

**THE READERS POINT VESSEL: HULL ANALYSIS OF AN EIGHTEENTH-
CENTURY MERCHANT SLOOP EXCAVATED IN ST. ANN'S BAY, JAMAICA**

A Thesis

by

GREGORY D. COOK

**Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of**

MASTER OF ARTS

August 1997

Major Subject: Anthropology

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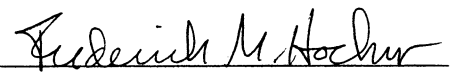
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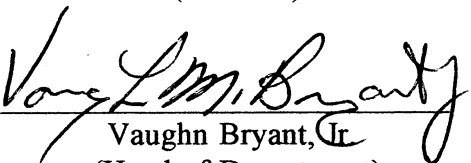
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Approved as to style and content by:


Kevin Crisman
(Chair of Committee)


Frederick Hocker
(Member)


John Canup
(Member)


Vaughn Bryant, Jr.
(Head of Department)

August 1997

Major Subject: Anthropology

ABSTRACT

The Readers Point Vessel: Hull Analysis of an Eighteenth-Century Merchant Sloop

Excavated in St. Ann's Bay, Jamaica. (August 1997)

Gregory D. Cook, B.A., Indiana University

Chair of Advisory Committee: Dr. Kevin Crisman

Archaeologists from the Nautical Archaeology Program at Texas A&M University, the Jamaican National Heritage Trust and the Maritime History Program at East Carolina University excavated the remains of an eighteenth-century merchant sloop in St. Ann's Bay, Jamaica in 1994. Excavators removed overburden and the ballast pile, recovering over 600 artifacts associated with the vessel. After exposing well-preserved hull remains, divers recorded the ship's structure. The vessel is preserved from the base of the apron in the bow to its eroded stern knee, and an intact mast step provides evidence for a sloop rig. Portions of the vessel were disassembled to expose the sloop's bow construction, mast step and framing pattern. Archaeologists then reburied the remains under sediment and ballast stone.

The hull remains are preserved to a length of 56 feet, 6 inches (17.22 meters) and a maximum beam of 14 feet, 4 inches (4.34 meters). Shipwrights built the vessel predominantly out of white oak (*Quercus* sp.), and the keel is maple (*Acer* sp.), suggesting construction in the northeastern American colonies.

The vessel was a derelict at the time of its sinking. Nearly all artifacts associated with the ship were found broken and discarded within the ballast pile or

hull structure. No evidence of the deck structure, bilge pumps or mast survives in the archaeological record. Numerous repairs suggest that the vessel saw long service as a merchant trader.

Exhaustive searches of historic documents at the Jamaican Archives in Spanish Town, Jamaica and the National Library of Jamaica in Kingston failed to produce any records identifying the sloop. Regardless, contemporary documents at these locations provided relevant historic data relating to the use of sloops in maritime commerce during the later eighteenth century.

Analysis of the Readers Point vessel and its artifact assemblage suggests that the sloop traded among the Caribbean islands and North American colonies. This study concentrates on the hull analysis of the first eighteenth-century vessel to be excavated in the West Indies.

DEDICATION

To the people of Jamaica: past, present and future.

ACKNOWLEDGMENTS

The undertaking of any archaeological project is an immense venture, and one cannot hope to succeed without the help of many people and organizations. I owe a great debt to the crewmembers of the Readers Point Shipwreck excavation team, who paid their own way to Jamaica and worked tirelessly for the benefit of the project. I am also grateful for the honor of calling each of them my friend.

Amy Rubenstein-Gottschamer kept us on track as co-director of the excavation and project conservator. I am still amazed at her ability to create a functional conservation lab despite meager funds and difficult field conditions. Dorrick Gray never lost his enthusiasm for the project, breaking away from his responsibilities with the Jamaica National Heritage Trust whenever possible to help excavate on the site. Clive Chapman played a vital role as the project divemaster, and continually took on other jobs including photographer, artist, draftsman and mechanic. I hope I am fortunate enough to work with him again in the future. I am indebted to David Ames, Darren Hurst and Chris Sabick. Though we had never met before the excavation, they found their way to St. Ann's Bay in various mysterious ways. By the end of the project they were proficient in all aspects of the excavation, and played a large part in our success. It is never difficult to entice Norine Carroll to hop on a plane bound for Jamaica. We benefitted from her abilities as an archaeologist, and her presence lifted our spirits.

I cannot sufficiently thank the numerous volunteers who assisted us. Karl

Gottschamer, Mike Krivor, Mike Lenardi, Daria Merwin, Tom Shannon, Juan Vera and Richard Wills all contributed to the success of the excavation. We were fortunate to have a wonderful Jamaican staff as well, including Elsaída "Dottie" Harrison, Olivia "Kay" Sharpe and Lincoln McKenzie.

Other individuals played key roles outside of the fieldwork, including Philip Armitage, Maureen Brown, William Charlton III, Charles Chan, Kevin Crisman, Marianne Franklin, Karen Fuller, Peter Gail, Jerome Hall, Michael Haley, Donny Hamilton, Fred Hocker, Becky Holloway, Phil Janca, John William Morris III, Lea Newsom, James Parrent, Wayne Smith, Frank Tainter and Chip Vincent.

Project funding came from several sources. I am grateful to the Institute for International Education for their award of a Fulbright Fellowship, the Institute of Nautical Archaeology for the Marion M. Cook Fellowship, and a gracious donation by INA board member Frederick Mayer.

Finally, numerous institutions supported our work, including the Institute of Nautical Archaeology, the Jamaica National Heritage Trust, the Discovery Bay Marine Laboratory, the South Carolina Institute of Anthropology and Archaeology's Bermuda Sloop Project, Paradise Scuba, Taff Office Equipment, and Seascape Dive Resort.

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CHAPTER I

INTRODUCTION

Archaeologists from the Institute of Nautical Archaeology (INA) at Texas A&M University and the Jamaican National Heritage Trust (JNHT) discovered the remains of a late eighteenth-century merchant sloop at St. Ann's Bay, Jamaica in 1991. The remains are located 30 feet (10 meters) from shore near a projection of land known as "Readers Point." Readers Point was once part of the Seville Estate, a major colonial sugar plantation in use during the seventeenth and eighteenth centuries.

The shipwreck was located using sub-bottom sonar during the Columbus Caravels Archaeological Project (CCAP), directed by Dr. James Parrent of INA. The project's goal was to survey the bay for the remains of two caravels abandoned by Christopher Columbus in 1504 during his last voyage to the New World. Although CCAP archaeologists were unsuccessful in locating Columbus' ships, they discovered six eighteenth-century wreck sites near the center of the bay (see Figure 1).

Test excavations conducted on the Readers Point site in 1991 exposed a layer of ballast covering intact hull remains. The vessel was located in 3 feet (0.9 meters) of water, buried under an additional 3 to 6 feet (0.9 to 1.8 meters) of sediment. Archaeologists excavated a 6 foot (1.8 meter) test unit down to hull remains near the site's easternmost extent. The test unit exposed radial cant frames in the bow, and allowed the recovery of numerous artifacts including pipe stems and ceramics.

This thesis follows the style and format of *American Neptune*.

Artifacts and hull construction both suggested the vessel dated to the eighteenth rather than sixteenth century. After recording the exposed hull structure archaeologists therefore reburied the site.

In 1994 archaeologists from INA, the JNHT and the Program for Maritime History and Nautical Archaeology at East Carolina University conducted a complete underwater excavation of the site. Funding came from several sources, including a Fulbright Fellowship, a Marion M. Cook Fellowship, support from INA board member Frederick R. Mayer, and other private sources. Project personnel consisted of eight permanent crew members, who were assisted by volunteers throughout the four month excavation. Divers excavated the overburden covering the wreck, then removed the ballast layer while carefully recording the positions of artifacts found within the ballast. This exposed the entire wreck for intensive hull recording. By the end of the excavation divers recovered over 600 artifacts, recorded the hull structure and disassembled portions of the wreck.

The shipwreck remains are preserved to a length of 56 feet, 6 inches (17.22 meters) and a maximum beam of 14 feet, 4 inches (4.34 meters), and the hull lies on the bottom of the bay evenly on its keel (see Figure 2). The wreck's starboard side is better preserved than the port side, due to the starboard side's proximity to the shoreline and the exposure of the port side to prevailing longshore currents in the bay. The hull timbers are predominantly white oak and the keel is hard maple, suggesting northeastern American colonial construction.¹ The vessel's single maststep survived intact, indicating that the ship carried a sloop rig.

The sloop was a derelict at the time of its sinking. Artifacts were relatively sparse, and nearly all items were broken and found in the ballast or bilges. No trace of the upper works or deck structure survived. The pumps and mast had been removed, and artifacts associated with the general day-to-day use of the ship were rare. There is evidence that the stem was salvaged as well. Signs of wear, heavy use and numerous repairs suggests a long trading career. The date range of the artifacts clusters around 1775, with a *terminus post quem* of 1765. Charred outer hull planking around the top of the existing hull indicates the vessel was burned. A jagged hole in the outer hull planking on the starboard side near the stern could also have been a cause for the vessel's sinking.

The Readers Point vessel was probably a merchant ship that traded among the Caribbean islands and North American colonies. Faunal remains suggest the vessel had ventured to the southeast coast of the present United States and repairs were made with both tropical and North American wood species.

The excavation of the Readers Point wreck provides an example of the small merchant sloops which were so vital to the growing colonial economy. Designed and built in the Americas for the colonial trade, sloops fulfilled a variety of roles, making them a valuable commodity as well as a practical method of transporting cargoes. The utility of these vessels contributed to their popularity, placing them in high demand in North America and West Indian colonies throughout the eighteenth century. At the same time, the vessels' builders began to adapt hull shapes and designs for particular trades, reflecting a growing sophistication in the evolution of colonial sloops.

Over two hundred years ago, the owners of a merchant sloop abandoned her in a small bay on the north coast of Jamaica. The vessel had served a long life, and it was probably no longer economically feasible to continue operating the vessel in the merchant trade. Stripped of running gear, rigging, mast and cargo, the derelict was likely burned to the waterline or left floating until she eventually sank in the waters of St. Ann's Bay. Though considered worthless by her owners, the shipwreck's discovery by archaeologists brings a valuable example of colonial shipping to light.

For this study, data gleaned from the Readers Point Shipwreck excavation is presented with comparisons of other archaeological investigations of colonial sloop sites, along with historical sources concerning the trades plied by colonial sloops and colonial ship building in the American colonies. When placed in its proper context, we begin to see a broader picture of the construction, life and trades of sloops, and the roles they played in the eighteenth-century colonial maritime economy.

CHAPTER II

HISTORICAL BACKGROUND OF JAMAICA

The European discovery of the New World during the late fifteenth century was among the most revolutionary events in history. Spain attempted to maintain its control on the New World, but inevitably other European powers including France, England and Holland challenged the Iberian monopoly. The Caribbean islands offered vast opportunities for European colonization, trade and wealth. These same factors led to intense competition and warfare among the colonial powers.

Jamaica was no exception to this pattern of colonial rivalry. Columbus encountered the island on May 5, 1494 on his second voyage, after Taino indians on Cuba told him of a land to the south which contained much gold. He described the island in his log, writing, "It is the fairest island that eyes have beheld."² Columbus landed at St. Ann's Bay, which he named *Santa Gloria* because he was so impressed with its beauty. He circumnavigated almost all of the island before continuing on his explorations.

Columbus visited Jamaica again on his fourth and last voyage, in a much more desperate situation. He left Spain in 1502 with four caravels in his final attempt to find the strait leading to the spice islands of the eastern orient. He explored the western Caribbean, sailing down the Central American coast to the northern coast of South America. In what is today Panama, the Spaniards fought with a group of Guaymi indians, losing several men and one of their ships, *Gallega*. Columbus headed

back north, but unfortunately the fleet encountered poor weather leading to the loss of a second vessel, *Vizcaina*. Columbus' remaining two vessels were riddled with teredo worms, causing serious leaking. The crews manned the pumps constantly just to keep the ships afloat. As the situation grew more desperate, Columbus decided to set a course for the closest available land, which proved to be Jamaica. The vessels were run aground in shallow water near the shore of St. Ann's Bay. The sailors lived on the ships for over a year before a vessel from Hispaniola rescued them in 1504.

Columbus died a short time after his rescue, never realizing the full impact of his discoveries.³

Spanish settlers returned in 1509 to establish the town of Sevilla Nueva, or "New Seville," on the site where Columbus had been marooned seven years earlier. This was the third capital town established by Spain in the West Indies (Santo Domingo on Hispaniola was the first, and Caparra on Puerto Rico the second).⁴ The fledgling town suffered from corrupt and inept governors as well as mosquito-borne diseases coming from nearby wetlands. After only twenty five years the capital moved to Jamaica's south coast, where the Spaniards established the town of *Villa de la Vega*, or modern Spanish Town.⁵

While under Spanish rule Jamaica served primarily as a minor supply station for the colonization of the Americas. Horses, arms, food and men from Jamaica helped in the conquest of Cuba and the Spanish explorations in North America. Though Spain held Jamaica for 150 years, only a small degree of economic development occurred. Colonists supplied fresh provisions to occasional passing ships,

but no major ports were developed. The Spaniards introduced bananas, plantains and various citrus fruits on the island, but in general the standard of living remained quite poor.⁶

A description of Jamaica written by Richard Blume, a contemporary historian who travelled to Jamaica less than twenty years after the English took control of the island, includes observations concerning the Spanish occupation;

For on this large and fertile Island, there was no Manufacture or Commodity made, except a little Sugar, Tobacco and Cocoa, and those few Ships that came hither, traded generally for Hides, Tallow, Jamaica Pepper, and Cocoa, but not to any considerable account. And the number of Inhabitants did not exceed 3000, of which half (if not more) were Slaves. And the reason why it was so thinly peopled, was, because the Spaniards generally desire to be in Nova Hispania, or Hispaniola...⁷

Spain's weak presence in Jamaica was a major factor in the English takeover of the island. In 1655 Admiral William Penn commanded a fleet commissioned by Oliver Cromwell, whose goal was to conquer all of Spain's Caribbean territories. Cromwell's initial target was wealthy and well-fortified Santo Domingo on the island of Hispaniola, but his undisciplined army suffered a resounding defeat. This forced Penn to set his sights on Jamaica as a consolation prize. As Jamaica was nearly defenseless, Penn took the Spaniards by surprise and the island quickly fell to the invaders.⁸

England gained Jamaica, but the fledgling force of undisciplined soldiers was in no way prepared to become colonists. Pockets of Spaniards living in the hills continued to be a nuisance, and several attempts by Spain to recapture the island with forces from Mexico further weakened the English positions. In addition, before the

Spaniards retreated they freed their slaves, who at the time made up half of the island's population. The freed slaves escaped into the dense forests of Jamaica's inland mountains. Called *cimarrones*, or "untamed" by the Spanish, a term later corrupted to "maroons" by the English, ex-slaves constantly fought the English to maintain their freedom as well as to steal supplies. With these setbacks, it took an additional fifteen years after the initial English invasion to gain complete control of the island.⁹

Although Jamaica was a poor substitute for Hispaniola, Cromwell knew better than to risk losing a potentially important English base in the Caribbean. He issued a "Proclamation giving Encouragement to such as shall transplant themselves to Jamaica."¹⁰ The proclamation allowed the governor in Jamaica to grant land to settlers, gave them freedom from customs duties for three years, and entitled children born in Jamaica to the same rights as English citizens. These land grants not only served as rewards, but also helped to persuade the newly arrived soldiers to stay and develop the island.

The site of New Seville fell to the ownership of Captain Richard Heming, an officer in the army, soon after the English army captured the island.¹¹ Captain Heming established an estate overlooking St. Ann's Bay, beginning a family dynasty which would last into the twentieth century.

The subsequent development of Jamaica is also mentioned by Blume. He gives a first-hand account of England's attempts to maintain control and begin development of the island;

The English, being thus become masters of the Island, formed themselves into a Body, or Colony; Then did they begin to settle themselves in Plantations,

whilst others betook themselves to the Sea as Freebooters or Privateers, the better to secure themselves against the Spaniards, and force them to a peace by their frequent annoying them, in seizing such of their ships which they could meet with, which proved very successful unto them. And this caused the Isle to be much talked of, and held in esteem by the English, who sent them supplies of Men, Provisions and necessaryes. And thus by little and little it became to be so potent as now it is.¹²

Under English rule Jamaica initially served as a base for buccaneers who made a living raiding Spanish shipping. Their base was the town of Port Royal, in Kingston Harbor on the island's south coast. These "freebooters" or privateers played a pivotal role in preventing a Spanish re-invasion of Jamaica. The incentive of immense monetary gain gave the buccaneers a powerful impetus to preserve their domain. Lord Windsor, one of the colony's early governors, had no difficulty assembling twelve ships and over a thousand men for a successful raid on Santiago, Cuba.¹³

Buccaneering secured Jamaica from the threat of Spanish attack, but this lifestyle soon proved at odds with that of the plantation owners who stood to benefit from a more stable environment. These different governing philosophies created considerable friction and debate. The exploits of the buccaneers reached a climax in 1670 when Henry Morgan sacked Panama City. While this was an amazing victory for Morgan and his Jamaican force, it marked the end of freelance piracy in the name of England. The Treaty of Madrid, signed just months earlier, created peace between Spain and England. The Spanish crown was justifiably outraged at Morgan's attack, spurring England to recall him and the Jamaican Governor, Thomas Modyford. Both spent time in the Tower of London, but were soon pardoned; Morgan was actually knighted for his deeds! Despite Morgan's popularity and influence in Jamaica, by the

1670's the switch from buccaneering and privateering to a plantation economy was well under way.¹⁴ With the utter annihilation of Port Royal in a massive earthquake in 1692, there was no turning back: Jamaica had entered a new era based on plantation agriculture rather than piracy, privateering and plunder. Jamaica's location placed it in an advantageous position to trade with Spain's larger possessions including Cuba and Hispaniola. Planters in Jamaica saw Spanish colonies as potential sources of income and supplies, rather than dire enemies. Plantations throughout Jamaica, including the Heming's estate at New Seville, looked to sugar production rather than buccaneering as a means of generating astonishing wealth.

CHAPTER III
THE LOCAL BACKGROUND: NEW SEVILLE ESTATE
AND THE PLANTATION ECONOMY

Captain Richard Heming wasted no time in developing the land granted to him for his role in England's conquest of Jamaica in 1655. In the first 50 years of the New Seville plantation, Heming built two houses and established two areas for processing sugar cane. A map dating to 1690 shows the Heming estate, including the family's residence or "greathouse," and associated structures on the plantation (see Figure 3). A second house listed as "Belonging to Richard Heming" is located further inland, among the hills overlooking St. Ann's Bay. Near the shore of the bay, the 1690 map shows several warehouses and wharves, and anchorages for ships are indicated at the bay's entrance to the east as well as at the center of the bay near Seville Wharf. A closer look at the map indicates that the greathouse is pictured as a large structure with two wings, situated near a chapel dating to the Spanish occupation (see Figure 4). Twenty six small buildings labelled "Negroe Houses" served as dwellings for the plantation's slave population. These structures are laid out in two rows on either side of a path behind the greathouse. South of the greathouse a large building labelled "Sugar Works" processed the plantation's primary cash crop.¹⁵

Towards the end of the seventeenth century, Jamaican plantations benefitted from general prosperity. Growth in the economy spurred development, and the political scene had stabilized. Planters were now well-entrenched in the government,

establishing advantageous policies which contributed to their continued success.¹⁶ A thriving and prosperous trade developed between England and her colonies in the Caribbean and North America.

A late seventeenth-century historical account of the West Indies written by Thomas Dalby lists some of the principle commodities involved in the West Indies trade. Goods exported from the Caribbean include sugar, molasses, brandy, indigo, logwoods and dyewoods, cotton, ginger, pepper, drugs, lumber, cocoa, pimento, spices and cattle hides. The West Indian colonies consumed large amounts of manufactured goods from Europe. Colonists were in constant need of supplies for building, shipping, milling, boiling, distilling, field labor and domestic uses. Trans-Atlantic ships brought necessary items such as clothing, shoes, stockings, saddles, bridles, coaches, furniture, pictures, clocks, watches, pewter, brass, sail cloth, cordage, copper and iron vessels and instruments.¹⁷

A substantial trade existed between the English colonies in the West Indies and their fellow colonists in North America. As the former were primarily concerned with raising cash crops for the European market, they were dependent on outside sources for food and supplies. The British colonies in North America provided many necessities for their Caribbean counterparts in return for the same types of West Indian products sent to Europe. Due to the shorter distances involved in these routes, perishable items had a better chance of arriving in good condition from North America than from Europe. North American merchants regularly sent foodstuffs such as beef (both live and salted in casks), pork, apples, onions, butter, flour, mackerel, cod, wine,

salt, oats and hay for livestock to profitable markets in the Caribbean. Sugar plantations consumed not only huge quantities of foodstuffs, but also large amounts of staves, barrels, lumber and manufactured goods. As colonists established more plantations in Jamaica's interior, livestock such as mules, asses, horses and oxen were in demand for transport as well as powering sugar mills remote from streams or rivers.¹⁸

Another aspect of this world-wide economic system was the predominance of illicit trade between the colonies of different nations. Contraband trade occurred even during periods of warfare as the potential profits were too immense, and the West Indies too expansive for tight governmental control. The colonists seemed to be in constant need of supplies, and their requirements often could not be met adequately through legal channels. When stores ran low, illicit trading became even more attractive to the plantation owner. Small, handy vessels such as the Readers Point sloop, which could hide in the numerous bays and coves of the Caribbean islands proved ideal for eluding patrolling ships.

Numerous attempts were made to crack down on contraband trade. All European countries with colonies in the New World enacted various measures to reduce trade with foreign vessels, usually with little effect. Britain's famous Navigation Acts required that trade between England and her colonies be conducted solely in English-owned ships which were also commanded and manned by Englishmen. Subsequent amendments applied heavy tariffs to goods imported into an English colony from foreign sources.¹⁹ France passed a law in 1717 subjecting any foreign

vessel within one league of a French colony to seizure, making it legal to confiscate the ship and cargo, as well as fining the captain and crew. French colonists caught trading with foreigners were punished even more severely, some even sentenced to hang.²⁰ The harsh Spanish policy of boarding foreign vessels suspected of carrying on illicit trade with her colonies was a direct cause of the War of Jenkins' Ear in 1739.²¹

Throughout this tumultuous period marked by trade, warfare, and piracy, the Heming family continued to improve their estate. Captain Heming's son, also named Richard, began running the plantation after his father's death at the beginning of the eighteenth century. A 1722 map of the Seville plantation shows that the number of warehouses near the bay had increased, suggesting that the production of the plantation had grown significantly. The original greathouse at New Seville was destroyed by a hurricane in 1744, and the Hemings built a second greathouse in the same location one year later.²² This structure still stands at the New Seville Estate today.

