

H.M.S. *SOLEBAY* AND MARITIME ARCHAEOLOGICAL
HERITAGE PRESERVATION IN NEVIS, WEST INDIES

A Dissertation

by

CHRIS CARTELLONE

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

DOCTOR OF PHILOSOPHY

Chair of Committee,
Committee Members,

Luis Filipe Vieira de Castro
Bruce Dickson
Marco Meniketti
James Bradford
Cynthia Werner

Head of Department,

May 2015

Major Subject: Anthropology

Copyright 2015 Chris Cartellone

ABSTRACT

In 2010, the discovery of a wreck identified as HMS *Solebay* off Nevis' southwest seacoast prompted an investigation by a graduate student from Texas A&M University and the Institute of Nautical Archaeology, in collaboration with local and international partners. Team members documented the site with standard, low-tech, nonintrusive, archaeological recording methods. Nautical archaeology in Nevis is still a nascent discipline, one that should be pursued for the importance of seaborne commerce and warfare to the island's historical evolution within the British Empire. The island is amongst the oldest English Caribbean colonies and in the 17th century was the richest of the Leeward Islands through slave-labored sugar plantations.

Solebay's story reveals the British naval experience during the American Revolution from the perspective of a crew manning a lower echelon warship. Built in 1763, deployed to America in 1776, and lost in the 1782 Battle of Frigate Bay, it transcended a vigorous period in British naval architecture, and technological innovations including coppered hulls and the introduction of carronades. *Solebay* exposes the challenges and rewards of studying this maritime heritage in Nevis.

Solebay's violent destruction and subsequent site formation, onto a volcanic seafloor in dynamic tropical waters, has largely precluded the survival of ship timbers or other organic materials. However, metal artifacts and six iron guns have been documented and the microenvironment has afforded unforeseen positive benefits. Shallow deposition and natural exposure permitted the recovery of 72 artifacts for full

conservation and diagnostic analysis, complementing the archival evidence.

Interpretations support the wreck's identity and suggest resourceful adaptive wartime behaviors on the part of her crew.

While *Solebay* remains British crown property under international sovereign immunity laws, the Nevis Historical and Conservation Society has been entrusted as the cultural steward. Conserved artifacts exhibited in the Alexander Hamilton Museum, Charlestown, Nevis, educate the public about *Solebay*, its story, and more importantly, the value of protecting and studying shipwrecks. This project serves Nevisians and the Federal government in St. Kitts as a case study for advancing underwater cultural heritage policy on this site and future discoveries.

DEDICATION

For my father,
who inspired me to follow my passion.

ACKNOWLEDGEMENTS

I would like to thank my committee chair, Dr. Filipe Castro, for being a strong mentor in my professional, doctoral education. Thank you to my committee members, Drs. Bruce Dickson, James Bradford, and Marco Meniketti. Dr. Dickson challenged me to be a better anthropologist and Dr. Bradford challenged me to be a better historian. Dr. Meniketti made me a better archaeologist, teacher, and introduced me to Nevis. Thank you to Texas A&M University faculty and staff that helped shape my education and were always there to go the extra mile: Kevin Crisman, David Woodcock, James Woosley, James Jobling, William Charleton, Cindy Hurt, Rebekah Luza, and Marco Valadez.

Generous sponsors that provided financial and material support made this research possible. Primary initial support came from the Institute of Nautical Archaeology, both financially and by loaning expensive archaeological remote sensing equipment, cameras, and tools. Adnams Southwold through its CEO Andy Wood, provided generous funding that made the project possible, opening doors for this project and future research in Nevis. Dr. Donny Hamilton at Texas A&M University contributed significant and essential unmet financial needs. The Brimstone Hill Fortress National Park Society, through park manager Mr. Cameron Gill, provided for the recovery and conservation of diagnostic artifacts. This made site identification and greater interpretations possible, and produced beautiful museum exhibit pieces that educate the public on history, archaeology, and the importance of protecting our heritage.

Donated labor in the field accomplished the archaeology. I owe a special thank you to Justin Parkoff, who performed outstanding, tireless duties recording artifacts, lugging equipment, meticulously taking notes, and being a solid colleague through the program. Thanks to Vincent Hubbard for inspiring our search for *Solebay*. Paul Diamond and Arthur “Brother” Anslyn thank you for locating *Solebay* and arranging meetings on Nevis. Additional supporters included David Small at the University of Bristol for digging through archives, Professor James Hewlett at Finger Lakes Community College for both financial support and divers, Dr. Marco Meniketti and his scientific diving students at San Jose State University, Suzanne Gordon facilitated affordable housing for the field project, Golden Rock Inn Nevis provided housing for additional research, T. Kurt Knoerl at the Museum of Underwater Archaeology provided online outreach, Bob & Judy Foster-Smith at Envision Mapping helped locate the wreck, Mr. Spencer Hanley with the Nevis Air and Sea Ports Authority expedited the import of scientific equipment and provided access to the Police Launch, and Mr. Ellis Chaderton at Scuba Safaris Nevis kept the research vessels and dive tanks operating. Numerous individuals helped complete the fieldwork: Lillian Azevedo, Javon Bissette, Llewellyn Collins, Dwayne Daley, Michelle Damian, Julius Darlington, Troy Deppermann, Brian Littlewood, Everette Mason, Ashli Roberts, Erin Sams, John Schlagheck, Ryan Schlater, Rebecca Spitzer, Hugh Stapleton, Diana Stellar, and Dwaine Walters.

My family both supported and endured this long journey. Thank you to my parents for my education in and out of school. Thank you Steffany, without whom none of this would have been possible. I owe you everything — wife, mother, friend.

TABLE OF CONTENTS

	Page
ABSTRACT	ii
DEDICATION	iv
ACKNOWLEDGEMENTS	v
TABLE OF CONTENTS	vii
LIST OF FIGURES.....	viii
LIST OF TABLES	x
CHAPTER I INTRODUCTION.....	1
CHAPTER II NAUTICAL ARCHAEOLOGY IN NEVIS	8
CHAPTER III NEVIS IN THE BRITISH EMPIRE	24
CHAPTER IV <i>SOLEBAY</i> IN THE AMERICAN REVOLUTION	61
CHAPTER V INTERPRETING <i>SOLEBAY</i>	101
CHAPTER VI MARITIME HERITAGE PRESERVATION IN NEVIS.....	135
CHAPTER VII CONCLUSIONS.....	168
BIBLIOGRAPHY	179

LIST OF FIGURES

FIGURE	Page
1	Location of Nevis within the Caribbean Sea..... 8
2	Close-up section of 1808 Arrowhead chart showing HMS <i>Solebay</i> wreck on western side of Nevis..... 18
3	Vince Hubbard, Brother Anslyn, and Bob Foster-Smith discuss plans for HMS <i>Solebay</i> search..... 19
4	Nuestra Señora de las Nieves. Typical summer day in Nevis showing a clouded Mt. Nevis peak..... 27
5	Professor Marco Meniketti of San Jose State University recording archaeological ruins of colonial sugar plantation..... 35
6	A protected historic Flamboyant tree once marked property boundaries. Today they are simply beautiful trees that provide shade..... 55
7	A modern wreck just off Charlestown 58
8	Sea Service Musket examples showing trigger guard details 120
9	Artifact no. 10 trigger guard..... 121
10	Artifact no. 15 coak with Broad Arrow in upper left corner, second image close-up, and third image illustration of Broad Arrow observed in second image. Scale in centimeters..... 122
11	Artifact no. 34 with four, clearly visible Broad Arrows, two on each side highlighted by the author in white. Scale in centimeters 123
12	Artifact no. 2 showing a clearly visible Broad Arrow, highlighted in white in third image. Scale in centimeters 124
13	Scientific diver recording a long gun on <i>Solebay</i> 125
14	Carronades: Gun F on left with trunnions; Gun C on right with lug and lacking trunnions 127

