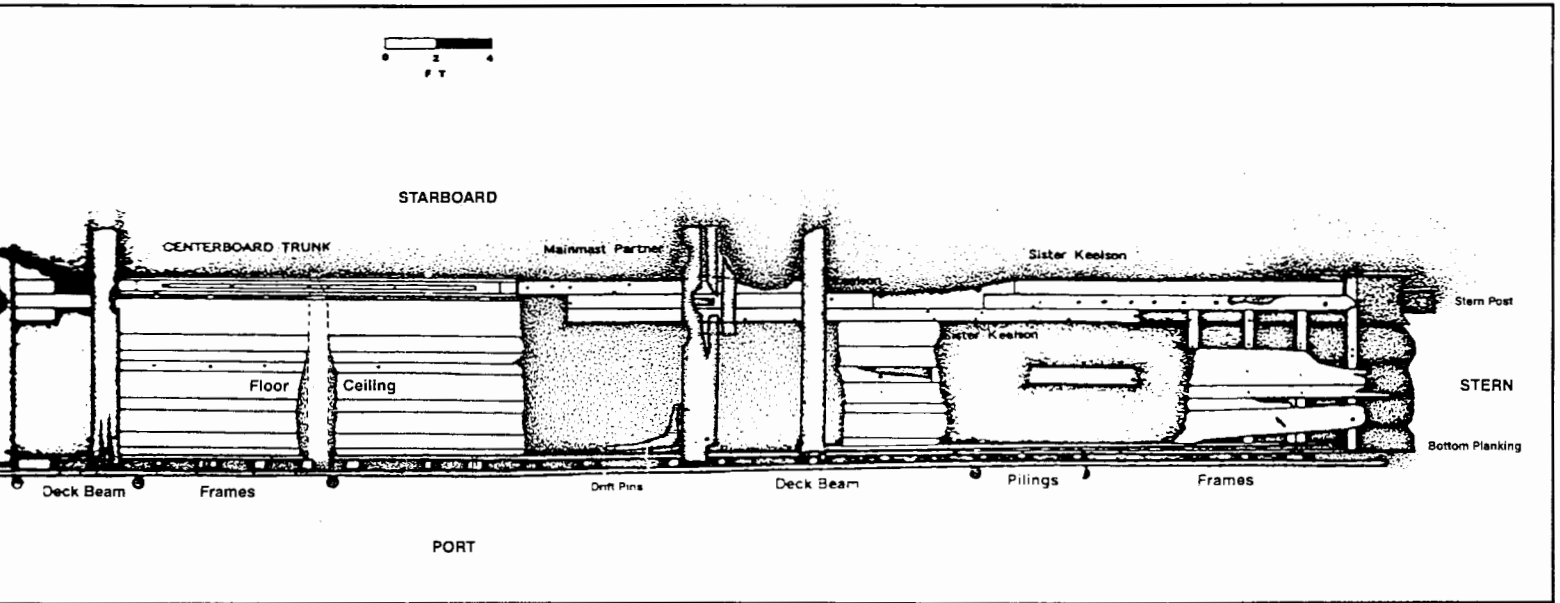


Figure 5. The site plan of the Cypress Landing Shipwreck completed in 1995 during the ECU summer field school.



ate a loop and re-bent to continue around the sternpost (Figure 6c). The pintle hole measured 3.5 inches long, extending the bottom gudgeon strap's length to 1.6 feet. The sternpost itself and parts of the deadwood exhibited heavy shell concretions.

Rudder

The rudder was recovered by marina construction workers during pier piling removal and conserved at the Underwater Archaeology Unit in the spring of 1994 (Figure 7). The five-piece wooden rudder measured 2.2 to 3.2 feet high along its curved upper edge and 3 feet long. An extension piece attached with four 1-inch wooden treenails added another 2.15 feet to its length (Wilde-Ramsing 1995). Two iron gudgeon straps with three metal pins, and five .75 inch drift pins driven into its top edge, held the rudder together. Placed 1.2 feet apart, the top strap measured 1.15 feet long with a small portion missing and 1.75 inches wide, and the bottom strap measured 1.25 feet long and 1.75 inches wide. One 4-inch long pintle remained intact despite the rudder's violent extraction. A 1 inch groove cut out below the lower gudgeon strap behind the pintle allowed attachment to the sternpost.

Frames

The vessel's visible frames actually resembled knees that extended athwartships two feet and were sistered to floors on their forward edge. The wreck had three visible frame types: 4 by 4 inch frames, 4 by 4 inch frames paired with a wider slanting frame butted against them at a 45 degree angle toward the stern, and 4 by 8 inch frames. The majority of 4 by 8 inch frames were in the wreck's stern section (Figure 2 Knee and Floor Detail).

Planking

Five strakes at the wreck's stern measured 1, 1.1, 1.2, 1.5, and 1.9 feet wide from port to starboard, and composed the entire port side stern bottom planking. A single plank served as the garboard strake on both sides of the keelson. The lowest side plank, beveled to make it lean slightly outboard, sits on the outermost strake accompanied by a thin chine board serving as a waterway.

Floor ceiling planking varied in width, length, and thickness. Ceiling planks ranged from 4.75 inches to 1.6 feet wide in the stern area. Plank lengths varied greatly, and often ends were concealed under silt that prevented exact measurements. Stern ceiling planks were uniformly 2 inches thick. The tightness of the ceiling planks, which were possibly tongue and groove, suggested that the vessel's builder intended the interior of the hull to be dry. Judicial placement of thicker planks created zones which could be leveled or where water could be channeled away from cargo.

The uppermost ceiling plank on the port side was mortised to receive deck beams and mast partners. The foremast partner mortise measured 2.2 feet wide, the foredeck beam mortise measured 1.4 feet wide, the mainmast partner mortise measured 1.6 feet

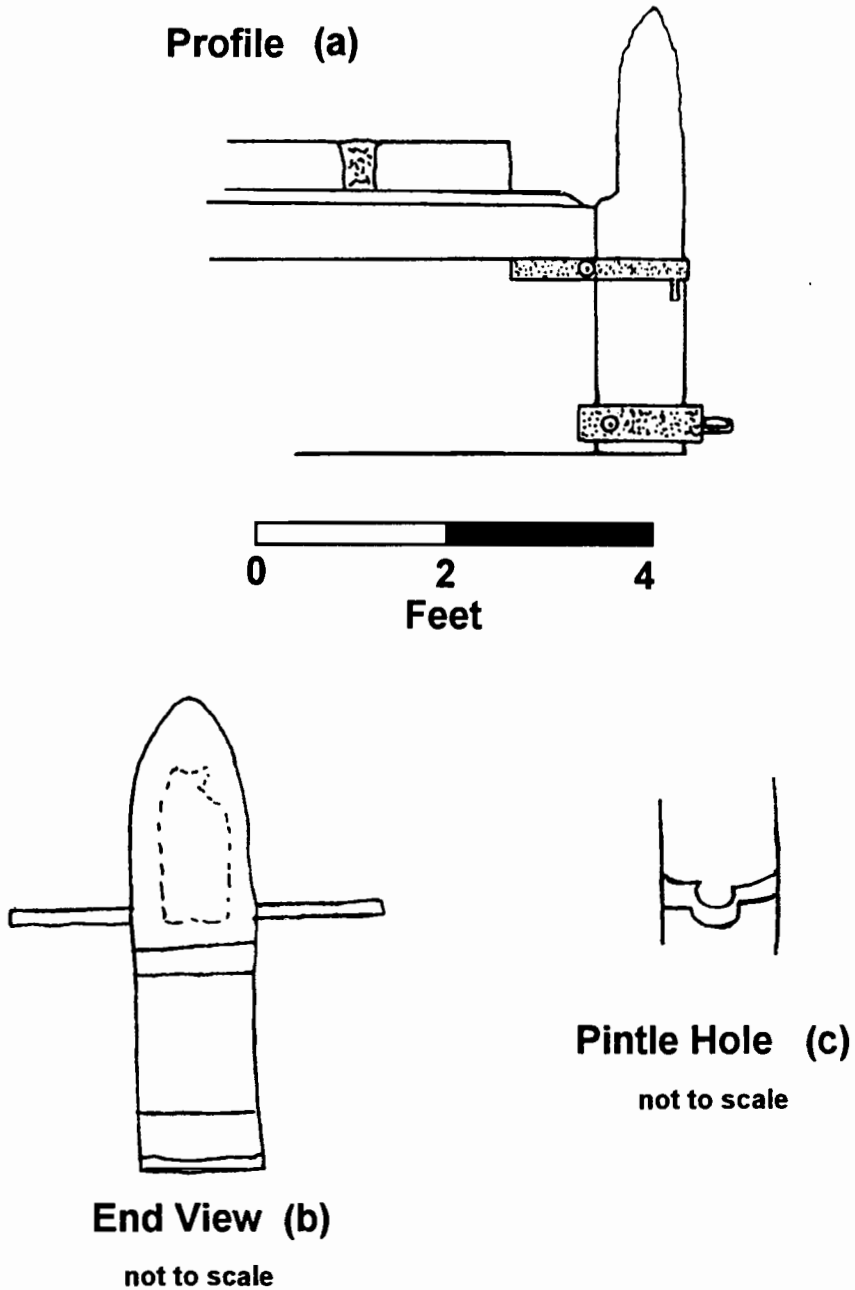


Figure 6. Field drawings of the sternpost: a, profile of the sternpost's attachment to the hull; b, end view; c, pintle on the gudgeon strap. Drawn by Sarah Waters.

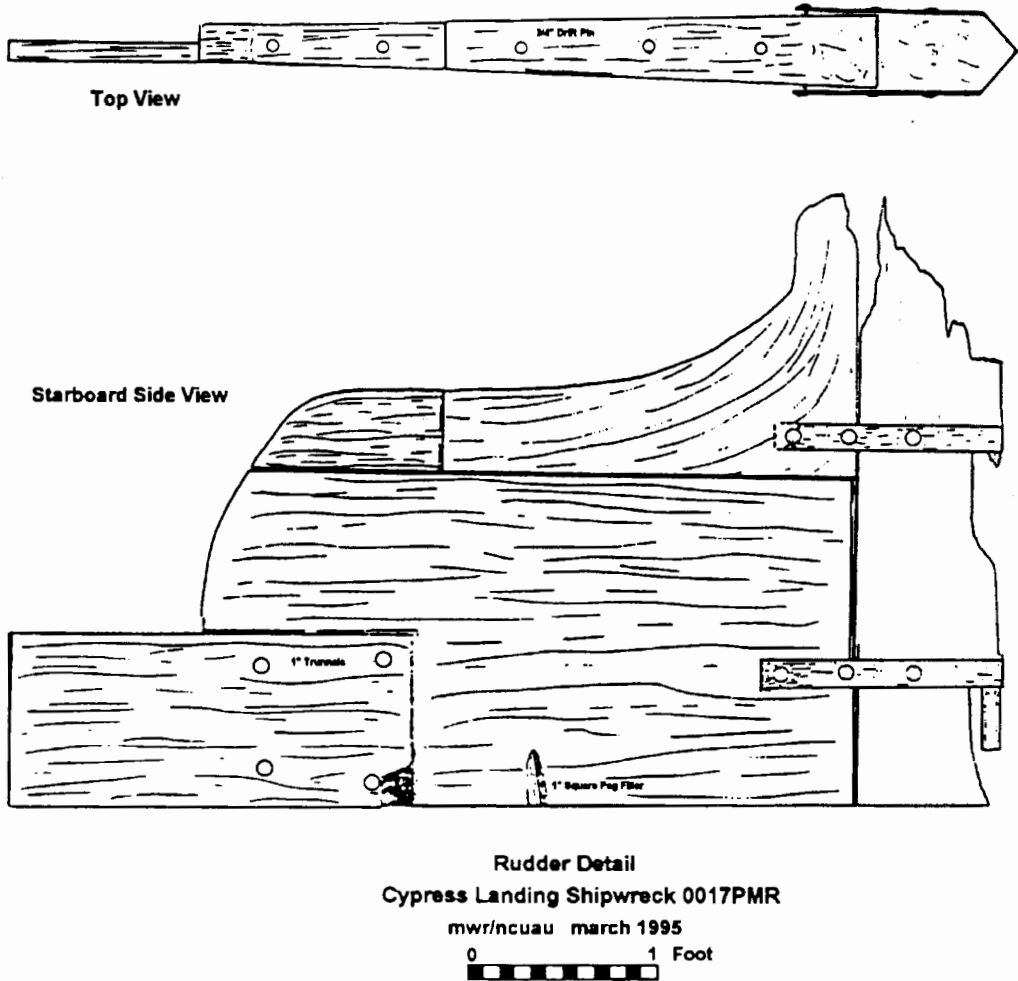


Figure 7. Construction details of the rudder: top and profile views. Drawn by Mark Wilde-Ramsing.

wide, and the aft deck beam mortise measured 1.2 feet wide. One ceiling plank had an iron concretion located 5.8 feet from the stern and 1.4 feet from the hull's outer port edge. Possibly a cleat, it measured 7 inches long and 2.25 inches wide with two protrusions.

Chine Board

This plank with a beveled bottom edge measured 9.5 and 10.75 inches on its sides and covered the junction of the floor ceiling and hull side (Figure 2 Knee and Floor Detail). Unlike a chine log, this plank did not function as a structural support for the vessel. Instead it acted as a waterway to keep water from getting below the ceiling.

Floors

The only visible floors were in the stern area (Figure 5). They closely resembled athwartship stretchers found at other barge and flat sites (South Carolina Institute of Archaeology and Anthropology 1992). The four documented stretchers measured 4.75 by 4.75 inches and extended under the keelson. Smaller timbers measuring 1.75 and 2.25 inches sided were on the port side of the centerboard trunk. These may also be stretchers, but intact floor ceiling planks prevented positive identification.

Keelsons

In a vessel exhibiting many barge or flat features, the term keelson might not be appropriate. Composed of four timbers, the Cypress Landing Shipwreck's keelson had no continuous timbers from the bow to the centerboard trunk or between the centerboard trunk and the stern. Along their entire lengths, the main keelson and two sister keelsons retained the uniform sided dimension of 6 inches. The aftmost main keelson section measured 12.6 feet from its stern end. The keelson measured 1 foot molded and had 4.75 by 4.75 inch notches to accept four stretchers (Figure 8). Drift pins attached the main keelson to the wreck's bottom planks and possibly the keel. Intact ceiling forward of the stern area prevented further molded measurements of the keelsons. After a 4.2 foot gap, the next main keelson section measured 11.3 feet and stopped 1.8 feet aft of the centerboard trunk. The third main keelson section began at the forward edge of the centerboard trunk and extended 8.9 feet, where it butted against the fourth keelson timber which continued 4.6 feet until it disappeared into silt under the foredeck. The main keelson's terminus remains unknown since the foredeck's instability prevented extensive excavation.

Discontinuous port and starboard sister keelsons ran parallel to either side of the main keelson. Comprised of two sections, the port sister keelson measured 21.4 feet long. Its stern end began 8 feet forward of the main keelson's after end and stopped even with the main keelson, 1.8 feet aft of the centerboard trunk. The port sister keelson's second section began 2.2 feet forward of the centerboard trunk and measured 6.6 feet long, ending where a floor ceiling plank begins. The stern end of the starboard sister keelson began 6 inches from the keelson's stern end and ran forward 12.3 feet. After a 6 foot gap, the starboard sister keelson continued for 11.2 feet, where it ended aligned with the centerboard

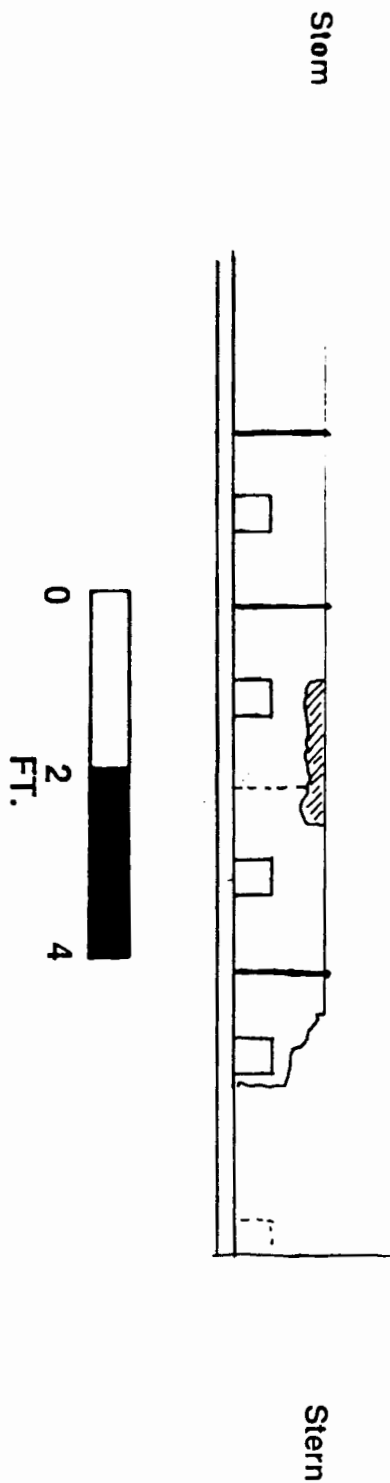


Figure 8. This port side profile of the keelson, near the stern, illustrates the notches made in the keelson to receive stretchers. Drawn by Glenn Forest.

trunk. As with the port sister keelson, the starboard sister keelson resumed 2.2 feet forward of the centerboard trunk for 6.6 feet where another sister keelson section began and extended 5.2 feet into silt under the foredeck.

Mast Steps

Two mast steps were located in the main keelson. The foremast step measured 1 foot long, 3.5 inches wide, and 3.5 inches deep. Its after edge was 4.3 feet from the forward edge of the centerboard trunk. The mainmast step measured 9.75 inches long, 3 inches wide, and 3 inches deep. Its forward edge measured 6.3 feet from the after edge of the centerboard trunk. Each mast step was placed slightly forward of its mast partner's mast hole indicating the masts, when stepped, were raked aft.

Deck Beams

Seven deck beams spanned the wreck's port side: two beams supported the forward decking, two beams ran athwartships behind each mast partner, two beams lay inside the wreck's hull attached to possible stern decking, and one unattached beam lay under the stern deck planking. Eight iron fasteners in the decking five feet aft of the stem indicate a deck beam under this location holding the foredeck to the beam. Dredging under the foredeck exposed the sampson post but compromised the integrity of the decking. Thus, the beam's size remains unknown. The sampson post was centered 8.4 feet from the stem and 4.2 feet from the aft edge of the decking and measured 7 by 7 inches with 6 inches remaining above the deck. The post exhibited signs of burning and had an extremely uneven top surface (Figure 9).

A second deck beam supported the foredeck's after edge and was attached to the hull side 10.8 feet from the stem. The beam measured 7 by 7 inches with 11 remaining fasteners attaching decking to the beam.

The third deck beam's forward edge attached to the hull 24 feet aft of the stem. The beam measured 1 foot sided, 1.75 inches molded, and had a hole located 1.1 feet from the wreck's side and 1.25 inches from the beam's aft edge. The beam's end fit into a notch in the uppermost ceiling plank. A 3.25 by 3.25 inch notch had been removed from the beam to receive a frame. Also an irregularly-shaped notch measuring 1.2 feet long had been removed 6 feet from the wreck's port edge apparently to receive the centerboard trunk (Figure 10a).

Another deck beam was centered 50.4 feet aft of the stem and measured 9.5 inches sided and 5 inches molded. The port end of the beam fits into a notch on the uppermost ceiling plank. The end of the beam also has a 7 by 3.5 inch rectangular notch to receive a ship frame (Figure 10b). As with other deck beams, it was not fastened by pins, trenails, or nails.

The last deck beam lay loose across the keelson and sister keelsons 50.9 feet from the bow. This beam had one 7 inch beveled edge, one 2.25 inch mortised edge, and measured 9.6 feet long, 4.75 inches sided, and 6 inches molded (Figure 10c). It had nine broken trenails still in place and one empty trenail hole. This beam possibly served as a third support for the moveable stern deck.