Richard Heming II died in November of 1756. An inventory accompanying his will provides insight into the makeup of the plantation. The inventory appraised the "goods and chattles" of Heming at the time of his death. Included are the names of slaves owned by the plantation, including 108 adult men, 80 adult women, 31 boys and 55 girls. Various possessions relating to the plantation are listed, such as livestock (2 horses, 40 steers, 26 mules, 82 cows, 17 bull calves, and 15 cow calves), supplies for sugar processing and miscellaneous items from the Heming estate. The total value of Heming's possessions were appraised at nearly £20,000, with the value of slaves making up nearly £13,000 of the total.²³

Samuel Heming ran the New Seville plantation after his father's death. Crop accounts from 1763 list 320 hogsheads of sugar shipped to merchants in London, amounting to nearly £7000 net worth. Also included in the accounts are 76 puncheons of rum (over 8000 gallons), more than 10,000 gallons of molasses, 1,374 pounds of pimento and 64 tons of logwood. Total profits for the plantation in 1763 were £8,545.²³

Historian Edward Long visited St. Ann's Bay in 1774, and wrote down his impressions of the bay as well as New Seville;

The bay of St. Anne is defended by a reef of rocks, which stretches almost across its entrance, leaving only one small channel for the ships to go in or out. This barrier so effectually breaks the surge of the sea, that the bason in which the ships lie at anchor is at all times perfectly smooth: it is likewise sheltered by two points of land, projecting on each side of the bay like the horns of a crescent... The harbour is deep, insomuch that the largest ships that load here with sugars, lay their broadside close to the wharf, which is not many feet in length. It is defended by a battery of twelve embrazures; and at a small distance are the barracks, elegantly built, in which a company of regulars are stationed. The town of St. Anne consists of about thirty or fourty houses, stragling along the beach, and chiefly inhabited by shopkeepers... The harbour has somewhat the appearance of the letter E capitol, placed horizontally, the coast projecting into the centre of it, and making a semi-circular sweep on each side.... The situation is extremely delightful....The possession of this city fell to the share of captain Heming, an officer in the Oliverian army sent hither; and his posterity still enjoy it. The mansion house on this estate stands on the summit of a rising lawn, nearly equidistant from the sea and the mountains; a situation which makes it both healthy and agreeable. Before the front of it is a battery of eighteen small guns *en barbette*; which is intended as a protection to the estate, and to the harbour itself in war-time against privateers. The garden on the East side of the house is prettily laid out; and decorated with a stone temple, elegantly designed in the modern taste.²⁴

By the late eighteenth-century, the Heming family had developed a sizeable plantation. Several new structures appear on a map dated to 1792 (see Figure 5). The increased number of warehouses and piers indicates continuing growth in the maritime

traffic in St. Ann's Bay. These structures are shown on the map near gun emplacements and a pier labelled "Seville Wharf." Portions of the warehouses and wharf still exist on the JNHT property, although beach accretion has placed them over 300 feet (91.5 meters) inland from the shore of the current bay.

New buildings associated with sugar production are also shown on the estate on the 1792 map. Additionally, an overseer's house and book-keeper's house are testimony to the continued success and increasing sophistication of the plantation.²⁶ Around this same time, the plantation began diversifying its crop production. Although sugar cultivation and processing remained the primary focus, coconut cultivation began in earnest, followed by lime, coffee and cocoa production in the foothills. Livestock also played a larger role at Seville.²⁷ By this time illicit trading in livestock was commonly conducted in St. Ann's Bay with small, open vessels sailing from Cuba.²⁸ The structures associated with these activities, including pimento barbecues, stone livestock pens and a copra kiln constructed in the nineteenth century, are still maintained on the New Seville estate by the Jamaica National Heritage Trust.

The Seville plantation and St. Ann's Bay entered into a decline early in the nineteenth century. Other port towns along the north coast such as Montego Bay and Falmouth had established themselves as the primary centers for maritime commerce. With the abolition of slavery in 1834, the cheap labor source which supported the colonial sugar plantations disappeared. The New Seville estate never recovered from these handicaps. The estate remained in the Heming family until the first decade of the twentieth century. Ownership of the plantation passed through several private

individuals until it was put under the jurisdiction of the Ministry of Agriculture in the 1930's. In 1969 the Government of Jamaica turned over a portion of the estate to the JNHT.²⁹

With the mixed heritage of the New Seville estate including a prehistoric Taino site, the location of the first settlement established by the Spanish in Jamaica, remains of structures built for a thriving English colonial plantation, and extensive evidence of the African-Jamaican slave presence, the property remains a unique symbol of Jamaican history. The JNHT actively protects and maintains the site, and implements plans for its development into a National Historic Park. The Trust's support of archaeological research at New Seville will continue to shed light upon a priceless Jamaican legacy.

CHAPTER IV

PREVIOUS RESEARCH IN ST. ANN'S BAY

St. Ann's Bay, Jamaica has been the site of numerous shipwreck surveys, primarily aimed at locating the remains of two caravels lost during Christopher Columbus' final voyage to the New World. The earliest attempts began with William Goodwin's survey of the eastern portion of St. Ann's Bay in 1935-1938.³⁰ Goodwin concentrated his search in Don Christopher cove near Drax Hall plantation, believing this to be the location where Columbus beached his last two caravels. After intensive walking surveys in the area, Goodwin and his crew excavated over 150 test units in the shallow waters of the cove. These test excavations clustered around two "coral mound-like reef protuberances."³¹ They also sank caissons 25 feet (7.62 meters) into the bay bottom. Despite their efforts, they recovered only a single ceramic sherd dating to Spanish occupation.

The eminent historian Samuel Eliot Morison came to St. Ann's Bay in January of 1940 to search for the ships' most likely location. This survey was part of a larger project known as the Harvard Columbus Expedition, whose purpose was to reconstruct the sailing routes taken by Columbus on his various voyages, and to identify important sites associated with his discoveries. After comparing the local topography with historical data, Morison concluded that the caravels were most likely in the western portion of St. Ann's Bay.³²

Robert F. Marx conducted limited surveys and test excavations in the bay

during the late 1960's while excavating portions of the sunken city of Port Royal on the south coast. Concentrating primarily on the positional data provided by Morison, Marx and his crew conducted probing surveys with long metal rods. Potential targets were investigated with limited excavation, exposing a single wooden beam. Marx returned to St Ann's Bay with sonar equipment, locating two anomalies near his previous test units. Numerous cores were taken from the site, producing a collection of artifacts from a depth of 8 to 10 feet (2.4 to 3 meters). The finds included charcoal, bones, a striking flint, a small fastener, green glass fragments, ceramics, wood and pine samples. After artifact identification and analysis, Marx declared that he had found Columbus' ships.³³ Unfortunately, he never returned to conduct a more in-depth investigation of the site. Although Marx's finds are intriguing, there is some debate concerning the artifacts' exact provenience. Subsequent attempts to relocate his site by other archaeologists have been unsuccessful.

The Institute of Nautical Archaeology (INA) has sponsored several surveys in St. Ann's Bay in cooperation with the Jamaican National Heritage Trust (JNHT). Roger Smith tried to locate the historic vessels during surveys in 1982, 1983 and 1984. Using magnetometry and sub-bottom sonar, Smith located several eighteenth century middens, two small shipwrecks from the same period, as well as numerous later sites, but found no trace of the caravels.³⁴

In 1990, under the direction of James Parrent, INA archaeologists renewed the search for Columbus' ships. Geoarchaeologists from Texas A&M University conducted studies of the local geology to determine the position of the shoreline in the

sixteenth century. Archaeologists conducted sub-bottom sonar surveys in the primary search zone, near the center of the bay. These surveys generated sonar images of targets in the search zone, located at various depths beneath the bay floor. Additional probing and coring delineated the most promising sites. By the end of the field season, several anomalies were located and a few had been explored further with controlled test excavations. However, the 1990 season ended without the verification of definite shipwreck remains.³³

INA archaeologists returned to Jamaica in 1991 to renew the search for Columbus' ships. Archaeologists continued the coring and sonar survey while conducting test excavations on the most promising sites. Site MS-3 was given first priority. Sonar images of the site from the 1990 survey suggested that the target was composed of two distinct anomalies. In addition, radiocarbon analysis from a wood sample taken in 1990 produced a late fourteenth or early fifteenth century date. Test excavations conducted on MS-3 refuted the carbon-dating evidence, however. The presence of British artifacts including kaolin pipe stems and glass case bottles clearly indicated that the vessel dated to the middle of the eighteenth century. Before reburying the site, archaeologists recorded the exposed hull remains, which included a composite mast step.³⁴

Other sites were tested during the 1991 season, including site 21/22, a large double anomaly west of MS-3. Archaeologists soon realized this vessel was too large to be a caravel. The probing survey traced ship remains for a length of 80 feet (24.4 meters). A test unit exposed 12 feet (3.66 meters) of the hull. The remains included

large frames and a massive composite keelson, and the few artifacts recovered dated to the late eighteenth century.³⁷

The next wreck to be investigated, site 16, was situated between the former two wrecks. The anomaly measured approximately 60 feet (18.3 meters) long, and was near a second anomaly of a similar size. The test trench revealed several cant frames in the bow of a medium-sized vessel. Artifacts associated with the vessel included pipe stems, a mound of broken conch shells situated on top of as well as inside the hull remains, various ceramics and a rigging thimble. Archaeologists halted excavation when it was again apparent the site did not date to the early sixteenth century.³⁸

By this time 13 feet (3.96 meters) of hull structure in site 16 was uncovered, exposing a good portion of the vessel's bow. The remains were approximately 33 feet (10 meters) from shore, buried in the silty bottom caused by several streams feeding into the bay. The hull was oriented east-west, as were all the wrecks located in the CCAP survey (the constant eastward current in the bay may have necessitated orienting the vessels' bow into the current). Archaeologists took several timber samples and quickly recorded exposed remains, producing a test excavation site plan. Divers then reburied the site by dredging sediment onto the ship remains. The investigation of site 16 ended the 1991 season.³⁹

In 1992 INA archaeologists returned once more to investigate 21 sonar targets, two of which proved to be shipwrecks dating to the eighteenth century. Site 10 was buried under 10 feet (3 meters) of sediment towards the survey area's easternmost

extent. Test trenches exposed the southern side of the wreck, tentatively identified as its starboard side. The vessel exhibited a "saddle" mast step composed of a large oak timber attached perpendicularly to the top of the keelson. A mortise in this timber would have held the foot of the mast. Near the northernmost extent of the test unit, archaeologists uncovered black plastic lying directly on ceiling planking, proof that this site had been investigated previously (probably by Roger Smith between 1982-1984). The vessel's construction suggested a small coastal trader, and associated artifacts again indicated a late eighteenth-century date.⁴⁰

Test excavations conducted on a sonar anomaly known as site 15, just off Readers Point, uncovered five futtocks of a small vessel. Pipe stems found early in the excavation indicated an eighteenth-century date for the remains. Archaeologists ceased the limited excavation on site 15 after these artifacts were discovered.⁴¹

Besides locating the remains of these two vessels, an additional test trench was excavated on site 16. Between the 1991 and 1992 seasons, archaeologists re-examined the sonar image generated from this site. A portion of the target appeared deeper than the hull remains discovered during the 1991 season. There was a possibility that the wreck overlay earlier cultural remains, possibly dating to the time of Columbus. Divers excavated a second test trench slightly southwest of the 1991 trench in an effort to locate the limits of hull preservation on the starboard side. Using induction dredges, sufficient material was removed to allow extensive coring below the eighteenth-century hull remains. The results of this survey proved site 16 rested on a layer of sterile sand which was most likely the contemporary historic bottom, and that

no earlier cultural remains were located under the eighteenth-century hull.⁴²

Although the CCAP survey was not successful in locating Columbus' last two caravels, it proved to be the most thorough survey conducted in St. Ann's Bay in over fifty years of exploration. In three seasons, nearly fifty sonar targets of potential shipwrecks were located, all of which were investigated with intensive probing and coring surveys. Near the center of the bay, six intact shipwreck sites were discovered in what can be described as an eighteenth-century ship graveyard. These investigations led to a closer examination of the colonial shipwreck sites, and culminated in the excavation of "site 16," or the Readers Point sloop.

CHAPTER V
THE READERS POINT SHIPWRECK PROJECT:
EXCAVATION OBJECTIVES AND METHODOLOGY

Objectives

Although archaeologists searching St. Ann's Bay for Columbus' last two caravels were ultimately unsuccessful in their quest, during the course of their search they stumbled upon six eighteenth-century derelicts in a colonial ship graveyard near the center of the bay. Divers investigating the wrecks noted the potential significance of the site; intact colonial vessels might provide important information concerning eighteenth-century shipbuilding techniques. There were only a few archaeological studies on small colonial merchant craft, and none of these were in a West Indian context. While some of the wrecks showed signs of post-depositional disturbance, either by natural or man-made causes, most were articulated and well-preserved.

The sites were situated close to shore and in shallow water, providing easy access for researchers. Base camps could be set up on shore, avoiding the high cost of research vessels and diving platforms. The JNHT supported archaeological research with logistical help and by providing the Seville Great House as living quarters for the crew. Dorrick Gray, a senior JNHT archaeologist, helped out tremendously from the early planning stages to the full excavation of the Readers Point sloop.

With all these factors, it was possible to organize a complete underwater excavation of a site in St. Ann's Bay within a reasonable budget and time frame.

Archaeologists reviewed the test excavations conducted during the CCAP project and determined that site 16 held the greatest potential for excavation. The two test units conducted on the site in 1991 and 1992 suggested that the hull remained in a high state of preservation, and was well-articulated. Other eighteenth-century shipwreck studies suggested that radial cant frames in the bow may be a signature building technique for the era, and the presence of these frames on the Readers Point sloop intrigued archaeologists. The sediments covering the site sealed it off from invasive plant and animal life which degrade wooden shipwrecks in tropical waters. Artifacts recovered during the CCAP excavations suggested that site 16 contained more cultural material than the other derelicts in the bay, giving archaeologists clues as to the sloop's trade, cargoes, crew and date.

The Readers Point Shipwreck Project objectives are summarized as follows:

- 1) Conduct a full excavation of the hull remains.
- 2) Record the positions of any artifacts associated with the site.
- 3) Conduct intensive recording of the hull structure.
- 4) Disassemble portions of the hull as necessary for hull recording.
- 5) Conserve all artifacts in the field laboratory.
- 6) Rebury the hull remains to insure future preservation.
- 7) Provide the JNHT with all conserved artifacts and full reports of the excavation and hull analysis.

With the project objectives established, archaeologists began to raise funds for the excavation. Funding sources included the award of a Fulbright Fellowship, a Marion M. Cook Fellowship, a gracious donation by Mr. and Mrs. Frederick Mayer and other private donations. The main crew consisted of David Ames, Clive Chapman, Gregory D. Cook, Dorrick Gray, Darren Hurst, Amy Rubenstein-Gottschamer, and Chris Sabick. Many volunteers also helped out for various periods

of time, including Norine Carroll, Karl Gottschamer, Mike Krivor, Mike Lenardi, Daria Merwin, Tom Shannon, Juan Vera and Richard Wills. These individuals paid their way to Jamaica and worked for free, producing accurate excavation and hull construction data under sometimes very trying conditions. The success of the Readers Point Shipwreck Excavation would not have been possible without this excellent field crew. Finally, our local Jamaican staff, including Elsaída "Dottie" Harrison, Olivia "Kay" Sharpe and Lincoln McKenzie provided logistical aid to the project.

Methodology

Personnel for the Readers Point Shipwreck Excavation arrived in Jamaica and assembled at the Seville Great House in February of 1994. Initial tasks involved re-surveying the site and locating the test trenches previously excavated on the Readers Point vessel. A short walking survey re-located the positions of two CCAP survey datums that were established on the bay's shoreline during the 1991 and 1992 seasons. Crew members conducted an intensive probing survey to delineate the hull remains with greater accuracy. With the wreck remains outlined by the probe survey, divers began overburden removal. The test trenches from the 1991 and 1992 seasons were re-excavated using a water induction dredge. After excavating to the limits of the test excavations and verifying the hull orientation, divers began removing overburden on the undisturbed portions of the site aft of the bow.

The site lay in 3 feet (0.9 meters) of water, and was buried under 3 to 9 feet (0.9 to 2.75 meters) of soft mud and silt. This sediment contributed to the wreck's

excellent preservation. The proximity of the vessel from the shoreline of St. Ann's Bay allowed archaeologists to establish a base camp on shore. A tent protected crew members from the hot Jamaican sun and provided shelter for dive gear and other equipment. A small johnboat served as a convenient platform for the dredge pump and air compressor. Archaeologists removed the overburden with two water induction dredges connected to a single Honda water pump. Divers breathed off of a surface-supplied air compressor hookah system rather than SCUBA tanks. The compressor also served as the air source for a pneumatic air scribe used for breaking apart concretions.

While removing the overburden, archaeologists established permanent datums as reference points for mapping artifacts and recording the hull. These datums consisted of 10 foot (3 meter) sections of 5/8" steel rebar approximately 7 feet (2.1 meters) into the sediment surrounding the site. Hooks for holding tapes were attached to the rebar with hose clamps. Divers placed these hooks at the same elevation, then attached labelled measuring tapes to each datum. The mapping system was set up so that any point on the site was accessible from at least four datums without extending the tapes more than 20 feet (6 meters). During the initial set-up and training with the mapping system, crew members determined that extending the tapes further than this distance produced a slight sag in the tapes due to underwater currents. This sagging created a potential source of error in our measurements, and was eliminated by keeping measurements within 20 feet (6 meters).

The rebar datums were used in conjunction with the WEB Direct Survey

Measurement computer mapping system developed by Nick Rule during the *Mary Rose* project in Great Britain. This innovative software applies best-fit algorithms to raw field data, producing highly accurate positional information from the measurements. The WEB system also identifies and flags erroneous measurements, reducing potential errors and allowing archaeologists to check their data while still in the field. This feature proved very useful, as measurements from the day's work could be entered in that evening, and any questionable figures checked the next day. Project personnel used the WEB program to determine artifact locations and elevations, and to record the hull structure. Over 5,000 individual measurements were taken with an average accuracy of less than 1 inch (2.56 centimeters).

Archaeologists initially concentrated on removing the overburden down to the ballast pile. This stage of the excavation lasted three weeks. Ballast extended over the central portion of the wreck, covering an area 25 feet (7.6 meters) long by 12 feet (3.6 meters) wide by 1 foot, 6-inches (46 centimeters) at its greatest extent. The stones making up the ballast pile were primarily round river cobble, ranging in size from 15 inches (38 centimeters) in diameter to gravel-sized specimens of 2 inches (5 centimeters). Divers removed the ballast in buckets and placed it off site in a rectangular area to determine its volume. The dimensions of the ballast containment area extended for 20 feet (6.1 meters) by 10 feet (3.05 meters) by 1 foot (30.05 centimeters), making a total volume of 200 cubic feet (5.67 cubic meters), or approximately 7 metric tons.

After overburden removal, divers began removing ballast in buckets, depositing

the material off site. Any artifacts found within the ballast pile were mapped in, photographed and removed. Mesh bags on the ends of dredge exhaust hoses caught small finds missed by the excavator. Each diver removed the bags after the end of his/her dive and was responsible for screening the contents on the surface.

Over 200 years of heavy occupational and commercial use of St. Ann's Bay created the potential problem of intrusive artifacts migrating down to the site's eighteenth-century levels. For this reason, only objects found within or under the ballast pile were considered definitely associated with the vessel. The crew gathered artifacts recovered during the day's work and carried them to the Seville Great House, where the project conservator established a field conservation lab. Heavier objects such as large concretions were stored in saltwater near the shore. These items were retrieved on a weekly basis. Every weekend a locally hired driver came to pick up project equipment and large concretions, and archaeologists closed down the site leaving a guard to watch over the exposed remains.

Once the ballast was removed, archaeologists spent one month recording the extant hull remains. Divers used the WEB mapping program for recording positions of each hull timber. In addition, each timber was drawn and photographed *in situ*. After the starboard ceiling planking was recorded, archaeologists removed the planking to expose the vessel's frame construction. The poorly-preserved port side was left intact. Crew members excavated the sediment between the starboard frames to the outer hull planking, and more artifacts were located, mapped in, photographed and recovered. Divers retrieved soil samples for pollen and micro-faunal/botanical analysis

recovered. Divers retrieved soil samples for pollen and micro-faunal/botanical analysis from the protected bilges of the vessel as they dredged out sediment between frames. Archaeologists then recorded the framing pattern using the methods described above. Samples of each timber were recovered for identification of wood types used in the sloop's construction.

After recording the hull, the crew split into two teams for the final tasks of the excavation. Divers disassembled the bow structure and the maststep. These timbers were removed from the water for detailed recording and sampling. As one team finished this task, the other team continued to excavate around the limits of the wreck, searching for remaining artifacts. There was no evidence of the rudder or other disarticulated timbers, and the surrounding sediment proved sterile.

Finally, all the timbers were placed back in the hull, and the crew began dredging sediment into the excavation pit to rebury the remains. After approximately 2 feet (0.6 meters) of overburden covered the ship remains, divers added a layer of ballast stone. Then dredging continued until the site was well covered by sediment and ballast.

Evaluations

The equipment utilized for the Readers Point Shipwreck Excavation worked well with few exceptions. Crew members converted a Campbell-Hausfeld air compressor into a surface-supplied hookah system for divers. This saved valuable evening time otherwise spent filling SCUBA tanks. The surface air supply also made

5 horsepower model provided sufficient air for two divers and a pneumatic chisel at a maximum depth of 15 feet (4.5 meters). At depths exceeding this, divers noticed a slight shortage of air when working vigorously.

The 5 horsepower Honda dredge pump provided excellent performance for the duration of the project. This pump powered two dredges with ample suction for removing large amounts of sediment. Divers working on delicate materials simply held the dredge head away from the artifact and hand-fanned material into the suction.

Project personnel quickly learned to appreciate the WEB Direct Survey Measurement System. The software flagged erroneous measurements made by even the most careful archaeologists, who inevitably found that they had made an error upon checking their measurements on site the following day. The crew soon found that entering large amounts of WEB data into the computer took as much time as acquiring the data in the field. In a typical two-hour dive, an archaeologist could map in 40 points or more. With four measurements per point, this equals 160 measurements per dive. On a typical day consisting of eight two-hour dives, this adds up to roughly 1,300 measurements per day. Even when assigning data entry to crew members in the evening, it was still difficult to keep ahead of the tremendous amount of incoming data gathered for the WEB program. While the WEB software is an excellent tool for accurate mapping and saves time in the field, it is important to keep in mind the time-consuming data entry required for the program.