15	Southern Nevis seacoast scattered with prehistoric potsherds	154
16	Alexander Hamilton Museum and offices of NHCS along Charlestown waterfront. Notice two-story colonial design	158
17	The preservation mindset: Heritage Trail signs maintained by the NHCS around the island educate tourists of historic place	160
18	Chart showing the results of Bob Foster’s Seabed Survey	161
19	Exhibit displaying conserved <i>Solebay</i> artifacts at the Alexander Hamilton Museum, Charlestown, Nevis	163
20	Computer screen image capture showing MUA <i>Solebay</i> website	166
21	Postcard showing Nevis lighter	177

LIST OF TABLES

TABLE		Page
1	<i>Mermaid</i> -class vessels and their service years.....	106
2	Vessels supplied with carronades as of 22 July 1782	132

CHAPTER I

INTRODUCTION

Within the West Indies, a string of islands dots a map for more than 500 miles between the South American seacoast of Venezuela and Puerto Rico. Collectively known as the Lesser Antilles, these islands define the eastern boundary of the Caribbean Sea. Toward the northern end are two tiny dormant volcanoes protruding from the seafloor. Together they form the Federation of Saint Christopher (St. Kitts) and Nevis, separated by two nautical miles of seas called The Narrows. There, Atlantic Ocean currents push from east to west, between the islands, where they transition into the other side as the Caribbean Sea. In 1624, settlers established England's first permanent Caribbean colony on St. Kitts. Four years later some of these colonists sailed southeast across The Narrows and landed on Nevis.

Seafarers from Europe began exploring these islands as early as Christopher Columbus's second voyage to the New World, in 1493. Folklore claims Columbus named Nevis after the Spanish *Nuestra Señora de las Nieves*, meaning "Our Lady of the Snows."¹ Supposedly, the clouds that almost perpetually ring Nevis Peak reminded him of a snow-capped, Iberian mountain. Depending on whom one asks, the story may be apocryphal. However, it was the English and not the Iberians that ultimately settled and

1. There is no evidence to support the romantic version of Columbus giving the island the name Nieves, and much to refute it. For further discussion on the naming of Nevis read Lucius Hubbard, "Did Columbus Discover the Islands Antigua and St. Martin?" *Geographical Review* 21, no. 4 (Oct. 1931): 584-597.

developed Nevis as part of its imperial maritime periphery, in the process anglicizing the name to *Nevis*. English pioneering directed the Nevisian historical trajectory toward an important position in what would become the British Empire.

In contrasting the past to present times, Nevis gathers little attention in global politics. Today, the people depend for their survival largely on tourism. A modern, relaxing, sleepy image of the two islands hides a fascinating and sometimes darker past. Digging through archival records exposes stories of battles involving thousands of soldiers and dozens of warships just off the coast, and a history scarred by the horrors of slavery. To Americans, Nevis is the birthplace of an American Founding Father, Alexander Hamilton, and the location where the U.S. Navy won its first ship-to-ship victory. The islands are littered with ruined fortifications that beguile their embattled historical purposes. Archaeology reveals abandoned sugar plantations with their stone-walled buildings, crumbling windmills, and shipwrecks resting on the seafloor waiting to be discovered.

To study Nevis' past is to study a microcosm of British imperialism through the centuries. Nevis' history includes economic contributions to the British Empire driven by slave-labored sugar plantations, genocidal displacement of indigenous Amerindians, economic and military competition with other European nation-states, biological transformations through the Columbian Exchange, and the cultural consequences of seasonal storms and hurricanes. For these reasons, Nevis is an engrossing place for historians, archaeologists, and other scientists to study.

Until this dissertation, archaeological research projects focused on collecting data on the island. This is where I began my research in 2008—2009 as a project manager for Dr. Marco Meniketti, San Jose State University, by assisting him with his summer field schools. Since the 1990s, he has been researching the role of Nevis' historic sugar economy in the context of the greater world system, through terrestrial archaeological excavations of abandoned plantations. Our discussions led to the possibility of expanding archaeological research to the sea.

The ocean offers great opportunities to enhance Nevis' history through nautical archaeology. Nevis' shipwrecks have not been studied, despite being an essential component in settling the island from prehistory forward, and serving as an economic waterway connecting the English colony to the rest of the world. The importance of sea travel to Nevis cannot be understated. In modern times, the ocean remains an essential lifeline, with cargo vessels delivering food, building materials, and other supplies on a weekly basis. Only people and limited supplies arrive by air. Nevis' dependence on maritime commerce coupled with a captivating and rich history offers a compelling argument for studying the submerged resources.

This dissertation began with a plan to survey the seafloor and then turned into a case study of a single wreck. The original intention was to use remote sensing followed by scientific scuba divers assessing promising targets. This effort would have initiated the process of inventorying underwater cultural resources, with an emphasis on locating historic shipwrecks. Warships lost in battles, merchant vessels lost in storms, and potential slave wrecks are untapped cultural resources with the power to inform about

Nevis' history, and contribute to understanding its colonial role within the British Empire.

In 2010 the survey was postponed after a group of history and archaeology advocates from the Nevis Historical and Conservation Society located a shipwreck off Nevis' southwest seacoast. This discovery developed into a full season investigation in 2011. The resulting evidence supports identification of the shipwreck as that of HMS² *Solebay*, lost during the Battle of Frigate Bay. In January 1782, thousands of French soldiers had laid siege to Brimstone Hill Fortress on the sister island of St. Kitts. The Royal Navy was attempting to relieve the defending British garrison when *Solebay* grounded during the fighting. Her crew subsequently scuttled *Solebay* with a fire that triggered a violent explosion from the ship's gunpowder kegs. This engagement was an extension of the American Revolutionary War, an imperial fight for control of the West Indian sugar islands.

While the archival research and fieldwork substantiates this interpretation, there is a possibility that some of the archaeological material may be from an earlier wreck named *Companion*. In 1667 during the Second Anglo-Dutch War, this armed English merchantman exploded while fighting off Nevis. The similar final circumstances and locations of both vessels make it possible that the remains not of one, but of two vessels

2. The prefix HMS may also be written as H.M.S. and is an abbreviation for 'His / Her Majesty's Ship' in reference to being property of the British monarch. Before the 1790s, the abbreviation was not commonly used, but the term 'His Majesty's Ship' was used in the official court-martial records concerning *Solebay*, for example. The preference for using HMS in this dissertation reflects an academic preference to emphasize *Solebay*'s identity as a Royal Navy warship to readers, particularly in the dissertation title.

exist as one overlapping or contiguous archaeological complex. To make a better determination would require significantly more archaeology beyond the scope of this dissertation. The best diagnostic approach would require excavating and conserving particular cannons for their maker's marks. These have the potential to more confidently date the associated wreckage. Either historical hypothesis, as a single wreck or two wrecks, signifies the island's importance to English history. English leaders were willing to send naval forces during the Second Anglo-Dutch War or later American Revolution, to defend St. Kitts and Nevis.

Solebay is important for the history it represents. The French were willing to risk thousands of troops and significant naval resources to attack St. Kitts and Nevis. Similarly, the British were willing to commit relief forces to defend Brimstone Fortress, upon which the defense of the island stood. Once *Solebay* wrecked, the site recorded a moment in history by becoming an archaeological site.