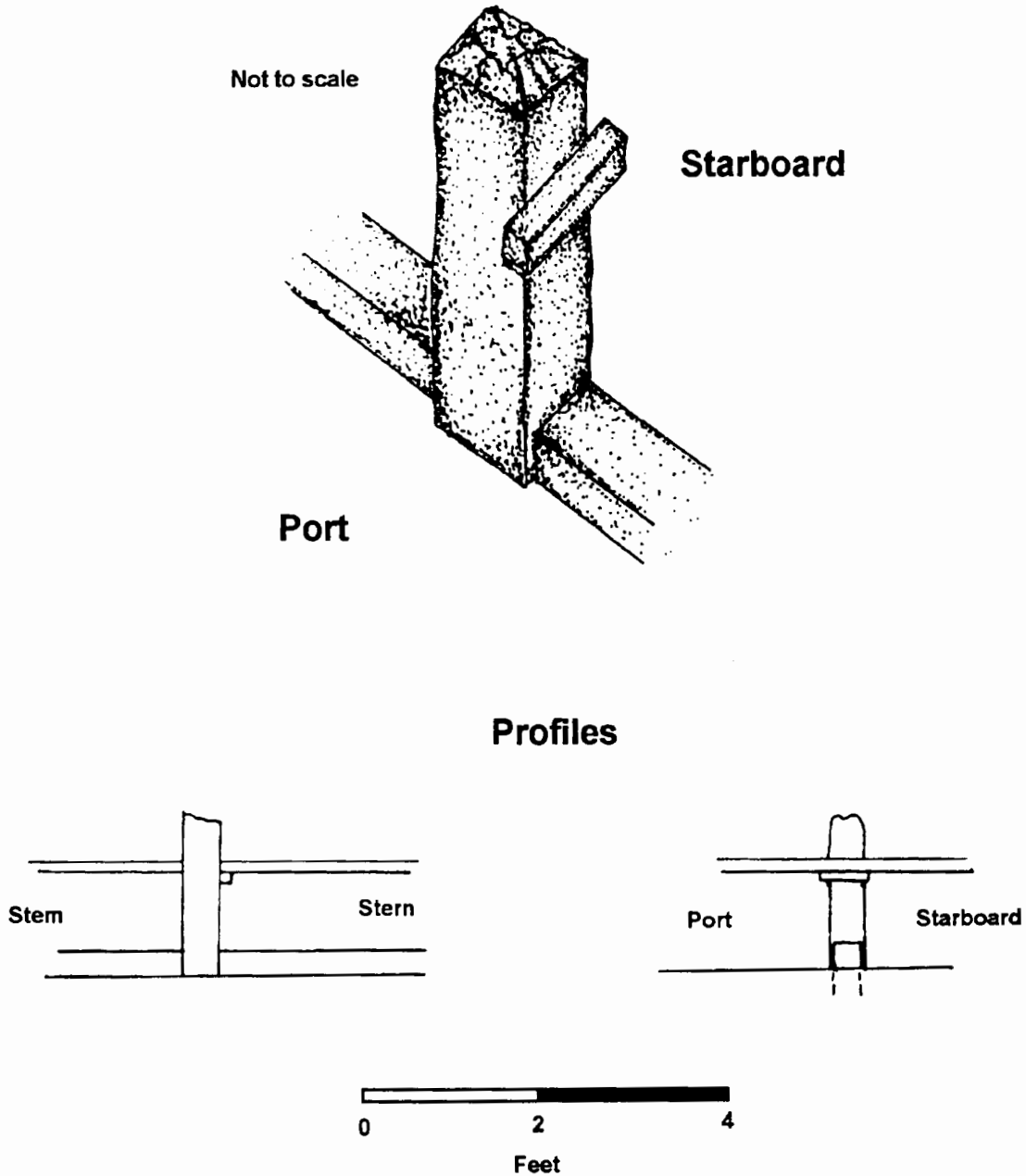


Figure 9. The perspective drawing and profiles of the sampson post show how it fits into the keelson. The intact foredeck has been omitted from the perspective drawing to aid the illustration. Drawn by Christopher Olson.

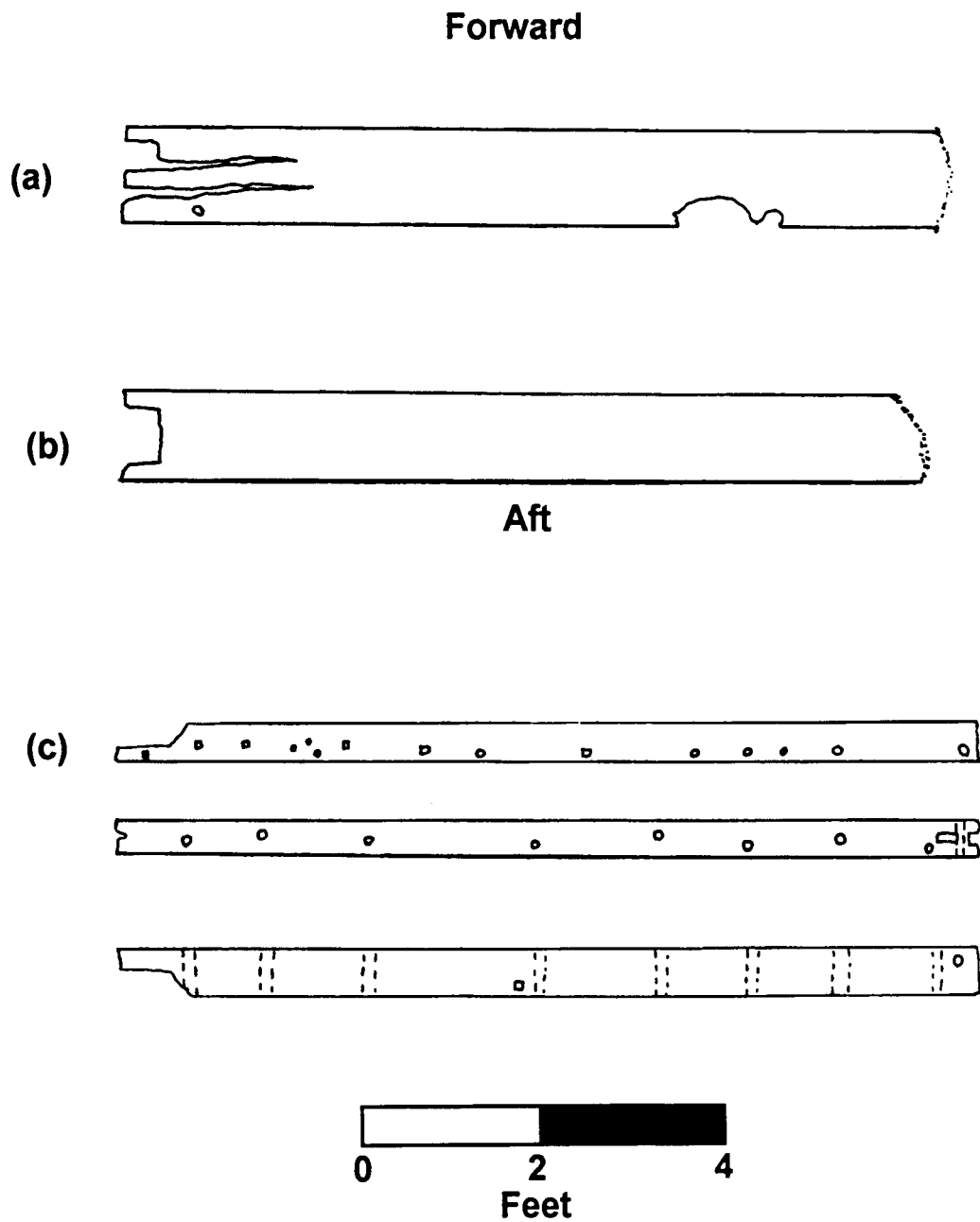


Figure 10. Deck beam details: a is attached to the hull 24 feet from the stem; b is attached 50.4 feet from the stem; c was found loose 50.9 feet from the stem. Drawn by Cissy Deas, Sarah Waters, and Robert Church.

Mast Partners and Knees

The forward mast partner was centered 19.5 feet aft of the vessel's stem. The beam measured 1.8 feet sided and 4.75 inches molded. Located 5.7 feet from the port edge, a 1 foot diameter hole that held the foremast in place aligned with a keelson mortise. A semi-circular notch located 1.8 feet from the partner's port end on the forward edge measured 9.5 inches across and 3.5 inches deep.

An asymmetrical lodging knee on the forward side held the foremast partner in place. The lodging knee measured 2.8 feet long on its hull side, 1.8 feet long on its beam side, 1 foot wide diagonally across the center, and 6 inches thick. Two iron drift pins held the knee to the partner, two iron drift pins held the knee to the wreck's side. Three iron drift pins passed through the knee vertically but did not attach to any support underneath the knee, and their function is unknown (Figure 11a).

The mainmast partner attached to the hull 46 feet aft of the vessel's stem. The beam measured 1.3 feet sided and 3 inches molded. As with the foremast partner, the 1 foot diameter hole located 5.5 feet from the port end aligned with a keelson mortise. Two semi-circular notches on the forward edge located at 4.8 and 11.8 feet from the port end each measured 9.5 inches across and 3.5 inches wide. The port side notch location was similar to the foremast partner's single notch but with more even edges. The second notch is on the starboard side; its presence might indicate the foremast partner also has a similar notch on its starboard end.

The mainmast partner also had a lodging knee on its forward end for support. This knee measured 2.8 feet long on its hull side, 1.8 feet long on its beam side, and 9.5 inches wide diagonally across its center. Two drift pins held the knee to the partner and two drift pins held the knee to the vessel's side (Figure 11b).

The aft mast partner's mast hole suffered damage during its lifetime, suggested by its missing aft edge. The mast partner itself cracked along its athwartships axis 1.8 feet to port and 2.2 feet starboard of the mast hole. Attached to the mast partner's aft edge, apparently to repair damage, a wooden support measuring 3 feet long, 6 inches sided, and 3 inches molded acted as the missing section of the mast partner. Three very large drift pins held the reinforcement to the mast partner, tying the ruptured segments together as they also pulled the reinforcement against the mast hole. The mainmast would not have fit tightly into the partner unless wedged, nor would the partner have provided much support after it was damaged. Thus, this repair appeared to be a temporary solution.

Both mast partners and the deck beam located near the forward edge of the centerboard trunk provided evidence of mast supporting shrouds. Each mast partner had a drift pin and a hole that possibly took a similar pin through them vertically, while the deck beam had only a hole. The foremast partner's drift pin was located 1 foot from the port end and 2.25 inches from its aft edge; the hole was located 4.75 inches from the port end and 2.25 inches from its aft edge. The mainmast partner's drift pin was located 8.25 inches from the port end and 8.25 from its after edge; the hole was located 9.25 inches from the mast partner's port end and 2.25 inches from its after edge. A bullseye (0017PMR007) excavated from the lower levels of silt inside the hull aft of the forward deck beam and the holes located in the mast partners constitutes the only evidence recovered indicating how the structural components supported the masts.

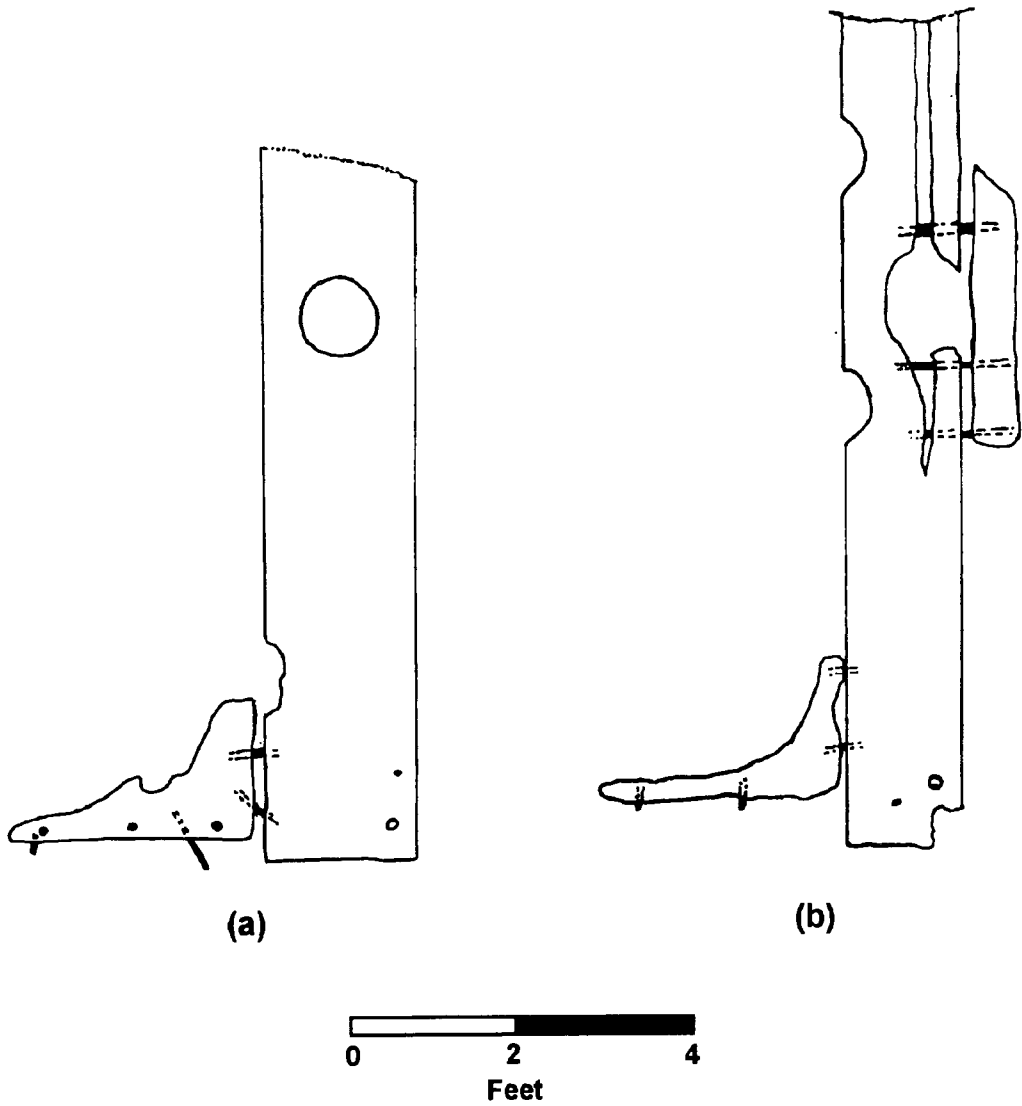


Figure 11. Plan view of the fore and mainmast partners on the port side: a, foremast partner; b, mainmast partner. Drawn by Robby Archer and Tom Marcinko.

Decking

The six foredeck planks *in situ* measured between 3.2 to 10.8 feet long with widths of 9.5 inches to 1 foot. Two planks resting on the vessel's port edge seemed intrusive. Their uneven ends and sizes did not match the other deck planks. A vertical sill remained *in situ*, although very loosely, standing 3.5 inches high and 2.25 inches wide. This sill, which curved slightly toward the centerline as it approached the bow, possibly served as the foundation of a forecastle. As with the sampson post, it showed evidence of burning. Recent studies of the Pamlico River basin suggest burning a wooden vessel's superstructure is a standard practice to retrieve usable material or simply to cut down a vessel for burial in a shallow waterway (Babits, Morris, and Kjorness 1995; Babits and Kjorness 1995).

The forward edge of the foredeck ended in a splashboard standing 4 inches above the deck. The splashboard measured 8.6 feet long with its starboard end hidden under silt, 8.5 inches sided, and 10.5 inches molded on its outer hull edge. The splashboard had three mortises on its aft edge located 2.7, 5.2, and 7.5 feet from its port end. Each mortise measured 7 inches long, 2.25 inches wide, and 2 inches deep. The mortise closest to the port side held a round timber, possibly a cat head, measuring 2.2 feet long and 6 inches in diameter.

A section of decking was found loose and unattached near the vessel's stern inside the hull, centered approximately 56 feet aft of the stem. This decking appears to be a moveable section used to cover the hold while underway and removed in port to unload the hold. The decking was apparently removed from the vessel intact and placed in the hull prior to its sinking. Initially recorded *in situ* (Figure 12a), the decking was raised and further recorded on the marina platform. Two beams still attached to the decking supported nine deck planks (Figure 12b). The forward beam (X in Figure 12b) located at the outer edge of the deck planks measured 9.1 feet long, 3.5 inches wide, and 3.5 inches thick. This beam had a mortise located 3.7 feet from one end measuring 5 inches long and 1.25 inches wide. The other stern deck beam (Y in Figure 12b) held the planks together at their midpoints and measured 8.85 feet long, 3 inches sided, and 4.75 inches molded. Each beam had a 7 inch beveled end, possibly to fit over the ship's gunwale. Figure 12b shows the deck tapering, possibly to fit the shape of the hull. A loose deck beam found inside the hull (discussed under Deck Beams) may be the beam missing from the tapered end, although at 9.6 feet it is much longer than the tapered end of the deck. Some stern deck planks exhibited evidence of modification. One plank had 15 one inch grooves cut in it, while another plank showed evidence of repeated repairs. This plank had two rows of deep grooves cut into it, possibly caused by a clamp. These repeated attempts at repair finally split the plank. Two other planks in very good condition seemed to be recent replacements.

Centerboard and Centerboard Trunk

The main inboard structural feature of the Cypress Landing Shipwreck was the centerboard trunk. The trunk housed the intact centerboard, its top edge exposed. The centerboard trunk measured 14.9 feet long, 9.5 inches wide, and 2.1 feet high. It was composed of three planks. The top plank measured 6 inches wide and the lower two planks

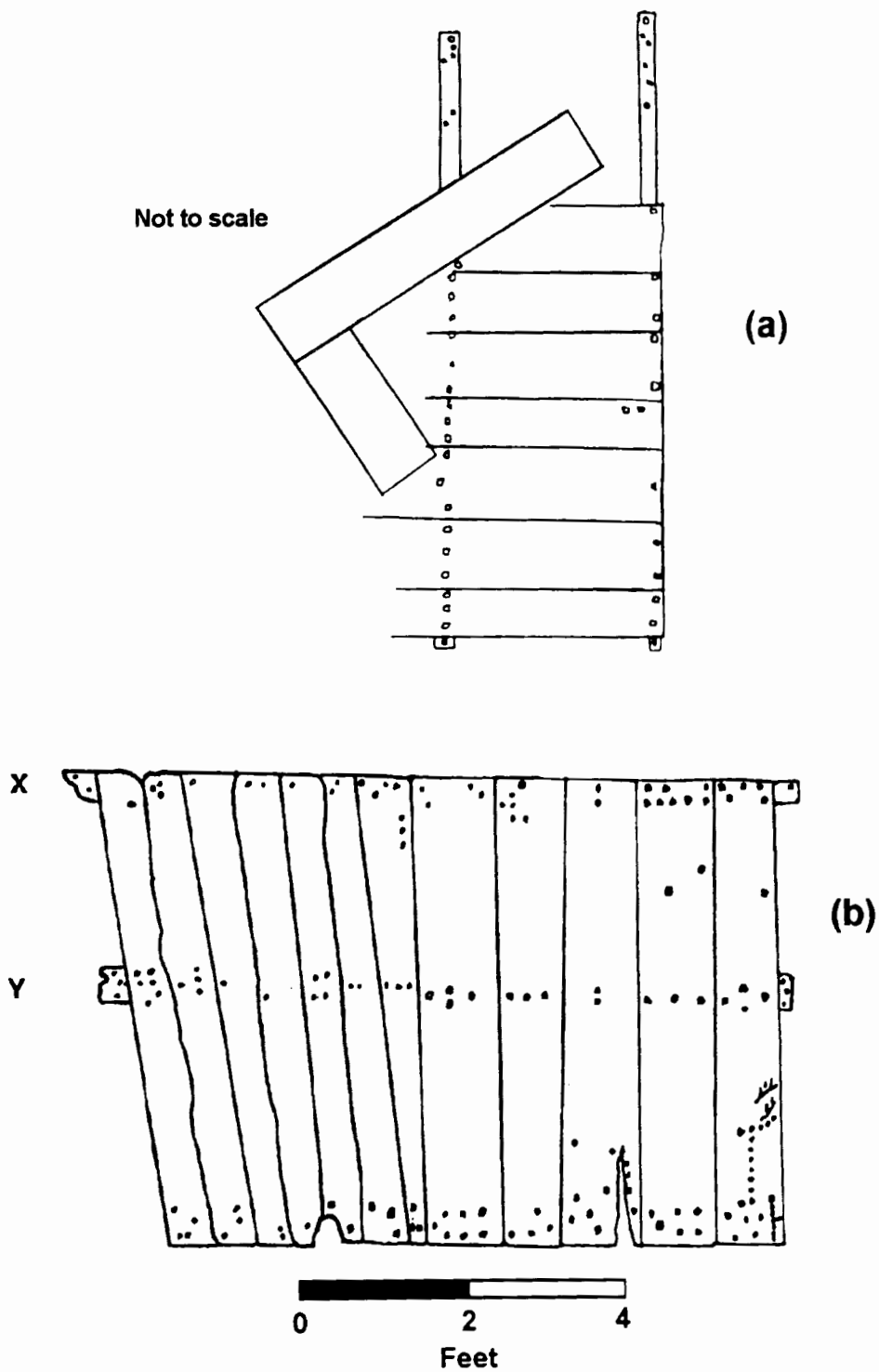


Figure 12. Moveable stern deck: a, found *in situ* with loose planks on top; b, plan of construction details. Drawn by Sarah Waters, Rusty Earl, and Robert Church.



Figure 13. Centerboard trunk plan, elevation and end views. The centerboard is contained inside the trunk. Drawn by Rusty Earl.

9.5 inches wide. The trunk's upper and lower planks measured 2.25 inches thick, while the center plank measured 1.5 inches thick. The planks covering the ends of the trunk measured 4.75 inches wide and 2.1 feet high and were attached to the side planks with iron fasteners. The centerboard moves up and down on the pivot pin, a very large iron drift pin peened over a washer. The pin is located 1.8 feet aft of the trunk's forward edge and 1.6 feet below the trunk's top edge. The centerboard's top plank measured 11.7 feet long and 2.25 inches wide. Five 1 inch diameter drift pins protruded from its top edge which extended above the case, either indicating the top plank has eroded or that another plank has been lost (Figure 13).