CHAPTER VI

ARTIFACTS

The Readers Point wreck artifact assemblage includes six primary artifact categories. Listed in order of frequency, they are: ceramics, metal (including iron concretions), glass, wood (not including hull timbers) leather and bone. Only diagnostic artifacts providing dates or other information pertaining to the hull analysis are described below. Spacial analysis of artifacts is considered beyond the scope of this thesis. The scatter of artifacts suggests that some degree of disturbance occurred on the site after the vessel sank, limiting conclusions made from artifact provenience. However, information concerning artifacts' locations is included when relevant to the hull analysis of the Readers Point sloop. Finds from the 1991 and 1992 seasons are combined with artifacts recovered during the Readers Point Shipwreck Excavation in 1994. The artifact conservation and analysis from the Readers Point sloop was carried out by Amy Rubenstein-Gottschamer. Later, this data was compiled and used as her M.A. thesis at East Carolina University.

Ceramics

Archaeologists recovered 353 ceramic sherds from the Readers Point Shipwreck Excavation in 1994. In addition, CCAP archaeologists retrieved forty sherds from the bow of the vessel⁴¹. Ceramic types span nine different categories, including creamware, stoneware, earthenware, agate, astbury, delft-ware, Jackfield,

slipware and porcelain.

The highest percentage of sherds are identified as creamware, with 121 sherds sub-classified into six types including cloudedware (1740-1775), diamond pattern (1760-1800), feather edged (1765-1790), dot pattern (no comparable material is available), royal pattern (1766-1820) and undecorated body sherds (1750-1800). Creamware vessel shapes represented in the assemblage were primarily plates, along with bowls and a few pieces tentatively identified as mugs. The distribution of creamware ceramics spanned the entire site, except for the three dot pattern sherds, which were located in a tight grouping in the starboard stern of the shipwreck, and may be fragments of a single vessel.⁴⁴

Stoneware sherds make up the next highest category of ceramics recovered from the site. A total of 65 sherds were present, divided into three different types. Divers recovered stoneware sherds across the stern quarter of the vessel. Stoneware types include Fulham Brown salt-glazed (1690-1775), white salt glazed (1725-1775) and white slipped-brown glazed (1690-1775). The stoneware assemblage includes unidentifiable body sherds, mugs and plates.⁴⁵

Three types of earthenware pottery were recovered from the wreck, including a black glazed variety, red coarse earthenware and refined earthenware. The 17 black glazed pieces are the most numerous, and were located among the radial cant frames in the bow. The slight curvature evident on most of the sherds suggests a shallow bowl design. The sherds exhibit an external and internal glaze, and average 1/8 inch (0.42 centimeters) in thickness. Red coarse earthenware appears as utilitarian vessel

sherds and S-shaped pan roofing tiles, mixed with the ballast throughout the length of the ship. The refined earthenware make up the smallest percentage of the total earthenware assemblage, with only six examples recovered. All of these are unidentifiable body sherds with brown, black or clear lead glazes. In addition to these varieties, archaeologists recovered a number of broken brick fragments mixed amongst the ballast pile. The bricks were sufficiently fragmented to prevent a determination of their original dimensions. Like the remainder of the earthenware recovered from the ship, the bricks are not considered diagnostic.⁴⁶

Agate sherds are the next most predominant ceramic type found on the vessel, with 27 examples recovered primarily from the starboard stern quarter of the ship. Nearly all of them are identified as mug fragments, and date to 1720-1775.⁴⁷

Archaeologists found 25 sherds of Astbury refined earthenware, located throughout the stern half of the ship. Astbury was in use between 1725-1750, and most of the assemblage present on the Readers Point sloop can be identified as bowl sherds.⁴⁸

Divers recovered 21 pieces of delft-ware, primarily identified as pieces from jugs and mugs. Two sherds could not be identified as to vessel shape. Though these artifacts were spread over the vessel remains, most came from the wreck's starboard stern quarter. Delftware was an extremely popular and widespread type of pottery, and its date ranges from 1651-1854.⁴⁹

Nine sherds, tentatively identified as Jackfield, produce a date of 1740-1780. Two pitcher body fragments, one pitcher rim and six unidentifiable body sherds were

recovered from various locations on the wreck. These examples have a slightly anomalous black glaze, and may in fact be a variation of the classic Jackfield stoneware.⁴⁸

Archaeologists recovered nine sherds identified as slipware, as evidenced by their liquid clay decoration. Nine slipware fragments were located in a tight grouping in the vessel's stern. Slipware dates to 1670-1795. The sherds appear to be pitcher fragments, and may belong to a single vessel.⁴⁹

The bow section of the Reader's Point sloop contained four unidentifiable body sherds of English porcelain, dating to 1745-1795. These sherds, along with the black glazed earthenware, are the only ceramics located forward of Floor #1.⁵⁰

Pipes

Crew members recovered 49 pipe stems, and their provenience spreads throughout the vessel remains. Measurements of the stem bores indicated that the sample can be divided into four basic diameters; 4/64, 5/64, 6/64, and 7/76 inches. The "Harrington Theory" method of dating pipe stems indicates that over 90% of the pipe assemblage clusters around 1750, with a *terminus post quem* of 1710 and a *terminus ante quem* of 1800.⁵¹ Applying the same sample of stems to Binford's method of pipe dating produces a date of 1751.5 for the collection.⁵²

Five pipe bowls were located on the wreck. Rubenstein determined the date ranges for the bowl samples based on form and the presence of maker's marks. Dates for the bowls range from 1690-1750, 1700-1770, 1720-1820 and 1730-1790.⁵³

Glass

Glass artifacts from the Readers Point sloop are divided into categories based on color, weight and use. Divers recovered 13 clear glass shards, eight of which likely come from an individual drinking glass found under the keelson near the port stern. A clear glass stopper was recovered from the port bow. The stopper had been ground by the glassblower, a practice that did not become common in England until 1745.⁵⁶

Archaeologists recovered 60 pieces of dark green glass, commonly associated with bottles in form. The provenience of these artifacts spans the entire site. Included in this category are seven necks, five bases, two lips, and one complete bottle. Two of the neck fragments were sufficiently complete to provide dates of 1795 and 1783, both +/- 22.4 years. Three bases gave dates of 1756, 1804 and 1801, with an error factor of +/- 33 years. The single complete bottle dated to 1794 +/- 15 years.⁵⁷

A unique leaded glass vessel tentatively identified as a sweet meat dish or bowl was unearthed just aft of the maststep near the outboard edge of the port side. The vessel exhibits a pattern-molded recurring diamond pattern. The style of this vessel is classified as a "double-ogee bowl," which dates throughout the eighteenth century.⁵⁸

Leather

The anaerobic conditions of the site proved excellent for the preservation of organic materials. Archaeologists excavated six leather fragments, three of which are identified as shoe fragments. These artifacts were located amidships on the starboard

side of the wreck, and included a boot upper, a heel and a sole fragment. The heel exhibited wear patterns, suggesting that it had been worn extensively before being discarded.⁵⁹

Metals

Examples of cupreous artifacts retrieved by crew members include three cast buckle fragments and a cast button. Two of the buckles were located amidships. Divers found the third buckle fragment and the button in the vessel's stern. These artifacts are comparable to other eighteenth-century examples based on form.⁶⁰

Iron artifacts exhibited the concretion typically present on these objects in a saltwater environment. Excavation team members used a pneumatic air scribe to break into concretions. The project conservator then cleaned the inside of the molds and cast them with epoxy. Concretions still containing iron were conserved by electrolytic reduction in the project field laboratory.

Archaeologists recovered eight barrel strap concretions spread widely across the middle of the vessel. One example recorded *in situ* measured 1 foot, 9 inches (53.5 centimeters) in diameter. Three plain iron buttons located in the port bow, amidships and port stern were recovered by divers. With no markings present, their date ranges span nearly the entire eighteenth century.⁶¹

The Readers Point artifact assemblage contains 60 wrought iron fasteners, including nails, spikes and bolts, retrieved from throughout the entire vessel. Most of the fasteners were recovered as hollow concretions, which the project conservator cast

in the field laboratory. The collection includes one nail and five spikes which exhibit rose heads.

One of the concretions contained the mold of a socketed chisel. Project archaeologists excavated this piece on the port side of the keelson just aft of midships. The artifact is tentatively identified as a woodworking chisel, however the absence of the chisel tip prohibits a more accurate identification. The socketed shaft of the chisel suggests a specialized use associated with ship carpentry.⁶²

A heavily-encrusted pressing iron was recovered just outboard of the port bow frames. Triangular in shape, the iron contained two raised projections where the handle would have joined the body. The artifact is not considered diagnostic, though similar irons are dated to the middle eighteenth century.⁶³

Pewter artifacts in the assemblage included fragments of three spoons. Each of these pieces was recovered in the stern of the wreck. They are not particularly diagnostic, unfortunately, and can only be dated post 1700.⁶⁴

Wood

The starboard stern section of the vessel contained four wood sheaves made of *lignum vitae*. These artifacts showed no evidence of use, and their compact provenience may indicate that they were being stored as spare parts. The largest of these measured 1 inch (2.56 centimeters) thick and 6 1/2 inches (16.5 centimeters) in diameter.⁶⁵ The other examples were slightly smaller.

Several wooden fragments associated with cask construction were located

spread across the starboard stern quarter of the site. These fragments included a bung and several head piece fragments. The bung piece would have plugged a hole in a cask, and shows evidence of use. The head pieces are small fragments and contain little information.⁶⁶

Archaeologists excavated a carpenter's smoothing plane from the middle of the vessel, adjacent to the starboard side of the keelson.⁶⁷ The tool measures 6-3/4 inches by 2-3/8 inches by 2-1/8 inches (17 centimeters by 6 centimeters by 5.5 centimeters). The plane's body consists of a simple block, without handles. The concretion of the iron blade is still present inside the block, held in place with two small wooden wedges.

Botanical Remains

Archaeologists retrieved 53 botanical samples associated with the wreck, representing 14 different species. This assortment includes nut shell, gourd rind, pits, seeds and various fruit parts. The botanical assemblage from the Readers Point Vessel was sent to Dr. Lea Newsom, Curator/Assistant Professor at the Center for Archaeological Investigations at Southern Illinois University, Carbondale. Dr. Newsom is an expert in the field of botanical identification, and has extensive experience with material from shipwreck sites.

The majority of the Readers Point botanical samples have been identified as drift fruit, and are probably intrusive. Care was taken to retrieve botanical samples from deep within the ballast pile, or under ceiling planking and between frames to

minimize the recovery of intrusive organics. Regardless, the wreck undoubtedly lay exposed after sinking for an undeterminable period before a sufficient blanket of sediment sealed the site from organic intrusions. During this period of exposure, it is possible that the site was contaminated with contemporary drift species.

The botanical samples considered most likely to be intrusive drift fruit include fragments of prickly palms (*Acrocomia media*), starnut palms (*Astrocaryum*), sea coconuts (*Manicaria saccifera*), hog plums (*Spondias mombin*), Indian almonds (*Terminalia catappa*) and manchineel (*Hippomane mancinella*). The Indian almond and hog plum were introduced and cultivated throughout the American tropics for their edible fruit. Thus it is also possible that they were brought on board for provisions. The examples from the Readers Point wreck are considerably eroded however, suggesting prolonged exposure consistent with drift fruits.⁶⁶

Three organic samples fit into the neotropical cultivar category, including a single calabash (*Crescentia cujete*) and two samples of guanábana or soursop (*Annona muricata*). These tropical American trees are associated with neotropical home gardens. The gourd-like calabash is used for a variety of purposes, one of the most common being a handy bowl or cup. The soursop is still very popular in Jamaica as a sweet, refreshing fruit. The calabash rind and soursop seeds retrieved from the Readers Point sloop are very well preserved and likely associated with the vessel.⁶⁷

Five well-known Old World plant cultivars were included in organics retrieved from the Readers Point sloop. These include watermelon (*Citrillus lanatus*), almond (*Prunus amygdalus*), peach (*Prunus persica*), plum (*Prunus domestica*) and hazelnut

(*Coryleus avellana*). Like the neotropical cultivars above, these specimens showed exceptional preservation and are likely associated with the shipwreck. These species grow in temperate climates, and are not associated with tropical Caribbean environments.⁷⁰

Faunal Remains

Divers recovered a total of 170 faunal samples associated with the Readers Point sloop. These included bones from mammals (78.2%), fish (14.1%), bird (7.1%) and reptile (0.6%). These samples were sent to Dr. Philip Armitage for identification and analysis with comparative skeletal material. Dr. Armitage is a respected expert in the field of faunal analysis, and has extensive experience with shipwreck assemblages in particular. These samples were identified to species and part of skeleton.⁷¹

As in the retrieval of botanical samples, the field crew considered only those bones found well within the ballast pile, or within intact hull remains, to be associated with the shipwreck. Because the Readers Point sloop was a derelict at the time of sinking, the vessel may have remained abandoned in the bay for a considerable time before sinking. During this period the hull may have been a receptacle for garbage or other material not directly associated with its working life. Care was taken to disregard material found in the overburden or above the ballast layer in order to limit intrusive material in the artifact assemblage and final interpretation.

Most of the bones retrieved from the Readers Point sloop appear to be related to victualling, with salted beef and salted pork forming the largest percentage of meat

eaten on board the ship. Beef bones make up 42% of the total faunal collection from the wreck. A distinctive multiple-chopping pattern exists on nearly 20% of the beef bones, suggesting soup/broth preparation on a significant number of bones after cooking/eating the rations of salted beef. The pork assemblage comprises 26% of the total bone assemblage. Within the collection of pork bones, the presence of a large number (41.5%) of pork rib and loin cuts indicates that the lowest grade of packaged salted pork was used for victualling. A few examples of head bones from both cattle and pig suggest that some degree of butchering was carried out on board the vessel, possibly for the captain's table. However, Dr. Armitage does not rule out the possibility that these heads were included in casks of low-grade salted beef and pork.⁷²

Other mammal bones associated with victualling include small samples of sheep and rabbit. Only one rabbit and five sheep bones were present on the wreck. Rabbits were typically carried on board vessels in the eighteenth century to provide fresh victuals, despite superstitions that they brought bad luck to ships.⁷³

Several mammal bones were recovered unassociated with victualling purposes. A canine metatarsal indicates the presence of a dog onboard the sloop. Divers also recovered the cranium of a brown, or Norway rat (*Rattus norvegicus*). During the 1991 CCAP excavation archaeologists found a single human lumbar vertebra between the first and second floors aft of the bow. Divers recovered a second phalange, or finger bone during the 1994 excavation slightly aft of the second floor. These remains are a puzzling addition to the Readers Point faunal assemblage, indicating that a human body was stored in the bow compartment during the vessel's working life or

after it had become a derelict.⁷⁴

All of the fish remains located on the wreck belong to species abundant throughout the Caribbean, and thus are probably intrusive. Species identified include blacktip shark, green moray eel, and nassau grouper. Despite divers' attempts to retrieve samples from deep inside the shipwreck strata, some species identified on the site are known to inhabit wreck sites. Green moray eels, for example, are not edible and actively burrow into wrecks for shelter. The eel bones found on site are certainly not associated with the ship. Samples identified as grouper may also be intrusive, as their habitats include shipwrecks. The absence of fish species commonly used for victualling such as cod and herring is surprising.⁷⁵

Chicken bones (*Gallus gallus*) comprise 7.1% of the total faunal assemblage. Vessels of all types commonly carried chickens live in coops for fresh provisions, and this is the likely source of the specimens found on the Readers Point sloop. A single humerus identified as *Gopherus polyphemus*, or gopher tortoise, suggests that land tortoises also contributed to the sloop's victuals.⁷⁶

Discussion

The Readers Point sloop artifact assemblage consists of broken and discarded items found in the ballast pile or between frames underneath ceiling planking. Despite the limited number of artifacts associated with the wreck, significant information is provided concerning the vessel's nationality, date and trade. Ceramics indicate that the vessel dates to the last half of the eighteenth century. The presence of feather-edged

creamware indicates that the vessel was abandoned after 1765. Artifact date ranges average around 1775, possibly suggesting a period of maximum use for the vessel.⁷⁷

Artifacts also suggest an English colonial affiliation relating to the ship's construction, ownership and trade. Artifacts making up the Readers Point assemblage are relatively common on eighteenth-century English colonial sites, suggestive of a typical working ship of the period. Artifact classifications include trade goods/cargo, personal possessions, tools, weapons/ammunition and ship construction.

Organic remains such as plant and bone specimens contribute useful information in the overall analysis of the Readers Point sloop. The faunal assemblage indicates that salted beef and pork formed a large portion of the meat eaten on the ship. The established trade involving foodstuffs from North American colonies raises the possibility that these remains might represent cargo rather than onboard subsistence. The presence of significant examples of cattle bones with numerous chopping marks, however, implies soup/broth preparation. This activity was undoubtedly conducted onboard for feeding the crew. The bones used for soup are identical to those packed for salted beef, and indeed may indicate that after eating the meat off of the bones, the same bones were utilized for making soup or broth. This evidence strongly suggests that the sloop carried salted beef and pork for purposes of feeding the crew, not for transport or trade.

The sloop's crew also consumed mutton in small amounts. Rabbit and chickens provided another source of fresh meat and were likely carried on the ship live.⁷⁸ Meals onboard the sloop were supplemented with nuts and fruits including watermelons,

soursop, peaches, plums and hazelnuts.⁷⁹ The presence of soursop seeds indicates the use of local fruit species, possibly from Jamaica itself. Plums, peaches and hazelnuts typically grow in temperate latitudes. This strongly suggests that they were acquired while the vessel was conducting trading voyages outside of the West Indies. Given the likely destinations for a West Indian merchant sloop, North America provides the most probable source for these species. While on trading voyages, the crew would have undoubtedly supplemented their diet with any cheap, available local supplies. It is also possible that these plant remains represent cargo bought in North American ports for sale in the West Indies.

The identification of a gopher tortoise in the Readers Point assemblage provides significant locational information concerning where the vessel may have sailed to. The habitat of *Gopherus polyphemus* is restricted to the southeastern and Gulf seaboard of North America, including what is today southwestern South Carolina, southern Georgia, Florida, Alabama, Mississippi, Louisiana and southeastern Texas. The Readers Point sloop most likely sailed to ports in these areas. The appearance of the gopher tortoise in the faunal collection also suggests that the crew exploited local sources of meat on their voyages.⁸⁰

The presence of vermin such as *Rattus norvegicus*, or the brown rat, is not surprising considering the general tendency for rats to infest the holds of ships. However, until the early eighteenth century the black rat (*Rattus rattus*) was the only commensal species in Europe. In the early 1700's the brown rat was introduced and quickly became the dominant species due to its larger size and more aggressive

demeanor. The magnitude of shipping conducted in the late eighteenth century provided ample opportunity for the spread of the brown rat to West Indian ports. The presence of the brown rat on the Readers Point sloop suggests that the vessel must date after the early to middle eighteenth century.⁸¹

CHAPTER VII

THE CONSTRUCTION OF THE READERS POINT VESSEL

The sloop's remains extend 56 feet, 6 inches (17.22 meters) in length, and 14 feet, 3-1/2 inches (4.34 meters) maximum beam (see Figures 2 and 6). It lay with the bow pointing E.N.E., sitting evenly on its keel, and in general her timbers exhibit exceptional preservation, with the starboard side surviving to a greater extent than the port side (see Figure 7). This differential preservation is likely caused by the exposure of the ship's port side to the longshore currents, while its starboard side remained protected by the nearby shoreline. The sloop was constructed with a high degree of skill. Frames are well finished and the hull timbers are nicely symmetrical. Individual hull components are described below, following the approximate sequence of construction.

Keel

The keel extends 42 feet, 5 inches (12.9 meters) from the eroded end under the stern knee to its forwardmost extent. Originally the keel would have been longer than this, as neither end is preserved intact. The timber is 9-5/8 inches (24.5 centimeters) sided and 10-7/8 inches (27.5 centimeters) moulded, although there is evidence of erosion of its lower face. The V-shaped rabbet is 1-3/4 inches (4.5 centimeters) wide, and runs along the top of the keel at the locations observed. The sided dimension of the keel tapers slightly at the ends as it approaches the stem and sternpost. The keel

was made from hard maple (*Acer* sp).⁸² Archaeologists broke through the outer hull planking in three locations to examine the keel, noting no evidence of scarfs. It is quite possible that the keel was fashioned from a single maple timber. There is no evidence to suggest that a false keel was ever attached to the bottom of the keel. Sacrificial planking has been tacked onto the port and starboard sides of the timber. These planks are 1/4 inch (0.6 centimeters) thick, and are composed of white oak (*Quercus* sp.).⁸³ A layer of pitch and hair exists between the keel and sacrificial planking.

The forwardmost extent of the keel ends under the fifth floor aft of the bow. Archaeologists excavated a hole under the port side of the hull in an effort to examine the keel/stem scarf. Surprisingly, the keel ends abruptly at this location. The timber appears to have been sawed off, and extensive excavation did not reveal the stem or any other timber continuing forward from the end of the keel. A timber identified as a tropical hardwood lies against the port side of the keel in this location.⁸⁴ This block measures 5 inches (12.5 centimeters) sided and 4-1/4 inches (11 centimeters) moulded. Its forwardmost extent ends with the keel. Archaeologists traced the timber for a distance of 3 feet, 8-1/2 inches (1.13 meters), and it continued further aft. This may represent a repair, between the keel and the stem, possibly strengthening the scarf which would have joined these timbers. The complete absence of a stem is a surprise, but it suggests that timber salvaging was conducted on the hull.

Bow Assembly

Although no evidence of the stem is preserved, three heavily eroded timbers survived in the bow. Archaeologists disassembled the bow to document its construction more completely. Each of the three pieces are made of white oak (*Quercus* sp.).⁸⁵

The apron is the largest preserved bow timber. It measures 4 feet, 11 inches (1.5 meters) from its after end (which starts at floor #2) to its eroded forwardmost extent. The timber is 1 foot, 2-1/2 inches (37 centimeters) sided, and 6 inches (15 centimeters) moulded. Two 1 inch (2.56 centimeters) diameter iron throughbolts penetrate the apron fragment where they would have attached it to the stem. The port and starboard sides are bevelled to facilitate planking as it runs forward. A notch for floor #1 measuring 10-7/8 inches (27.7 centimeters) is cut into the timber.

The base of the stemson is preserved, running 3 feet, 9 1/2 inches (1.15 meters) from its eroded aft end to its forwardmost extent. Originally this timber would have scarfed onto the keelson, but neither the forwardmost portion of the keelson or the aftermost section of the stemson is preserved. Two iron throughbolts with a diameter of 1 inch (2.56 centimeters) penetrate the timber, fixing it to the apron underneath it. The timber notches over a second piece which would have continued the stemson along its curve with the stem. Only 2 feet, 6 inches (76 centimeters) survives of this smaller piece of the stemson. It is sided 1 foot, 1-1/2 inches (34.5 centimeters). An iron throughbolt and a single treenail are the only fasteners present in the timber. The two surviving pieces of the stemson are very round in cross section, with a

maximum moulded dimension of 11 inches (28 centimeters), and no portion of their original upper surface remains due to erosion.