Moreover, as a case study, *Solebay* is not just a shipwreck story. The research process contributed to the ongoing dialogue on best practices for managing and protecting underwater cultural resources in Nevis, and by extension St Kitts. In December 2009, the Federation of St. Kitts and Nevis ratified the United Nations Convention on the Protection of the Underwater Cultural Heritage (UCH). At multiple levels – international, national, and local – *Solebay* serves as a real test, pushing the UCH Convention principles beyond theory and into practice. Authorities are faced with a shipwreck site in Nevis that warrants protection, if for no other reason than by being a Royal Navy vessel it is afforded treatment under international sovereign immunity laws.

This dissertation proves the value of investing in nautical archaeology in Nevis by briefly reviewing its broad history in Chapter Two. In Chapter Three, the research then focuses on *Solebay*, for its own fascinating history. *Solebay* also offers a bottom-up perspective of Royal Navy experiences during the American Revolution, illustrating a variety of missions a typical frigate fulfilled. Beyond history, the dissertation offers archaeological interpretations of the material culture in Chapter Four. The arguments focus on key artifacts supporting the shipwreck's identity. In doing this, the chapter hypothesizes anthropological questions suggesting adaptive human behavior, specifically resourcefulness during wartime. While these are only plausible speculations, they suggest numerous avenues for future research. Finally, in Chapter Five, *Solebay* serves as an example for maritime archaeological heritage preservation. This discussion addresses what has been done and can be done to best manage and protect shipwrecks in Nevis and by extension the Federation.

During almost two decades of service *Solebay* transitioned a period of naval architecture that began to flourish through new designs and a continually maturing navy. Technological introductions during *Solebay*'s life in copper sheathing and carronades add to this complexity. The ship became a tool of the growing eighteenth-century British Empire, defending an economy transitioning from mercantilism to capitalism. *Solebay* is also a human story of famous British, French, and American figures. This is also the story of common sailors aboard a sixth-rate frigate fighting in a war 4,000 miles from their homeport.

As *Solebay* served the Royal Navy in the eighteenth century, she continues in the twenty-first century to serve modern cultures. *Solebay* provides a physical connection to the historic past, a recreational tourist attraction for both scuba divers and museum visitors, and an archaeological site to answer historical and anthropological questions that lead toward understanding human behavior in wars. This case study demonstrates the island's significance in English history, its value for expanding future nautical archaeology in Nevis, and accelerates the urgency to enact site protection plans for all underwater cultural heritage around the islands of St. Kitts and Nevis. This research should serve as a precedent for future nautical archaeology in Nevis.

CHAPTER II
NAUTICAL ARCHAEOLOGY IN NEVIS

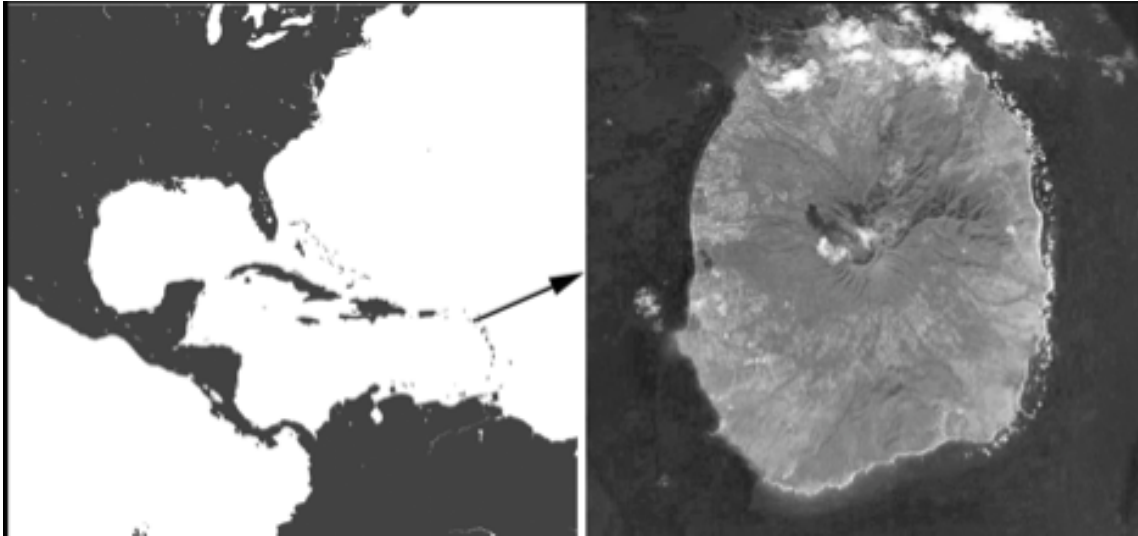


Figure 1 Location of Nevis within the Caribbean Sea. (Satellite image from Google Earth)

On 25 January 1782, as the sun was setting off the idyllic, tropical coast of Nevis, West Indies, a violent battle was raging just offshore between dozens of British and French warships (Figure 1). They fought in the seas as hundreds of soldiers exchanged shots on nearby Saint Kitts to control Brimstone Hill Fortress, key to control the two islands. While the fleets battled, the fate of one vessel became forever sealed when HMS *Solebay* grounded on a shallow near the coast. With little hope of rescue and French warships closing in, the crew set the ship afire. The blaze consumed the frigate and reached its hold, which contained 160 barrels of gunpowder. This triggered a

thunderous explosion, sending the ship to the bottom of the ocean. Despite the loss of *Solebay*, the Royal Navy held the anchorage against multiple French counterattacks. On 26 January, after another day of fighting, the French navy withdrew to deeper waters as the French army continued the siege on Brimstone. In the end, the English were not capable of defending the fortress, and Brimstone fell to the French army on 13 February.

A century later, in 1890, the famous naval officer and theoretical historian Alfred Thayer Mahan, in his seminal work *The Influence of Sea Power Upon History*, commented on British Rear-Admiral Sir Samuel Hood's leadership during what became known as the Battle of Frigate Bay. In evaluating British naval performance in the American Revolution, Mahan argues that Hood's actions to try to relieve the besieged Brimstone Hill Fortress on St. Kitts were "the most brilliant military effort of the whole war."¹

In 2010, *Solebay*'s discovery reignited memory of it as an archaeological signature of this "brilliant military effort." Studying this wreck and retelling *Solebay*'s history highlights a conflict between thousands of sailors and soldiers to influence the destiny of empires fighting over the contested West Indian Sugar Islands. *Solebay* was a

1. Alfred T. Mahan, *The Influence of Sea Power Upon History, 1660-1783* (Boston: Little, Brown and Co., 1890), See Chapter 8 on the fight for St. Kitts and Nevis.

2. Vincent K. Hubbard, *Swords, Ships, and Sugar: A History of Nevis* (Corvallis, Ore.: Premiere Editions, 2002).

3. Aaron Arrowsmith, *Chart of the Caribbee Islands from the Spanish Survey with a sketch of the Anchorage at Nevis, &c.* (London: A. Arrowsmith, 24 February 1808).

4. ADM 1/5319 pt 3 ff 463-469, *Solebay*/Everitt Court Martial, 21 February

tool and her crewmen agents in shaping the fate of an empire driven by plantation slavery. This dissertation reveals *Solebay*'s history, discusses the results of her archaeological investigation, provides guidance for protecting the site as a submerged cultural resource, recommends future nautical research in Nevis, and brings these themes together through the fate of a single warship.