Pilings

Wood pilings discovered along both sides of the Cypress Landing Shipwreck hold the vessel in place. Ten pilings were wedged against the port side. The first one stands at the bow near the possible cat head, with the second set 2.5 feet away near the splashboard's end. Others were located 6, 10.5, 15, 18.5, 22.5, 29, 52.5, and 56 feet from the vessel's stem (Figure 5). These pilings measured approximately 6 inches in diameter. The wreck's starboard side pilings were discovered by workers during the rudder extraction (Mark Wilde-Ramsing 1995, pers. comm.).

The Cypress Landing Shipwreck's sides spread out away from the center line at varying angles. The ends are more vertical than the amidships section. Specific measurements taken at four points recorded the angle at the junction of the wreck's floor ceiling and side. The four angles measured 38 degrees 11.5 feet from the stem, 33 degrees 21.3 feet aft of the stem, 35 degrees 47.3 feet aft of the stem, and 26 degrees 64.9 feet aft of the stem (Figure 14).

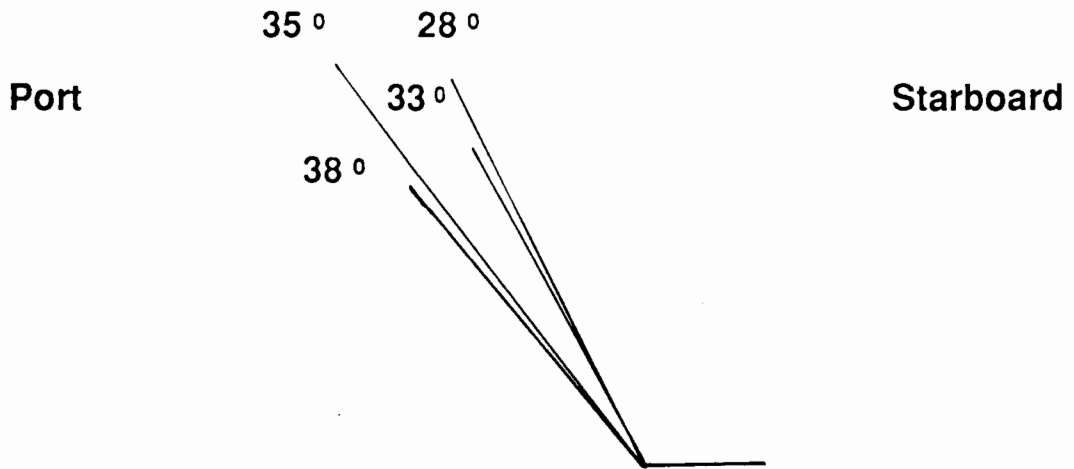


Figure 14. The angle of the hull measured at four points: 38 degrees 11.5 feet from the stem, 33 degrees 21.3 feet aft of the stem, 35 degrees 47.3 feet from the stem, and 28 degrees 64.9 feet aft of the stem. Measured by Rusty Earl. Drawn by Ann Merriman.

5

Scows and Their Predecessors in the United States

Canoes and Periaugers

The first eastern North Carolina watercraft utilized for riverine travel was the prehistoric dugout canoe. European settlers arriving in North Carolina as early as the 1580s copied the Native American dugout log canoe construction but with modifications; they were larger and more complicated, shaped with steel tools and built with centuries-old European technology in mind (Alford 1990:29). Drawings and archaeological examples of aboriginal canoes exist including an extensive collection presently located at Lake Phelps in Washington County (Alford 1990:29-31, 1992; Clonts 1926:18-20). The Lake Phelps collection consists of 29 dugout canoes; Carbon 14 dates for 19 of these canoes placed their ages between 2430 BC and 1400 AD, classifying them as prehistoric (Kaea J. Morris to Lawrence Babits 1994, pers. comm.). Another 20 dugouts documented by the North Carolina Underwater Archaeology Unit throughout the state provide a good body of knowledge concerning these early watercraft (Wilde-Ramsing 1994, pers. comm.).

Evolving from the log dugout canoe, the easily and cheaply built three-plank canoe plied American waters since 1670. The eighteenth century periauger, a large, rigged dugout canoe, had two masts with gaff sails (Chapelle 1951:15, 19). A construction characteristic specific to the periauger included a split log design with a plank or planks placed between the two halves. This lateral expansion apparently did not affect draft nor length but significantly increased cargo capacity and stability. The periauger continued in use until the third quarter of the nineteenth century. The vessel type has a confusing variety of spellings including periauger, petiauger, and periaqua. These spellings possibly reflected specific and now unknown design differences or distinct watercraft variants (Lawson 1967:103-104; Alford 1992:31-33; Pecorelli, Alford, and Babits 1996:22-28). No known archaeological or extant examples of a periauger survive, although three illustrations are classified as periaugers (Von Reck 1980:70-71; Alford 1992:32).

Scows

Along with the three-plank canoe, the flat-bottomed "scow" developed in America around 1670. Numerous names applied to the scow, including "radeau," "flat," and "gondalow." Scow likely developed from the Dutch "schouw," simply meaning a flat-bottomed vessel with square ends, and the word "scow" does not appear until the eighteenth century. Sailing scow construction characteristics included a flat bottom, rectangular shape, uniform beam, hard chine, transom and raked ends, hatch-filled decks, and low freeboard. Early sailing scows also incorporated pivoting gunwale leeboards to prevent leeward drift before centerboard use became common in the mid-nineteenth century. The sailing scow's simple design and low construction costs required a shipwright with only

rudimentary carpentry skills and very little capital to produce a vessel (Chapelle 1951:15, 29, 32-33, 40).

American Sailing Scows

The flat bottom design trait, attributed to sailing scows, differentiated it from other sailing vessels. The "V" bottom design of other, deeper-draught vessels gave them increased stability on the ocean, while the flat bottoms of shallow-draft scows provided increased speed when sailing with the wind (Martin 1991:2). In 1885 the United States government provided this definition of a sailing scow to classify the scow as a vessel type in its *Merchant Vessel Lists of the United States*:

The distinctive line between the scow and regular-built schooner is, in the case of some large vessels, quite obscure, but would seem to be determined by the shape of the bilge, the scow having in all cases the angular bilge instead of the curve (futtock) bilge of the ordinary vessel (U.S. Treasury Department 1885:xxx).

This somewhat tenuous description is carried over in subsequent government publications. Beginning with the 1884 *Merchant Vessel List*, scow schooners are labeled "sch*" and scow sloops are listed as "slp*."¹ This designation appears adequate, but it is not consistently applied to all scow schooners and is often applied to the much larger schooner-barge as well.

Eastern Scows

In Virginia's Chesapeake Bay, purpose-built scow schooners worked as lighters transporting heavy pig iron through shallow waters as early as 1743 (Brewington 1956:65). Often towed by large schooners, small unrigged and decked scows served as temporary docks between large sailing schooners and a riverbank, "scowing grain" from the schooner to land. An example of a Chesapeake Bay scow schooner is the *Morning Star*, a heavy cargo carrier of 34 net tons built in 1892 in Church Creek, Maryland. Another Maryland-built scow schooner, the *Ella Barnard*, worked out of a brickyard on the Rappahanock River transporting bricks and carrying granite, timber, and produce from Port Deposit, Virginia to Baltimore, returning with produce and grain. In addition to a centerboard, this scow schooner had a port leeboard to prevent drift (Snediker and Jenson 1992:7, 121-122, 125).

Great Lakes Scows

Sailing scow construction in the Great Lakes region and its extensive inland waterway system began in 1825 in Erie, Pennsylvania with the building of the 60 ton schooner *Bolivar*. In the northeastern United States, inland shipbuilders of New York's Finger Lakes and Lake Champlain, also produced scows. The *Repulse*, a 30 ton unrigged scow built on Lake Champlain in 1827, was converted to a scow sloop with the addition

¹In the *Merchant Vessel Lists of the United States*, "sch*" and "slp*" differentiate scow schooners and sloops from schooners and sloops with sharp or round ends designated "sch" and "slp".

of a mast upon its transfer to Lake Erie. By the 1850s Great Lakes sailing scow construction was booming, with 172 vessels constructed totaling 15,413 tons (Martin 1991:4).

Scow schooners were particularly suited for Great Lakes service as their large cargo carrying capacity in comparison to their size made them an economical craft and their draft permitted their entrance into shallow harbors (Hirthe and Hirthe 1986:91). As first expressed by Chappelle (1951), the inexpensive nature of scow construction enabled their widespread use. This assertion has been interpreted to mean scows were poorly built by unskilled shipwrights or even house carpenters with a limited knowledge of shipbuilding:

Regional folklore holds that any barn builder could construct a scow schooner over the winter and sail it through the summer. Given the relative simplicity of the construction, the knowledge that few shipbuilders in those days used plans, and the fact that many vessel captains apparently built their own vessels during the winter months, this belief may not be too far from the truth. (Martin 1991:2).

One nineteenth century Great Lakes scow schooner disproves this assertion. Constructed in Oswego, New York in 1866, the wrecked scow schooner *Rockaway* was the subject of a five year archaeological and historical research project conducted by the Michigan Maritime Museum, the Michigan Bureau of History, and the Submerged Lands Unit of the Michigan Department of Natural Resources. The *Rockaway* Project's research design focused on generating:

New information regarding the cultural and environmental factors which influenced Great Lakes ship designers, shipwrights, and shipping financiers to build and use the scow schooner, in large numbers, during the 19th century. Much of the discussion of the Great Lakes scow schooner has focused on this vessel's unconventional design and the related belief that this model was, on the whole, markedly cheaper to build than other hull forms (Inches 1964:291). Some have even suggested that the scow schooner could be built by the average carpenter, without the participation of an experienced shipwright (Martin 1991:2) and that the widespread use of scows may indicate skilled shipbuilders were in short supply in the Lakes region (Inches 1964:291). These factors allegedly made this category of vessel more affordable and more accessible to the average entrepreneur wishing to invest in a maritime shipping operation. Also, the outward appearance of scow schooners left some convinced that these craft were generally less seaworthy than the conventional schooner form (Martin 1991:2-3). These commonly held assumptions had never been tested, however, through an adequate evaluation of scow schooner data contained in the historical record or through the focused archaeological study of one or more of the scow schooner sites which were known to exist in the Lakes region (Pott 1993:28).

Upon evaluation of the collected archaeological and historical data, the *Rockaway's* design was found to be seaworthy, and any shortcuts taken during construction "were not typical of the compromise so often attributed to the building of scows." The use of "first class" materials and a 25 year service record indicate the *Rockaway* was a well constructed scow schooner that could have served many more years on the water, if not for a November gale in 1891. In addition to the extensive study of the *Rockaway*, the project's statistical analysis of 700 Great Lakes-built scows constructed between 1820 and 1920 created a database that "is beginning to suggest several different classes of scows...[and] patterns of change in their development" (Pott 1993:32).

Other Great Lakes scow schooner information survives in the historical record. The *Bay Breeze* was built in Green Bay, Wisconsin by master carpenter Charlie G. Le Clair in 1875. It measured 74 feet long, 19.8 feet in the beam (3.7:1 length to beam ratio), 4.5 feet deep, and 44.47 tons. This vessel had a plain head, square stern, one deck, two masts, and was classified as a scow schooner, not simply "schooner" (National Archives 1881b; U.S. Treasury Department 1884:80). Another Great Lakes vessel with a physical description matching *Bay Breeze*, the *Adain*, measured 76.4 feet long, 19.6 feet in the beam (3.9:1 length to beam ratio), 7.4 feet depth of hold, and 59.15 tons. Constructed in 1864 in Trenton, Michigan, *Adain* worked out of Port Huron, Michigan for 33 years until it was abandoned in 1897 (National Archives 1890a). Despite *Adain's* resemblance to *Bay Breeze*, its papers did not recognize it as a scow schooner. However, *Adain* is classified as a scow schooner in other sources (U.S. Treasury Department 1869:7, 1870:7, 1884:62), thus indicating the difficulty of locating "true" scow schooners from the historical record.

San Francisco Scow Schooners

On the Pacific Coast, scow schooners seemingly developed locally out of a necessity for sturdy shallow water transportation. The first documented use of sailing scows in the San Francisco area appears in custom house records by 1850. Often referred to as "the square-toed packet of San Francisco Bay," the sailing scow given this title matched the Cypress Landing Shipwreck's physical description: a two-masted centerboard schooner with a flat bottom, transom bow, and transom stern (Plates 8 and 9). A bulk cargo carrier, the scow schooner of San Francisco Bay transported brick, lumber, coal, salt, hay, grain, and sand throughout the shallow waters of the Bay's tributaries in the late nineteenth century, before being replaced by the land-based motorized transportation in the twentieth century (Olmsted 1988:2).

The Works Progress Administration (WPA) conducted the Historic American Merchant Marine Survey in the 1930s. This project documented American ships that typified merchant vessels in particular areas, and WPA employees took measurements directly from surviving nineteenth and early twentieth century vessels. Traditionally-built ships, San Francisco scow schooners were constructed to carpenters' preferences concerning hull shape. For example, some San Francisco shipwrights, such as J. S. Nichols, favored scows with sharp, long ends of the same width and with the vessel's greatest beam aft of amidships. In contrast, "the most prolific of the scow builders" William Munder preferred the greatest beam forward of amidships and the bow wider than the stern (Olmsted 1988:22).

One example of Munder's design and workmanship, the scow schooner *Mary*, survived well into the twentieth century. Designed and constructed in 1891, *Mary* had a centerboard, measured 64.8 feet long, 24 feet in the beam (a 2.7:1 length to beam ratio), 5 feet in the hold, and 50.18 tons (Jackson 1983:3). While working for the WPA, W. Place and A. A. Eichler documented *Mary* and remarked:

The *Mary*...is of unusual construction. She was built for the brick trade, which accounts for unusually heavy construction, known as "log-built." Her sides were six inches thick, edge bolted, supported by frames spaced about five feet. The bottom planking was laid athwartships on side keelsons. Very few were built in this manner (Jackson 1983:2).

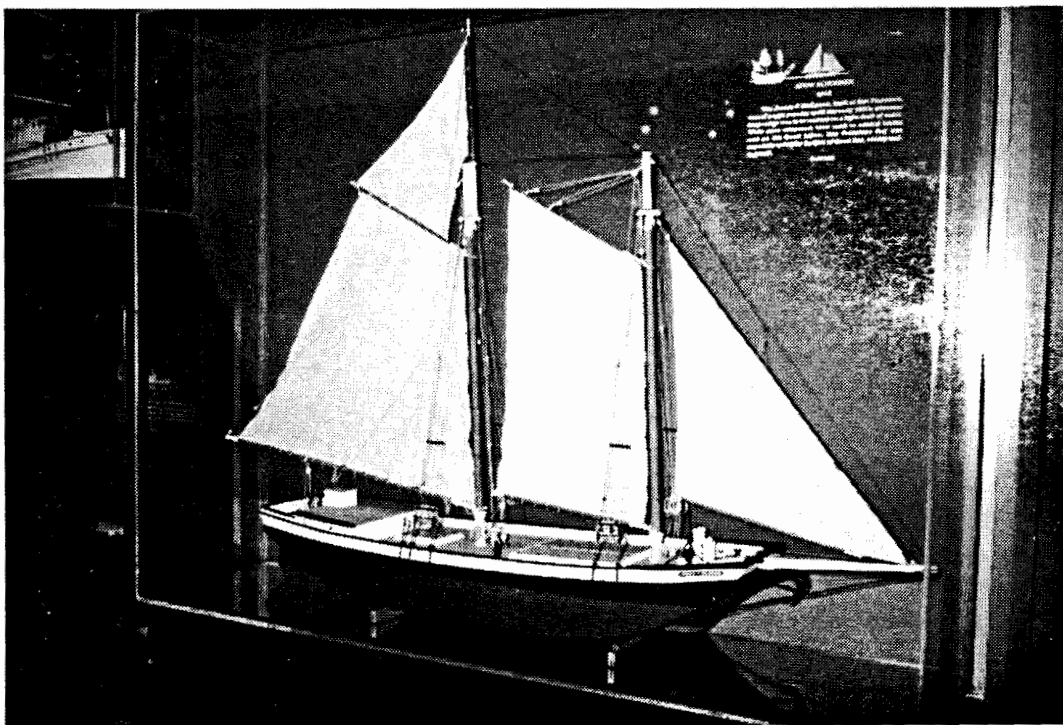


Plate 8. Model of the San Francisco scow schooner *James F. McKenna* in the National Museum of American History. Photograph by Ann Merriman.

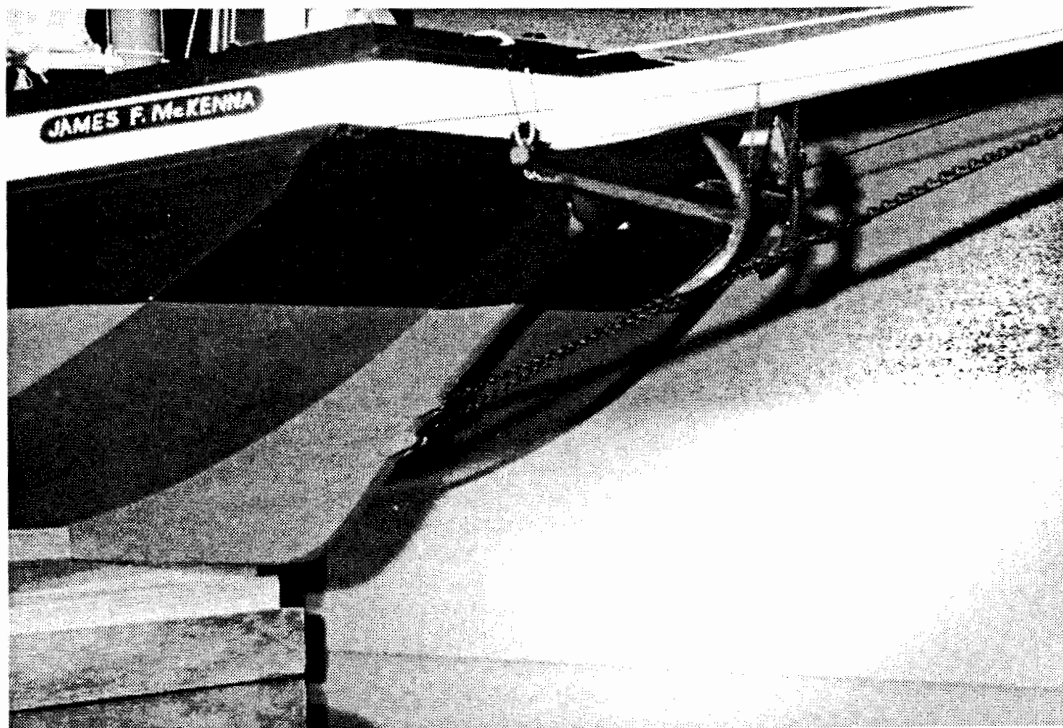


Plate 9. Close-up of the *James F. McKenna's* transom bow. Model in the National Museum of American History. Photograph by Ann Merriman.

The *Crockett*, another Munder centerboard scow schooner constructed in 1901 and still afloat in the 1930s, measured 70.2 feet long, 25.6 feet in the beam (a 2.7:1 length to beam ratio), 5.3 feet deep, and 44 tons (Jackson 1983:9).

Other San Francisco centerboard scow schooners documented by the WPA exhibited a combination of Munder's and Nichols's design preferences. Designed by Fritz Voight and constructed in 1870, *Robbie Hunter* was 65.6 feet long, 23.7 feet in the beam (2.8:1 length to beam ratio), 5.2 feet deep, and 54.52 tons. *Robbie Hunter's* stem and stern widths are equal, but the widest part of the schooner was forward of amidships. *Albertine*, designed and built by N. L. Weaver of San Francisco in 1884, measured 63.5 feet long, 23.8 feet in the beam (2.7:1 length to beam ratio), 5.5 feet deep, and 48.21 tons. *Albertine* had equal stem and stern widths with the widest beam amidships (Jackson 1983:7, 25).

The San Francisco-built scow schooners *Robbie Hunter*, *Albertine*, and *Mary* are classified as schooners by rig, not scow schooners by hull type (U.S. Treasury Department 1887:58,222; 1891:186). However, other scow schooners from California were described by their hull configuration. The small scow schooner *Buckley* of Eureka was licensed for the coasting trade on 20 June 1883. This 12.54 ton schooner measured 49.4 feet in length, 14.6 feet in the beam (3.4:1 length to beam ratio), and 2.9 feet deep (National Archives 1883b; U.S. Treasury Department 1884:85).

Gulf Scows

The sailing scows in Texas and Mexico most often utilized the sloop rig for the fishing trade and were often referred to as "butt-headers." American scow sloops around Port Isabel, Texas, were between 26 and 32 feet long and 10 to 12 feet in the beam (Chapelle 1951:334). This shipbuilding tradition likely spread south along the Atlantic Coast from Maine to the Chesapeake Bay and through the Carolinas. When the sailing scow design arrived in the Gulf is unknown, but these vessels remained in use as late as 1976 and possibly later in northeastern Mexico at Laguna Madre (Doran 1987:62).