Stern Knee

The stern knee is made from a single white oak (*Quercus* sp.) timber and is fastened to the top face of the keel with two iron throughbolts.⁸⁶ It measures 7 feet, 11 inches (2.43 meters) long, and at its forwardmost extent it is 1 foot, 4-1/4 inches (41.3 centimeters) sided and 1 foot, 2 inches (35.5 centimeters) moulded. Outer hull planking is treenailed to the sides of the timber. A shallow groove is cut into the knee's top face near its forwardmost extent for a floor which did not survive. In addition, two notches are cut into each side of the stern knee for futtocks as the timber continues aft of the last floor position. At the sternmost extent of the timber the stern knee begins its upward curve. Only 2 feet (61 centimeters) of the stern knee's vertical length survives. The timber is heavily eroded here, and no original faces are preserved. Wood grain follows the curve from the horizontal stern timber to its vertical arm, indicating that it is a grown timber rather than a vertical piece scarfed into the deadwood timber. Neither the keel or any sign of a stempost survive aft of the stern knee. However a small area dredged underneath the stern knee allowed divers to feel the eroded end of the keel approximately 1 foot, 6 inches (46 centimeters) forward of stern knee's vertical arm. A single concretion on the vertical portion of the knee indicates the only surviving iron fastener that attached the knee to the stempost.

Framing System

The framing on the vessel is completely of white oak (*Quercus* sp.).⁸⁷ Twenty three floors are preserved, and notches in the stern knee indicate placements for at least two more. The floors are spaced on 22 inch (56 centimeters) centers, with a room of 9-1/2 inches (24 centimeters) and a space of 1 foot, 1/4 inches (31 centimeters) on average. Sided dimensions for floors range from 7-1/4 inches (18.5 centimeters) to 1 foot 1/4 inches (31 centimeters), averaging 9-1/2 inches (24 centimeters). Floors are moulded ranging from 8-1/2 inches (21.5 centimeters) to 1 foot, 1-1/2 inches (34.3 centimeters) and average 10 inches (25.5 centimeters). Floors range in athwartships length from 11 feet, 6 inches (3.5 meters) at midships to only 3 feet (0.9 meters) in the stern. Each floor is fixed to the keel with a single iron drift bolt measuring 1 inch (2.56 centimeters) in diameter. Limber holes are cut into the bottoms of the floors at an average distance of 1 foot, 5 inches (43 centimeters) to the port and starboard of the vessel's center line. The holes are 1-1/4 inches (3.2 centimeters) high and 3 inches (7.5 centimeters) wide.

The hull contains a total of 77 first and second futtocks; 49 preserved on the starboard side, and 28 surviving on the port side. In addition to these, notches cut into the stern knee indicate the presence of a total of four half frames, two per side, which did not survive. First futtocks range from 7-1/4 inches (18.4 centimeters) to 10-3/8 inches (26.4 centimeters) sided, averaging 8-7/8 inches (22.5 centimeters). They are moulded from 6 inches (15.3 centimeters) to 10-1/2 inches (26.6 centimeters), averaging 8-1/2 inches (21.5 centimeters). Second futtocks range from 4-3/4 inches

(12 centimeters) to 8-3/4 inches (22.3 centimeters) sided, averaging 6-1/2 inches (16.5 centimeters). Their moulded dimensions range from 3-5/8 inches (9.3 centimeters) to 8-1/2 inches (21.5 centimeters), averaging 6 inches (15.3 centimeters). The futtocks are treenailed to the outer hull planking.

Frames are joined to each other with horizontal treenails at nine locations (see Figure 6). Forward of midships, floors are joined to the futtocks situated aft of them, and aft of midships floors are joined to the futtocks forward of them. As the framing system extends outboard, the first and second futtocks are also treenailed together at these locations. These standing or mold frames are evenly spaced. Near the bow and stern, where hull curvature is greatest, they are located at every second floor. This spacing increases to every third floor toward midships, where the hull curvature is not as dramatic.

The mold frames served as guides to the shipwright, essentially defining the entire hull shape with nine frame locations. These frames were the first to be erected on the keel, along with the floors for the other framing positions. The first strakes of outer hull planking could then be added. When the sides of the vessel had been built up sufficiently, the shipwright treenailed the first futtocks into place between the mold frames. After this, the planking of the hull continued until second futtocks could be positioned. The shipwright continued this process until the completion of the hull up to the sheer line, or the top of the sloop's sides.

The inboard ends of first futtocks begin approximately 1 foot (30.5 centimeters) from the midline of the hull on average. At the mast step, this distance is reduced to

approximately 6 inches (15 centimeters). The outboard ends of each futtock extend to the limits of preservation, thus none of the futtocks are preserved in their entirety.

Cant frames in the bow extend radially from the centerline of the hull. These frames are fastened to the outer hull planking with treenails, and are not joined to any other frames. Originally twelve cant frames would have supported the sloop's bow. Only nine of these frames survive in the bow construction. Seven of these timbers end close to the apron, but they do not actually butt up against it. The other two cant frames are shaped so that they wedge between the larger bow frames. The inboard ends of these timbers end in points, so that they extend as close to the centerline of the bow as possible.

Keelson

The keelson is made of a single piece of white oak (*Quercus* sp.).⁸⁸ It extends 36 feet, 11 inches (11.25 meters) from its eroded stern end at floor #22 to the eroded forward end just aft of the second floor from the bow. The timber averages 10-7/8 inches (27.7 centimeters) sided and 9-5/8 inches (24.5 centimeters) moulded. At the maststep mortise, these dimensions increase to 1 foot 5/8 inches (32 centimeters) sided and 11- 1/2 inches (29 centimeters) moulded. The timber is very rounded in cross section, which is likely due to erosion. It is attached to the floors #2 through #6 with iron throughbolts. Aft of the maststep it is bolted to every third floor. Shallow notches are cut into the underside of the keelson for floors #9, 12, 13, 14, 15, 17, 18, and 19 from the bow. The forwardmost portion of the timber appears to end in a flat

scarf, but it is heavily eroded.

The maststep mortise, measuring 1 foot, 5-1/2 inches (44.5 centimeters) long by 8 inches (20.5 centimeters) wide is cut into the top face of the keelson. This mortise is positioned 18 feet, 2 1/2 inches (5 meters) from the bow, almost exactly one third the length of the total hull remains. The mortise is 6 inches (15.3 centimeters) deep. Archaeologists discovered two small chocks made of southern yellow pine inside the mortise on the aft side. These chocks are 6 inches (15.3 centimeters) long, 8 inches (20 centimeters) wide and 2 1/2 inches (6.4 centimeters) thick. They were placed inside the maststep mortise, one positioned forward of the other. The purpose of these chocks may have been to lock the mast foot into position, or to keep the mast properly angled. Approximately 2 feet, 9-5/8 inches (85 centimeters) aft of the mast step mortise, two smaller mortises are located in the top face of the keelson. These may be pillar or stanchion locations providing support for the sloop's deck. The location of these mortises may also indicate the forward extent of the vessel's hatch, providing access into the main hold.

External Planking

The outer hull planking of the Readers Point sloop consists of 2 inch (5 centimeters) thick white oak planks (*Quercus* sp.).⁸⁷ The planks are fastened to the floors and futtocks with trenails. Planking widths vary from 8 inches (20 centimeters) to 1 foot, 6 inches (46 centimeters). The limited disassembly conducted on the Readers Point sloop did not extend to the outer hull planking. Therefore,

certain details such as fastening patterns and scarf types were not recovered.

A protective layer of sacrificial planking overlies the outer hull planking. By the eighteenth century, shipwrights typically added a thin layer of planking to the outside of the ship's hull, often with a layer of animal hair and pitch applied between the two planking layers. This sacrificial planking added to the life of a vessel by taking the brunt of the wear and tear the ship was subjected to during its life. As the sacrificial planking became damaged and worn, it could be easily removed and replaced with additional planking without any serious damage to the primary hull planking. For ships in tropical waters, the layer of sacrificial planking was a necessary addition to guard against shipworm (*teredo*) damage. Shipworms infested the sacrificial planking, but could not penetrate the layer of pitch and hair covering the main hull planking. This proved an effective barrier against shipworm infestation of the ship's hull planking.

The sacrificial planking on the Readers Point sloop is composed of 1/4 inch (0.5 centimeter) planking of hard pine tacked onto the outside of the hull, with a layer of pitch mixed with animal hair between the planking layers.⁹⁰

Ceiling Planking

The sloop's ceiling planking is nearly identical to the outer hull planks. White oak (*Quercus* sp.) planks averaging 2 inches (5 centimeters) thick and 1 foot, 2 inches (35.5 centimeters) wide are attached to the tops of frames with trenails and iron nails.⁹¹ Ceiling planks are attached to frames predominantly with trenails, the general

pattern being two treenails per plank at every second frame position. The first three strakes from the centerline are attached exclusively with treenails. Outboard of these strakes, iron nails are used frequently in the same general pattern (two nails per plank at every second frame position) along with more randomly-spaced treenails. The ends of planks are bevelled slightly, so that a small amount of overlap occurs where two planks meet. One to two planks make up a single strake, and plank widths vary from 11 inches (28 centimeters) to 1 foot, 4 inches (41 centimeters). The white oak limber boards measure 2 inches (5 centimeters) thick and 10 inches (25.5 centimeters) wide. In order to allow access to the bilges they were not fastened to the frames. At several locations on the wreck unfastened southern yellow pine planks lie on top of the oak limber boards, presumably to strengthen weak areas in the limber planks.

Repairs

Numerous repairs on the vessel serve as mute testimony to the long working life of the Readers Point sloop. Most of the ceiling planking on the vessel is made of white oak (*Quercus* sp.) However, eight planks of southern yellow pine were used to reinforce the ceiling at various locations throughout the wreck.⁹² Often pine planks were simply nailed or laid on top of the older, weaker ceiling planking. Small patches of oak planking also served as minor repairs to the ceiling planking.

A lead patch covered a weak spot on an outer hull plank in the stern, just forward of the eroded stern knee. The patch was applied to the outside, with a heavy layer of pitch and hair against the hull plank, then held into place with numerous

small copper tacks.

A small timber made from a tropical hardwood is fastened next to the keel at the forwardmost extent of the keel.⁹³ This timber is described above, and may indicate a repair along the keel/stem scarf before the stem was removed by sawing through the keel at this location.

The most striking damage evident on the hull remains occurred at the mast step mortise (see Figure 8). A crack runs along the keelson and through the mortise itself for a distance of 9 feet, 7 inches (3 meters). Two iron spikes are driven horizontally into the starboard side of the keelson 2 feet, 7-1/4 inches (79.5 centimeters) and 4 feet, 8-1/2 inches (1.44 meters) aft of the mast step mortise to close the break. In addition, two sister keelsons are attached to the keelson at the mortise with horizontal iron spikes. The port sister keelson is made of white oak (*Quercus* sp.) and the starboard timber is made of hickory (*Carya* sp.).⁹⁴ These are further strengthened with the addition of two large buttress timbers, butting into rebates cut into the sister keelsons, and fixed to the floors underneath them with vertical iron spikes. Both of the buttresses are made of white oak (*Quercus* sp.).⁹⁵

The starboard sister keelson overlaps the forwardmost horizontal spike closing the break in the keelson. This suggests that the sister keelsons and buttress timbers were added after the break in the keelson, and are therefore repairs rather than the original mast step structure. The mast step construction was disassembled, and archaeologists recorded each timber on shore. Crew members examined the top faces of the underlying frames for any indications of fastener holes other than those

associated with the buttress timbers, and concluded that there is no evidence of any other timbers having been attached at the mast step before these repairs. It appears that prior to the keelson break, the mast step simply consisted of a mortise cut into the top face of the expanded keelson. The split in the keelson required the addition of strengthening timbers for repairs.

Wood Usage on the Readers Point Sloop

Shipwrights primarily used white oak (*Quercus* sp.) throughout the hull of the Readers Point sloop, including the framing, outer hull planking, ceiling planking, keelson, bow timbers, trenails and mast step repairs. White oak is the predominant shipbuilding timber both in the Americas and Europe. The heartwood pores present in this timber are typically plugged with tyloses, which account for the greater tightness of white oak and its resistance against water. This resistance to water and decay is not typical in certain other oak varieties, including red oaks. White oak is generally hard, heavy, stiff and strong, especially in species known for rapid growth. The timber holds fastenings exceptionally well, is shock resistant and easy to bend. Over 100 species of oaks are native to the eastern half of the United States.⁹⁴

The keel of the Readers Point sloop is hard maple (*Acer* sp.). Maple has never been as popular as oak for shipbuilding timber. Although it is heavy, strong, stiff and shock resistant, the timber is prone to decay. This may be a factor in the presence of sacrificial planking boxing in the keel on the Readers Point sloop. With this protective layer in place, the maple keel on the vessel probably served adequately for

the long life of the ship. Besides the advantages listed above, maple trees reach heights of 100 feet (30.5 meters) or more and typically contain very straight wood grain.⁹⁷ These factors make maple a good choice for long, strong timbers such as keels on vessels which may not merit the highest quality ship timber.

Hickory (*Carya* sp.) is not a common type of shipbuilding timber. The wood is very heavy and prone to shrinkage, and its resistance to decay is quite low. Regardless, hickory excels as a tough, hard and strong wood. The common application of hickory in the manufacture of tool handles reflects its shock resistant qualities. Its presence in the Readers Point sloop as the starboard sister keelson repair to the mast step shows an intelligent use of this timber. Hickory is found throughout the eastern United States, reaching heights of 110 feet (33.5 meters) and diameters of 2 feet (0.6 meters).⁹⁸

Several planks identified as southern yellow pine (*Pinus* sp.) were nailed onto ceiling planking as a quick method of strengthening weak portions of the ceiling, and thin planks were also applied to the outside of the hull as sacrificial planking. Various species of pine grow throughout the eastern United States, and is a common shipbuilding timber. Several species are included in this type, including longleaf, shortleaf, loblolly and slash pines. The growth range spans from New Jersey south to the Gulf and west to Texas. The timber is moderately hard and strong but tends to be widely variable in these characteristics. Dense heartwood from southern yellow pine resists decay nearly as well as white oak. Uses for this timber included planking, keels, posts and deck beams.⁹⁹

The artifacts and hull construction of the Readers Point vessel provide evidence pertaining to the building methods, trades and life of this particular ship. Historical and archival data can shed light on the general role sloops played in the colonial economy, and the maritime commerce of Jamaica in particular.

CHAPTER VIII

ARCHIVAL RESEARCH

An exhaustive search of the available historical resources in the National Library of Jamaica in Kingston and the Jamaican Archives in Spanish Town failed to provide a concrete identity, name, or origin for the Readers Point sloop. A few references are made concerning sloops in St. Ann's Bay: for example, in 1791 a sloop named the *Fly* was driven on shore during a gale. Later records suggest that this vessel was dragged off the shore, refloated and repaired.¹⁰⁰ Unfortunately, there is not enough information available to positively identify the ship in either the archaeological or historical record. This is not altogether unexpected as there are typically fewer contemporary documents pertaining to merchant craft. Also, because the vessel was a derelict, only a small collection of diagnostic artifacts remained *in situ*, which limited conclusions. However, data gleaned from archival research did prove useful in adding to our general knowledge of eighteenth-century shipping in Jamaica.

One of the most valuable archival resources was *The Royal Gazette*, a weekly Jamaican publication which not only carried general news for the island, but also particular information concerning shipping in Jamaica. The Gazette's "Marine Intelligence" section lists the name and type of each vessel entering or leaving Kingston Harbor, the date, master and the vessel's origin or destination. Using data from the *Gazette*, crew members compiled a database containing information on sloops sailing to and from Jamaica in the later eighteenth century. This is not meant to be a

definitive study of the total volume of maritime commerce conducted by sloops in Jamaica at this time. Whole weeks or entire years of the *Gazette* were unavailable within the time span targeted for the Readers Point sloop. Also, illicit trade was so widespread during the late eighteenth century that any port records from this period must be viewed with caution. Finally, the degree of shipping information provided in the *Gazette* varied over time. Certain issues held marine intelligence as a priority, while others hardly mentioned shipping at all. Regardless, the *Gazette* provides a valuable contemporary resource for the origins and destinations of small merchant craft trading in Jamaica during this period.

All available editions of the *Gazette* pertaining to the later eighteenth century were reviewed on microfilm in the National Library of Jamaica in Kingston. The 1792 *Gazette* proved exceptional in terms of comprehensive ship listings and the amount of shipping information included throughout the year. Although artifact analysis suggests a slightly earlier date for the sinking of the Readers Point vessel, the 1792 *Gazette* provides a nearly contemporary resource.

The *Gazette* lists 190 vessels classified as sloops entering and leaving Kingston Harbor in 1792 (see Figure 9). Most of the sloops (75%) sailing to Kingston departed from other Jamaican ports. The next most popular point of origin was North America (14%), followed by other ports in the Caribbean. Only five sloops were listed as arriving from Europe in 1792. Upon their departure from Kingston, the vast majority of sloops (88%) headed to other ports in Jamaica, while only 4% sailed to North America. This is less than one third of the number of vessels sailing to Jamaica from

North America. The same percentage of vessels sailing to Kingston from other Caribbean ports are also listed as departing Kingston for destinations within the Caribbean. There were no vessels in 1792 leaving Kingston for Europe.¹⁰¹

The data from the *Royal Gazette* suggests that most of the sloops sailing to Jamaica from North American ports initially called into Kingston, then headed along the coast to other points in Jamaica, taking advantage of profitable markets in the small bays and ports around the island. Though small, this study indicates that the majority of maritime commerce conducted in sloops between North America and Jamaica involved circuitous trading voyages, rather than a more direct two-way trade route. The data also implies that North American sloops plying the Jamaican trade were not only capable deep-water sailers, but also conducted extensive coastal voyages around Jamaica as well.

Various contemporary sources corroborate this evidence. Captain Frayer Hall gave an account of a typical West Indian trading voyage in 1731. His description of trading among the Caribbean islands in a sloop shows some of the complexities involved in the West Indian trade;

I have lived in and traded for twenty Years past to the West Indies, and the northern Colonies. I was first there, at our Islands, in 1709, afterwards at Jamaica in 1712, and in 1714 I was Master of a Sloop, and carried a Load of Provisions and Lumber from Philadelphia to Barbadoes. There were more Vessels with Provisions and Lumber, which made the Prices of these Commodities very low at Barbadoes, so I went from thence down to Martinico, where I sold some Flour, and understanding there was a good Market, or great Demand, for Mules there, I went to Curasso, and took in forty-eight Mules at thirty Pieces of Eight a-piece, I bought them of the Governor; these were as many as I could carry, and I carried them to Martinico, I was nineteen Days in my Passage, and lost but two, When I came to Martinico, I was forced to get the People to petition for Liberty to sell the Mules, and I gave the Governor a

hundred Livres for every Mule; I sold the whole Cargo at six hundred livres a Head, and sold the Mules in Health for seven hundred, any that could stand on their Legs would sell for four hundred; I got near four times as much as my first Expencc. I went from Martinico to Barbadoes, and took in Flour, and went down to Curasso again; and in that time there were other Vessels arrived there, two from Nevis, and two French Sloops, but I could not make anything like the same profit; I went a third time, but could make but little of it then by my Mules. Great Quantities of Rum were made near Fort-Royal, and Fort St. Pierre (in Martinique), at that Time, I bought several Hogsgheads of Rum and Sugar in Martinico the last voyage, and carried to Curacoa.¹⁰²

An interesting statistic is included in the *Gazette* from March, 1792. In this issue, the total number of ships entering Kingston between March 6, 1791 and March 6, 1792 is tallied. Though 62 ships, 33 brigs, and 28 schooners are listed, only 17 sloops are included for the entire year. This seems at odds with our count of 190 vessels for the entire year of 1792. A note explains that this number of sloops is "...exclusive of a great number of droggers."¹⁰³ There is a definite distinction here between a sloop and a drogger. *Drogging* or *droghing* is a contemporary term for the coastal trade in the West Indies. When these vessels are included in the total yearly figures for sloops entering Jamaica, it explains the predominance of coastal voyages. A closer look at contemporary ship construction will help to define the difference between droggers and sloops.

CHAPTER IX

COLONIAL SHIPBUILDING FOR THE WEST INDIAN TRADE

Colonial America was well suited for the shipbuilding industry primarily for one reason: its huge supply of cheap, accessible timber. Throughout the era of wooden shipbuilding, the main factor affecting the cost of a vessel remained the price of timber. Europe's virgin forests of suitable shipbuilding species had been depleted for two centuries by the time American wooden ship construction reached its apex in the eighteenth and nineteenth centuries.¹⁰²

Wars in Europe during the seventeenth century also encouraged the American shipbuilding industry. Faced with a shortage of vessels from England, colonists became more self-sufficient in supplying their own ships for trade. This trend continued into the eighteenth century, as colonial shipwrights became more familiar with American timber and adapted hull and rig designs for local conditions.¹⁰³

Shipbuilding timber had to meet certain requirements. It had to be lightweight, stiff, resistant to dry rot, easy to fashion, and available in suitable shapes and sizes. Timber had to be workable; tough wood was needed which could stand up to blows and be able to take and hold fasteners. Colonial shipwrights experimented with new American species of timber, relying on trial and error to determine the best local material for shipbuilding. They inevitably made mistakes; for example, both red and white oak were widely available in the northern and middle colonies during the eighteenth century. White oak is resistant to rot and decay, but red oak is not. Some

of the early vessels produced in the American colonies were made of red oak, and tended to have very short working lives due to timber decay and rotting. This initially gave the American shipbuilders, as well as American oak, a bad reputation, which was only overcome when shipyards switched to longer lasting white oak for their ship construction.¹⁰⁶

The native virgin forests found in the New World provided nearly unlimited oak timbers of the largest size for ship construction. At the same time, European forests had been seriously depleted as early as the sixteenth century, and by the eighteenth century all of western Europe was short of large timber.¹⁰⁷ In North America, oak forests often grew close to rivers or seas, where shipyards tended to be established. Branches and forks of oak trees were easily shaped into frames and knees for ships. Vessels built from well seasoned oak could be expected to last longer than fifteen years.¹⁰⁸

Other types of timber found their way into colonial shipyards as shipwrights gained experience with different local species of wood. Locust, cedar, maple, beech and birch worked well for ship construction, though they were more common in merchantmen and working ships than in naval vessels.¹⁰⁹

The colonial shipbuilding industry was characterized by small, family-owned shipyards, where the master shipwright also owned the business. Little initial capital was required to begin building small vessels. A typical shipyard consisted of a field by a stream or creek, or a lot next to a dock. Room for work space and timber storage were the prime considerations for a successful yard, as well as access to

nearby water with sufficient depth for launching newly-built vessels. The numerous small bays and inlets along the Atlantic seaboard provided an abundance of sites to establish a yard, with sources of suitable timber nearby in most cases. Ships were built and launched in a variety of environments, including small creeks and streams, rivers, busy ports and the sandy beaches of protected bays and coves. This situation led to a large number of competitive, small-scale shipyards building vessels on contract and speculation.¹¹⁰

Master shipwrights typically served for seven years as an apprentice, a practice common in England and carried on to a lesser degree in the colonies. This apprenticeship system was rarely regulated, and many exceptions to the rule existed. Most shipwrights in small yards learned while working on the job, often from fathers or older brothers in family-run businesses. Before the beginning of the nineteenth century, craftsmen worked in the shipyard from sunrise to sunset throughout the year. They spent most of this time outdoors sawing, hewing, carrying timbers or conducting various other tasks.¹¹¹

The output of colonial shipyards varied considerably, depending on the types of vessels built and the markets they were targeted for. In 1820 a successful shipyard typically produced two to five deep sea vessels a year, ranging from 200 to 300 tons. Many yards built smaller vessels in greater quantities. The number of workers varied from five to ten men for a schooner or brig, up to as many as twenty or thirty for a full rigged ship.¹¹²

The construction of ships followed basic guidelines. Carpenters working under

the master shipwright initially fashioned the keel, stem and sternpost. They then added frames, which were usually shaped to molds taken from patterns designed in the mold loft of the yard. Tackles were used to position these frames on the keel, and depending on the type of ship, mold or standing frames were placed first. The Readers Point sloop contained nine mold frames, consisting of floors attached to first futtocks with horizontally-driven trenails. As the first futtock extended outboard of the floor end, a second futtock continued the frame in line with the floor. The second futtock was joined to the first futtock, also with horizontal trenails. The shipwright pre-assembled these mold frames, then erected them on the keel to act as guides for the hull's entire shape. Once the vessel was framed to the satisfaction of the master shipwright, workers added the keelson. On the Readers Point sloop, the keelson is attached to underlying floors with iron driftbolts, which probably extend into the keel as well. Next the crew began attaching outer hull planking to the frames. As the yard crew planked the sides of the ship, the spaces between mold frames were filled with futtocks joined only to the outer hull planking. After planking the vessel, the shipwright added the ceiling planking and upper works.