Despite these valuable scholarly efforts, no major work has been promoted to study the shipwrecks that may surround the island, and uniquely encapsulate undocumented material culture. For an island dependent entirely on maritime trade and communication for existence, and that was one of the wealthiest territories in the British Empire in the eighteenth century from the sugar trade, studying such shipwrecks should be pursued, to contribute to a richer understanding of Nevisian, Atlantic World, and nautical history. That has been the focus of this dissertation. Nautical archaeology is a sub-discipline of archaeology since the last half century. Its maturity as a discipline informed by scientific methods in the twenty-first century allowed it to spread to smaller and less studied locations. In Nevis this is especially important to fully understanding the island's past. Its maritime links with Europe, Africa, and the Americas, rest on the seafloor as archaeological records waiting to be uncovered.

This dissertation tested the following hypothesis: given Nevis' history and dynamic ecosystem, its waters harbor shipwrecks that are both easily accessible and archaeologically valuable. In doing so, the short-term objective of this research has been to locate, non-intrusively document, and present preliminary interpretations regarding the remains of an historic shipwreck. This first stage tested both the validity and value of

exploring underwater archaeological resources in Nevisian waters. The parallel long-term objective has been to establish a sustained nautical research program in Nevis. This objective has been evaluated through measurable developmental goals associated with the first objective to tease out greater patterns. Accomplishing these goals includes A) evaluating logistics and operations, B) building capacity and Nevisian support, and establish an international research network, and C) promoting ethical, scientific methods that produce public results and include the Nevisians as engaged beneficiaries and cultural stewards. *Solebay* serves as a case study in accomplishing these goals. Moreover, *Solebay* is a site that can contribute to the development and expansion of historical archaeology as means to understand its related past.

As the discipline of underwater archaeology has come to maturity in the last half-century as an historical social science, professional underwater archaeologists have pushed research into new locations. One growing trend is a desire and need to investigate deep-water shipwrecks. These have become increasingly subject to destruction from fishing trawlers. Also, treasure hunters are gaining resources to access deeply submerged wrecks. While deep-water wrecks warrant continued attention, these projects require sophisticated and expensive technologies. Commercial salvors continued work has been largely due to their ability to secure financing, in a race against archaeologists. Furthermore, trawlers continue to damage deep-water wrecks. In this context, significantly less costly projects from more easily accessible shallow-water wrecks beg discovering and archaeological study. In Nevis this assumption has yet to be scientifically tested, as the initial challenge is not depth, but accessibility.

At just under 36 square miles, with a population of c. 12,000 people, the appeal of Nevis as a tourist destination comes from its remote location. Nevis is 1,100 nautical miles from Florida in the continental United States. It is a further 1,200 nautical miles east of Honduras in Central America, and 400 nautical miles north of Venezuela, the closest continental land in South America. Though remote, Nevis is fully integrated into the modern world, easily accessible by air or sea travelers who regularly arrive for vacations with suitcases in hand. Conducting underwater archaeology as a foreign visitor in Nevis, with a limited budget, has been more challenging than planning a simple vacation. Funding is the biggest obstacle inhibiting underwater archaeology projects. Relative to terrestrial excavations, nautical research has very high costs from the special equipment and research vessel time. The *Solebay* project's funding was ensured by generous sponsors and adequate, but finances were tight.

This project used underwater cameras and special writing slates, a metal detector, materials for establishing site baselines and tagging artifacts, float bags for lifting and recovering heavier artifacts, large crates full of remote sensing equipment, and lots of scuba gear. Purchasing some items from local hardware stores helped reduce some shipping costs and time. Still, much of the specialized hardware had to be brought to Nevis. This involved careful logistical planning of both land and sea shipping, to send crates of gear to Nevis. Once there, orchestrating marine archaeological research, like any underwater archaeology project, required an adequate research vessel and access to a scuba shop for air tanks and fills, and a team of people.

The island's relative geographic isolation, small population, and insufficient facilities have limited both past and current salvage efforts. To date, no marina exists, though one being built nears completion. There is one government-operated harbor deep enough for large commercial cargo vessels. They arrive weekly with the bulk of wares and food to Nevis. Otherwise, mariners must anchor offshore at designated moorings. In Nevis, limited mooring options reduces the number of vessels available. This makes recreational diving, treasure hunting, and academic research more difficult. At the same time, these conditions of limited activity help protect the submerged resources from illicit exploitation. This contrasts with notoriously active, multi-decade, looting in waters of places such as Bermuda or Florida. These locations have greater populations and better marina facilities. This makes for more vessels with easier environments to operate, and therefore more vulnerable to opportunistic looters. In contrast, sending needed underwater archaeology equipment and operating in Nevis required a strenuous effort.

Nevis' lack of a sheltered marina exposed vessels to disaster during seasonal storms and hurricanes, as suggested by historic records. Shipwrecks were deposited along the seafloor, scattered across an area of potential anchorages. Additionally, European imperial competition led to a number of naval battles off Nevis and St. Kitts. The surrounding ocean potentially contains centuries of wrecked merchant and naval vessels. A remote sensing survey using a side-scan sonar and magnetometer employing accepted archaeological practices remains the most effective method for rapidly surveying large ocean swaths. A magnetometer detects ferrous materials such as cannon,

anchors, and steam machinery. Sonar data provides a visual record to complement the magnetometer, and assists with locating non-ferrous materials and debris fields.

For this dissertation, the project survey was limited to the use of a magnetometer. This choice reflected budget limitations in shipping costs and available survey time. Moreover, this effort served three useful purposes. The magnetometer survey followed a search area immediately surrounding the known *Solebay* shipwreck site. The magnetometer offered the opportunity to help delineate the wreck by identifying any previously unknown anchors or guns in the immediate vicinity. Secondly, recording the known guns provided magnetic signatures in known depths and environment that can be contrasted against magnetic signatures of unidentified origin in future Nevis surveys. This may potentially help locate and identify guns from other shipwreck sites.

Lastly, the process of assembling, shipping, clearing customs, and deploying the magnetometer has provided an educational test for future surveys. Access to an adequate vessel was a significant challenge for a survey in Nevis. With this comes the problem of powering the equipment with batteries, a generator, or other onboard power. All surveys face such obstacles. A two-day magnetometer survey around *Solebay* offered the opportunity to solve potential complications before committing resources to an entire survey season. With or without the survey data, the *Solebay* project can still be considered a success. The scientific divers were not dependent on the magnetometer for accomplishing *in situ* recording with writing slates, reel tapes, and cameras.

A future comprehensive survey in areas limited to recreational diving depths reflects the most vulnerable cultural areas given their accessibility. This choice has the

added benefit of allowing diver tow-boarding surveys and snorkeling for more rapid initial searches. Shallower depths additionally allow archaeologists to more easily research discovered wrecks. Promising targets can be dived using standard recreational scuba to assess cultural significance. This reinforces one of the arguments for this research and highlights the importance of *Solebay* as an easily accessible site with both risks to looting and benefits to archaeology. The magnetometer survey over *Solebay* did not help discover new materials. However, this effort proved beneficial for the logistical and methodological reasons mentioned to a future survey. Explaining this interest in a greater survey helps clarify the limited magnetometer test. Moreover, *Solebay's* discovery in 2010, subsequent archaeological investigation, and evolution of helping St. Kitts and Nevis develop their maritime heritage plans stems from the initial survey idea.

Planning for a remote sensing survey began in 2008 with initial contacts between several interested parties. Foremost, meeting with the Nevis Historical and Conservation Society (NHCS) leadership proved essential. The NHCS is a nonprofit, non-governmental organization that in 2012 began transitioning from its original non-governmental status into the Nevis Historical and Conservation Trust (NHCT), branch of the national government. Since its founding in 1980, NHCS members have included a mix of local Nevisians and expats who share a vision for securing the natural and cultural resources of Nevis. A small paid staff supported by volunteers have accomplished a lot. They have worked to establish heritage trails and posted signage for tourists, promoted efforts to preserve historic buildings, and developed and managed the island's museums and archives. Furthermore, the NHCS members have advised the

government on legislation to mitigate negative effects of development on the natural environment, while also promoting new construction sympathetic to existing styles of historic colonial architecture. These efforts have benefited Nevisians while enriching the appeal of their tourism industry. Understanding the role of the NHCS is critical to understanding the management of archaeological resources in Nevis.