A scow schooner or schooner-barge discovered in Louisiana's Tchetuncta River (a river that flows into Lake Ponchartrain) in 1990 had similar site conditions and exhibited similar construction characteristics to the Cypress Landing Shipwreck. Located across from a brickyard, the Tchetuncta River site lies in 10 feet of black water with a silty bottom, providing excellent conditions for vessel preservation and investigation. The wreck measured approximately 50 to 60 feet long with an identifiable foremast step, an on-deck cargo box for sand and gravel, a fence around the hull for holding cargo, evidence of hatches near the probable mainmast area and the stern, with no keel or centerboard evident. The bow rounded toward its end and then flattened out, and the stern had a trapezoidal shape that squared off at its end (Allen Saltus 1995, pers. comm.).

North Carolina Scows and Sailing Flats

In this overview of early North American watercraft the Cypress Landing Shipwreck is nearly overlooked. The vessel had two raked masts apparently arranged with a fore and aft rig and a centerboard; these characteristics identify the wreck as a schooner. However, the Cypress Landing Shipwreck is not a true schooner in the sense

that most people identify with the term, as its construction in the vernacular tradition predisposed it for a particular purpose related to riverine or canal environments.

Properly classified as a sailing flat, scow schooner, sailing scow, or schooner with scow characteristics, the Cypress Landing Shipwreck exhibits an "elementary form, rectangular on deck, and [is] rough, simple, and undistinguished in character and appearance...some types of sailing scow had highly developed rigs and were excellent sailing craft within the conditions of their work" (Chappelle 1951:45). The Cypress Landing Shipwreck embodies a variety of regional modifications and may reflect on the builder as well. Little is known about sailing scows in North Carolina waters, but Alford has identified photographs which appear to show two sailing scows around 1900. Research into documentary sources indicates a number of other possible examples of North Carolina scow schooners and although somewhat speculative, these identifications provide the historical framework for comparing the Cypress Landing Shipwreck to other North Carolina vessels with similar characteristics. The Cypress Landing Shipwreck stands as the lone example of a little known North Carolina vessel.

United States Government enrollments for the coasting trade and registrations for the foreign trade are the best sources for identifying American vessels in the historical record. An extensive search of nineteenth century North Carolina enrollments and registrations revealed the construction characteristics of ships such as stem and stern configuration: square, plain, blunt, round, sharp, figure head, scroll, and billet. A ship's type can also be determined as these records classify vessels by rig: schooner, sloop, brig, scow, lighter, barge, ship, boat, barque, brigantine, tug, galliot, and steamer (Merriman 1996:43, 51). For this study, these federal records were augmented by a manuscript collection that contains numerous primary documents concerning the maritime history of Chocowinity Bay and Washington, North Carolina.

An original bill of sale dated 9 October 1878 discovered in the S. R. Fowle and Son Company Records may pertain to the Cypress Landing Shipwreck:

In consideration of one hundred dollars, the receipt of which is hereby acknowledged, we Joshua A. Cox and Wm. A. Cox have bargained and sold and do bargain and sell unto Jas. L. Fowle a certain sail flat now in our possession and running on Pamlico river which flat was built by Jos. Farrow in 1868. To Have and To Hold unto said Jas. L. Fowle, his executors, administrators and assigns forever.

In witness whereof we have hereunto set our hands and seals this the 9th day of oct. 1878.

Signed, sealed &	Wm A Cox
delivered in presence of	JA Cox

William H. Cox (Cox 1878; Figure 15)

The descriptive term sail flat accurately describes the Cypress Landing Shipwreck and the bill of sale was registered at the Beaufort County Courthouse. In an effort to link this sail flat to the Cypress Landing Shipwreck, the registration book was examined for any additional information. Unfortunately, the courthouse copy mimics verbatim the manuscript copy, offering no additional information concerning the sail flat's name and dimensions (Deed Book 45:300, Figure 16).

The son of Samuel Richardson Fowle, James Luther Fowle worked with his father's general mercantile firm and shipping enterprise located in Washington, North

In consideration of one hundred
 dollars, the receipt of which
 is hereby acknowledged, we
 Doakus H. Cox and ~~Wm. H. Cox~~ W.
 Cox have bargained and
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 certain sail flat now in
 possession and running on
 Pamlico river, which flat was
 built by Jas. Fowle in 1868, to
 have and to hold unto said
 Jas. L. Fowle, his executors, admin-
 istrators and assigns forever.

In witness whereof we
 have hereunto set our hands
 and seals this the 9th day
 of Oct. 1878

signed, sealed &
 delivered in presence of
 William H. Cox

Wm. H. Cox
 J. O. Cox

Figure 15. Sail flat bill of sale, 9 October 1878. S. R. Fowle and Son Company Records, East Carolina Manuscripts, J. Y. Joyner Library, East Carolina University.

Carolina, throughout the nineteenth century. James Luther Fowle's sons, S. R. Fowle II and John B. Fowle, inherited the family business and expanded it further with the acquisition of lumber mills and much farm land. The S. R. Fowle and Son Company shipped goods to northeastern trading centers such as New York, Boston, Baltimore, and Philadelphia, as well as the West Indian markets of Barbados, St. Kitts, St. Vincent, St. Martins, Martinique, Guadeloupe, and Antigua. Surviving shipping invoices recorded the export of North Carolina products such as tar, turpentine, rosin, cotton, shingles, staves, and lumber to these markets. Schooners were used most often for this trade throughout the nineteenth century, and the firm also used schooners as lighters to transport goods on the Pamlico River to larger schooners and steamboats waiting in Pamlico Sound (Merriman 1996:92-105, 170, 177-179; S. R. Fowle and Son Company Records).

The Fowle sail flat could be the Cypress Landing Shipwreck, but without documentation pertaining to its dimensions, this cannot be proven. Further, vessels serving only as river transports were not required to enroll for the coasting trade, so the Cypress Landing Shipwreck would not appear in these government records. Therefore, further information is required to place the Cypress Landing Shipwreck into the greater context of North Carolina shipbuilding and maritime navigation. An examination of vessels with similar dimensions and construction characteristics is necessary. One schooner flat and four vessels with scow classifications were identified in a search of nineteenth century North Carolina coasting trade enrollments.

Laura D. Constructed in 1890, the *Laura D.* of Southport, North Carolina was enrolled as a schooner flat. This 29.02 ton Wilmington schooner, owned by W. H. Pike and captained by G. F. Browner had one deck, two masts, and was 65 feet long, 16 feet in the beam (4.1:1 length to beam ratio), and 3 feet deep. In 1894 *Laura D.* was dismantled in Wilmington, being converted into an unrigged scow. *Laura D.* was lost on 30 December 1894 (National Archives 1890c). If *Laura D.*'s measured length indicated its keel length and not its overall length, it could be the Cypress Landing Shipwreck, particularly considering its depth of hold and the notation concerning its conversion. The description of a sailing vessel as a flat in North Carolina is rare; the *Laura D.* and the Fowle sail flat are the only vessels found in the historical record designated as flats with sails.

Barter. Constructed in Wilmington in 1885 the scow *Barter*, owned and captained by B. Patrick, had two masts, one deck, plain head, square stern, measured 65 feet long, 16 feet wide (4.1:1 length to beam ratio), and 3 feet deep. These dimensions are the same as *Laura D.* *Barter*. On 2 August 1886 *Barter* was laid up (National Archives 1885), but enrolled again the next month as a schooner, now owned by W. G. Fowler and mastered by Sol Bowings. Documents record no change of rig, thus *Barter*'s first papers reflect its hull configuration and its second, the rig. On 30 June 1890 *Barter* was listed as abandoned (National Archives 1886). *Barter* closely matches the Cypress Landing Shipwreck in beam and especially depth. As with *Laura D.*, if *Barter*'s recorded length reflected its keel length and not its overall stem to stern length, it would approximate the Cypress Landing Shipwreck.

In Consideration of one hundred dollars, the receipt of which is hereby acknowledged we Joshua A Cox and W A Cox have bargained and sold and do bargain and sell unto Jas L Fowle a certain Sail Flat now in our possession and running in Paulico River which flat was built by Jas A Farrow in 1868 To have and to hold unto said Jas L Fowle his Executors administrators and assigns for ever In Witness whereof we have hereunto set our hands and seals this 9th day of Oct 1878

Signed Joshua and
 delivered in presence of }
 W A Cox

W A Cox
 J A Cox

Figure 16. Sail flat bill of sale, 9 October 1878. Deed Book 45, page 300, Beaufort County Courthouse, Washington, North Carolina.

City of Stella, Eldridge, and Maggie. Three scows listed in enrollments were unrigged boats with scow characteristics such as square heads and sterns; they had no masts and had one deck. Constructed in Stella, North Carolina and owned by K. E. Terry and D. B. Wade, the three unrigged scows worked out of Beaufort. The smallest scow, *City of Stella*, was constructed in 1890 and measured 44 feet long, 11.5 feet in the beam (3.8:1 length to beam ratio), 3 feet deep, and 31.93 tons. This scow was abandoned in 1899 (National Archives 1890b). The 30.25 ton scow *Eldridge* measured 62.8 feet long, 20.2 feet in the beam (3.1:1 length to beam ratio), and 3.8 feet in the hold. Constructed in 1892, *Eldridge* was abandoned in 1907 (National Archives 1892). The third unrigged scow, *Maggie*, measured 64.5 feet long, 20.5 feet in the beam (3.1:1 length to beam ratio), 3.5 feet deep, and 30.35 tons. A new vessel in 1893, *Maggie* was abandoned in 1899 (National Archives 1893).

The majority of North Carolina schooners with scow characteristics and resembling the Cypress Landing Shipwreck's size were constructed in Camden and Currituck Counties and worked primarily out of Elizabeth City in Pasquotank County and Edenton in Chowan County. Described in enrollments and registrations, these vessels have scow characteristics but are classified by rig. Three schooners named *Viola*² are comparable to the Cypress Landing Shipwreck in dimension and design as documented in enrollments and registrations. Two of these vessels were built in Camden County and the third in New Hanover County.

Viola I. Owned and mastered by C. R. Nash, *Viola I* was constructed in Camden County and measured 49.29 tons. *Viola I* enrolled for the coasting trade in Elizabeth City on 29 November 1860 as a new vessel (National Archives 1860). By August 1865, retail merchant (United States Bureau of the Census [USBC] 1860) Edwin Ferebee owned and L. W. Walker captained *Viola I*. This schooner registered for the foreign trade out of Norfolk, Virginia on 14 August 1865 measuring 45.40 tons (a decrease of 3.89 tons), possibly the difference between gross tons and net tons. This registration was surrendered in Elizabeth City on 24 April 1866 (National Archives 1865).

An enrollment dated 24 August 1866 recorded *Viola I* with one deck, two masts, and 36.99 tons burden. Still owned by Edwin Ferebee and captained by P. D. Sykes, the schooner had a 6.4:1 length to beam ratio, measuring 74 feet long, 11.6 feet in the beam, and 4.5 feet in the hold (National Archives 1866d). Upon the abolition of the North Carolina's District of Camden, this enrollment was surrendered 2 September 1868 at Edenton with a replacement issued the same day under the District of Albemarle. This enrollment lists *Viola I*'s owner and captain as A. Pency and specified the stem and stern configurations, labeling them both "square" (National Archives 1868b). *Viola I*'s final disposition remains unknown.

Viola II. Built at Elizabeth City in 1869, *Viola II* measured 30.64 tons, 69 feet in length, 14.4 feet in the beam (4.8:1 length to beam ratio), 4.4 feet in the hold, with a square bow, square stern, one deck, and two masts. D. Sikes owned and captained *Viola II* (National Archives 1869b). However, one enrollment dated 18 February 1874 listed him as Percival D. Sykes. *Viola I*'s master in 1866 was P. D. Sykes and undoubtedly the same man captained both vessels (National Archives 1866c). Hospital records concerning money col-

²The three schooners named *Viola* are given the suffixes I, II, and III for the sake of clarity. In the historical record, these vessels were simply referred to as *Viola*.

lected from merchant vessels for the Albemarle District recorded *Viola II*'s crew complement ranging between three and twenty seamen (National Archives 1873b, 1874a, 1875a, 1876b, 1877a, 1878, 1879, 1880b, 1881a, 1882b). *Viola II* remained enrolled with various masters and owners in Edenton until 3 January 1883, when it was sold to Captain George W. Lawrence of Norfolk, Virginia. This enrollment, surrendered on 26 April 1884, stated *Viola II*'s disposition as abandoned and broken up (National Archives 1883a). This status is confirmed as *Viola II* was designated as "reported lost or otherwise out of service" in 1884 (U.S. Treasury Department 1884:267).

Viola III. *Viola III* is the only schooner with similar dimensions and construction characteristics to the Cypress Landing Shipwreck not built in northeastern North Carolina. *Viola III* was constructed in Wilmington, North Carolina in 1882. It was owned by Captain R. H. Beery and mastered by C. Cardstrome. *Viola III* had a 4.6:1 length to beam ratio, and measured 75 feet long, 16.2 feet in the beam, 4 feet deep, and 37.47 tons. This schooner had one deck, two masts, a square head, and a square stern (National Archives 1882a). On 2 June 1883, *Viola III* grounded in the Cape Fear River. A newspaper account of the incident reported:

During the storm of Saturday [2 June 1883] the lighter *Viola*, Captain Chadwick, lost her anchor and chains, had her jib carried away, and drifted on the shoals off Orton Plantation, where she filled with water. Thirty-nine barrels of tar were washed overboard and lost. Capt. Chadwick was also swept overboard by the waves but managed to get back; receiving several bruises, however. After the storm abated the *Viola* was pumped free and came up to the city. She is owned by Capt. R. H. Beery, of Wilmington (*Wilmington Star*, 5 June 1883).

Fortunately this article referred to *Viola III* as a lighter, indicating this schooner at some time served as a self-propelled river transport vessel, carrying cargo to deep-draught ocean-going ships unable to enter shallow rivers and harbors. For comparison, the lighter *Mary E. Brite*, constructed in Pasquotank County in 1861 and owned by George W. Brite, measured 64.2 feet long, 13.4 feet in the beam (4.8:1 length to beam ratio), 4.1 feet in the hold, and 28.23 tons. This lighter had a square head and stern like *Viola III*, but had no masts (National Archives 1866c). This indicates *Mary E. Brite* was either towed by another vessel, poled by men, or pulled by horses to perform its duties (Brown 1945:305; Myers 1932). *Viola III*'s loss was reported on 14 December 1885 in Wilmington. *Viola III* remains documented until 1886, however (U.S. Treasury Department 1885:286, 1886:267).

Discrepancies and Documentation Problems. *Viola I*'s disappearance from the historical record might be explained by a clerical error. First, *Viola I*'s enrollment paper of 24 August 1866 mistakenly has *Viola II*'s official number (25.747) attributed to it. *Viola II* enrolled in Edenton as a new boat on 14 September 1869, a date coinciding with *Viola I*'s last known enrollment surrendered in Edenton and *Viola I*'s disappearance from custom house records with its disposition unknown. Apparently, customs house officials assumed *Viola I* and *Viola II* were the same vessel, and *Viola II*'s newly assigned official number was placed on *Viola I*'s surrendered paper as well. Second, since the United States Treasury Department used custom house documents to record ships, *Viola I* (listed as

36.99 tons) is also given *Viola II*'s official number in the 1869 (U.S. Treasury Department 1869:243). Finally, *Viola II*'s tonnage and official number are correct in 1869-1870, but the schooner is listed as sloop-rigged (U.S. Treasury Department 1870:270). This error and other discrepancies could have resulted from confusion in the customs house concerning two vessels with the same name and owner.

Although *Viola I* enrolled in 1866 with a tonnage of 36.99 and two masts, customs house officials simply copied information (and misinformation) concerning construction characteristics from the now surrendered paper, possibly missing any rebuilding or cutting down of the vessel. Further, papers were often lost or misplaced during a voyage and copies, including information from previous papers that might be inaccurate, were later issued to the vessel. According to enrollment and registration abstract lists, *Viola I* was inactive between 24 April and 24 August 1866. The registration surrendered on 24 April lists *Viola I*'s tonnage as 45.40; the enrollment issued 24 August lists the tonnage as 36.99, a decrease of 8.41 tons. *Viola I*'s decreased tonnage might reflect a cutting down of the vessel, possibly the subtraction of a mast, thus changing its rig classification to sloop. *Viola II*'s identification as a sloop in 1869-1870 might actually apply to *Viola I* as these two vessels were mistaken for each other previously. If this hypothesis is correct, *Viola I* disappears from the historical record between 1870 and 1871 with its specific disposition unknown.

Viola I could be the Cypress Landing Shipwreck as the wreck's aft mast partner damage might indicate the subtraction of a mast and a change from schooner rig to sloop rig. However, the registration for foreign trade out of Norfolk dated 14 August 1865 indicates *Viola I* is not the Cypress Landing Shipwreck because the poor construction exhibited in the Cypress Landing vessel and its 5.2:1 length to beam ratio did not allow for travel on the open ocean (Michael B. Alford July 1995, pers. comm.). *Viola II* is not the Cypress Landing Shipwreck as its disposition is clearly stated as abandoned and broken up. *Viola III* might be the Cypress Landing Shipwreck if it was refloated, but no evidence supports this hypothesis.

John James. A fourth schooner with one deck, two masts, a square stem, and a square stern in the historical record physically resembled the Cypress Landing Shipwreck. Owned by William R. Abbott and captained by James E. Spence of South Mills, North Carolina (USBC 1870), *John James* was constructed at River Bridge in Camden County in 1870. With a 5.5:1 length to beam ratio, *John James* measured 76 feet long, 14 feet in the beam, 4.4 feet deep, and 38.84 tons (National Archives 1870). James F. Scott of Camden County purchased *John James* in 1873 and also served as captain (National Archives 1873a). *John James* carried a three man crew according to hospital records (National Archives 1873b, 1874a). *John James* was lost in Chesapeake Bay in September 1874 (National Archives 1873a). As with *Viola III*, *John James* could be the Cypress Landing Shipwreck if the vessel had been raised, but there is no evidence supporting this hypothesis and its transportation from the Chesapeake Bay seems doubtful.

William N. H. Smith. A Camden County schooner with dimensions similar to the Cypress Landing Shipwreck began its career as a sloop. *William N. H. Smith* was co-owned by farmer (USBC 1860) William S. Mercer and Captain Joseph Mercer of Currituck

County. Joseph Mercer also mastered the vessel. This one-decked sloop had a square stem and a square stern, measured 75 feet long, 14.3 in the beam (5.2:1 length to beam ratio), 4.8 feet deep, 37.01 tons, and was constructed in 1860 (National Archives 1866b). An enrollment issued in 1866 indicated a tonnage reduction to 27.52, a decrease in beam to 12.5 feet, and the depth of hold decreased to 4.4 feet. No explanation is given for these changes. At this time, William S. Mercer still owned the vessel, with Amos Jones listed as captain (National Archives 1866e). *William N. H. Smith* temporarily registered out of Norfolk in 1867. William S. Mercer captained the schooner in 1868 and retained ownership. *William N. H. Smith's* last enrollment as a sloop was surrendered at Edenton on 4 September 1869, the reason given as "change of rig" (National Archives 1868a).

Schooner *William N. H. Smith* enrolled in Edenton on 4 September 1869 after almost nine months out of service, still owned and mastered by William S. Mercer. The ship's dimensions and tonnage remained as before, with the description reading that "she is a schooner has two masts, a square head and a square stern." This paper was surrendered on 8 December 1871 at Edenton, cause listed as "vessel condemned, hauled up and torn to pieces on the 8th of September 1871" (National Archives 1869a). This vessel's change of rig and tonnage is documented. In 1868 *William N. H. Smith* was a sloop of 37.01 tons and in 1872 the vessel was listed as a schooner of 27.52 tons (U.S. Treasury Department 1868:62, 1872:303). Since *William N. H. Smith* was condemned and not lost, perhaps the addition of a mast for a schooner rig weakened its structure to the point of instability. This schooner could be the Cypress Landing Shipwreck if the statement "torn to pieces" meant its masts, rigging, and upper structures were removed for re-use or to facilitate the schooner's use as a towed scow or sunk as a breakwater. However, there is no specific historical evidence supporting this hypothesis. Further, as with *Viola I*, *William N. H. Smith* received a registration for foreign trade out of Norfolk in 1867 (meaning the vessel traveled in the ocean) thus lessening the possibility that it is the Cypress Landing Shipwreck (Michael B. Alford 1995, pers. comm.).

Mariam. Another Camden County schooner, the two-masted *Mariam* was constructed in South Mills by mulatto master carpenter Edmond Hinton in 1874, and owned by Prussian immigrant and retail merchant John Jacobs (National Archives 1874b; USBS 1870). *Mariam* had a 4.5:1 length to beam ratio and measured 72 feet in length, 16 feet in the beam, 5 feet in the hold, and 48.54 tons. This schooner's design suggests the same characteristics as the Cypress Landing Shipwreck with its one deck, "square head," and "square stern" (National Archives 1874b). In 1876 *Mariam's* papers listed George Sawyer and John Jacobs as co-owners and John Spence as master. These documents were surrendered on 13 June 1878 and not renewed, since the vessel was laid up (National Archives 1876a). Albemarle district hospital records listed *Mariam's* crew complement between two and twelve men (National Archives 1875a, 1876b, 1877a, 1878, 1879, 1880b, 1882b, 1884). *Mariam's* enrollment papers dated 19 March 1880, surrendered by owner David G. Ackerly and master William Ackerly in Norfolk on 16 September 1886 listed the schooner's disposition as abandoned (National Archives 1880a). *Mariam* is documented between 1874 and 1886, coinciding with surviving enrollments (U.S. Treasury Department 1875:216, 1876:175, 1877:172, 1878:165, 1880:126, 1881:135, 1882:136, 1883:138, 1884:197, 1885:211, 1886:207). Establishing an association between the Cypress Landing Shipwreck's mainmast partner repair and *Mariam's* down time when it was "laid up" could assist in vessel identification, but this link cannot be made with the available information.