Most American-built ships used in the West Indies trade would have been constructed in this manner. Yards produced ships on speculation, adhering to well-tried designs which had proven their seaworthiness and utility, and were thus useful in a variety of markets.¹¹³ This philosophy undoubtedly helped foster the inherent conservatism associated with colonial shipbuilding. The master shipwright might advertise the sale of a vessel before it was fully complete. On other occasions the

finished vessel would be launched and sent with a cargo to a promising market where the ship and its cargo could be sold together. Many masters of sloops had instructions from the ship owners to sell the vessel at any port offering a good price. These vessels were in great demand in the West Indies. Their affordability as well as their utility served to further expand the use of North American-built sloops throughout British colonies in the eighteenth century.¹¹⁴

As the eighteenth century progressed, shipyards continued to specialize as they targeted particular markets. In his book *Shipbuilding in Colonial America*, Goldenberg describes two types of colonial sloops commonly built by North American shipyards. Smaller designs of 20 to 40 tons were produced predominantly for coastal trade. Larger vessels of 50 tons or greater were better suited for trade between North America and the West Indies.¹¹⁵ By the end of the century, certain regions became known for producing vessels with specific characteristics. For example, owners requested quicker vessels for lucrative but dangerous privateering, slaving or blockade running activities. Bermuda-built sloops were reputedly fast vessels, with their sharper hulls and greater deadrise. Chesapeake-built sloops were constructed along similar lines, and may have had an influence in the development of Baltimore's famous clipper ships.¹¹⁶

The sharper lines characteristic of sloops designed for speed were occasionally altered to allow more cargo capacity. New England shipyards tended to produce fuller vessels, with less deadrise, less draft and more tumblehome than the Chesapeake designs.¹¹⁷ The lines of a contemporary sloop similar in size to the Readers Point

vessel reflect this full-bodied design (see Figure 10). The hull drawing of this vessel is included in an early nineteenth-century source on shipbuilding, listing the sloop as having a length of 58 feet (17.69 meters), and a beam of 20 feet, 9 inches (6.33 meters).¹¹⁸ Note the relatively full midships section, leading to the moderately fine run in the stern. As the lines progress toward the stern, tumblehome is evident in the last four sections. This sloop follows a tendency seen among New England ship builders, where speed was sacrificed to a certain degree with a corresponding increase in tonnage, and sloops tended to have a shallow draft.

The Readers Point vessel originally extended approximately 60 feet (18.24 meters) in length, and 18 feet (5.49 meters) in breadth with a 100 ton displacement. The shape of the Readers Point sloop is quite similar to the vessel mentioned above (see Figure 11). The midships sections of the two ships show the same full-bodied shape, with an even more gradual chine on the Readers Point hull. Distortion evident in the stern prohibits a definite representation of the sloop's run (the dotted lines in sections 1 through 3 represent the actual *in situ* sections, and the solid lines are tentative corrections), and only the sections amidships extend to the beginning of the turn of the bilge. Regardless, the general shape of the vessel clearly exhibits the characteristic New England design.

The distinctions between vessel shapes from different ship-building regions in the eighteenth-century English colonies are obscure at best. In fact, for all types of vessels, the eighteenth century was a transitional period in terms of ship classifications. In the previous century, categories of ships were based primarily on

hull shape, whereas during the nineteenth century a vessel's rig determined its classification. The confusion can be found in contemporary sources, such as this description of a sloop from Blanckley's *Dictionary of the Marine* from 1750;

Sloops are sailed and masted as Mens Fancies lead them, sometimes with one Mast, with two, and with three, with Bermudoes, Shoulder of Mutton, Square, Lugg and Smack Sails; they are in Figure either Square or round Stern'd.¹¹⁹

The historical record provides fascinating insights which help to support and supplement archaeological data. Unfortunately, some subjects were not considered worthy of lengthy descriptions by contemporary sources. Small colonial-built craft fall into this category. Unlike large naval or trans-Atlantic merchant craft, sloops such as the Readers Point vessel were considered commonplace in the ports and bays of eighteenth-century colonies, and thus were often overlooked at the time. Comparisons between the Readers Point wreck and other contemporary sloops contributes additional information essential to understanding eighteenth-century shipbuilding techniques, and the specialization of sloop designs for particular uses.

CHAPTER X

ARCHAEOLOGICAL RESEARCH ON COMPARABLE VESSELS

Numerous eighteenth-century shipwreck excavations have taken place in the last few years. Examples of these archaeological investigations include flat-bottomed river craft, trans-Atlantic merchantmen and Revolutionary War privateers. Three studies in particular serve as interesting comparisons with the Readers Point sloop. They help to illustrate the degrees of specialization colonial shipwrights applied to their sloop designs, and the wide range of roles sloops played in the colonial economy.

The Clydesdale Plantation Vessel

The Clydesdale Plantation vessel is one of nineteen derelicts discovered during a survey of the Savannah Back River in 1991. Frederick Hocker, INA archaeologist and Nautical Archaeology Program faculty member at Texas A&M University, assembled a team of archaeologists and volunteers to excavate the vessel in the summer of 1992. The team removed between eighty and ninety tons of overburden along the swampy shore to expose the hull remains.¹²⁰

During the excavation, archaeologists discovered that the vessel had been used to check the advance of erosion along the bank. The port side showed signs of dismantling, and the entire bow had been cut off in order to fit the vessel into a hole on the river's edge. Further excavation uncovered evidence of a fire, suggesting that the bow section had been burned.¹²¹

In spite of this considerable damage, the preservation of the remaining hull structure was excellent (see Figure 12). The starboard side of the vessel fared better than its port side, and its frames amidships were complete. The stern also survived in good shape, despite long periods of exposure. Three weeks of intensive hull recording ensued after uncovering the hull remains. After mapping the ceiling planking, archaeologists removed the ceiling planks to expose the vessel's framing pattern.¹²²

The vessel is made of southern American timber including yellow pine, live oak and cypress. Considerable deadrise in the sections and a gradual chine suggests that the vessel was designed as a handy sailer with shallow draft for cruising in coastal waters (see Figure 13). The run is fine along the stern, and the ship probably carried a small transom. The vessel length is estimated at 45 feet (14 meters), and the ship would have carried a single mast.¹²³

The keel is a single timber of yellow pine, and is relatively heavy for such a small sloop. Outer hull planking is also pine, attached to frames with nails and randomly-spaced treenails. Ceiling planks are also predominantly nailed to frames. The frames are live oak, and floors are spaced evenly along the keel. Between each floor, a half frame runs from the garboard strake to the sloop's deck. Futtocks butt against the outboard ends of floors, continuing up to the deck as well. Short, separate top timbers set between the half-frames and futtocks support the bulwarks. The frames are attached to outer hull planking only; the vessel contains no made or guide frames common on other eighteenth-century vessels.¹²⁴

The Clydesdale Plantation vessel appears to be a smaller, coastal version of the

fast American sloops and schooners built in the middle and later eighteenth century. Built in the south for the coastal trade along the southeastern American colonies, the vessel would also have served adequately for riverine use.

The Rose Hill Wreck

Sport divers discovered the remains of an eighteenth-century shipwreck on the Northeast Cape Fear River six miles north of Wilmington, North Carolina in 1987. They reported the find to archaeologists at the Underwater Archaeology Unit, Division of Archives and History at the North Carolina Department of Cultural Resources. In 1988 UAU archaeologists Richard W. Lawrence, Mark Wilde-Ramsing and Geoffrey Scofield directed an underwater investigation of the site.¹²⁵

The shipwreck is located near the Rose Hill Plantation, a colonial site active during the eighteenth century, adjacent to a landing contemporary with the plantation. Articulated hull remains extend 61 feet, 9 inches in length with a beam of 16 feet (see Figure 14). The ship lay on its port side, heeled over at an angle of 40 degrees. The wreck lies exposed along the east side of the river under 18 feet (5.5 meters) of water.¹²⁶

The hard maple keel measures 54 feet, 6 inches (16.6 meters) long from the sternpost to the stem scarf. The timber averages 8 inches (20 centimeters) sided and 15 inches (38 centimeters) moulded, including the false keel attached to the bottom of the main keel. The garboard planks are attached to the rising wood, which is fixed to the top of the keel. The rising wood extends the length of the vessel and measures 2

inches (5 centimeters) moulded and 10 inches (25 centimeters) sided. The keel attaches to the stem with a flat nibbed scarf measuring 2 feet, 9 inches (84 centimeters) long. The scarf is fastened with three iron fasteners measuring 3/4 inch (2 centimeters) in diameter. An 11 foot (3.35 meter) long apron sits on the keel and gripe. The apron is 12 inches (30.5 centimeters) sided by 8 inches (20 centimeters) moulded. Three notches on top of the apron indicate places for floors which did not survive.¹²⁷

The eroded red oak sternpost survives to a length of 4 feet, 9 inches (1.45 meters) above the keel. The lower portion of the rudder is attached to the sternpost, its pintle attached to the gudgeon on the post. Stern deadwood is sided 10 inches (25.5 centimeters), and contains six notches for stern futtocks which are missing.¹²⁸

Twenty three floors are preserved, averaging 10-1/2 inches (27 centimeters) moulded and 11 inches (28 centimeters) sided. They are spaced on 22 inch (56 centimeters) centers. The undersides of floors contain notches to fit over the rising wood, making their bottom faces flush with the outer hull planking. These notches extend past the rising wood 2-1/2 inches (6.5 centimeters) on each side, creating limber holes for water flow. The floors are relatively flat, and preservation does not extend to the turn of the bilges. A random wood sampling indicates the use of beech and white oak for floor timbers.¹²⁹ Futtocks have the same molded and sided dimensions as floors, and first futtocks completely fill the space between floors. None of the floors and futtocks were fastened together.

The white oak keelson measures 28 feet, 9 inches (8.75 meters) in length. The timber is incomplete, and only extends from its intact stern end to a fracture at floor

#11. Iron pins 3/4 inch (2 centimeters) in diameter attach the keelson through floors and into the keel at seven random locations.¹³⁰

Nine lengths of 2 inch (5 centimeters) thick red oak ceiling planking are preserved on the wreck. Ceiling widths vary from 3-1/2 to 15 inches (9 to 38 centimeters) wide. Two small mortises cut into the ceiling planking on the port side may have secured the foot of a ladder, giving access to the vessel's hold. The outer hull planking is made of white oak, and a layer of hard pine sacrificial sheathing is tacked on to the outside of the hull planks. A layer of pitch and horse or mule hair exists between the hull and sacrificial planking.¹³¹ White oak trenails fix the outer planking to the frames, along with a small number of iron nails. Two trenails were used to attach outer hull planking at each frame location; the trenails were pegged with white oak as well.¹³²

Archaeologists located the lower end of a bilge pump tube between floors 18 and 19 on the starboard side adjacent to the keelson. Less than 2 feet (61 centimeters) remained of the tube, which was square in cross section. The tube measures nearly 6 inches (15 centimeters) square at its bottom, and 6 by 7-1/2 inches (15 by 19 centimeters) at the top. The upper extent of the pump tube exhibits signs of extensive charring. The center of the tube contains a 2 inch (5 centimeters) bore for the pump shaft and valve assembly.¹³³

Divers located the rudder of the Rose Hill wreck 32 feet (9.75 meters) off the port bow. It had evidently been dislodged during salvage attempts or channel-clearing activities. Three timbers made up the rudder construction, the forwardmost timber

extending above the blade to form the rudder stock. The overall length is 12 feet, 4 inches (3.75 meters), and the maximum width is 2 feet, 7 inches (79 centimeters). Four clenched iron rods secure the rudder timbers together. Two iron pintles are still attached to the rudder.¹³⁴

A large assemblage of artifacts was noted throughout the site, dating from prehistoric times to the twentieth century. Very little sediment deposition occurred on the site, causing intrusive materials to mix with artifacts associated with the ship. In addition, sport divers actively visited the site to search for antique bottles. These activities may account for the disturbed nature of the artifact assemblage. Thus, relatively few artifacts can be definitely associated with the vessel. During controlled excavation archaeologists encountered only iron fasteners and ballast. With the exception of an iron cook stove which appears to be associated with the remains, artifactual evidence associated with the site is minimal.¹³⁵

Researchers estimate that the Rose Hill vessel had a length of 67 feet (20.42 meters) and a maximum beam of 22 feet (6.7 meters), with a displacement of 103 tons. The vessel likely carried a single mast, and wood analysis suggests construction in the northeastern American colonies. Depth of hold is estimated at 8 feet, 6 inches (2.6 meters). No evidence of a mast step survives on the vessel remains.

Archaeologists tentatively date the vessel to the middle eighteenth century based primarily on its construction. The wreck's shape suggests a flat floored, relatively deep-draft vessel used for coastal or overseas trades.

The Sloop *Boscawen*

The British Army sloop *Boscawen* was built in three weeks in the fall of 1759 by Royal Navy Captain Joshua Loring. Unlike derelict vessels such as the Readers Point sloop, the Clydesdale Plantation vessel and the Rose Hill wreck, historic documents tell us much about the construction and career of the *Boscawen*. In addition, a painting by Thomas Davies depicts the vessel with a gracefully curving sheer, a transom and a fore-and-aft rig on its single mast.¹³⁶

Archaeologists discovered the wreck in 1983 under 6 feet (1.83 meters) of water, approximately 60 feet (18.3 meters) from the shoreline of Ticonderoga, New York. Mud covered nearly the whole length of the remains, with only the stem, sternpost and frame tops exposed. The wreck measured 70 feet (21.3 meters) in length by 22 feet (6.7 meters) in beam (see Figures 15 and 16).¹³⁷

In 1984 and 1985 archaeologists excavated the interior of the hull remains, positively identifying the wreck as the *Boscawen* and gaining extensive construction information. Particular attention was paid to diagnostic areas of the ship, including the stem, sternpost and mast step construction. In addition, archaeologists excavated tunnels under the intact hull remains to record the posts in detail.¹³⁸

The *Boscawen's* keel measures 65 feet (19.8 meters) long, and was likely cut from a single white oak timber. The timber is moulded 14 inches (35.5 centimeters), sided 10-1/2 inches (26.5 centimeters) at the stem and narrows to 9-1/2 inches (24 centimeters) at the stern. Rabbets cut into the keel for the garboard strake begin 2 inches (5 centimeters) from the top (inboard) face of the keel.¹³⁹

The stem is fashioned from three white oak timbers; the main stem, the gripe or outer stem and the apron. The base of the stem is flat-scarfed to the keel, and the timber extends 11 feet (3.35 meters) to its outboard extent. The post is 5-1/2 inches (14 centimeters) sided on its forward edge and moulded approximately 11 inches (28 centimeters). A groove formed between the stem and apron creates the rabbet for the outer hull planking. The gripe is attached to the forward edge of the stem with iron through bolts. This timber survives for a length of 9 feet (2.75 meters). The timber measures 6 inches (15 centimeters) moulded where the gripe butts against the forward extent of the keel. This increases to 11 inches (28 centimeters) moulded as the timber follows the curve of the stem upwards. The forward face of the gripe is sided 3-3/4 inches (9.5 centimeters). Less than 2 feet (61 centimeters) survives of the badly eroded apron. It is moulded and sided 16 inches (40.5 centimeters), and is attached to the stem with iron through bolts.¹⁴⁰

The single timber forming the sternpost is fashioned from white oak, and attaches to the top (inboard) face of the keel with two iron dovetail plates. The moulded dimension of the post is 19 inches (48.25 centimeters) at its base, tapering to 13 inches (33 centimeters) as the timber continues upwards. Throughout its length, the sternpost is sided 6 inches (15 centimeters). The outer hull planking fits into the sternpost notches cut 2 inches (5 centimeters) square along the forward corners of the post. An iron gudgeon for the rudder pintle is attached to the post 13 inches (33 centimeters) above the top of the keel. Four timbers attached to the top of the keel forward of the post make up the stern deadwood. One of these deadwood timbers is a

grown knee timber joined to the top of the second deadwood piece. This timber reinforced the joint between the keel and the sternpost. The vertical arm measures 6 inches (15 centimeters) sided and 11 inches (28 centimeters) moulded. The last deadwood timber sits on top of the knee, extending forward from the vertical arm of the stern knee and butting up against the aftermost floor timber. This timber measures 8 inches (20 centimeters) sided at its forwardmost extent, narrowing with the shape of the hull to only 5-1/2 inches (14 centimeters) at the stern knee. All of the deadwood is fastened to the keel and sternpost with iron through bolts.¹⁴¹

The framing pattern of the *Boscawen* is suggestive of the sloop's hasty construction. There are total of 26 floor timbers in the hull. Floor spacing varies widely along the length of the vessel's remains, with center-to-center spacing ranging from 28 to 34 inches (71 to 86.5 centimeters). Floors extend for a length of 6 feet (1.82 meters) from the centerline of the keel to their heads, and are moulded 1 foot (30.5 centimeters) at the keel and 7 inches (18 centimeters) at their heads. Sided dimensions vary from 8-1/2 inches (21.5 centimeters) to 10 inches (25.6 centimeters) sided. Like the Readers Point sloop, the bottom (outboard) faces of floors contain limber holes on each side of the keelson. The sloop contains a total of six molded frames over the length of the hull.¹⁴²

Shipwrights assembling the sloop built a fair, sturdy hull in the shortest possible time, and they did not bother to produce nice, well-finished frames. Archaeologists uncovered crudely fashioned floors and futtocks, many of which still exhibited tree bark. Futtocks measure between 7 inches (18 centimeters) and 10

inches (25.5 centimeters) moulded, and between 4 inches (10 centimeters) and 8 inches (20 centimeters) sided. Both floors and futtocks appear to be white oak.¹⁴³

Divers uncovered two cant frames in the bow. These timbers butt against the keelson, and angle forward to strengthen the bow planking as it approaches the stem. Four or five half frames support the vessel's stern; their heels butt against the stern deadwood, and the timbers angle aft slightly to accommodate the tapering of the hull.¹⁴⁴

The sloop's white oak keelson measures 53 feet (16.15 meters) in length. It is sided 10 inches (25.6 centimeters) along its length, but expands from 6 inches (15 centimeters) moulded in the bow to 10 inches (25.6 centimeters) in the stern as the timber extends aft. The keelson is made up of two separate pieces. The forwardmost piece is 15 feet, 6 inches (4.72 meters) long, and is flat scarfed to the after timber. The forward end of the keelson overlaps the apron, but the keelson's aft end stops 3 feet (.9 meters) short of the deadwood. The timber is bolted to every other floor.¹⁴⁵

Both the ceiling and outer hull planking are composed of 2 inch (5 centimeters) thick white oak planks. Outer hull planks range from 11 inches (28 centimeters) to 15-1/2 inches (39 centimeters) wide and are attached to frames with iron spikes and treenails. Ceiling planks are slightly wider, measuring between 12 inches (30.5 centimeters) and 20 inches (51 centimeters), and are attached to frames entirely with iron spikes in a random pattern.¹⁴⁶

A single mast step is situated one-third of the vessel's length abaft the stem. This step is composed of a solid block of white oak measuring 4 feet, 3 inches (1.3

meters) in length, 18 inches (46 centimeters) wide and 16 inches (40.5 centimeters) high. The timber is notched over the keelson and set perpendicular to the hull's centerline. Chocks of wood fixed to the top of the keelson and ceiling planking effectively lock the step in place. Shipwrights cut a 1 foot, 4 inches (40.5 centimeters) long by 8-1/2 inches (21.5 centimeters) wide mortise into the top of the timber. The mortise extends through the mast step timber, allowing the foot of the mast to rest on the keelson.¹⁴⁷

Scattered planks and roughly-made deck beams indicate the presence of an orlop deck on the sloop. Divers uncovered three deck beams during the excavation. These consisted of white pine logs which were spiked to the ceiling to support the white oak deck planks. The beams measured 5 inches (12.5 centimeters) to 7 inches (18 centimeters) in diameter, and the decking averaged 3/4 inch (2 centimeters) thick. The deck beams rested on the keelson towards midships, indicating very little space existed below the deck.¹⁴⁸

The excavation of the *Boscawen* verified the sloop's identity. In addition, archaeologists documented evidence of the rapid construction mentioned in historical records. Irregular frame spacing and timber dimensions coupled with the relatively unfinished appearance of frames and deck beams are examples of the shortcuts taken by the sloop's builders. Their task was to build, in an incredibly short time, a vessel capable of waging war on their enemy. Despite the rough methods used, the *Boscawen* hull design exhibits strength and durability.¹⁴⁹

Discussion

Comparisons between the Readers Point wreck and other eighteenth-century sloops suggests a large degree of utility and adaptability for this type of vessel, perhaps explaining why the sloop rig was so popular throughout England's colonies. Two of the vessels described above are associated with plantations, each exhibiting certain features which tailored the vessels for particular uses. The third vessel included for comparison is a sloop built very quickly for naval engagements on Lake Champlain.