During the winter of 2009-2010, while moving closer toward executing a survey, a question arose: “in anticipation of finding undocumented shipwrecks around Nevis, what legislation existed that would protect such finds from immediate looting or exploitation by treasure hunters?” This pertinent question appeared in the correspondence between the author and then NHCS members, and sparked a renewed interest in locating shipwrecks by the interested parties, and providing the country with a legal framework that will effectively protect its submerged cultural heritage.

The inspiration for locating *Solebay* came from retired American attorney Vincent Hubbard, who split his time between homes in Virginia and Nevis. He served as the NHCS president for six years and developed a passion for studying the island’s ruined fortifications. His avocational research expanded into the publication of *Swords, Ships & Sugar: A History of Nevis*.² This book covers topics from pre-Columbian Amerindian settlement, through the British colonial period, and ends in 1992, the date of its first publication. Hubbard never intended his book to be a definitive monograph such as might be written by a professional historian. He simply wanted to share what he had

2. Vincent K. Hubbard, *Swords, Ships, and Sugar: A History of Nevis* (Corvallis, Ore.: Premiere Editions, 2002).

learned. Surprisingly, to date, this 60,000-word book remains the only broad historical survey of Nevis. It is widely sold in the island's tourist stores and museum gift shops. While a solid introduction to Nevisian history, and written to appeal to tourists, the book leaves room for additional publications on Nevis.

In his extensive historical research, Hubbard identified the events surrounding *Solebay* and her loss on a reef off Nevis. He shared his hopes of finding the wreck with other NHCS members: Paul Diamond, Bob and Judy Foster-Smith, and Roy Arthur “Brother” Anslyn. The early 2010 discussions of potential archaeological shipwreck surveys rekindled interest in the possibility of locating *Solebay*'s remains. This small team of local history enthusiasts from mixed professions and backgrounds came together and took a chance on testing an historic map that purportedly identified the shipwreck location. They recalled a discussion with archaeologist Lilli Azevedo, then a PhD student from England researching on nearby Anguilla. While doing archival research, she had observed the word “*Solabay*” clearly written next to a black dot on a Spanish survey chart published in 1808: “*Chart of the Caribbee Islands from the Spanish Survey, with a Sketch of the Anchorage at Nevis &c.*,” hereafter referred to as the Arrowsmith chart after its publisher, English cartographer Aaron Arrowsmith (Figure 2).³

3. Aaron Arrowsmith, *Chart of the Caribbee Islands from the Spanish Survey with a sketch of the Anchorage at Nevis, &c.* (London: A. Arrowsmith, 24 February 1808).

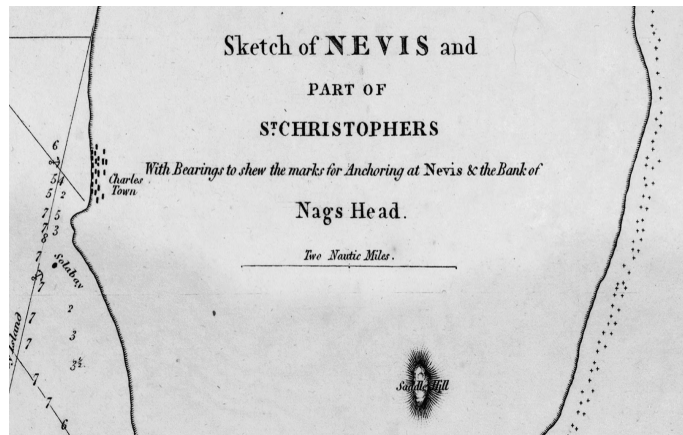


Figure 2 Close-up section of 1808 Arrowhead chart showing HMS *Solebay* wreck on western side of Nevis.

Although the spelling did not match exactly, the location supported official accounts from Captain Charles Holmes Everitt, *Solebay*'s commander at the time of the frigate's loss.⁴ Using the chart as a starting point, the team compared the historic map with a modern chart to formulate a plausible position. The coordinates obtained were then entered into a GPS navigation system. This allowed them to test the map by surveying an area surrounding the Arrowsmith *Solabay* position. With a position ready, key team members planned the fieldwork.

NHCS advisor Arthur "Brother" Anslyn serves the government directly as an expert Marine Consultant to the Prime Minister in the Nevis Island Administration. Well respected on the island, and through his additional advisory connection with the Nevis Air and Sea Ports Authority (NASPA), Anslyn spoke with NASPA's General Manager,

4. ADM 1/5319 pt 3 ff 463-469, *Solebay*/Everitt Court Martial, 21 February 1782.

Spencer Hanley. This discussion secured the use of NASPA's Police Launch, under Captain Grenville Boddie and First Mate Javon Bisette, for an initial search. This relationship with Hanley and the NASPA Police provided a boat for the initial scuba dives in 2010, and during the magnetometer survey in 2011. Paul Diamond, a key member of the NHCS, came to assist as did Bob Foster-Smith, a British expat who donated the use of a side-scan sonar and supporting equipment from his professional survey company to conduct a survey.



Figure 3 Vince Hubbard, Brother Anslyn, and Bob Foster-Smith discuss plans for HMS *Solebay* search. (Photograph courtesy of Paul Diamond)

Team members surveyed the area they believed to encompass the position indicated on the Arrowsmith chart (Figure 3). On the first day they experienced significant technical difficulties in getting the side-scan to work properly. They went ashore to troubleshoot and returned the next day, 25 March 2010. When trouble

continued to plague the sonar, they observed the shallowness of the water at 15–25 feet. They decided to attempt diver tow boarding. Anslyn and Diamond donned mask, fins, and snorkels, and the NASPA crew towed them behind the police launch using a rope. To their delight, they observed cannons within fifteen minutes. By the end of the day, they believed they had observed six cannon, including what appeared to be three 9-pounders and three smaller guns, possibly carronades. This discovery proved sufficient to warrant further investigation; whether *Solebay* or otherwise, historic cultural material had been discovered. The events that have since transpired became the focus of this research, a shift away from the survey initially planned.

From 16 to 22 July 2010, just under four months after this discovery, as a doctoral student in the Nautical Archaeology Program at Texas A&M University, I visited Nevis for one week to assess the environment, the logistics and plan my future project. Working around days of inclement weather, I managed to dive four times. While there, I developed a working relationship with Professor James Hewlett of Finger Lakes Community College, New York. He was teaching a marine biology field school to a dozen undergraduate students. In what proved fortunate to the *Solebay* research, Hewlett had budgeted extra time for inclement weather and got ahead of schedule with fair conditions. Having the flexibility and desiring to expand their educational horizons, Hewlett and his students volunteered to help with some basic documentation. After I instructed them in I taught them the basics of trilateration, measurement, and site recording they recorded the needed information. Their excellent work, along with my

notes and photographs, provided enough information for a preliminary report to plan a more extensive field project.

A year later, from 17 June to 20 July 2011, I directed a more detailed survey and documentation of the site, and recovered 72 artifacts for conservation and further analysis. While no irrefutable diagnostic artifact has been observed, such as a ship's bell etched with *Solebay 1763*, the results support a best-fit conclusion as the wreck of *Solebay*. This evidence includes the wreck's location supported by historic records, and a sampling of diagnostic artifacts that collectively fit the hypothesis. This wreck has contributed to the archaeological record of this particular site, generated new questions, and has been the basis for the development of nautical archaeology off Nevis. In doing so, the research has helped address questions regarding logistics and underwater cultural heritage policy.