Widow's Son. A Currituck County schooner closely resembling the Cypress Landing Shipwreck in dimensions and construction characteristics was built at Tull's Creek in 1871. The 30.18 ton two-masted schooner *Widow's Son* had a 5.3:1 length to beam ratio and measured 75 feet long, 14 feet in the beam, and 4.7 feet in the hold. The schooner had one deck, a plain stem, and a plain stern. William S. Mercer of Currituck County, former owner of *William N.H. Smith*, owned *Widow's Son* and enrolled this schooner one day after he surrendered *William N. H. Smith's* last enrollment (National Archives 1871). Numerous surviving enrollments trace this schooner's activities (National Archives 1872, 1874c, 1875b) and the government chronicled *Widow's Son* throughout the 1870s (U.S. Treasury Department 1872:297, 1874:321, 1875:342, 1876:275, 1877:270, 1878:258). Hospital records for the Albemarle District list *Widow's Son's* crew complement fluctuating from three to six men (National Archives 1874a, 1875a). Transferred to Virginia, William H. Oliver enrolled *Widow's Son* on 7 November 1877, working out of Norfolk with master George W. Haywood until this paper's surrender in Norfolk on 14 June 1879 with the cause of surrender listed as "vessel wrecked" (National Archives 1877b). *Widow's Son* is most likely not the Cypress Landing Shipwreck as its disposition appears to be near Norfolk and there is no evidence of its salvage.³

Further Hypothesis. Another hypothesis concerning the origins of the Cypress Landing Shipwreck suggests the vessel began its career as a human-powered flatboat (Michael B. Alford 1995, pers. comm.) similar to the one remembered by an antebellum resident of Washington, North Carolina:

Some of my most vivid recollections have to do with the water traffic, both on the upper and lower rivers, and at sea. In fact, in the early days, water communication was the principal way of keeping in touch with the outside world...great quantities of products...were freighted down on flatboats consigned to middlemen here...to be shipped away on seagoing vessels. Those merchants found this business very lucrative, and were among the wealthiest and most prominent men of the town. Among them I recall Mr. B. F. Havens, Mr. W. A. Willard, Mr. S. R. Fowle, Mr. G. H. Brown, and Mr. John Myers. The flatboats brought a very important part of the trade of the town. These boats were propelled by manpower, they were poled along by negroes who walked along a plank footway along the side of the boat. As they walked, they chanted a most peculiar mournful song. These flatboats came down the river piled high with bales of cotton, barrels of tar, pitch and turpentine, bags of corn, sides of bacon and stacks of brick, staves and shingles. The making of barrels was an important industry here, and the town was dotted with noisy cooper shops. These barrels were used by the large distilleries located here. The commission merchants, many of them, owned large sea-going vessels - two and three vessels each which traded along the coast northward to Baltimore, Philadelphia, New York and Boston, and southward to the West Indies (Myers 1932).

If the Cypress Landing Shipwreck was an unrigged flatboat converted to a sailing vessel its centerboard, centerboard trunk, rudder, masts, and mast partners were later constructions. This hypothesis is supported by the lack of strong, stable attachments structurally linking each mast partner to the vessel's side. The shipwreck's fragmentary keelson and sister keelsons also suggest the vessel was not designed to hold the heavy structural components of the centerboard trunk and masts.

³See Appendix A for a list of other North Carolina schooners with scow characteristics.

If the shipwreck is a converted unrigged scow, it likely worked out of Washington as a lighter and river transport boat. A search of Washington and New Bern (Washington's customs house was closed in 1868) enrollment abstracts for 1850-1900 did not reveal any lighters, barges, or scows converted to sail, and there were almost no vessels of these types mentioned. Many lighters and barges appear in Edenton and Elizabeth City enrollment abstracts during these years including the aforementioned *Mary E. Brite*. Again, in these northeastern ports, no vessel conversions from unrigged flat to schooner were documented.

Newspaper Documentation. With limited historical resources, newspapers provide valuable information concerning shipping practices, local merchant activities, and specific people or businesses involved in ship construction. Some nineteenth century North Carolina newspapers mentioned scow use and construction in articles or advertisements. In 1829 John Foy of Wilmington listed three vessels for sale along with other goods:

NOTICE: Will be sold on the 27th of April, the residue of the PERISHABLE PROPERTY of the subscriber remaining on hand, including a large new SCOW and FERRY FLAT, and a new SAILING BOAT in complete order...Terms made known on the day of the sale. JOHN FOY (*New Bern Spectator*, 18 April 1829).

It is interesting to note that Mr. Foy differentiated between a scow and a ferry flat. This possibly indicated a difference in the vessel's intended purpose, since ferries typically transported passengers and cargo across bodies of water and scows carried cargo on bodies of water. Differences in construction probably existed as well, but this cannot be ascertained from the available information.

An 1883 harbor master's report concerning the intentional filling of Corncake Inlet on North Carolina's Outer Banks mentioned the firm responsible for the job and some vessels constructed for the purpose:

Preparations to Close "Corncake Inlet:" Messrs. Ross & Lara, to whom the contract was awarded for supplying stone, brush and other necessary material for filling up or closing what is know as "Corncake Inlet," near what was formerly New Inlet, are busy making preparations to commence the work. Their base of operations will be what is known as the Keystone Quarry, at Gander Hall, opposite Orton...A number of scows are...in process of construction here for their use (*MS*, 4 October 1883).

The following year a scow under construction received notice in Beaufort as "Mr. James C. Davis is having a scow built for the purpose of conveying wood to market from the shallow streams in this vicinity" (*MS*, 2 January 1884). In 1891 a Wilmington shipyard constructed scows headed for Cuba:

The British steamship *Evandale* arrived yesterday from Philadelphia, and was cleared in the evening by George Harriss, Son & Co., for Santiago de Cuba. The *Avandale* takes in tow a couple of large scows built by the S. W. Skinner Company of this city, for the Spanish American Iron Company, of Cuba (*Wilmington Messenger* [WM], 26 June 1891).

A scow shipwreck in the Cape Fear River made news in 1896:

During the storm of last Thursday a large scow, or flat, moored at the site of the new quarantine hospital near Southport, was sunk and her cargo of copper-sheathed piling that was to have been used in the foundation of the building worth about \$30 a piece were lost (*The Evening Dispatch [ED]*, 8 February 1896).

The subsequent cargo salvage of the vessel also received attention:

The Southport *Leader* says: During the gale last week a scow with thirteen metaled piles for the new quarantine station was sunk and the piles drifted away. Ten of them were afterwards recovered (*ED*, 14 February 1896).

The previous articles mention scow cargo such as copper-sheathed piling, stone, and brush, and a scow constructed for an iron company in Cuba. In 1900 the United States government constructed a scow needed for Pamlico River improvements:

Lumber is being received at the government shipyards at Union Point for building a large mud scow to be used in connection with the steam dredges now at work on Pamlico River. The work on the boat will begin at once (*WM*, 30 January 1900).

Later in 1900, large capacity scows were under construction in Swansboro and worked as lighters to service ocean-going vessels:

The Swansboro Lumber Company is now doing a big business. Mr. J. F. Prettyman, the boss of the concern, is a thorough mill man and a great worker; his chief manager, Mr. J. Mc. Jones, is also a worker. They work about 25 hands. They have built several steamboats. They launched one three weeks ago named *Fawn*, and are building large double decked scows now for the purpose of freighting lumber to the vessels at the bar (*WM* 26 May 1900).

These few documented examples of common scow uses as lighters and bulk cargo carriers place the Cypress Landing Shipwreck in a historical context, even if somewhat limited.⁴

⁴See Appendix B for newspaper listings of scows and flats for sale in North Carolina and Georgia.

6

Probable North Carolina Scow Schooner or Sail Flat Travel Routes

With the exception of *Viola III, Barter*, and the three non-rigged scows of Beaufort, the narrow, shallow-draft schooners resembling the Cypress Landing Shipwreck have one characteristic in common; each schooner sailed to Norfolk, Virginia (National Archives). Further, these vessels certainly used the Dismal Swamp Canal and the Albemarle and Chesapeake Canal to reach this destination.

The Dismal Swamp lies between northeastern North Carolina and southeastern Virginia, acting as a natural communication barrier between the trading centers of North Carolina's tributary settlements and the large port of Norfolk. This thick, dense swamp originally encompassed 2200 square miles until intentional drainage decreased its size to roughly 700 square miles. The swamp contains valuable timber including cypress, juniper, white pine, and gum. As early as 1728, representatives of colonial North Carolina and Virginia discussed canal construction to cut through the swamp. Virginia's Colonel William Byrd II recognized the importance of Norfolk as a major port and the swamp's potential for providing valuable natural resources:

This place [Norfolk] is the mart for most of the commodities produced in the adjacent parts of North Carolina. They have a pretty deal of lumber from the borders of the Dismal, who make bold with the King's land thereabouts without the least ceremony. They not only maintain their stock upon it, but get boards, shingles, and other lumber out of it in great abundance (Brown 1945:205; from Boyd 1929:36).

Although no concrete action was taken in 1728, by 1790 both state legislatures approved canal construction plans and the incorporation of the Dismal Swamp Canal Company. Canal excavation began in 1793 (Brown 1945:203-204).

By 1805, a crude and shallow 15 foot wide Dismal Swamp Canal connected the southern branch of the Elizabeth River south of Norfolk to the Pasquotank River in North Carolina. At Deep Creek, Virginia, a 21 mile stretch of elevated canal had a series of seven locks ending at South Mills, North Carolina. This section required support from Lake Drummond through feeder ditches in order to maintain water levels in the locks. Restricted to extremely shallow-draught vessels, the early Dismal Swamp Canal accommodated unrigged flatboats and rafts. These boats averaged 30 to 40 feet in length, 4 to 6 feet in the beam, and had 18 to 25 inches draft. Cargoes consisted of wood products such as juniper shingles, barrel staves, and hogshead staves (Brown 1970:45-46; 1981:3).

With few early nineteenth century improvements to the canal, it remained "little more than a muddy ditch" until its strategic importance was recognized during the War of 1812. Restrictive Congressional coastal trade embargoes and the British Atlantic Coast blockade greatly hindered the war effort. "The Dismal Swamp Canal, had it then been really completed, could have served a very important purpose." A "vessel other than a shingle flat" navigated the canal on June 1814 when a 20 ton one-decked vessel transported brandy and bacon into Norfolk (Brown 1970:46-49). By the 1820s and with addi-

tional water channeled from Lake Drummond, the Dismal Swamp Canal supported many commercial vessels and with further navigational improvements in the 1840s and 1850s:

The Canal was full of shingle lighters and timber rafts, schooners and sloops, and the schooner-rigged barges of freighters called the Virginia and North Carolina Transportation Company...In this middle third of the nineteenth century, the Dismal Swamp Canal had its heyday (Simpson 1990:106-107).

Work began on the Albemarle and Chesapeake Canal in 1855 and it opened in 1859. The canal, over 73 miles long, connected Virginia's Chesapeake Bay and North Carolina's Albemarle Sound through the North Landing River, Currituck Sound, and the North River. An increased number of private steamboat companies operating in northeastern North Carolina pushed the Albemarle and Chesapeake and Dismal Swamp Canals into a rivalry for business. Expensive upgrades and navigational improvements designed to lure new steamer business caused each canal financial hardship. The federal government recognized the Albemarle and Chesapeake Canal as an important link in the developing Atlantic Intracoastal Waterway and purchased the canal in 1912. The Dismal Swamp Canal fell into disrepair and by 1925 the government also purchased the Dismal Swamp Canal, recognizing it as a valuable link in the Intracoastal Waterway system as well.

If the Cypress Landing Shipwreck is one of the schooners previously mentioned, during its working life, it most likely used the Dismal Swamp and Albemarle and Chesapeake Canals. If the vessel worked strictly out of the Pamlico River area as an unrigged flatboat and then as a schooner-rigged lighter, its beam still allowed passage through many Pamlico Sound tributaries.

Artifact Interpretation and Conservation

The Cypress Landing Shipwreck excavation uncovered numerous artifacts composed of leather, iron, wood, composite objects of iron and wood, and a red bead. Upon removal from the site, artifacts underwent cleaning, documentation, and conservation, in accordance with East Carolina University's Maritime History and Nautical Archaeology Conservation Lab's standard practices (Rodgers 1992).

Leather Artifacts

Leather artifacts consisted of one shoe, one boot, and one partial sole piece which all exhibited wooden peg construction. Pegged shoes and boots used wooden pegs to fasten the outer sole together while fastening the upper and lower parts together. Adopted around 1815, wooden peg construction replaced completely hand-sewn or copper nailed shoes and boots, becoming "the most common type of footwear in the first half of the nineteenth century." The excavated shoe and boot also exhibit welt construction. A welt is "a narrow strip of leather that is sewed to the upper of a shoe with an insole leaving the edge of the welt extending outward, so that the outsole can be attached by sewing through both welt and outsole, around the outside of the shoe" (Dooley 1912:160, 167, 216, 254).

The shoe (0017PMR005) came from a clay-like silt matrix one foot above the ship's ceiling planking located two feet forward of the mainmast partner and three feet from the port side. The shoe measures 12 inches long, 6.25 inches across the tread, and has no heel. Its four pieces consist of the upper, insole, welt, and outsole (Figures 17,18,19,20). In its current flattened shape, the shoe's width extends over the sole considerably. The shoe's flattened counter, "the stiffening in the back part of a shoe...to support the outer leather and prevent the shoe from 'running over' at the heel" (Dooley 1912:186), suggests the shoe was likely worn by a seaman who, for safety reasons, regularly slipped his shoes on and off to climb masts and adjust rigging. Shoes excavated from the American Revolutionary War-era brigantine *Defence* also had "their counters broken down so that they could be slipped off and on with ease" and it has been suggested "the habit of not wearing shoes aboard ship may account for the many shoes left behind when the sailors hastily abandoned ship" (Smith 1991:199, 201).

The shoe's stitching extended along its top and apparently held a now missing tongue in place (D. A. Saguto to Lawrence Babits 1995, pers. comm.). Other stitching held the external counter to the internal upper leather and extended to the shoe's sides and inner sole. The inner sole was sewn and pegged to the outer sole, with peg holes evident at various locations throughout the inner sole. A copper rivet fastened the upper leather pieces together. The copper rivet indicates the shoe is Union Army Civil War-era issue authorized for African-American troops. As men of African descent enlisted in the Union Army and were issued uniforms, the high rate of shoe and boot replacement due to the "ripping out" of standard issue army footwear prompted the manufacture of wider shoes

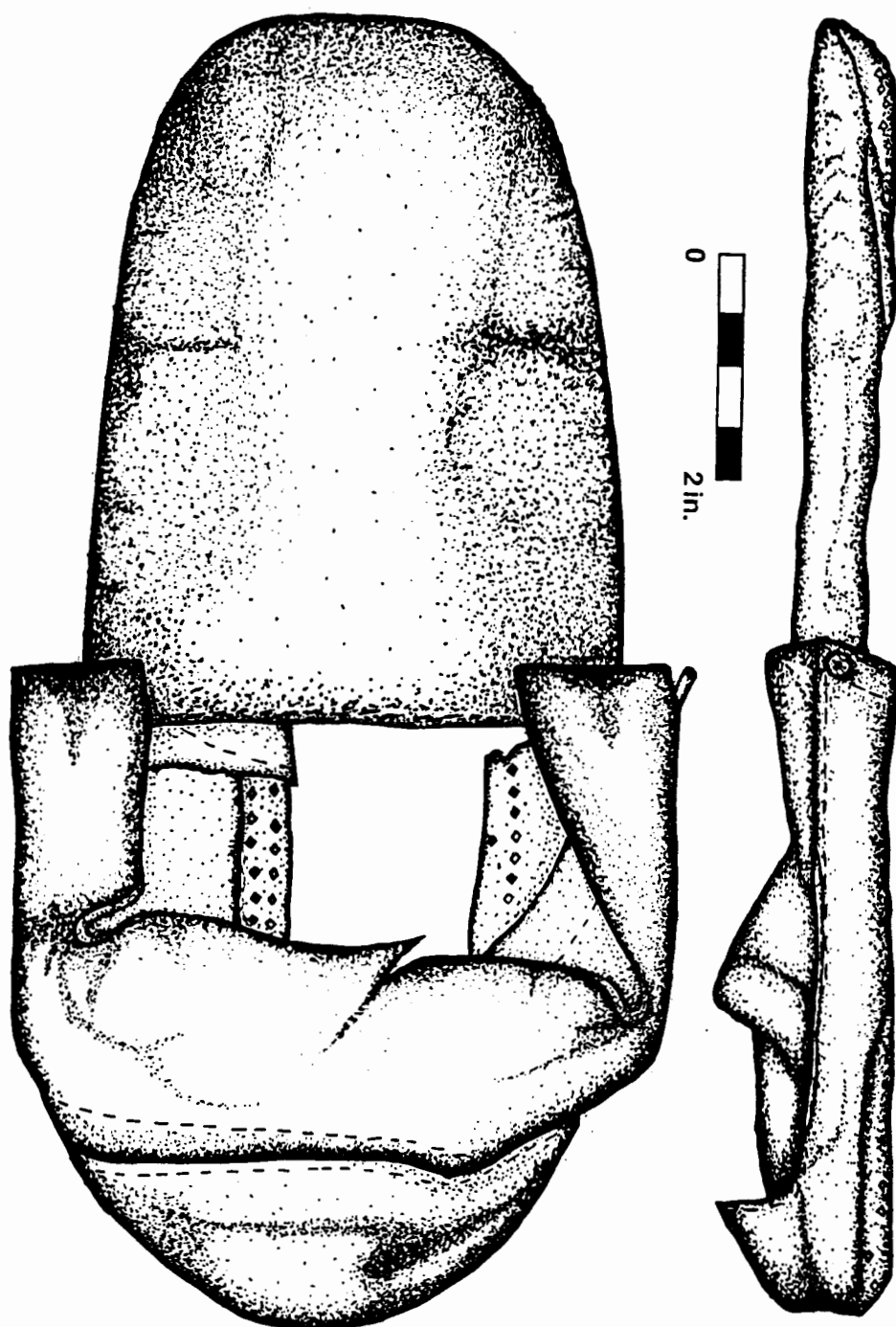


Figure 17. Top and side view of leather shoe upper (0017PMR005). Note the wooden peg and stitched construction in the top view and the copper rivet in the side view.

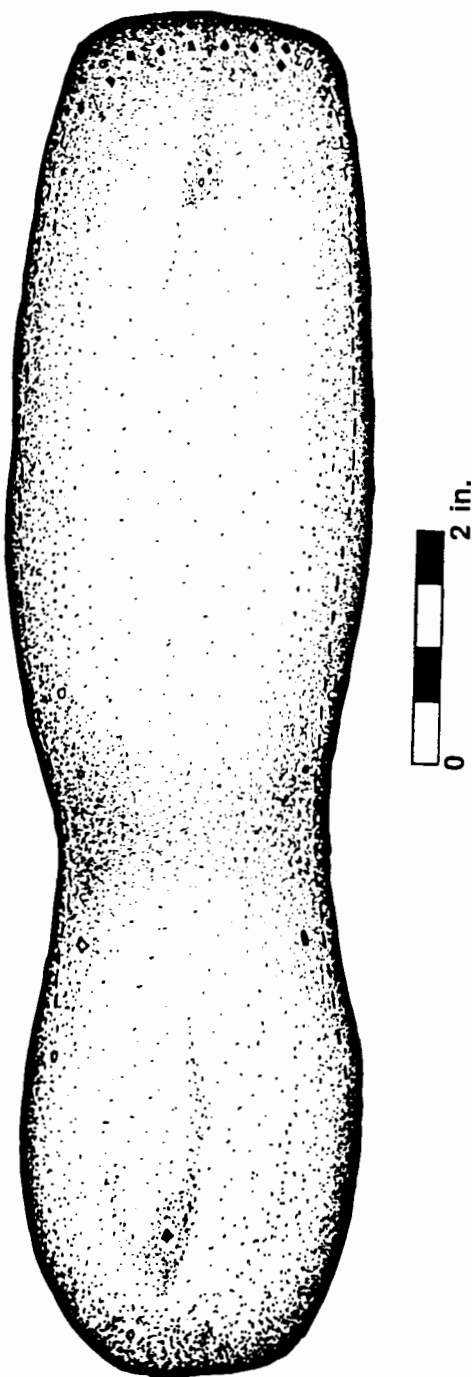


Figure 18. Leather shoe insole (0017PMR005). Note the wooden peg and stitched construction.