The Clydesdale Plantation vessel likely represents a small, locally-built sloop plying the coastal trade of the southeastern Atlantic seaboard. Its presence in the Savannah Back River may indicate some degree of riverine use as well. Woods used in the construction of the sloop indicate that it was southern-built. The vessel's framing system is unique, and contains no mold or standing frames. The absence of the ship's bow, which was evidently cut off to fit the vessel into a hole in the riverbank, makes the missing stem of the Readers Point sloop appear less unusual. Although the Clydesdale Plantation vessel is substantially smaller than the Readers Point sloop, it proves that the general design of American sloops could be successfully adapted to various sizes, applications and construction methods.

The Rose Hill wreck is similar to the Readers Point vessel in several ways. Both sloops are associated with plantation contexts, and they are comparable in size and certain details of their manufacture. Both vessels have maple keels and extensive use of white oak in their construction. Floor spacing is identical, however frame

scantlings are slightly smaller on the Readers Point sloop. The framing on the Rose Hill wreck is heavier, leaving no space between the floors and first futtocks. This relatively heavy construction may be indicative of a specialized use for the Rose Hill vessel, such as a heavy cargo carrier. The use of woods prone to rot and decay, such as red oak for the Rose Hill vessel's sternpost and ceiling planking, and beech for some of its frames, may have shortened the life of the vessel to some degree. The Rose Hill wreck shows less deadrise in its cross sections. When combined with its substantial draft, the vessel likely was a cumbersome sailer. Comparisons between the Readers Point sloop and the Rose Hill wreck are particularly valid due to the likelihood that the two ships were built in the New England colonies. Differences in their construction may reflect adaptive techniques in order to specialize the vessels for particular uses in the colonial maritime economy.

The *Boscawen's* shipwrights built this sloop for a dramatically different purpose than the merchant sloops described above. It is the only military vessel included for comparisons, and the only one that can be traced (thus far) in the historical record. With a length of 70 feet (21.3 meters) and a displacement of 115 tons, the sloop is slightly larger than the Readers Point vessel. Evidence of hasty construction is present in the unfinished frames, the frame spacing, the use of unseasoned timber, and a tendency to use iron fasteners rather than labor-intensive treenails. Cant frames in the sloop's bow are similar, though heavier, than those found on the Readers Point vessel.

The mast placement is identical on both wrecks; almost exactly one third of the vessel's length from the bow. Particular details of the mast step construction differ,

however. The *Boscawen* exhibits a relatively massive saddle mast step composed of a white oak timber set perpendicularly on the keelson. A mortise cut into the top of this timber housed the mast foot, which sat upon the top face of the keelson. In addition, chocks attached to the keelson and ceiling further strengthened the mast step construction by locking the saddle timber in place. The Readers Point sloop shows no evidence of mast step timbers before the split in its mast step mortise required the addition of extensive repairs. Shipwrights cut out the mortise for its mast foot directly into the top face of the keelson, compromising the integrity of this important timber. Perhaps this mistake led to the 9 feet, 7 inch (3 meter) split in the keelson. The *Boscawen's* stern deadwood is also quite substantial, compared to the single grown timber present on the Readers Point sloop. *Boscawen* provides an excellent example of the utility and adaptive nature of colonial sloops. Shipwrights built the vessel quickly, taking shortcuts where needed without compromising strength in a vessel intended for a relatively brief lifespan as a fighting ship.

It is apparent from these examples that eighteenth-century shipbuilders adapted sloop designs for a wide variety of environments and purposes. Although three of the vessels included in this study are associated with colonial plantation contexts, they each exhibit significant differences in their construction. As archaeological research continues to expose examples of colonial sloop construction, eventually we may be able to associate particular characteristics with certain regions or purposes.

CHAPTER XI

ANALYSIS

Evidence suggests that the Readers Point vessel was a colonial sloop plying the West Indian/North American trade. Unfortunately a search of historic documents in the Jamaican Archives and the National Library of Jamaica did not produce a concrete identification for the vessel. This is not surprising, considering the fact that St. Ann's Bay contains a graveyard of abandoned vessels, and the general lack of contemporary historic documents relating to merchant craft. Significant conclusions can be made by examining all of the evidence gathered during the excavation of the sloop, however.

The Readers Point vessel exhibits a highly finished appearance in its construction. Frames are smooth and square, and the shipwrights obviously took care in positioning the nine mold frames on the sloop. Even the mast step repair shows careful workmanship and planning. The sloop's construction implies that the vessel was built by experienced shipwrights, who perhaps specialized in West Indian traders.

Wood analysis suggests that the vessel's origin lies in the northeastern American colonies, probably New England. Extensive use of white oak for frames, outer hull and ceiling planking, as well as a maple keel are indicative of construction in this area. Repairs made from species including southern yellow pine and tropical hardwoods suggest contact with southern American colonies and West Indian ports, probably through trading voyages.

The shape of the Readers Point sloop is also indicative of New England-built

vessels. Cross sections of the hull show less deadrise than Bermuda or Chesapeake sloops. Flatter floors amidships increase cargo capacity at the expense of speed. This also tends to give a vessel shallower draft, allowing the sloop to easily navigate coastal waters and small bays common throughout the Caribbean and along the North American coast. The National Library of Jamaica contains a contemporary painting of a colonial sloop similar in size to the Readers Point vessel sailing along the Jamaican coast (see Figure 17). The Readers Point sloop was shallow drafted and handy enough to manage coastal trade, providing an important link between plantations and other ports. The vessel was not a "drogger," however. The sloop's lines suggest that it would have sailed well in deep water. Its size implies that the vessel was not simply a coastal trader, but was built for deep water sailing as well.

Colonial shipwrights built sloops in two general sizes reflecting specialized trades. Smaller vessels of 20 to 40 tons plied the coastal trade, while larger sloops of 50 tons and larger were better suited for the Caribbean/North America trade.¹⁵⁰ This information corresponds with contemporary historic data indicating that small, coastal *droggers* conducted the bulk of the local trade in Jamaica, and larger sloops sailed for longer distances to other islands or North American ports. Sloops leaving North America for Jamaica initially entered Kingston Harbor, then visited other Jamaican ports along the coast. This suggests a circuitous trade route, rather than a more direct two-way traffic between North American colonies and Jamaica. It also indicates that sloops involved in the North American trade carried on some degree of West Indian coastal trade as well.

The Readers Point vessel was a sizable sloop, with an estimated length of 60 feet (18.24 meters), a breadth of 18 feet (5.49 meters) and a 100 ton displacement. The vessel is lightly built. Primary timbers such as the apron and stern deadwood are attached to underlying timbers with only two iron throughbolts. In many vessels, deadwood in the stern is composed of substantial stacks of timbers throughbolted heavily to the keel. *Boscawen* exhibits this type of construction. On the Readers Point vessel, however, a single grown timber acts as the stern deadwood as well as the stern knee. The moulded dimension of this timber is not much greater than the vessel's floors, and it is not fastened very heavily to the keel. Radial cant frames in the bow of the sloop are attached to outer hull planking without butting up against the apron or stemson. The mast step construction is perhaps the most surprising. A mortise cut into the top face of the keelson left only 2 inches (5 centimeters) of wood on either side to support the mast foot. There is no evidence of supporting timbers before the break in the keelson necessitated adding sister keelsons and buttress timbers as repairs. These timbers, however, are heavily fastened. Perhaps the shipwright making the repairs realized the error of the builder.

The home port for the Readers Point sloop is unknown, but its relationship with the Seville Plantation suggests the possibility that it was Jamaican-owned. A lucrative market existed in the West Indies during the eighteenth century for New England-built sloops. The combination of a shallow draft, handy sailing capabilities, low cost and adaptability created a high demand for American sloops in the Caribbean.

The number of repairs evident throughout the hull remains suggests a long

trading career before the sloop finally came to rest on the silty bottom of St. Ann's Bay. Further evidence that the owners stripped the vessel of cargo and useful items lies in the relatively few number of artifacts associated with the vessel. The Readers Point artifact assemblage primarily consists of broken and discarded items found in the ballast pile. The location of the ship in association with five other derelicts off Readers Point suggests that this was a disposal area or ship graveyard for eighteenth-century vessels.

Despite the limited numbers of objects associated with the Readers Point sloop, a sufficient number of diagnostic artifacts establish a late eighteenth-century date for the vessel. These include ceramics, kaolin clay pipes and glass containers. The presence of feather-edged creamware indicates that the vessel was abandoned after 1765. Analysis of artifact date ranges indicates a cluster of dates around 1775, and it is likely that the vessel was abandoned after this date.

Organic remains such as plant and bone specimens indicate that salted beef and pork formed a large portion of the meat eaten on the ship. The sloop's crew also consumed mutton, rabbit and chickens in lesser amounts. Meals onboard the sloop were supplemented with nuts and fruits from both tropical and temperate locales. The ship's crew likely utilized local food sources in the Caribbean and North America during trading voyages. The identification of a gopher tortoise in the Readers Point assemblage provides a connection to the southeastern coast of North America, and the presence of *Rattus norvegicus*, or the brown rat, suggests that the vessel must date after the early to middle eighteenth century.

CHAPTER XII

CONCLUSIONS

Without a positive identity, conclusions concerning the ownership, operation, cargoes and trade routes of the Readers Point sloop must remain tentative. Regardless, enough evidence exists in the archaeological and historical record to construct general conclusions regarding the vessel, as well as the role of sloops in the colonial maritime economy.

The investigation of the Readers Point vessel suggests the following scenario. The ship was built in New England during the middle-to-late eighteenth century, with locally available wood species for the sloop's construction. The vessel's hull shape conforms to the general tendency for New England shipwrights to produce full-bodied vessels, with less deadrise and a shallower draft. Hull elements surviving in the archaeological record exhibit a highly finished appearance. Shipwrights placed standing or mold frames in key locations along the vessel's length to guide the shape of the hull during construction, and floors and futtocks are evenly spaced.

The ship is not heavily fastened. Iron fastenings are relatively light, particularly where the primary longitudinal timbers are joined to the keel. The shipwrights who built the Readers Point sloop tended to use smaller timbers for stern deadwood and bow components as compared to other eighteenth-century examples. The bow construction is composed of individual small, unconnected radial cant frames treenailed to the outer hull planking. The original mast step simply consisted of a

large mortise cut into the top face of the keelson. There is no evidence of supporting timbers at the mast step until a large break in the keelson required extensive repairs. Except for this apparent mistake in the sloop's construction, the lightly-built design evidently worked well considering the long period of use the sloop provided its owner. In general the hull remains suggest that the sloop was built in an established yard by experienced builders. It is a strong, well-built, utilitarian vessel without many "extras."

The wreck is located in context with the New Seville estate, a thriving Jamaican plantation which reached its peak production in the late eighteenth century. The use of tropical hardwoods for repairs, along with its plantation context, suggests that the sloop participated in the West Indian trade. In addition, extensive evidence associates the vessel with colonies in North America. Repairs made from southern yellow pine imply contact with colonies in the American southeast. Faunal and botanical remains found on the wreck indicate that North American species of animals and plants contributed to the crew's victualling. The bones of a particular species of tortoise also suggest that the sloop had sailed to the southeastern American seaboard. These remains likely found their way onboard the Readers Point sloop in the course of trading voyages.

Contemporary historical data suggests that shipwrights built two general types of merchant sloops in the eighteenth century. Small droppers of 20 to 40 tons plied the coastal routes, while larger vessels ventured throughout the West Indies and North America. The size of the Readers Point sloop puts it in the latter category, and finds

associated with the site support this theory.

Port records from Kingston show that after sloops returned to the Caribbean from North America, they typically conducted coastal trading among the islands. This suggests that the masters of sloops were looking for the most profitable markets to sell their cargoes of North American manufactured goods and produce. Contemporary accounts of sloop captains provide evidence for this.

The size of the Readers Point sloop combined with its full sections produced a seaworthy cargo carrier capable of extended deep water voyages. At the same time, the relatively flat floors amidships kept the sloop's draft reasonably shallow, giving it access to the coastal trade and allowing navigation in small bays and inlets. The Readers Point sloop represents a highly developed, utilitarian vessel design, tailor-made for trade between North America and the West Indies. Combining a respectable cargo capacity and shallow draft with the capable sailing abilities characteristic of colonial sloops, the Readers Point vessel undoubtedly saw a long career trading throughout the Caribbean and North America in the later eighteenth century.

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Maps

The Draught of a Survey of the Harbour of St. Ann and Part of the Plantations Adjacent Laying on the North Side of the Island of Jamaica in the Latitude of 18°:30 North, 1690. Courtesy of the National Library of Jamaica, St. Ann's Collections.

A Plan of the Seville Plantation in the Parish of Sainte Ann, Jamaica, the Property of the Heirs of Samuel Heming Esq., Deceased, Surveyed at the desire of George Gairden Esq. in September, 1792 by G. M. & P. Scale 10 Chains per Inch, 1792. Courtesy of the National Library of Jamaica, St. Ann's Collections.

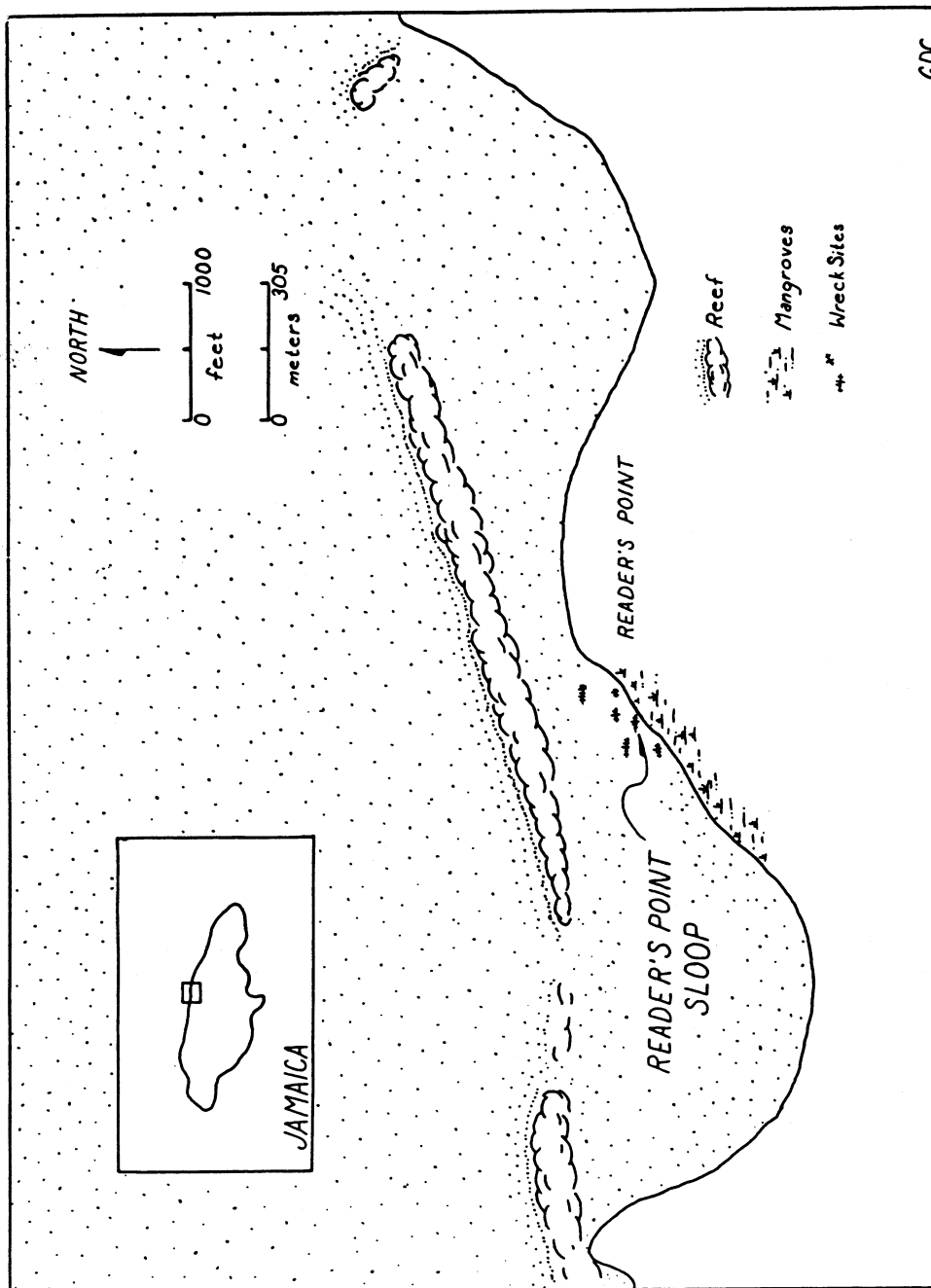


Figure 1: Map of St. Ann's Bay showing shipwreck sites located during the Columbus Caravels Archaeological Project. Drawing by Gregory D. Cook.

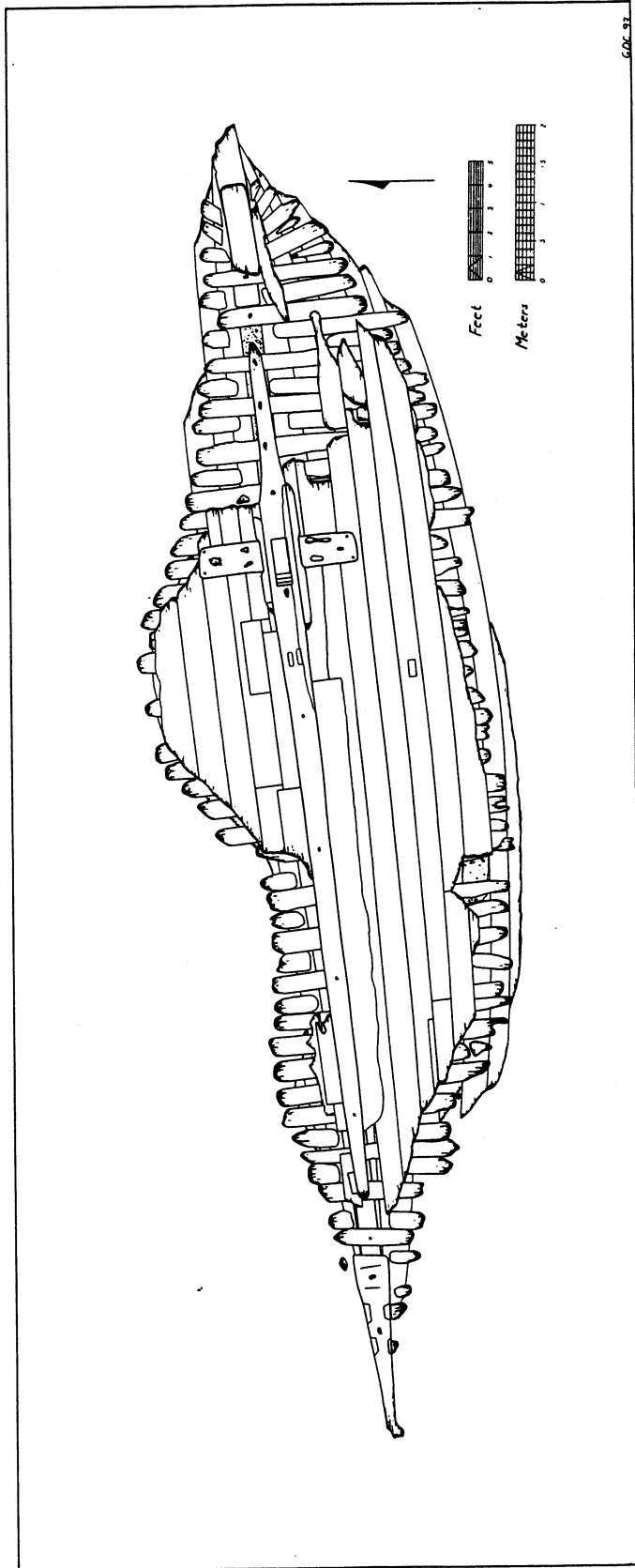


Figure 2: Site plan of the Readers Point sloop with intact ceiling planking.
Drawing by Gregory D. Cook.

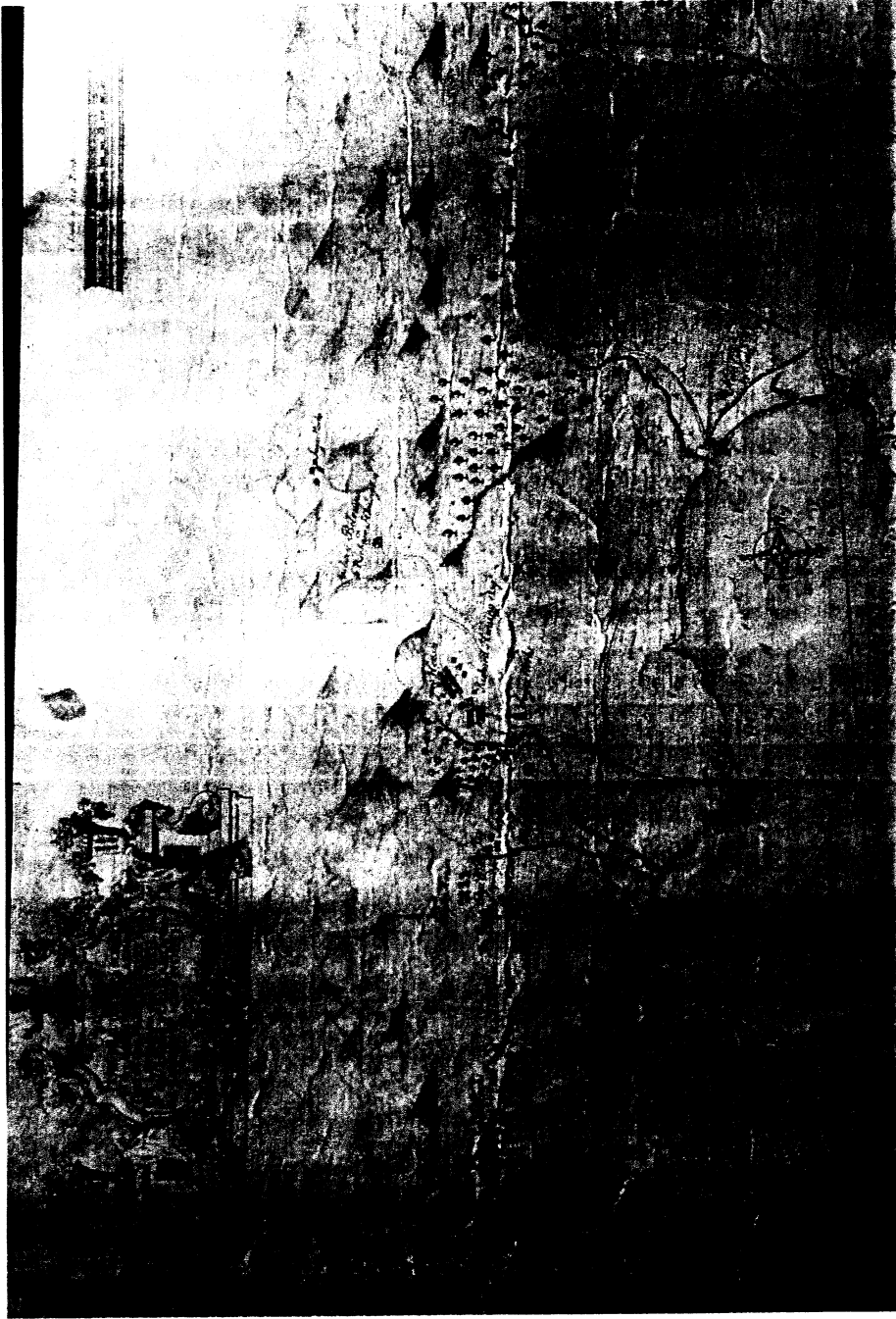


Figure 3: *The Draught of a Survey of the Harbour of St. Ann and Part of the Plantations Adjacent Laying on the North Side of the Island of Jamaica in the Latitude of 18°:30 North, 1690.*

Courtesy of the National Library of Jamaica, St. Ann's Collections.