This dissertation integrates theoretical perspectives within the history and analysis of the site. Nautical archaeologists are afforded latitude within their research interests that allows them to employ a hard science approach or to choose a research path that lies closer to the humanities. The discipline's literature reflects and summarizes a wide variety of approaches and examples.⁵ Modern anthropological scholarship

5. For a range of examples discussing maritime archaeological theory, read James Delgado, "Gold Rush Entrepôt: The Maritime Archaeology of the Rise of the Port of San Francisco," (Dissertation, Simon Fraser University, 2006); Joe Flatman, "Cultural Biographies, Cognitive Landscapes and Dirty Old Bits of Boat: Theory in Maritime Archaeology," *International Journal of Nautical Archaeology* 32, no. 2 (2003): 143-157; Richard A. Gould, *Shipwreck Anthropology* (Albuquerque: University of New Mexico, 1983); Richard A. Gould, *Archaeology and the Social History of Ships* (New York: Cambridge University Press, 2000); Charles E. Orser, *A Historical Archaeology of the Modern World* (New York: Plenum Press, 1996); and Mark Staniforth, *Material Culture*

encompasses a wide spectrum of approaches, from historical narrative to nomothetic anthropological questions. The answers within each theoretical frame are not right or wrong, but rather an epistemological negotiation that enriches the discipline with multiple scholars employing their expertise to expand knowledge. This research added to knowledge of Nevisian and British nautical history by employing both scientific methodology and historic research. It delivered historic narratives and asked questions regarding human behavior in war. Therefore, this nautical archaeology research moved toward an archaeologically-informed maritime history of Nevis, as opposed to historical archaeology.

The research objectives for the *Solebay* fieldwork were concise: 1) to delineate the extent of the site and create a detailed site plan, documenting all observable artifacts with field notes and underwater imaging; 2) to affirm or deny, to the greatest possible extent, the identity of the site as HMS *Solebay*; and 3) to establish a precedent for high quality scientific investigations of underwater archaeological sites in Nevis. Through these objectives, a baseline site plan and report provides Nevis the means to strategize on site mitigation and future underwater archaeology research, and contribute to Nevis' economic potential through enhancing heritage tourism resources. These resources are both an educational museum exhibit, created from the excavated *Solebay* artifacts, and the site itself, which can appeal to recreational snorkelers and scuba divers. As much as

and Consumer Society: Dependent Colonies in Colonial Australia (New York: Kluwer Academic/Plenum Publishers, 2003).

possible, interpretations regarding the site formation process, historical technology, and related cultural behaviors have been analyzed.

The interpretation of the research results placed the material culture within the greater historical context, as an archaeological signature of eighteenth-century imperial conflict. The wreck, if it is determined to be HMS *Solebay*, sank in the Battle of Frigate Bay. The story of *Solebay* is in many ways the story of the British naval experience during the American Revolution. Constructed in 1763, *Solebay* became one of the first warships deployed along the American seacoast in 1775, serving nearly the entire duration of the war, before being lost in 1782. This action occurred within a period of intense competition for control of a number of Caribbean islands, primarily between Great Britain and France, but also involving Spain and the Netherlands. *Solebay* serves to propel an intricate history involving Europeans, colonial Americans, and enslaved Africans.

CHAPTER III

NEVIS IN THE BRITISH EMPIRE

By 1900, one-quarter of Earth's entire human population, 400,000,000 people, lived under the flag of the British Empire. The British achieved this amazing global influence despite having lost some colonial possessions, including the American Colonies, which became independent in 1776. This expansion and control of colonial territories was possible through the administrative maturation, professionalization, and technological improvements of the British military and especially in the Royal Navy defending a political economy that focused on securing and controlling trade. Other important factors to imperial growth included cultural changes occurring from the Enlightenment and Scientific Revolutions, which provided technological advances, population growth, a boom in consumer-oriented commerce, and a general increase in education and knowledge. Adding to this was the enormous geographical advantage of not having continental borders, which bogged down European powers with costly defenses. British culture evolved in a way that today seems inevitable, but was not predetermined. Success required these factors working complementary to each other, together with a bit of luck, and in contrast to other cultures choosing to emphasize different paths, which exaggerated British success in comparison. No single factor can be isolated to explain the British imperial success, but control of territories that provided the resources to fuel the manufacturing and industrialized economy as it shifted from mercantilism to capitalism is clearly among the most important.

To gain a broad contextual understanding of Nevis in English, Caribbean, and world history requires reviewing multiple treatments. There are many well-written books on the broad history of the West Indies, the history of the sugar industry, and the history of the English in the Caribbean.¹ There are also sound historical archaeology books on Nevis, as well as the availability of very site-specific reports.² The history of Nevis appears in such texts, but often in limited references, or overshadowed by the larger islands' histories. Jamaica, Barbados, or the most prosperous English sugar island, Antigua, with its strategic naval base at English Harbor, starting in the 1720s, or St. Kitts, which tends to steal some of the attention from Nevis due to its proximity and tightly related history. Each book offers a slightly different approach to the subjects, but collectively they provide an understanding of Nevis' historical place, particularly in the

1. Key examples of good secondary sources include Carl Bridenbaugh and Roberta Bridenbaugh, *No Peace Beyond the Line; The English in the Caribbean, 1624-1690* (New York: Oxford University Press, 1972); Ralph Davis, *The Rise of the English Shipping Industry in the Seventeenth and Eighteenth Centuries* (New York: St. Martin's Press, 1962); Richard S. Dunn, *Sugar and Slaves: The Rise of the Planter Class in the English West Indies, 1624-1713* (Chapel Hill: University of North Carolina Press, 1972); Brian Dyde, *Out of the Crowded Vagueness: A History of the Islands of St Kitts, Nevis & Anguilla* (Oxford: Macmillan Caribbean, 2005); David Hancock, *Citizens of the World: London Merchants and the Integration of the British Atlantic Community, 1735-1785* (New York: Cambridge University Press, 1995); Sidney W. Mintz, *Sweetness and Power: The Place of Sugar in Modern History* (New York: Penguin Books, 1986); Richard B. Sheridan, *Sugar and Slavery; An Economic History of the British West Indies, 1623-1775* (Baltimore: Johns Hopkins University Press, 1974); and David Watts, *The West Indies: Patterns of Development, Culture, and Environmental Change Since 1492* (New York: Cambridge University Press, 1987).

2. For two good historical archaeology books on Nevis, read Tessa Machling, *The Fortifications of Nevis, West Indies, From the 17th Century to the Present Day: Protected Interests?* (Oxford: Archaeopress, 2012); and Michelle Terrell, *The Jewish Community of Early Colonial Nevis: A Historical Archaeological Study* (Gainesville: University Press of Florida, 2005).

seventeenth and eighteenth centuries, with details and comparisons of other West Indian islands.

Nevertheless, a broad history of Nevis can be ascertained through the readings, and is important to briefly review. The two islands of St. Kitts and Nevis were significant enough for France and Great Britain to commit thousands of soldiers and sailors to the capture and defense of the two islands. Therefore, understanding Nevis' history adds a piece to the larger puzzle of British imperial history. Key Nevis topics include the history of plantation capitalism, slavery, imperial competition, the Columbian exchange, ethnocide, and global trade.