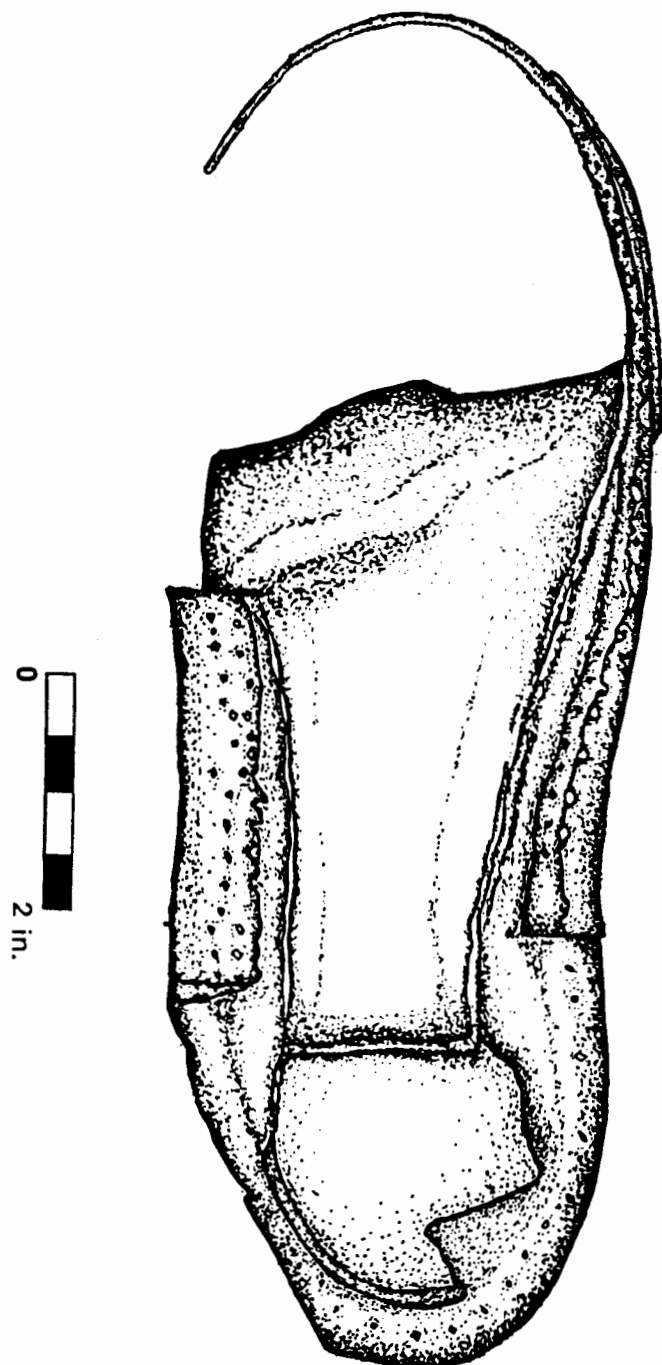


Figure 19. Leather shoe bottom (0017PMR005). Note the wooden peg construction.

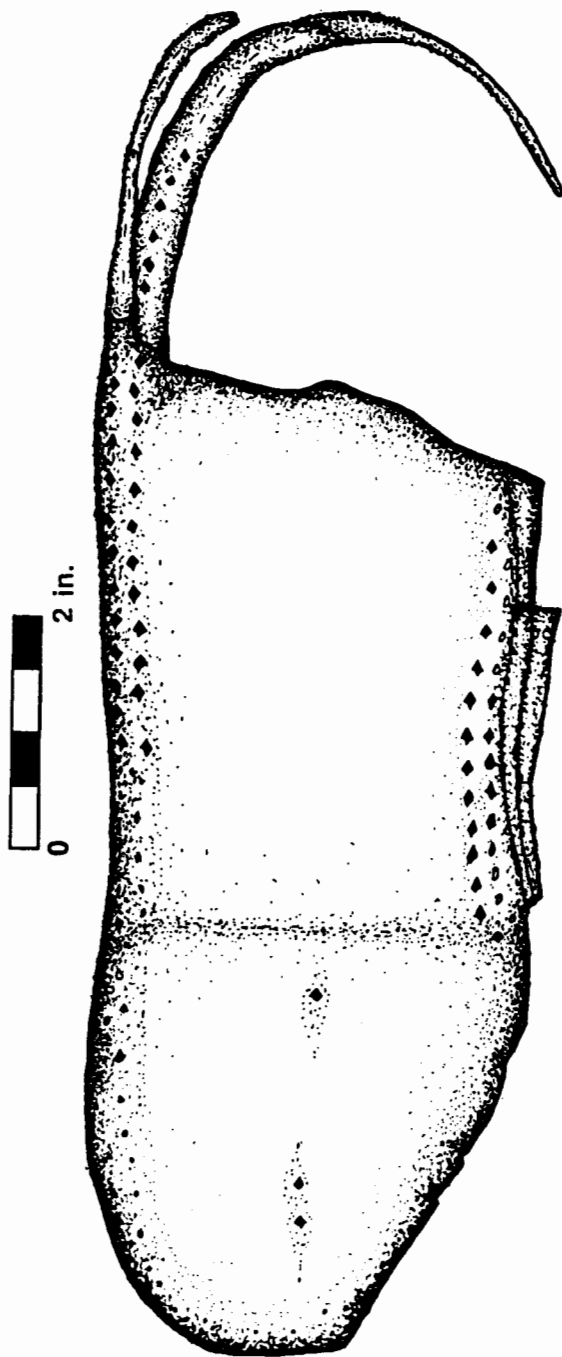


Figure 20. Leather shoe bottom (0017PMR005). Note the wooden peg construction and missing heel.

with no laces and copper rivet construction. The Cypress Landing Shipwreck shoe's outer sole is not extremely worn and likely remained "unissued" during the Civil War. The shoe was likely sold as surplus after the war's end (D. A. Saguto to Lawrence Babits 1995, pers. comm.). If this hypothesis concerning the shoe's non-war use is correct, a Caucasian or African-American seaman could have worn this shoe, as its use was not restricted by army policy.

The leather boot (0017PMR010), discovered four feet aft of the mainmast partner in the same matrix as the shoe, differs greatly from it in appearance. The boot measures 12.25 inches long, 3.5 inches across the tread, and has a worn heel (Figures 21 and 22). The partial boot has a missing tongue and vamp, "the lower or front part of the upper of a shoe" (Dooley 1912:214-215), with no evidence of laces remaining. The exterior counter's stitching extends around the shoe, apparently holding together the boot's two layers of leather, now separated. The outer sole has two rows of wooden pegs with the inner sole sewn and attached to the outer sole from the boot's interior. The partial sole piece (0017PMR011) from a leather shoe or boot (Figure 23) excavated from the aft port section of the Cypress Landing Shipwreck exhibits double row peg construction and measures 4.25 inches long and 2.5 inches wide.

Footwear of similar construction excavated from the Blossom's Ferry Site on the Northeast Cape Fear River includes a leather shoe with a detached heel and miscellaneous shoe pieces. The shoe, designated NECF-28-83, measured 10.5 inches long, 2.5 inches wide near its heel, and 5 inches across the tread. The shoe upper's shape and width compare closely with the Cypress Landing Shipwreck shoe. The other footwear pieces consisted of two heel pieces and a partial boot vamp, designated NECF-29-83. Both NECF-28-83 and NECF-29-83 exhibited wooden peg construction in combination with stitching (Watts and Hall 1986:50, Plate XIII).

An example of Union Army footwear survives at the Chicago Historical Society and is designated ILL.CO - 3. These shoes, made by Confederate prisoners, measured 10 inches long, 3.6 inches wide, and 4.25 inches high. Constructed with wooden pegs and iron rivets, these cowhide shoes were described as:

Fair. well-worn; Leather-Weatherbeaten, Hard & Dry-Metallic Looking...The Leather in the soles is not as highly finished as modern leather. The unfinished side is on the outside. The shoes are simply made, without any lining. The uppers are made of three pieces of leather. The vamp and tongue are in one piece; the second piece consists of the entire quarter without a seam; the third piece consists of the counter lining inside of shoe. Shoes are nailed with wooden pegs of some hardwood, perhaps maple And reinforced with a few iron rivets in shank. The laces are unfinished leather.

The size of shoes is about 6 1/2 or 7 with a wide toe.

They were government shoes worn by Union soldier during the Civil war and made in prison.

The left sole is quite worn near top and on one side. The sole on the right shoe is well worn in one spot on inner side (WPA 1940:F-8-2).

The shoes were the subject of a WPA project designed to record American objects. In 1940 Albert Rudin and Archie Thompson painted the shoes in watercolors (Plate 10).

Conservation of the Cypress Landing Shipwreck leather artifacts consisted initially of freezer storage to prevent biotic growth. After mechanical cleaning with fresh water and brushes, the artifacts underwent treatment in heated polyethylene glycol (PEG) 540. An increase in the PEG solution percentage facilitated penetration of the leather's col-

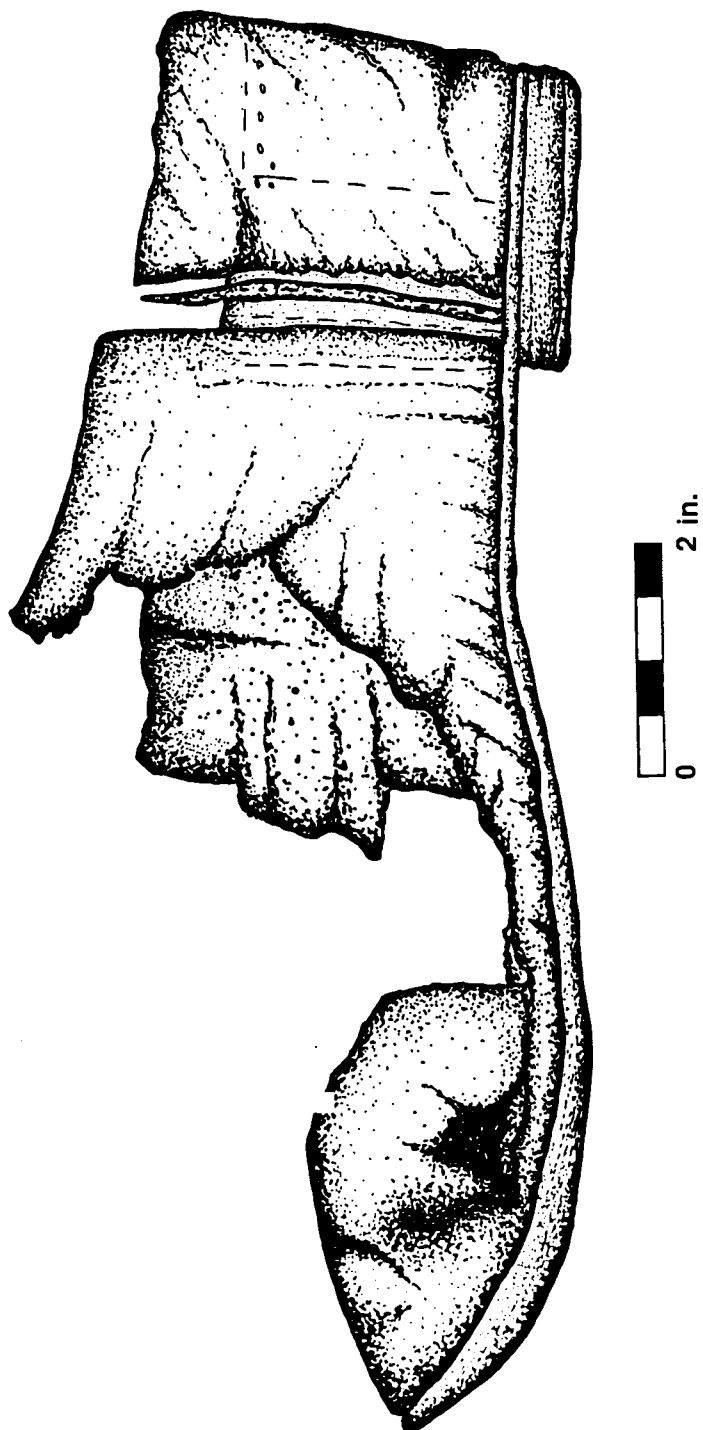


Figure 21. Side view of leather boot (0017PMR010).

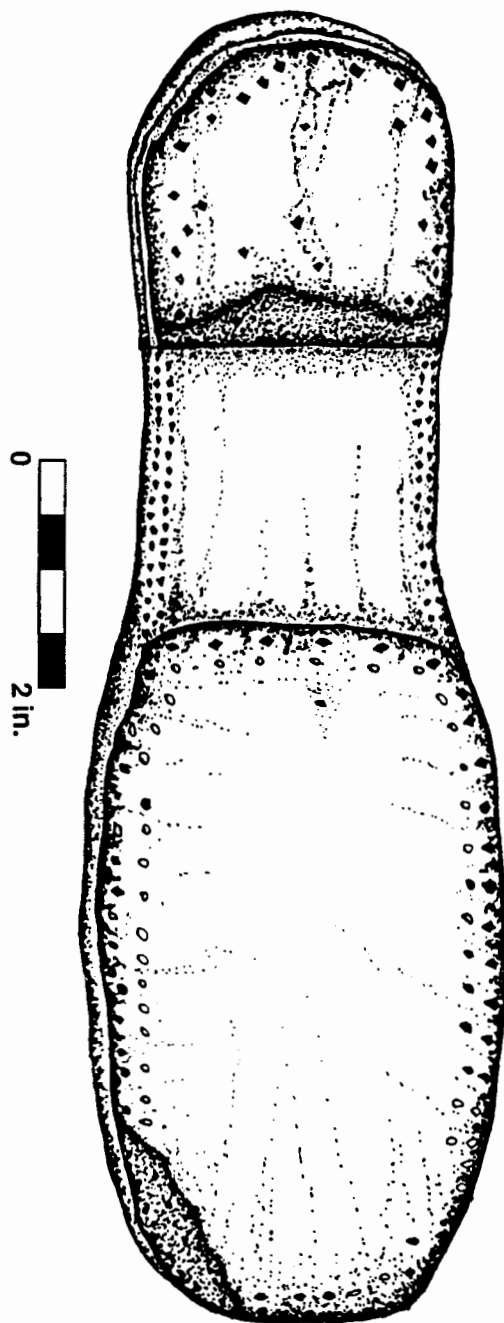


Figure 22. Leather boot bottom (0017PMR010). Note the wooden peg construction and intact heel.

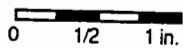
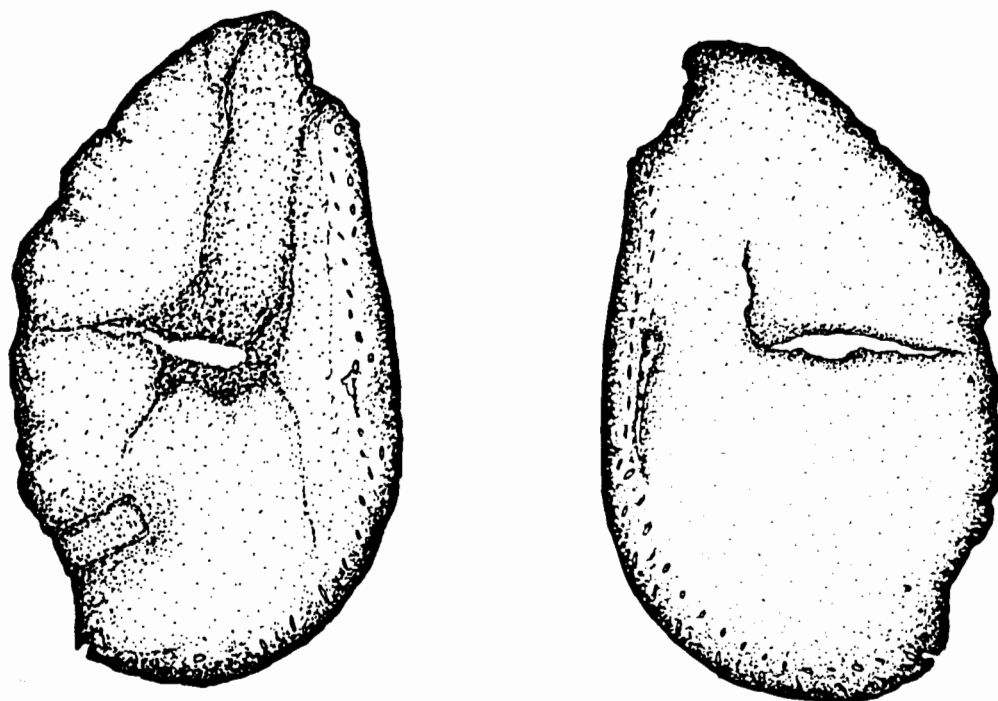


Figure 23. Partial leather sole piece (0017PMR011).



Plate 10. Watercolor painting of Union Army shoes made by a Confederate prisoner. Painting housed in the National Gallery of Art, Washington, D.C. Photograph by Ann Merriman.

lagen fibers with PEG, and prevented fibrous bonding during the drying process (Rodgers 1992:111). Normally a 30% PEG solution is sufficient in leather treatment, but the presence of wooden pegs warranted prolonged submersion in PEG to a 50% solution. After six weeks in PEG, the leather underwent eight weeks of freeze-drying and then conditioning with numerous thin coatings of Lexol. The two shoes and partial sole responded well to treatment.

Composite Artifacts

Two iron and wood composite artifacts recovered from the Cypress Landing Shipwreck include a bullseye (0017PMR007; Figure 24) and a drift pin protruding from a piece of wood (0017PMR008; Figure 25). Discovered between the foremast partner and third forward deck beam, the bullseye (likely constructed of *lignum vitae*) measures 15.75 inches long with an attached loop at its end. As with the three-eyed deadeye, bulleeyes held shrouds and standing rigging for mast and spar support. The other iron and wood composite artifact is an 11 inch long drift pin wedged into a 12.25 inch wooden piece with two nail holes. Its function remains unknown.

Both composite artifacts underwent low amperage electrolytic reduction. This process used a mild electrolytic solution of .25% sodium carbonate to stabilize the corrosion products on the artifact's iron surfaces. The sodium carbonate facilitated an exchange of electrons from sacrificial mild steel anodes to the iron artifacts through a six volt electrical charge. After electrolysis, each artifact underwent a distilled water soak to remove any remnants of sodium carbonate before treatment in heated sucrose. Sucrose bulking consists of replacing the water in waterlogged wood cell walls with an inert substance, thus preventing capillary tension collapse of these walls. If a wood cell collapses, its wall falls inward and occupies the cell lumina, causing irreversible damage to the artifact. Sucrose provides good cell support and does not harm iron parts of composite artifacts. Solutions of 10% to 50% heated sucrose increased over a five week period stabilized the artifacts. After sucrose treatment, the iron parts of the artifacts underwent a distilled water rinse to remove extra sucrose. The composites were then dried slowly in the humidity chamber. Upon complete dehydration a 5% tannic acid and alcohol solution applied to iron parts darkens the metal and acts as a corrosion inhibitor. The iron then received four layers of protective shellac to act as a sealant (Rodgers 1992:21, 32, 35, 51-54, 59-60). Both artifacts responded well to treatment and are stable. The bullseye's wood suffered some shrinkage around its eye, however.

Iron Artifacts

Two heavily concreted iron chains, one with an iron hook (0017PMR015; Figure 26) and the other apparently twisted from exposure to heat (0017PMR009; Figure 27), excavated from the Cypress Landing Shipwreck's stern area were treated with electrolytic reduction. Upon stabilization, the chains underwent oven dehydration at 350 degrees Fahrenheit, 5% tannic acid and alcohol applications, and a microcrystalline wax protective sealing application. Other iron artifacts (Figure 28 and 29) recovered during excavation and conserved include an open-ended loop or eye (0017PMR013), iron fragment

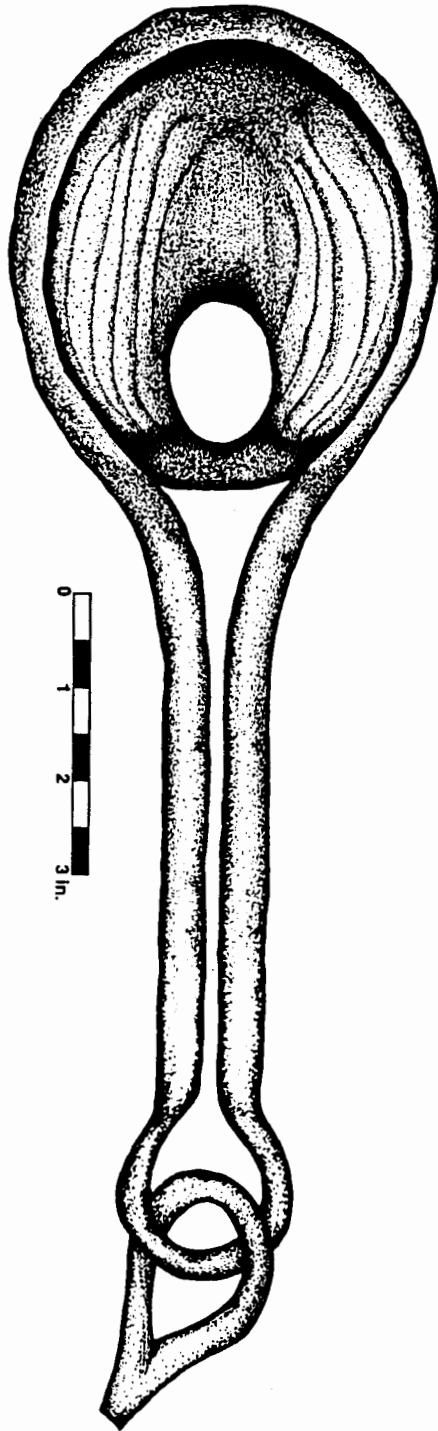


Figure 24. Bullseye (0017PMR007).