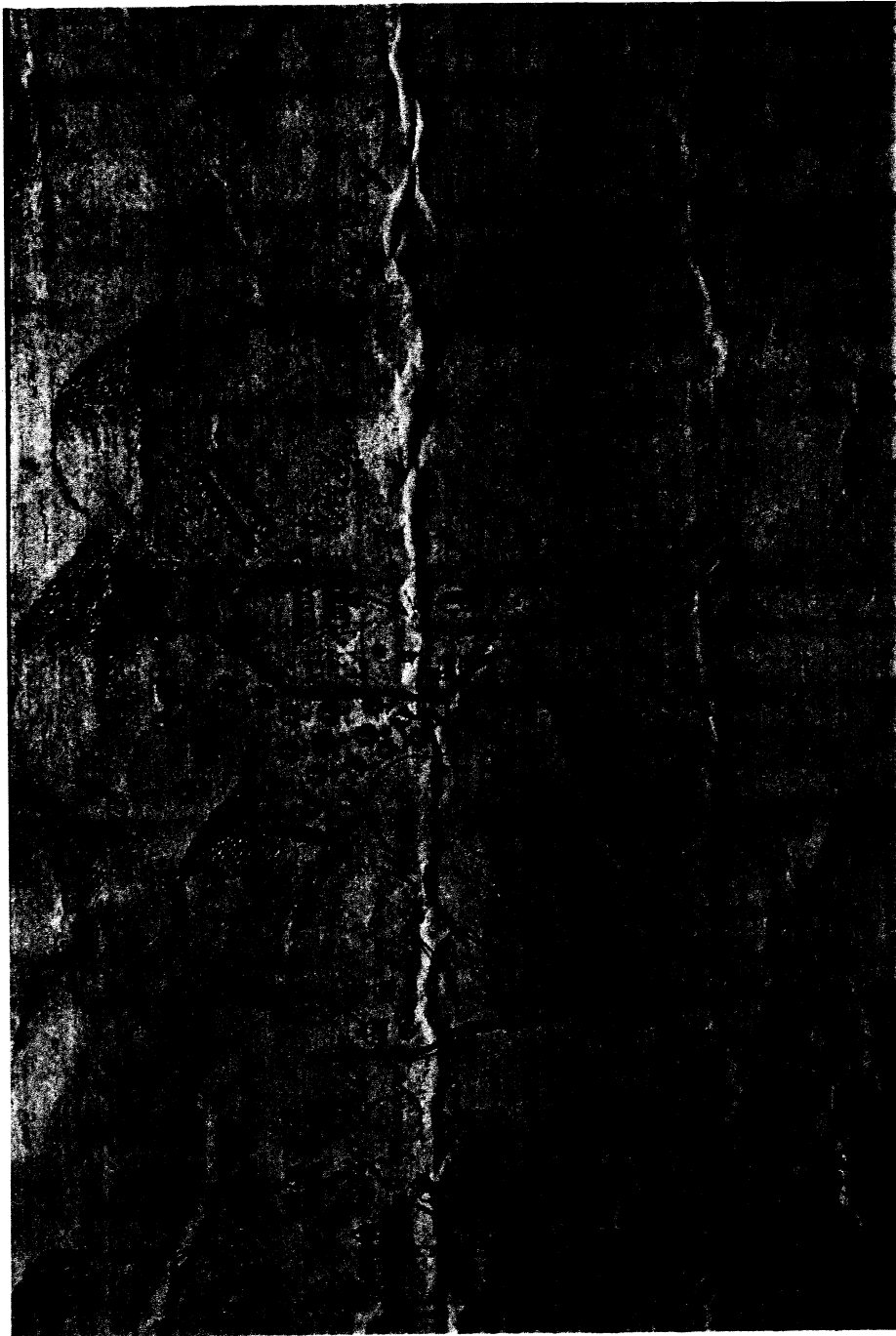


Figure 4: *The Draught of a Survey of the Harbour of St. Ann and Part of the Plantations Adjacent Laying on the North Side of the Island of Jamaica in the Latitude of 18°:30 North, 1690.* Detail of the New Seville Plantation. Courtesy of the National Library of Jamaica, St. Ann's Collections.



Figure 5: A Plan of the Seville Plantation in the Parish of Sainte Ann, Jamaica, the Property of the Heirs of Samuel Hemming, Esq., Deceased, Surveyed at the desire of George Gairden, Esq. in September, 1792 by G. M. & P. Scale 10 Chains per Inch, 1792. Note the New Seville greathouse to the right, and Seville wharf to the left. Courtesy of the National Library of Jamaica, St. Ann's Collections.

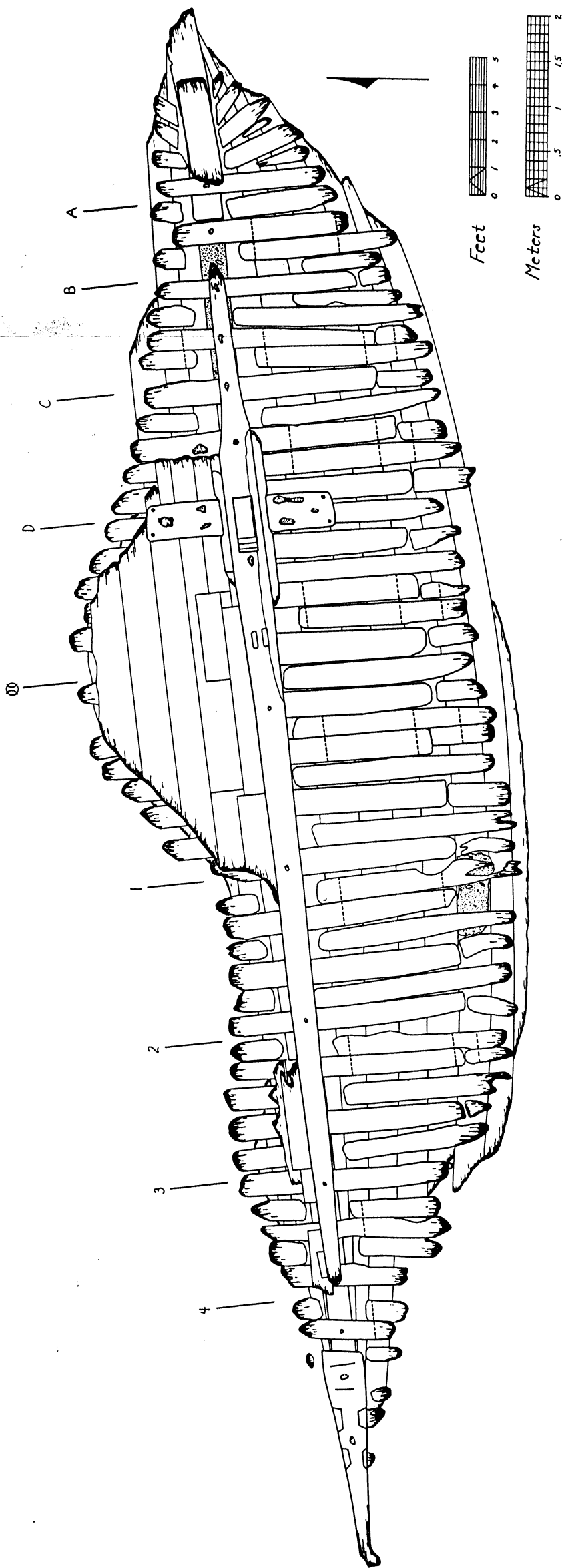


Figure 6: Main site plan of the Readers Point sloop, after removing the starboard ceiling planking. Note the radial cant frames in the bow, the mast step construction, and the grown stern knee timber.

Dotted lines indicate the positions of horizontal trenails in the standing frames. Section lines correspond with Figure 11. Drawing by Gregory D. Cook.

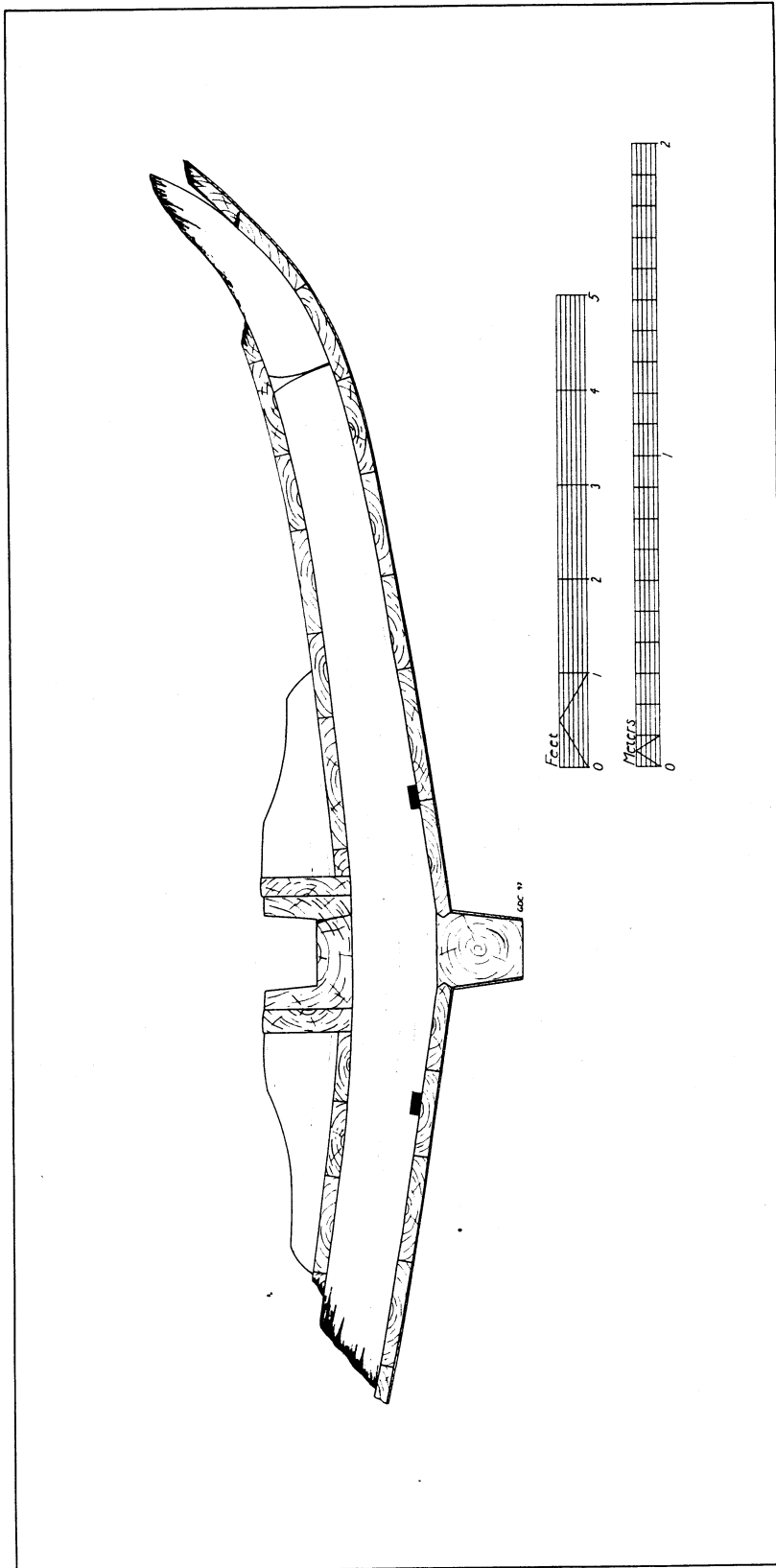


Figure 7: Hull section of the Readers Point sloop at the mast step (section D), facing forward.
Note the crack on the starboard side of the mast step mortise.
Drawing by Gregory D. Cook.

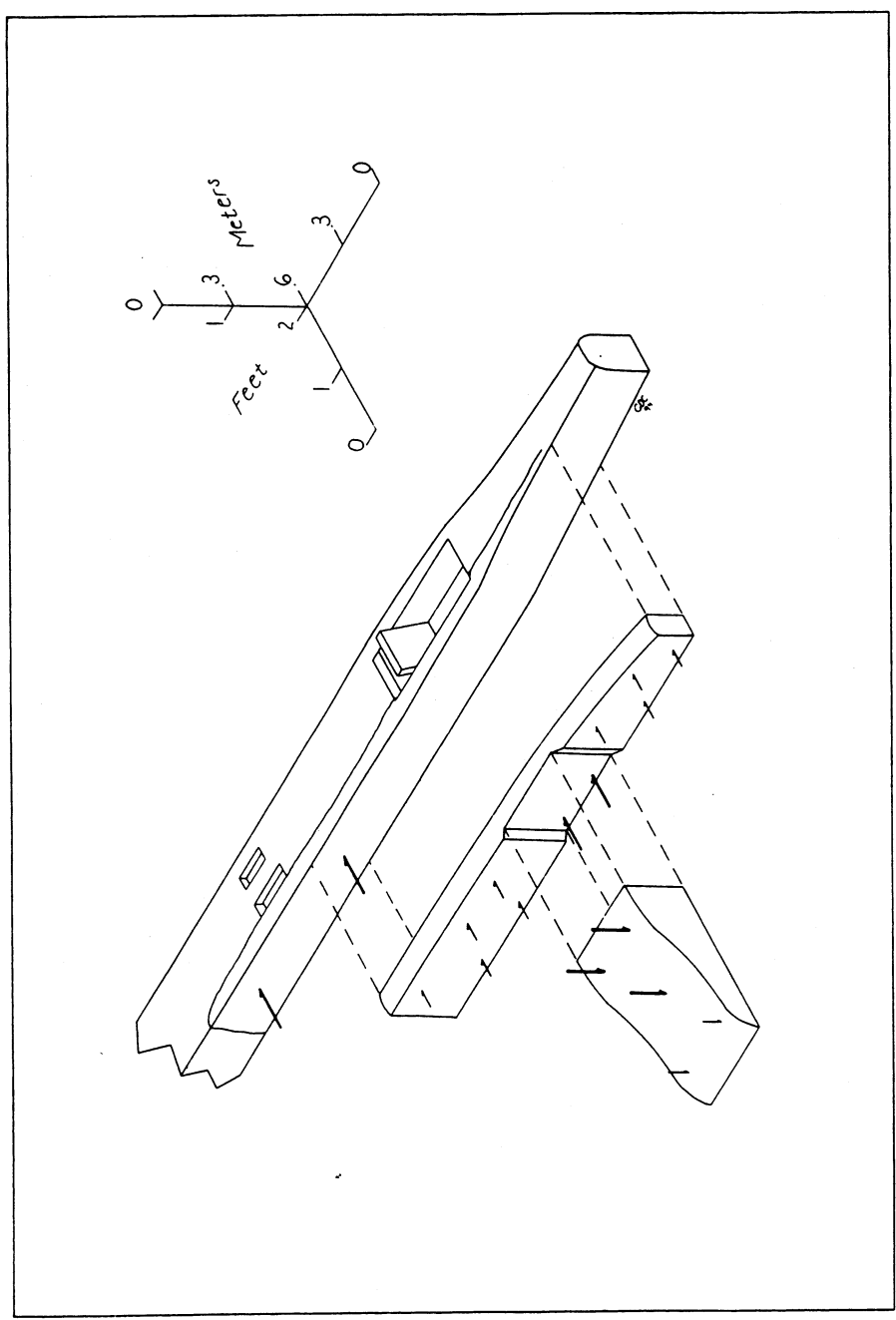


Figure 8: Isometric detail of the mast step repair on the starboard side of the keelson. Arrows indicate the locations of iron spikes. Drawing by Gregory D. Cook.

Origins and Destinations for Sloops
Kingston Harbour, Jamaica
1792

Geographical Location	Total Number of Sloops Arriving into Kingston from Ports in:	Total Number of Sloops Leaving Kingston for Ports in:
Jamaica	142 (75%)	166 (88%)
North America	27 (14%)	8 (4%)
Other Caribbean Ports	16 (8%)	16 (8%)
Europe	5 (3%)	0 (0%)
Totals	190	190

Figure 9: Table of sloop origins and destinations from Kingston Harbour, Jamaica, 1792
(Compiled from *The Royal Gazette*, January-December, 1792).

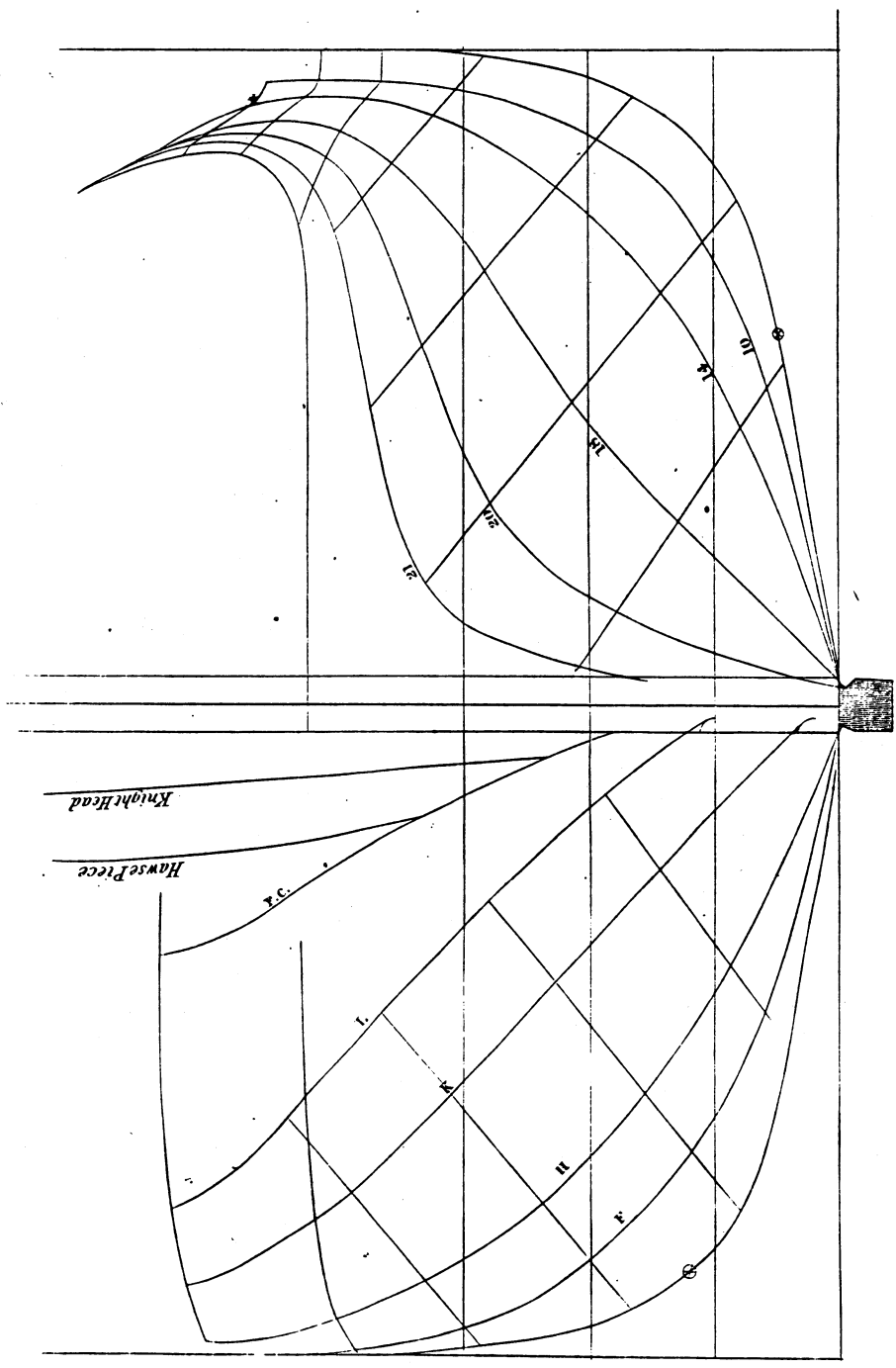


Figure 10: The hull lines of a sloop showing the full-bodied sections typical of New England colonial construction. From Lauchlan McKay, *The Practical Shipbuilder* (New York: Collins, Keese and Co., 1839), Plate 7. Courtesy of the Cushing Memorial Library, Texas A&M University.