Historical scholarship solely of Nevis is limited. Hubbard's monograph covers the total history but with a cursory fashion and limited footnoting.³ Studying Nevis through secondary sources is possible as previously mentioned, but often through snippets in books covering a greater context or theme such as histories of sugar production or histories of the West Indies. Since colonial Nevis was heavily dependent on England, primary sources available are often from external sources. For these reasons, understanding the European past in Nevis is challenging. Moreover, given the quick displacement and destruction of indigenous peoples, pre-European history is even more scant. This prehistory can only be filled by archaeological sources and small clues from few contact-period historical records. Most of these records document Europeans on Nevis' sister island, St. Kitts and do not contain any direct discussion of Nevis. The few that exist provide at best a limited understanding of Native Nevisian-European

3. Hubbard, *Swords, Ships, and Sugar*.

interactions. Even using the term “Native” is only relative to Europeans, to imply pre-European inhabitants or peoples of origins outside Europe. More accurately, all people on Nevis and the surrounding Caribbean islands were imported either from Europe, Africa, or mainland South America.

A review of Nevis geographic names provides a sense of the island’s cultural history and legacy. For example, the legacy of piracy endures in the naming of the island’s prominent Gallows Bay, the location where pirates were hanged. Geologically, Nevis was formed from a dormant volcano and is one of the Leeward Islands in the Lesser Antilles island chain within the West Indies. This Eurocentric naming historically indicates the approach of seafaring Europeans arriving on wind-driven vessels. The Carib Indians called the island *Oualie*, or “Land of Beautiful Waters.” In modern times, a popular beach and tourist resort on the northwest coast retains the name of *Oualie Beach*.



Figure 4 Nuestra Señora de las Nieves. Typical summer day in Nevis showing a clouded Mt. Nevis peak. (Photograph by the author)

In 1493, when Columbus sailed past Nevis, he named it San Martin, and later renamed it as *Nuestra Señora de las Nieves* (Figure 4). In time the island offered an opportunity for Europeans to explore and exploit. While it took the English more than a century to colonize it, the fate of the Amerindians on the island was settled with the arrival of the first Europeans.

Pioneering Europeans struggled initially to establish permanent settlements. They battled resistant native populations while encountering tropical climates and diseases. Furthermore, Europeans had to compete against each other. During the sixteenth century Spain thwarted English attempts to gain a foothold in the Caribbean. While Columbus led Europeans to Nevis and named several islands in the Lesser Antilles for Europeans, it was the English and French who took advantage of these finds. The Spanish focused on Cuba, Hispaniola, and their vast territories on the American mainland. During the sixteenth century Spain kept firm control of precious metals in the New World. For over a century small islands such as Nevis were not a priority, and England grabbed whatever it could.

In Newfoundland the English expanded their cod fishing, and by 1587 attempted to colonize Roanoke. English efforts in the New World were largely unsuccessful throughout the sixteenth century. Nevis started to become important to English seafarers in the mid-sixteenth century as they began venturing in greater numbers across the Atlantic Oceans. In 1585, Elizabethan sea captain Sir Francis Drake anchored off St. Kitts. He was part of English strategy leading a force to try to prevent the Spanish from replenishing their ships' fresh water supplies. It took four more decades for permanent

English settlements, and until the latter half of the seventeenth century before the sugar monoculture became established. During this century, Nevis went from being a small island populated by indigenous peoples to an English colony fueling the rise and prosperity of the British Empire.

Captain Bartholomew Gilbert from Plymouth, England, arrived in Nevis in June 1603 with a crew that cut 20 tons of *lignum vitae* timber over two weeks.⁴ This resource extraction from Nevis reveals an early economic use of the island by European mariners. Gilbert's men feasted on a giant tortoise with 500 eggs inside. These large animals were common before the arrival of Europeans. After resting and replenishment from the Atlantic crossing, Gilbert left Nevis, bound for Sir Walter Raleigh's Roanoke failed colony of 1587. Upon arriving in what is today the Chesapeake Bay of Virginia, Gilbert and his master's mate, ship's doctor, and a Dutchman went ashore, where they were murdered by Indians. This unfortunate end still highlights Nevis' connection into the development of early colonial American history. Europeans continued to stop at Nevis as a waypoint for fresh water before sailing to the American colonies as in 1607, when Captain John Smith's Virginia-bound colonists anchored at Nevis to rest before journeying on toward their final destination.

On 28 January 1624, a ship named *Marmaduke* delivered Robert Rich along with Sir Thomas Warner and his family to St. Kitts, establishing the first permanent English

4. Samuel Purchas, *Purchas His Pilgrimage* (London: William Stansby, 1613), 329-335.

colony in the Caribbean.⁵ A year later, French Captain Pierre Belain d'Esnambuc led survivors from a Spanish attack ashore on St. Kitts. The French vessel had been chased and was caught up by Spanish vessels. The ensuing fight badly damaged the French vessel and forced the survivors ashore for refuge. They serendipitously arrived on St. Kitts, and were warmly welcomed by Warner's colonists. The English took pity on the French survivors, and, with Warner's assistance, d'Esnambuc established the first permanent French-Caribbean colony by sharing St. Kitts with the English. In an arrangement that reflects English-French distrust of each other, and an attempt to prevent or limit conflict, they agreed to divide the island.⁶ The English and French jointly settled St. Kitts partially in an attempt to counter Spanish and Indian aggression.⁷ The English controlled the middle third of the island, which included the central high ground and fresh water supply of Wingfield River. The French were divided and occupied the northern and southern thirds of the island, controlling Capesterre and Basseterre, and surrounding the English. All colonists agreed to share the island's salt ponds.

Tensions on St. Kitts, partially fueled by Warner's attempts to control the price of tobacco, and partially by a rising population caused some of the settlers to look

5. R. Christopher Goodwin, "The Prehistoric Cultural Ecology of St. Kitts, West Indies: A Case Study in Island Archaeology" (Ph.D. dissertation, Arizona State University. Ann Arbor, Mich.: University Microfilms, 1979) and B. Dyde, *Out of the Crowded Vagueness: A History of the Islands of St Kitts, Nevis & Anguilla* (Thailand: Macmillan Publishers Limited, 2005), 21.

6. Gordon C. Merrill, *The Historical Geography of St. Kitts and Nevis, the West Indies* (Mexico City: Copilco-Universidad, 1958), 51

7. *Ibid.*, 49.

toward Nevis as a new opportunity, only four years after arriving on St. Kitts. On 22 July 1628, Anthony Hilton and Thomas Littleton crossed the Narrows, from St. Kitts to Nevis, and landed with 150 settlers to begin a new colony.⁸ They got to work building shelters, clearing land, and planting crops: tobacco, cotton, indigo, and ginger. Thus began the first English colony on Nevis. Except for temporary invasions, the island remained under direct English control until independence on 19 September 1983.

Moving to Nevis and generating wealth came with new threats to health that did not exist in England. Historical records and modern demographics reveal the devastation of European diseases on Native Americans. Yet, Europeans had to contend with adjusting to life in the tropics. English colonists in both St. Kitts and Nevis settled on the leeward sides of the islands. The western shores offered calmer waters to anchor their ships, but the lack of breezes meant biting gnats and mosquitos with their associated diseases. Indigenous populations tended to concentrate on the windward shores that offered fresher air from more constant Atlantic breezes.