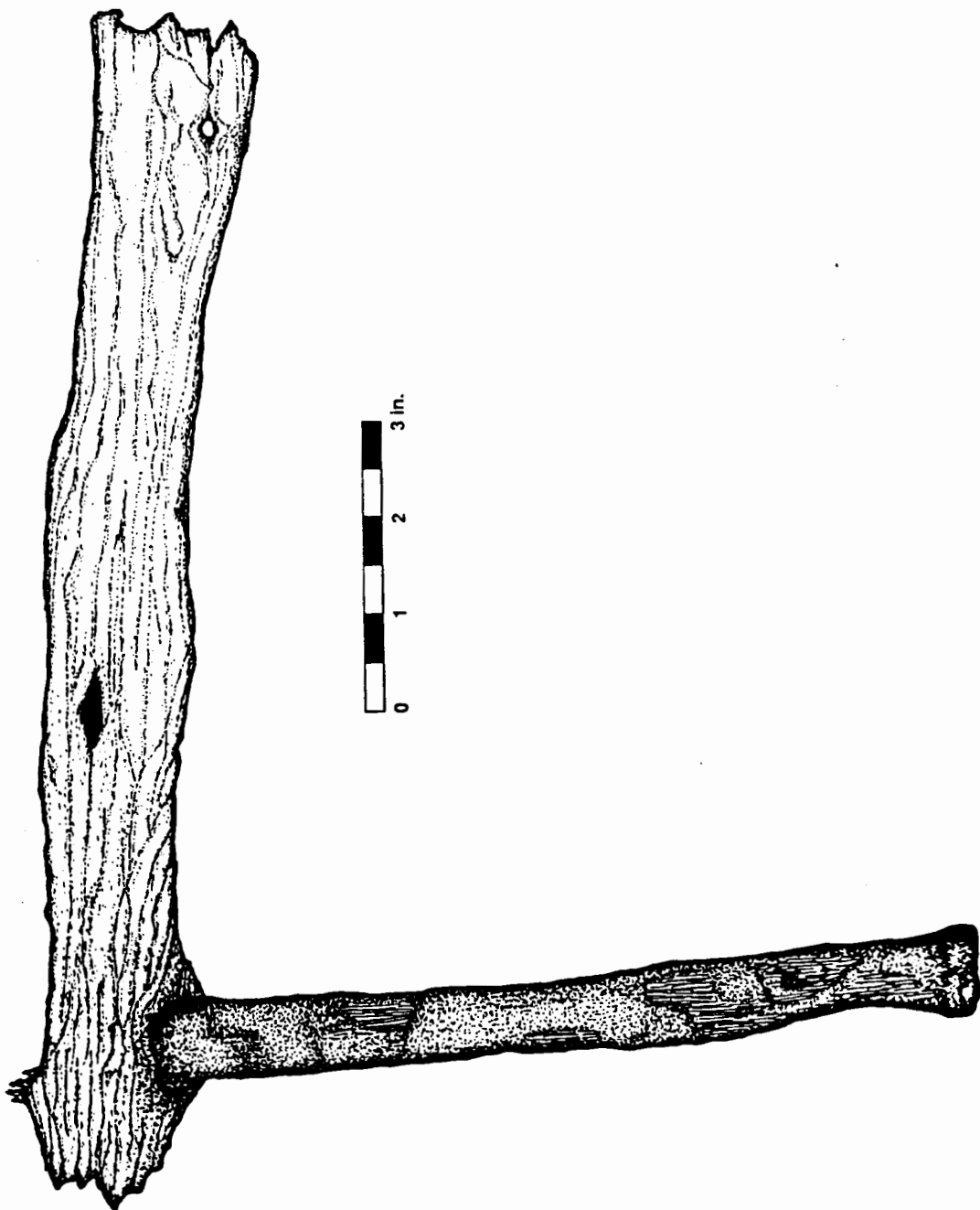


Figure 25. Wood and iron composite artifact (0017PMR008).

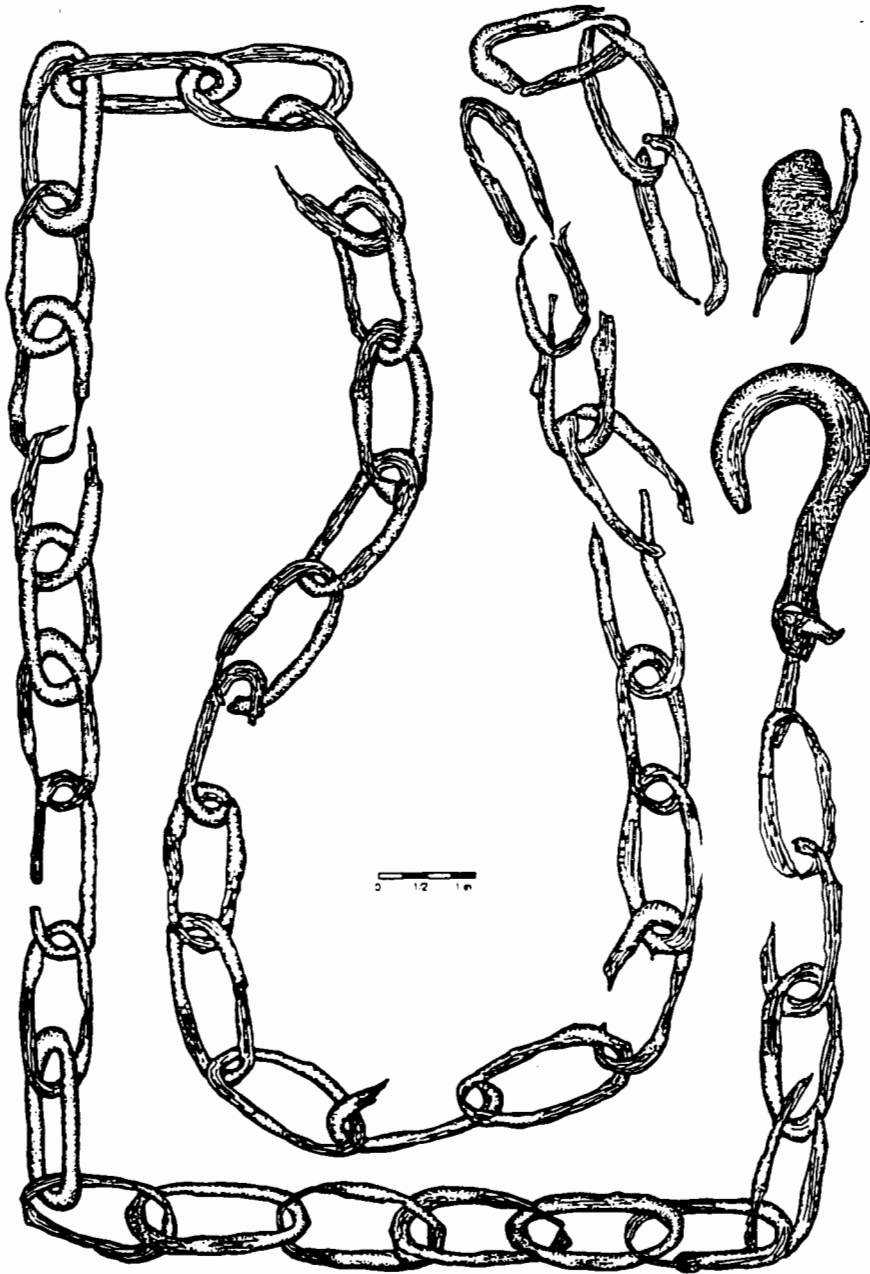


Figure 26. Iron chain with hook (0017PMR015).

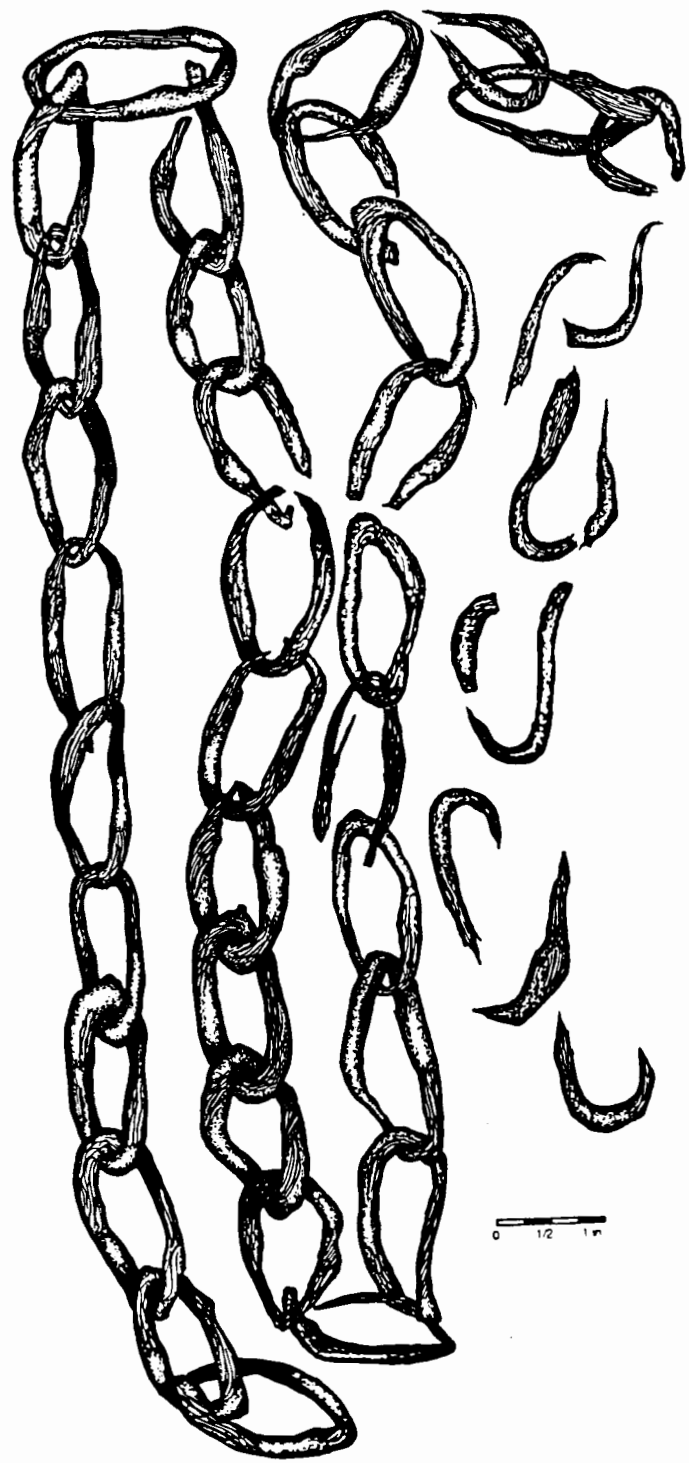


Figure 27. Iron chain (0017PMR009).

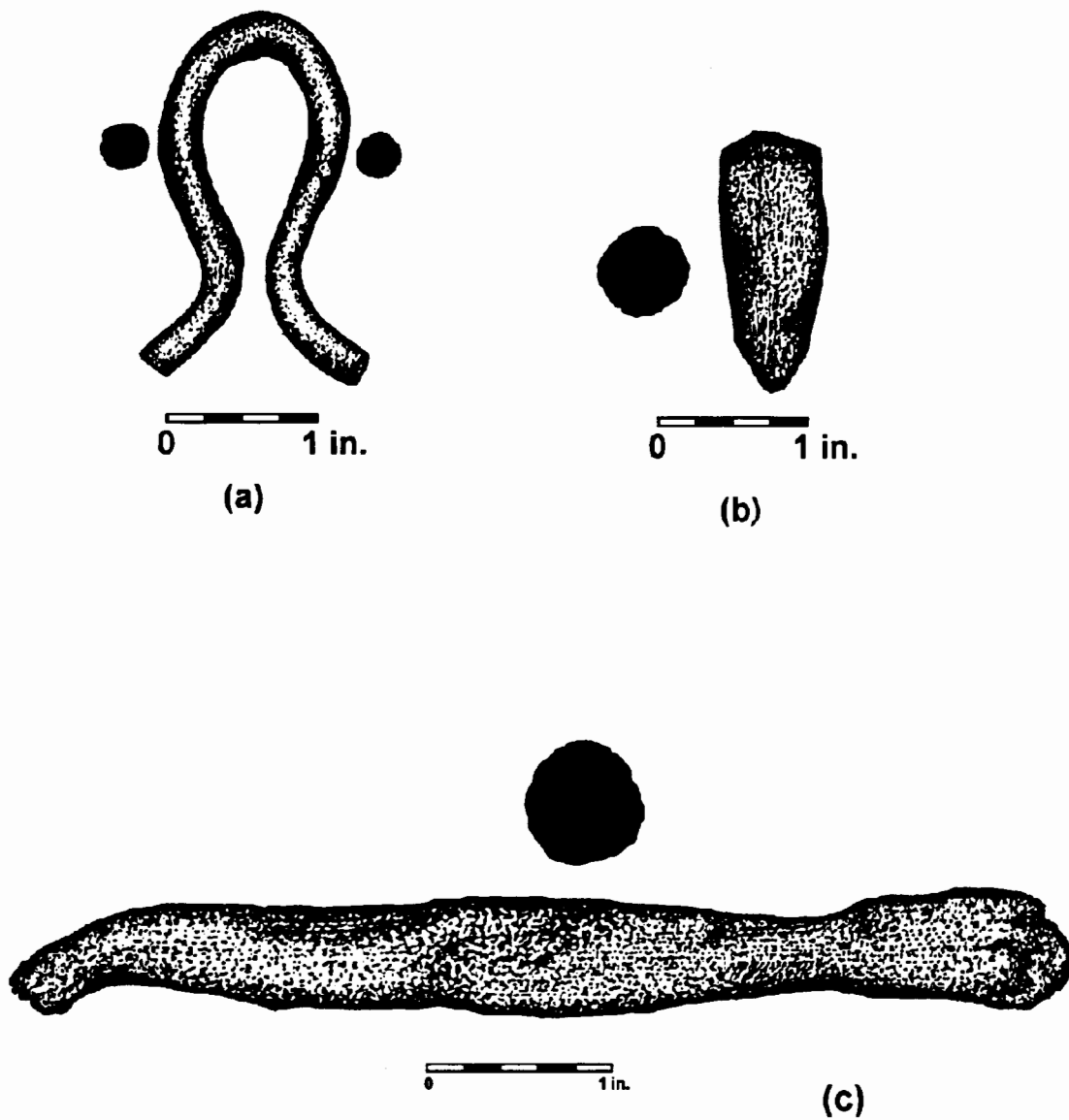


Figure 28. Iron artifacts: a, iron eye (0017PMR013); b, iron fragment (0017PMR016); c, partial iron drift pin (0017PMR002).

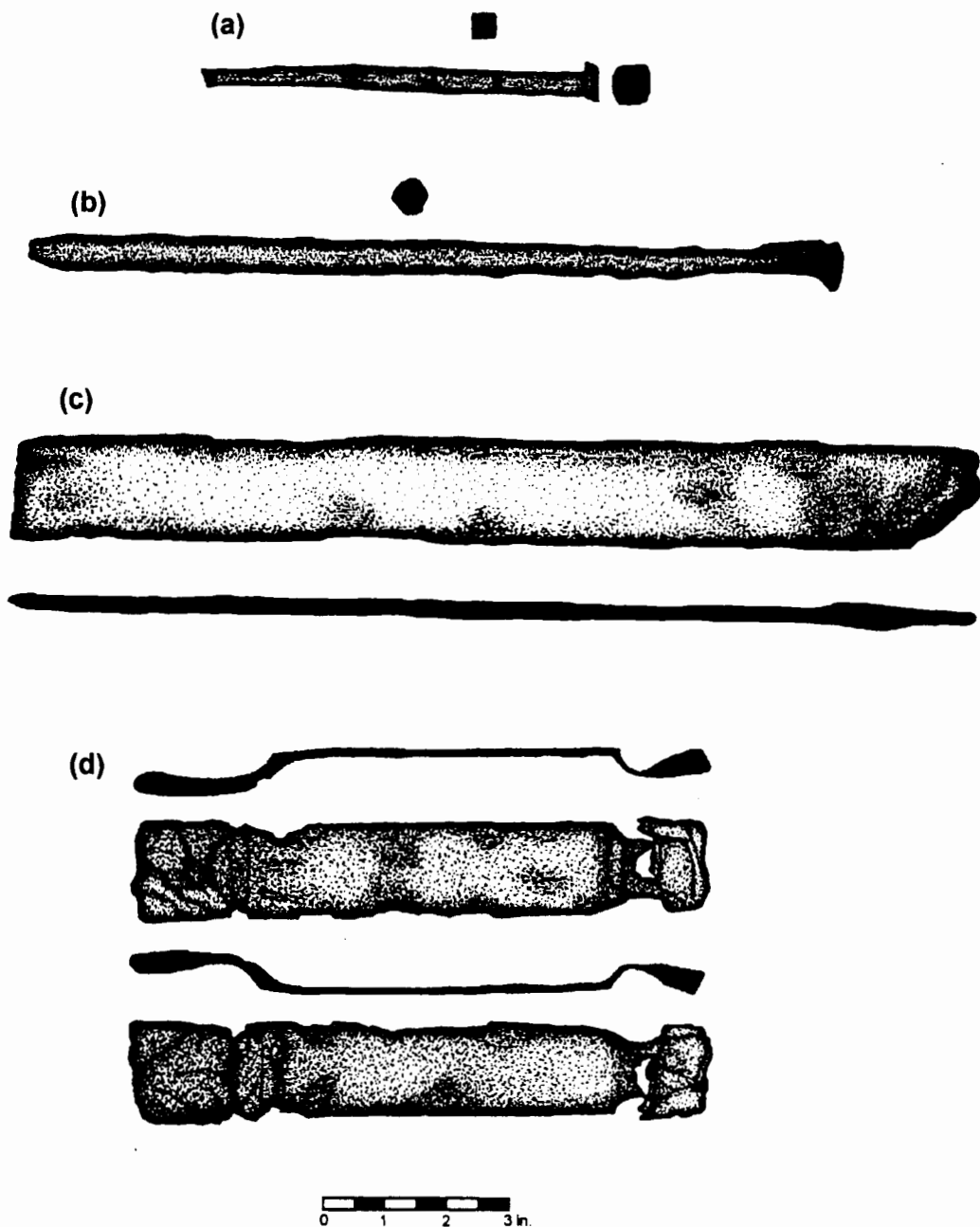


Figure 29. Iron artifacts: a, iron fastener (0017PMR012); b, drift pin (0017PMR003); c, iron strap (0017PMR004); d, possible iron handle (0017PMR014).

(0017PMR016), partial drift pin (0017PMR002), fastener (0017PMR012), drift pin (0017PMR003), large strap (0017PMR004), and a possible handle (0017PMR014).

Wood Artifacts

Eight wooden artifacts recovered included four treenails (0017PMR006, 0017PMR020, 0017PMR021, 0017PMR022; Figure 30), two molding pieces (0017PMR001, 0017PMR023; Figure 31), and two miscellaneous wood pieces (0017PMR017, 0017PMR018; Figure 32). These artifacts underwent impregnation of cell spaces and bulk-ing of cell walls with heated PEG 540 and slow drying in the humidity chamber.