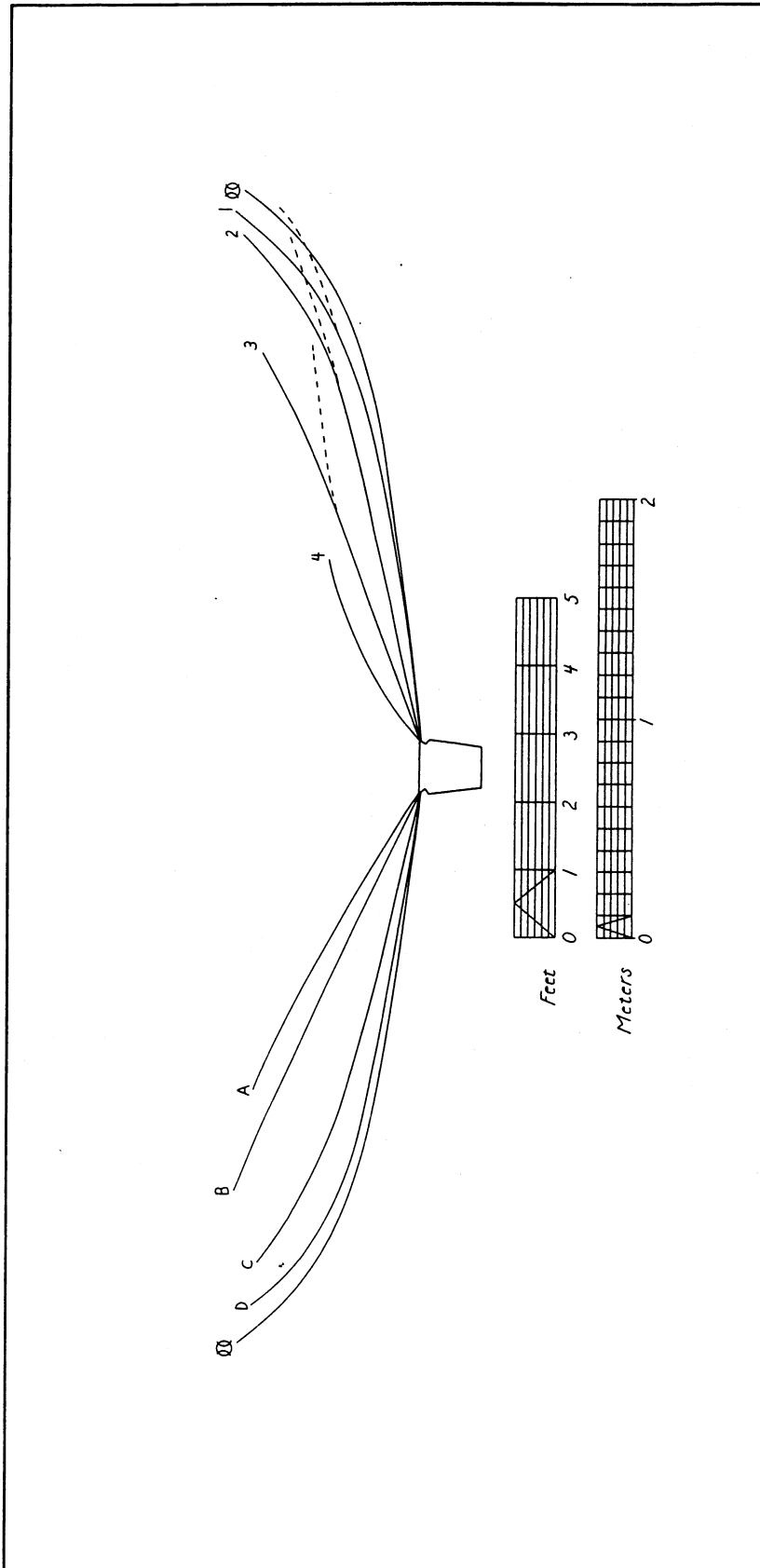


Figure 11: *In situ* hull lines of the Readers Point sloop, starboard side. The dotted lines in sections 1, 2 and 3 show the hull distortion in the vessel's stern. Solid lines in these sections are tentative corrections for this distortion. Drawing by Gregory D. Cook.

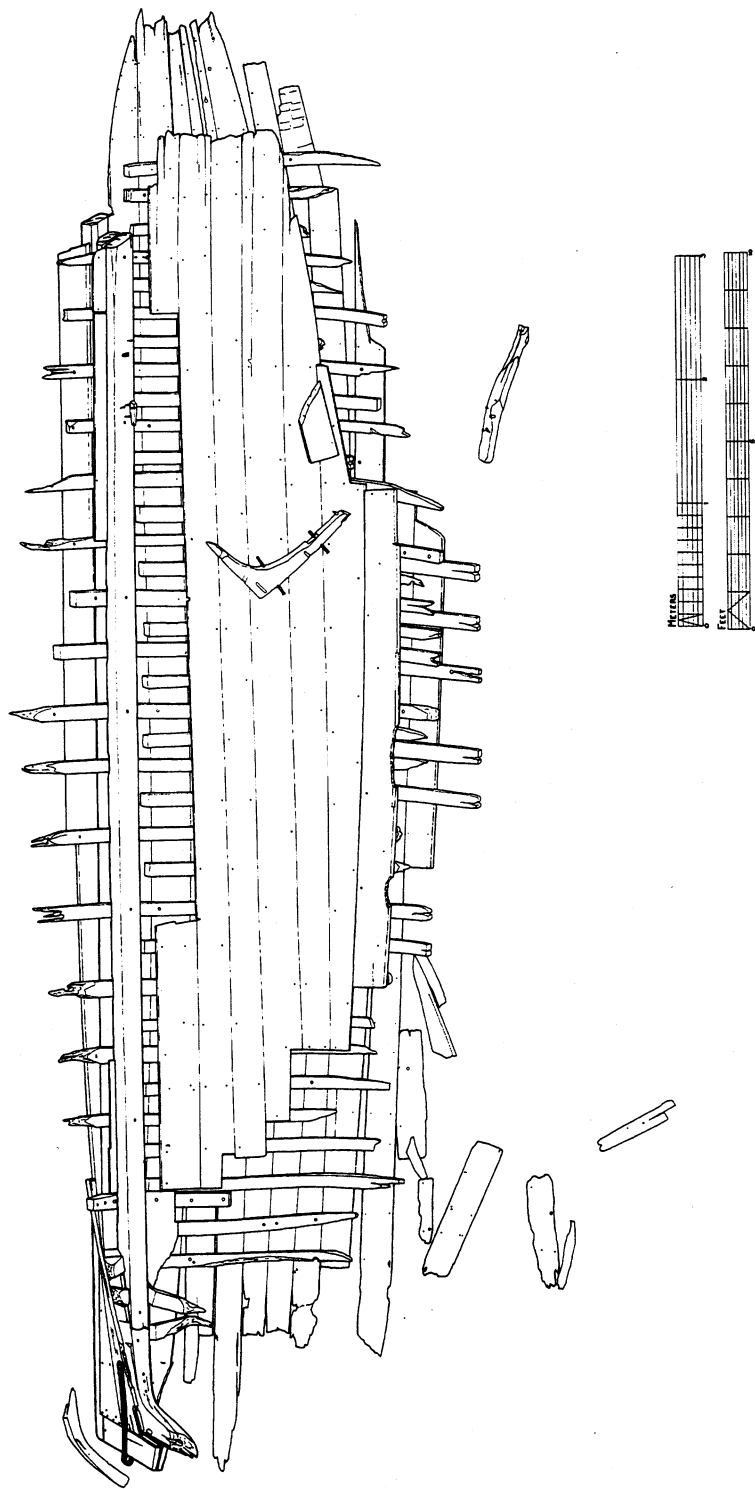


Figure 12: Site plan of the Clydesdale Plantation vessel. Drawing by Frederick Hocker.

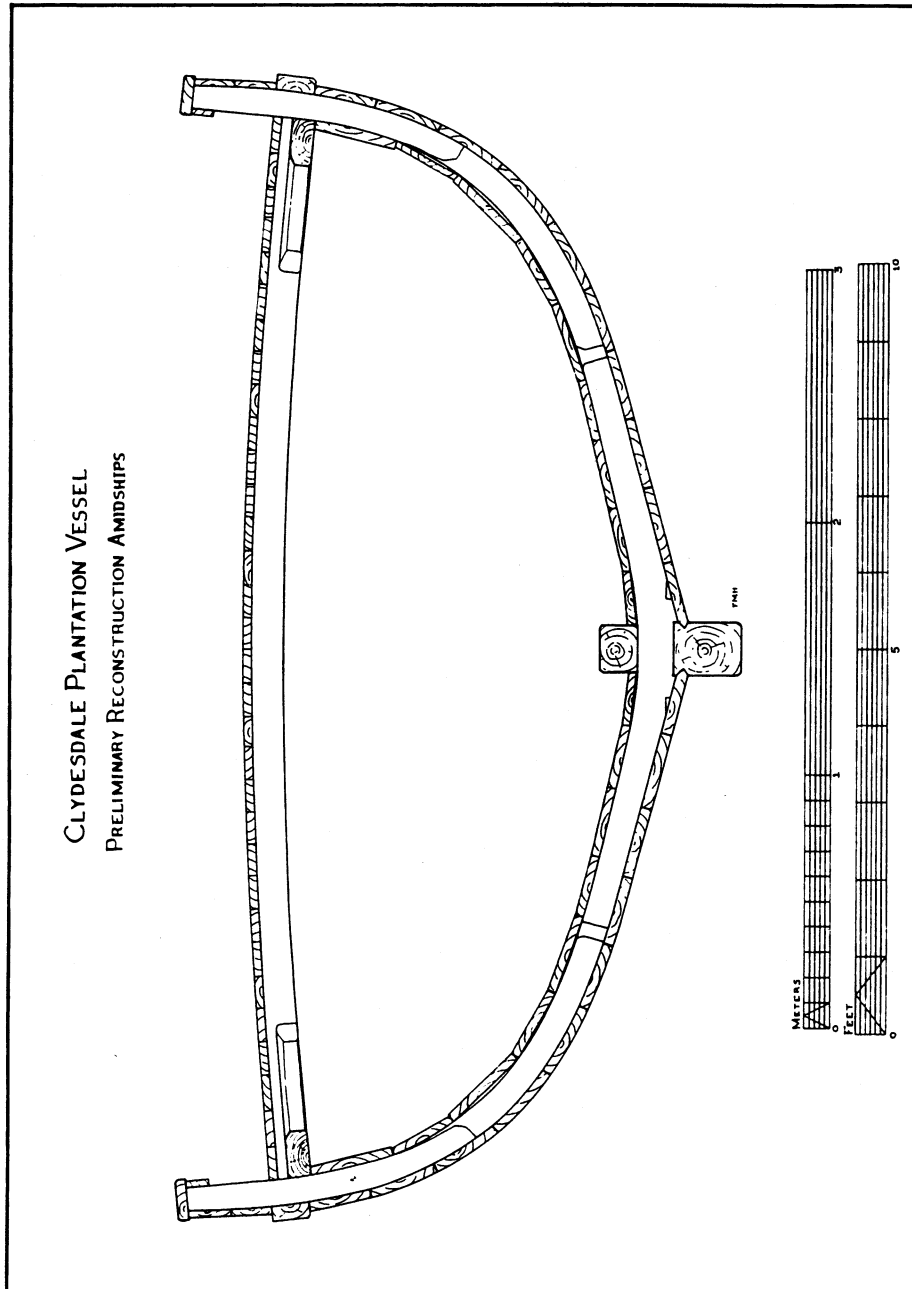


Figure 13: Hull section of the Clydesdale Plantation vessel. Drawing by Frederick Hocker.

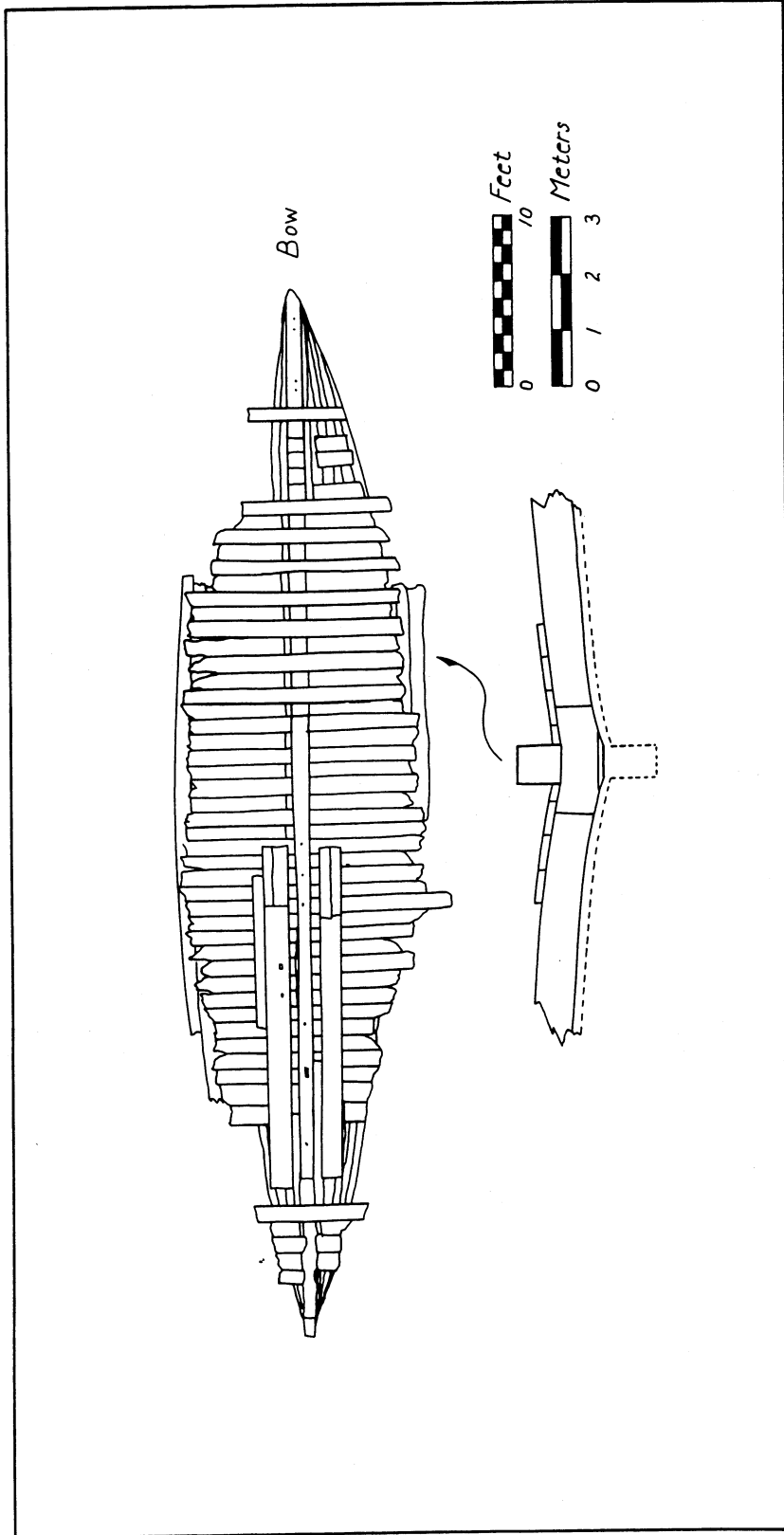


Figure 14: Site plan and hull section of the Rose Hill vessel. Drawing by Gregory D. Cook, after Geoffrey Scofield, in Mark Wilde-Ramsing, et al., *The Rose Hill Wreck: Historical and Archaeological Investigations of an Eighteenth-Century Vessel at a Colonial River Landing Near Wilmington, North Carolina* (Kure Beach, North Carolina: North Carolina Department of Cultural Resources, Underwater Archaeology Unit, Division of Archives and History, 1992), 38.

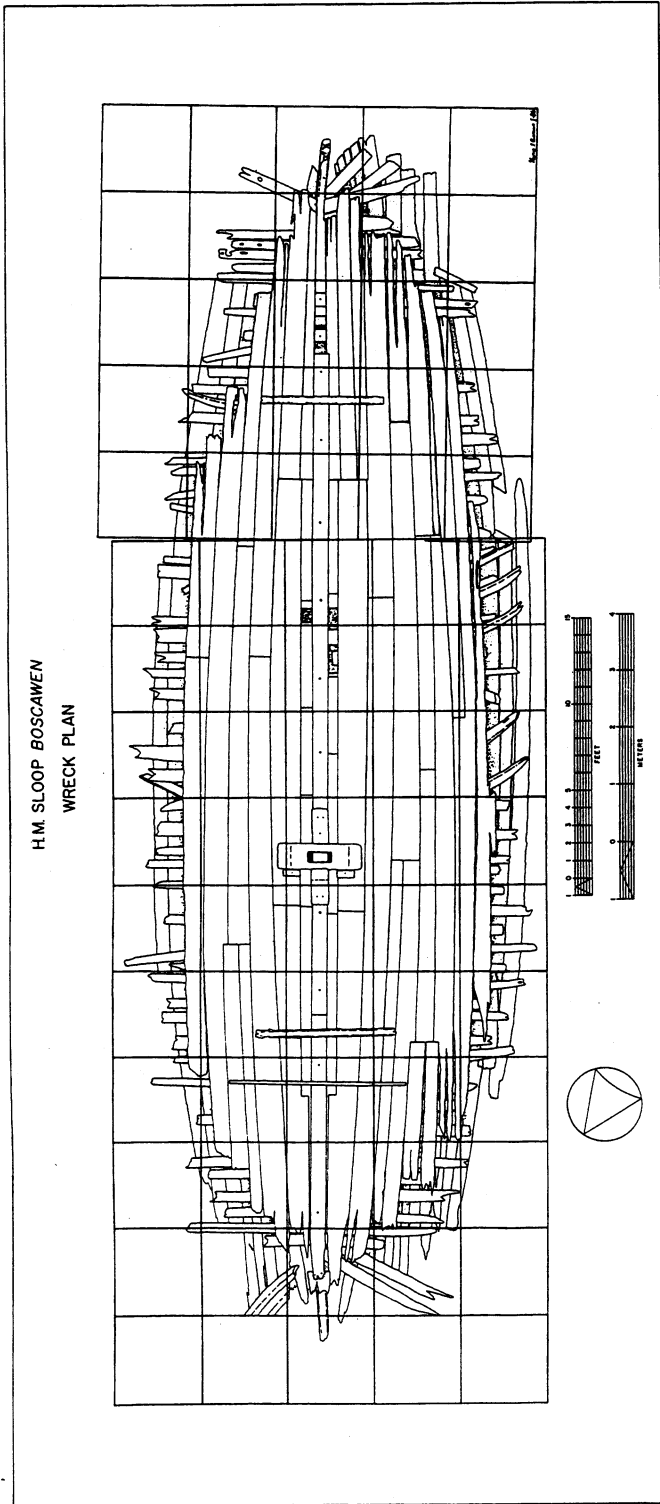


Figure 15: Site plan of the sloop *Boscawen*. Drawing by Kevin Crisman.

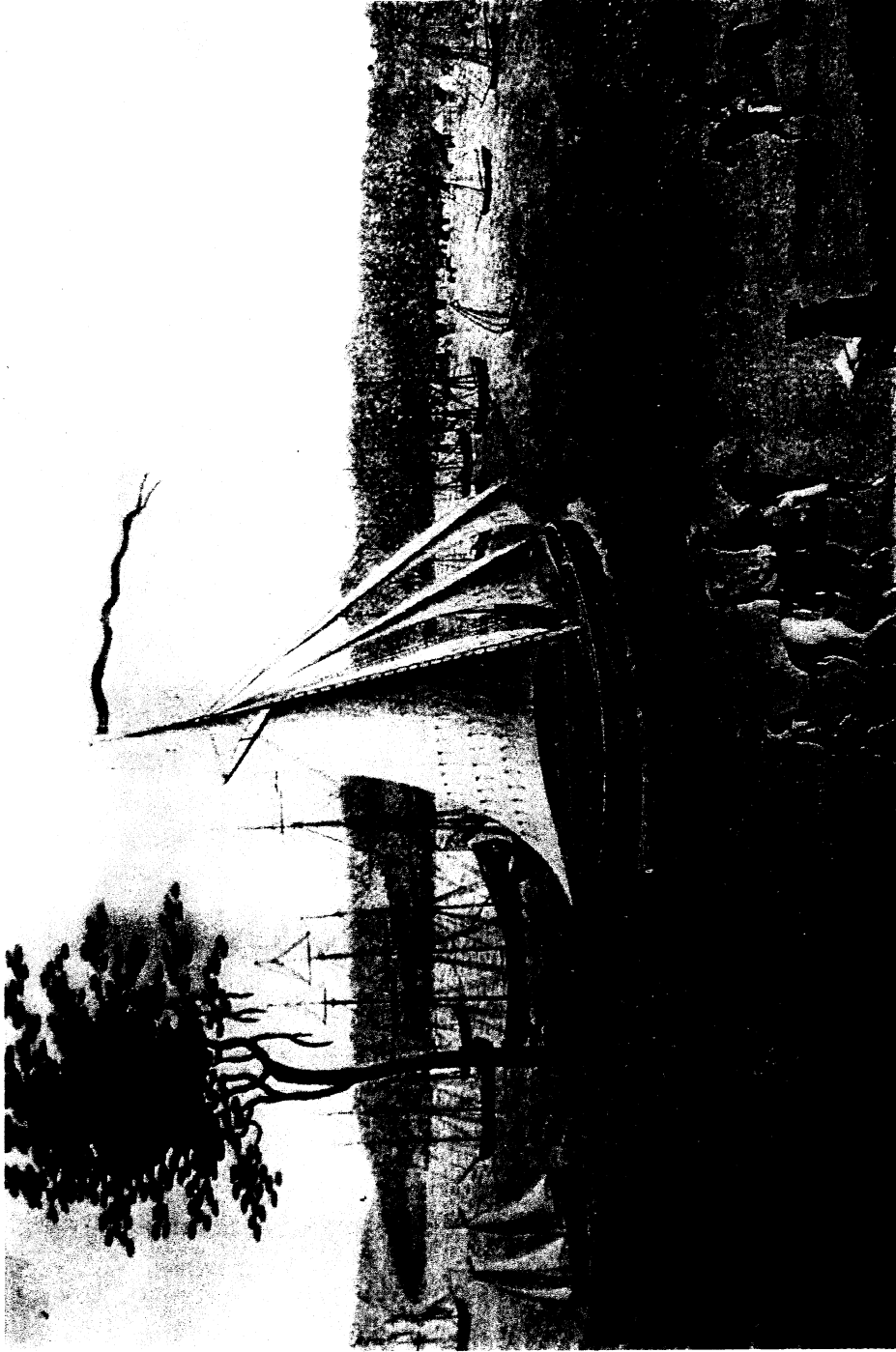


Figure 17: *A View Looking South of the Town and Harbour of Lucea, 1770.* Artist unknown.

Print no. P/88/11 Ja, National Library of Jamaica.

Courtesy of the National Library of Jamaica.

VITA

Gregory D. Cook

Citizenship: United States of America

Local Address: 1912 E. William Cannon Drive, Apt. 1008
Austin, TX, 77844
(512) 912-9753

Permanent Address: 2631 E. County Rd. 875 S.
 Mooresville, IN 46158-7418
(317) 539-6556

Born: Indianapolis, IN. November 25, 1966.

Education: Texas A&M University, Aug. 1990- present: M.A. candidate, Nautical Archaeology Program, Department of Anthropology.

Indiana University, 1985-1989: B.A. Anthropology, minors in Archaeology and African Studies. Graduated with departmental honors December 31, 1989. G.P.A. 3.69 (A=4).

Experience:Archaeologist on the LaSalle Shipwreck Project. The goal of this project is to excavate, record and raise the artifacts and hull remains of *La Belle*, a late seventeenth-century *barque longa* which was one of the ships in LaSalle's doomed voyage to establish a French fort on the Mississippi. Matagorda Bay, Texas, July 1996-March 1997.

Crewmember on Polish Merchant Academy Ship *Dar Mlodziezy*, during the 1995 Cutty Sark Tall Ships Races between Edinburgh, Scotland and Bremerhaven, Germany, July, 1995.

Director, Readers Point Shipwreck Excavation. Directed a twelve-member team during the excavation and recording of an eighteenth-century merchant sloop in St. Ann's Bay, Jamaica, 1994 for M.A. research.

Scientific Diver, Discovery Bay Marine Laboratory, University of the West Indies. Discovery Bay, Jamaica, 1994. Duties included coral reef and fish surveys, monitoring of protected reef areas, establishing permanent moorings to protect reef from anchor damage.