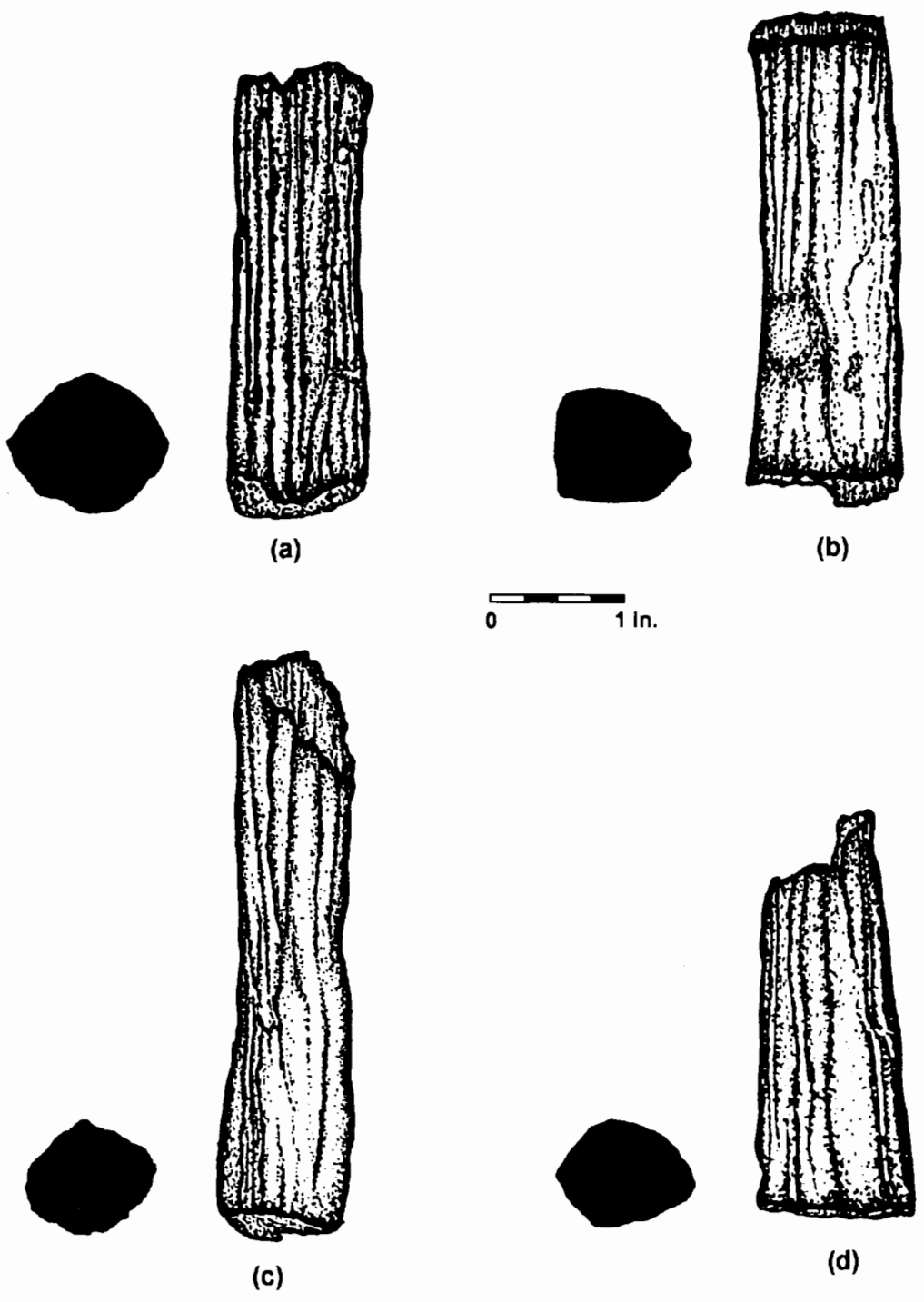
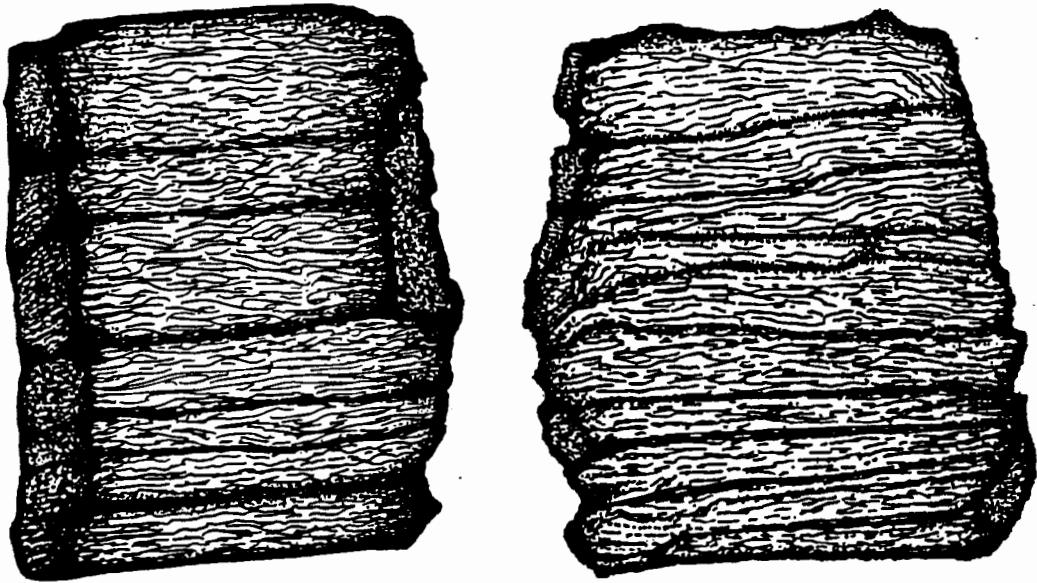
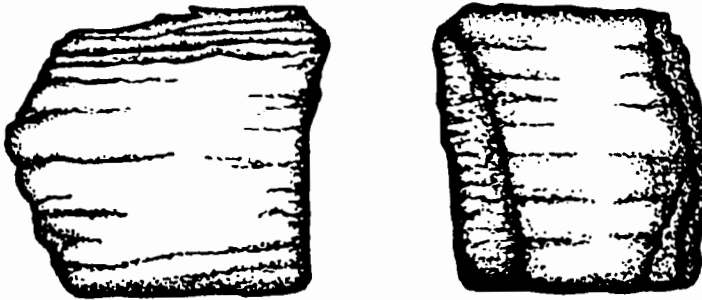
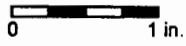


Figure 30. Treenails: a, 0017PMR006; b, 0017PMR020; c, 0017PMR021; d, 0017PMR022.



(a)



(b)

Figure 31. Wood molding: a, 0017PMR001; b, 0017PMR023.

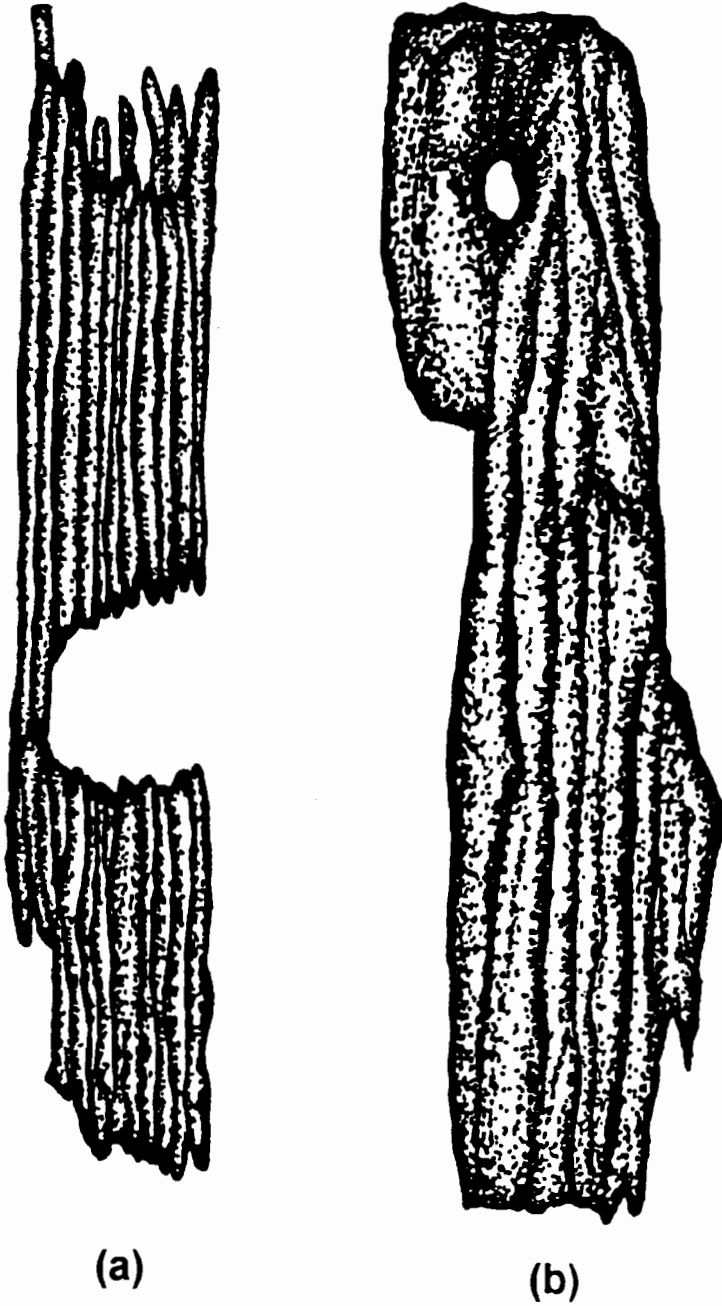


Figure 32. Wood fragments: a, 0017PMR017; b, 0017PMR018.

8

Conclusions

Use

Schooners played a vital role in the development of nineteenth century eastern North Carolina's trade. These vessels were the most often used ship type for the coasting and foreign trades (Merriman 1996:43,51). The role of North Carolina's nineteenth century scow schooners, or more accurately, schooners constructed with the scow characteristics of a flat bottom, hard chine, and transom ends seemingly centered on the Edenton and Elizabeth City to Norfolk canal trade. However, a sail flat constructed in Washington worked on the Pamlico River as a lighter or river vessel, along with *Laura D.* and *Barter* out of Wilmington, indicating this vessel type also plied the state's southern waters. Scows used in the later nineteenth century around Beaufort likely worked in the harbor as shallow draft lighters. With this information retrieved from the historical record, the Cypress Landing Shipwreck can be classified as a purpose-built vessel designed for shallow canal, sound, and riverine commerce. Its classification as a scow schooner or sail flat is unique in North Carolina. While numerous barges, unrigged flats, and some schooners survive in the North Carolina archaeological record, no other scow schooners or sailing flats have come to light.

Construction and Wood Type

As a North Carolina scow schooner, the Cypress Landing Shipwreck exhibits typical and atypical traits when compared to the historical record. The average dimensions of seventeen schooners with scow characteristics (including the schooners named previously as possible identities for the Cypress Landing Shipwreck) calculate to 70.77 feet long, 15.89 feet in the beam (4.5:1 length to beam ratio), and 4.41 feet in the hold. The Cypress Landing Shipwreck's 73 foot length and 14 foot beam closely aligns it with other scows. However, its extremely shallow draft with a 27.25 inch depth of hold clearly differentiates it from other nineteenth century North Carolina scow schooners. Further, if the vessel was constructed after 1876, when George Ives introduced the sharpie design to the state, the vessel's builders might have been influenced by his ideas particularly in the vessel's flat bottom.

In considering the Cypress Landing Shipwreck's major structural components, the vessel exhibited poor construction in its supporting timbers and mast partners. The lack of stable port side attachments and its weak aft mast partner restricted this vessel's travel routes. With some traits reminiscent of house carpentry, measurements on 16 inch centers and some multiples of 2, 4 and 8 feet, the wreck had more in keeping with a barge than a sailing vessel.

Specific components of the Cypress Landing Shipwreck underwent wood typology analysis including the centerboard trunk, mast partners, ceiling planking, outer hull planking, splashboard, and two sections of keelson. All nine samples tested were identi-

fied as southern yellow pine (Lee Newsom 1995, pers. comm.). In North Carolina this hard pine's height averaged between 70 and 90 feet with a diameter of 2 to 3.5 feet. Large quantities of southern yellow pine existed throughout North Carolina in the nineteenth century, including the coastal plain. However, by 1897 most usable yellow pine had gone to lumber mills south of Washington, North Carolina and in the Albemarle Sound area (Pinchot and Ashe 1897:130). This known, the Cypress Landing Shipwreck's possible origins and date of construction point to the Edenton, Elizabeth City, or Washington areas before the mid-1890s.

Other wrecks documented in North Carolina waters share the same wood types and similar construction characteristics with the Cypress Landing Shipwreck. The schooner *Scuppernong*, constructed in Elizabeth City in 1853, was burned and sunk in Indiantown Creek in Currituck County in 1862. This schooner had hull planking and a centerboard trunk constructed of southern yellow pine, indicating its availability in the 1850s. *Scuppernong* had another trait in common with the Cypress Landing Shipwreck in that its notched keelson fitted over floors (Turner 1995:35-37). Other North Carolina wrecks with similar keelson characteristics include the MacKnight Shipyard Wreck (Jones 1995:5) and a Federal Period Vessel also known as the Otter Creek Wreck near Oriental, North Carolina (Jackson 1991:81).

Artifactual Evidence

The leather shoe in the wreck might narrow the date of construction further. As mentioned previously, the shoe exhibits very particular characteristics restricted to an exact time period. Constructed during the Civil War, probably unissued, and seemingly not visibly worn, the shoe roughly places the Cypress Landing Shipwreck's disposition in Chocowinity Bay after the Civil War.

The Historical Record

Currituck County's *Sea Monster* emerged as the earliest recorded North Carolina schooner with scow characteristics in the historical record with a construction date of 1850 (National Archives 1866a). The majority of scow schooners found in the historical record were constructed between 1860 and 1877. The aforementioned *Barter* and *Laura D.*, constructed in 1885 and 1890, each measured 65 feet long, 16 feet in the beam, 3 feet in the hold. *Barter* was classified as a scow and a schooner, while *Laura D.* was a schooner flat. These vessels closely match the Cypress Landing Shipwreck, particularly if the wreck's top one or two ceiling and outer hull planks are missing, thus decreasing the depth of hold, and if the vessel's recorded length reflected its keel length and not overall stem to stern length. Further, the Fowle sail flat constructed in 1868 with its Washington and Pamlico River connections, confirms the use of scow-type vessels in the vicinity of Chocowinity Bay. Combining information about the Civil War-era shoe, scow schooner and sail flat historical documentation, and the vessel's confinement to inland waters (this fact excludes *Viola I* and *William N. H. Smith* since they registered for foreign trade) the Cypress Landing Shipwreck's date of construction most likely falls between 1868 and 1890.

Based on site conditions, location, and historical research the Cypress Landing Shipwreck likely worked eastern North Carolina's shallow tributaries and canals, transporting goods to mercantile centers and lightering cargo to sea-going vessels. Perhaps during its later years it transported brick from the brickyard of Darlan Wall or a previous brick maker who owned the land. After its mainmast partner failed, it possibly worked as an unrigged scow until its intentional disposition as a breakwater to aid in on-loading bricks in the late nineteenth or early twentieth century.

9

Recommendations

Further archaeological investigation at the Cypress Landing Shipwreck site should be considered to answer questions raised during the initial excavation and in the preparation of this report. Of particular concern is the lack of recovered diagnostic artifacts, especially ceramics. Further dredging down the vessel's outer hull planking at specific points would allow documentation of definite ship lines. This was a goal of the 1995 field school, but lack of time prevented this endeavor. Also, concentration on bow and stern area documentation to accurately measure the rake at each end would enhance our understanding of this vessel's construction. Collection of additional wood samples from the frames, knees, stretchers, and sternpost would increase the likelihood of establishing the vessel's origins.

A starboard side excavation, particularly at the hull attachment points for the deck beams and mast partners, might explain precisely how the vessel kept from splaying apart during its lifetime without major athwartships structural members tied into the sides. Notches cut into both mast partners likely played a role in stabilizing the vessel's mast partners; excavation of the starboard end of the foremast partner might reveal how this was accomplished.

The June 1995 field school investigation provides specific information about known points on the Cypress Landing Shipwreck that can be targeted in future investigations with minimal guesswork. The site has proven to be a useful teaching tool for the discipline of nautical archaeology that is easily reachable, logistically manageable, and relatively inexpensive to investigate. With these positive attributes, the Cypress Landing Shipwreck provides the framework for further research into North Carolina sail flats and scows.

Appendix A: Other North Carolina Schooners with Scow Characteristics

Name: *Angelica*
 Number: 1412
 Deck(s): 1
 Mast(s): 2
 Stem: plain head
 Stern: square
 Length: 66'
 Beam: 15.3'
 Depth: 4'
 Tons: 33.51
 Built: Elizabeth City, NC
 Year: 1868

Name: *Nellie Wodsworth*
 Number: 130.172
 Deck(s): 1
 Mast(s): 2
 Stem: plain head
 Stern: square
 Length: 79.9'
 Beam: 17.8'
 Depth: 6'
 Tons: 61.42
 Built: Elizabeth City, NC
 Year: 1880

Name: *Camden Union*
 Number: 5199
 Deck(s): 1
 Mast(s): 2
 Stem: blunt head
 Stern: square
 Length: 81.3'
 Beam: 15.7'
 Depth: 4.3'
 Tons: 40.58
 Built: Camden, NC
 Year: 1868

Name: *Sea Monster*
 Number: 22.004
 Deck(s): 1
 Mast(s): 2
 Stem: plain head
 Stern: square
 Length: 85'
 Beam: 10.5'
 Depth: 4'
 Tons: 25.96
 Built: Currituck Co., NC
 Year: 1850

Name: *Dezzie B. Onslow*
 Number: 6.948
 Deck(s): 1
 Mast(s): 2
 Stem: plain head
 Stern: square
 Length: 51.2'
 Beam: 17.2'
 Depth: 4.8'
 Tons: 28.46
 Built: Hatteras, NC
 Year: 1877

Name: *Somerset*
 Number: unknown
 Deck(s): 1
 Mast(s): 2
 Stem: plain head
 Stern: square
 Length: 63.5'
 Beam: 24.3'
 Depth: 3.7'
 Tons: 30.27
 Built: Washington Co., NC
 Year: 1875

Name: *Flounder*
 Number: 9.743
 Deck(s): 1
 Mast(s): 2
 Stem: plain head
 Stern: square
 Length: 64.95'
 Beam: 19.5'
 Depth: 4.75'
 Tons: 43.33
 Built: Baltimore, MD
 Year: 1865

Name: *Southerner*
 Number: 22.005
 Deck(s): 1
 Mast(s): 2
 Stem: plain head
 Stern: square
 Length: 76'
 Beam: 15.8'
 Depth: 6'
 Tons: 55.67
 Built: Elizabeth City, NC
 Year: 1855

Name: *Julia Selden*
 Number: 75.483
 Deck(s): 1
 Mast(s): 2
 Stem: plain head
 Stern: plain
 Length: 60'
 Beam: 17.5'
 Depth: 4'
 Tons: 33.14
 Built: Elizabeth City, NC
 Year: 1872

Appendix B: Newspaper Advertisements for a Flat Boat and Sail Flats

This advertisement appeared in the *Washington Echo* of Washington, North Carolina on 20 July 1874:

FOR SALE
A FLAT BOAT,
OF 500 BARRELS
CAPACITY FIT FOR
RIVER BUSINESS.
For sale by
JOHN MYER & SONS.
AUGUST 27th 1874.

These newspaper advertisement descriptions of sail flats in Georgia (1763-1856) closely match the Cypress Landing Shipwreck:

To be sold, on Tuesday the 29th instant, at the usual place in Savannah, to the highest bidder,

A DECKED FLATT, with all her tackle; she is rigged like a schooner, and sails well, is remarkably strong and well built, and when loaded draws but three feet and a half of water, although it is supposed she will carry 140 barrels of rice. Six months credit will be given, if required by the purchaser, upon paying interest to

JOHN MULLRYNE (*Georgia Gazette* [GG], 10 November 1763)

The Subscribers have to Dispose of on Reasonable Terms,

A STRONG WELL-BUILT NEW FLAT, her timbers all live oak. She is completely furnished with masts, sails, &c. and will carry about one hundred thousand shingles.—any person inclinable to purchase the same may apply to

SAMUEL DOUGLASS AND CO. (*GG*, 28 September 1768)

TO BE SOLD, at may Auction Room, on Friday the 19th inst. between the hours of 11 and 12 o'clock in the forenoon,

A FLAT,

On a new construction, 42 feet long, 12 feet 3 inches beam, and 3 feet deep, built of the best materials, and not two months from the stocks. With her will be sole, 20 odd fathoms of four inch hawser, a grapnel of upwards of 80 weight, and her sail. The above flat now lies at the Publick Wharf, and may be inspected at any time before the sale. The conditions will be cash before the property is altered, or good merchantable rice at 12s. 6d. per cwt.

RICHARD LEAKE (*Gazette of the State of Georgia* [GS], 18 March 1784)

EDWARD DAVIES Savannah, 20th January 1785.

N.B. To Be sold on the same Terms, A DECKED FLAT, in good order, with two anchors and cables, masts, sails, and rigging compleat, will carry about 130 or 140 barrels of rice, 30,000 feet of lumber, or 1500 bushels corn (*GS*, 26 January 1786)

Pole Boat for Sale.

The Pole Boat SOUTH CAROLINA, 92 feet long, 18 feet wide and four feet deep, built in Columbia, S.C. of the best materials and well found in every respect. this Boat is run one season from Charleston to Columbia, carries 600 bales Cotton and draws but 3 feet 4 inches, when loaded. she is well adapted to the Savannah river, and will be sole at a bargain. For further particulars apply to

T. J. KERR, Charleston, S.C. (*Daily Georgian*, 7 December 1829)

AUCTION SALES.

BY MIMIS & JOHNSTON.

On 15th inst., at the Geo. Press Yard at 12 o'clock, m, [...another ship at auction...]

Also, at same time and place, the schr. rigged Flat with centre board, now lying at Ferry dock, in complete order, of about 50 tons. 3 years old, 78 feet length, 18 feet breadth, and 5 feet depth, drawing 3 1/2 feet water, suitable for carrying lumber and bricks, or for lighterage generally. Terms cash. (*Daily Morning News*, 15 April 1856)

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