While planters escaped the bubonic plague and smallpox of Europe, after settling in Nevis they experienced such maladies as malaria, yellow fever, edema, and death from dysentery among other diseases carried by tainted water, mosquitoes, and other insects and animals.⁹ Settling Nevis was not easy. The first season's crop of tobacco was nearly ready for harvesting when a storm wiped it out and settlers had to replant and start over. Despite these natural challenges, Nevis was a good island to develop. Nevisian

8. Dyde, *Crowded Vagueness*, 33.

9. Dunn, *Sugar and Slaves*, 302.

planters owe part of their success to fortuitous environmental circumstances. Nevis had the right combination of rain and good quality soil for agriculture. Other islands such as Anguilla, Barbuda, and Tortola lacked the combination of naturally ideal conditions.

Beyond adjusting to new climates and illnesses, pioneering English settlers had to confront human threats. The early settlements put Europeans in direct contact with indigenous Kittian and Nevisian Amerindians. The archaeological record suggests that Nevis' precolonial indigenous people were Arawaks, while the prehistoric natives on Nevis at the time of European settlement have been termed Caribs in historical writings.¹⁰ This discrepancy may stem from an allowance in Spanish customs to enslave Caribs, but not Arawaks, because of their cannibalistic practices. Reclassifying Arawaks as Caribs offered Europeans freedom to enslave and mistreat all natives. During the initial European contact period, Caribs had been advancing north through the Lesser Antilles while Arawaks were moving south from the Greater Antilles. Evidence suggests that upon Europeans arriving both cultures were active and in close proximity.

Aboriginal Nevisians had relatively small population sizes, compared to continental Native Americans. Undoubtedly, the island's small size limited growth. Upon European contact, local inhabitants were conquered, killed, decimated by disease, or intermixed with colonists. Early relations with Europeans quickly became violent. In 1626 six war canoes from St. Kitts, carrying over 400 Caribs under a chief named

10. Samuel M. Wilson, "The Prehistoric Settlement Pattern of Nevis, West Indies," *Journal of Field Archaeology* 16, no. 4 (1989): 427-450.

Tegreman, landed on Nevis to battle the European settlers.¹¹ Soon after surviving this fight, French and English settlers joined forces and slaughtered Tegreman along with his Caribs in a night raid. English soldiers killed Tegreman as he slept in his hammock by running him through with rapiers.¹² The Caribs could not compete militarily with the technological superiority of the Europeans. In this context, Nevis began a post-Columbian cultural history that was dominated by English settlers, but with influences from the mixing of perhaps a few surviving Arawak Indians. Later, when the white English settlers became a minority, the island demographics shifted to a vast majority of African slave descendants, with other minor European ancestry including Sephardic Jews exiled from Portuguese Brazil.¹³

While today sugar may be thought of as a common necessity, in the sixteenth century it was a luxury. This transformation took place through a cultural evolutionary process, as sugarcane production increased on the Caribbean islands. As early as Columbus' second voyage, in 1493, the one in which he first sighted Nevis, Europeans began transplanting sugarcane to Hispaniola. In 1504, the Spanish conquistador Hernan Cortés moved to Hispaniola, and when offered a grant to land replied, "I came to get gold, not till the soil like a peasant."¹⁴ While agriculture thrived in the Spanish New

11. Sir Probyn Innis, *Historic Basseterre* (St. Kitts: Offset Commercial Printers, 1979), 4.

12. Hubbard, *Swords, Ships, and Sugar*, 40.

13. Terrell, *The Jewish Community*.

14. As quoted in Watts, *Patterns of Development*, 78.

World and remained the economic basis of the Spanish expansion, the Spanish crown focused on mineral extraction, a far more profitable endeavor than agriculture. The Spanish Empire was the most successful among the European attempts to colonize the Americas, both in geographical and in time span. Barred from the sources of precious metals, English and French settlers were forced to invest extra time and persistence in order to survive.

The English had to create wealth out of the land through agriculture. While not as immediate, it nevertheless produced enough capital, and fed into the growing markets and trade system. For the English, the investment paid off and they found their niche in extracting wealth from Nevis. As the small European nation-state of the Netherlands became wealthy controlling trade in northern Europe, so too would the English succeed by following the Dutch example and encourage trade in the colonies. Nevisian sugar fueled not only the rise of England, but also the prosperity of the mainland American colonies through trade for items such as fish and timber.

Historical archaeologist Marco Meniketti has identified three developmental periods of sugar production on Nevis: 1627 to 1655, 1655 to 1785, and 1785 to 1833 (Figure 5).¹⁵ These phases each have distinctive cultural patterns defined by a combination of environmental, economic, technological, and demographic traits. This

15. As defined by Marco Meniketti, who has studied Nevis' sugar plantations for two decades. Read Marco Meniketti, "Sugar Mills, Technology, and Environmental Change: A Case Study of Colonial Agro-Industrial Development in the Caribbean," *IA. The Journal of the Society for Industrial Archeology* (2006): 53-80. Also read Marco Meniketti, *Sugar Cane Capitalism and Environmental Transformation. An Historical Archaeology of Colonial Nevis*, Tuscaloosa: University of Alabama Press, Forthcoming 2015.

model provides a framework for analyzing historical change in Nevis. In turn, Meniketti's model can also be used to understand the potential shipwreck types associated with signature periods of change—e.g. sailing, steam, warship types, merchant, etc.



Figure 5 Professor Marco Meniketti of San Jose State University recording archaeological ruins of colonial sugar plantation. (Photograph by the author)

The first period, between 1627 and 1655, was characterized by early settlement, clearing land, exporting *lignum vitae*, small plantations, animal-powered mills, and labor by English and Irish indentured servants. Diseases, biting insects, Amerindian threats,

and generally poor living conditions with hastily constructed early shelters must have presented exhausting physical, mental, and emotional challenges to the first settlers. The first entrepreneurial English planters began cultivating tobacco, cotton, indigo, and ginger. They needed a saleable product to exchange for provisions, tools, and luxury items.

These early settlers plantations enjoyed only limited success and rarely yielded significant profits or supported more than a meager existence. Moreover, getting the crops safely to England proved difficult. Even a decade after producing the first tobacco crops, colonists struggled to transport their tobacco so that it arrived in England in an acceptable condition. Much of the tobacco spoiled during the ocean passage and arrived in England with considerable less value. Competition from colonial Maryland, Virginia, and the Carolinas overtook the islanders' efforts. While the colonists in the British West Indies, including Nevis, struggled to survive in the first half of the seventeenth century, a shift in fortune occurred with the introduction of sugar planting followed closely by the importation of slaves from Africa which began on Barbados but soon spread to most other Caribbean islands including Nevis.

In 1627, Henry Powell had led English colonists in a voyage north from Guyana sailing toward Barbados. On his way, he invited Arawaks in canoes to join his group. When they arrived to settle Barbados, the Arawaks taught the Englishmen how to cultivate plants. In return, the English enslaved them to work the land. This often-repeated example of enslaving the indigenous American populations by Europeans highlights another point. Whether in the mainland colonies or in the West Indies, the

initial settlers always lacked knowledgeable and skilled peasant farmers and craftsmen: sawyers, carpenters, coopers, blacksmiths, masons, etc. Eventually, enough skilled labor would arrive into the New World, particularly as trained West African slaves. The shortage of physicians or barber-surgeons remained a problem in the colonies.

After enslaving and exhausting the indigenous the labor supply, the English tried to fill their labor vacuum with indentured servants. Scotchmen, Welshmen, and Irish Catholic immigrants were initially accepted to fill a labor shortage.¹⁶ Planters preferred healthy, unattached young men. Between 1654 and 1686, over ten-thousand registered servants were shipped from Bristol to America, including to the West Indies, Virginia, Maryland, and the Carolinas (few went to New England after 1640). Of these, 1,247 arrived in Nevis.¹⁷ Just at the historical peak of the white population in the English islands, disease and climate decimated part of the population. Between 1647 and 1649, a combination of sickness and drought caused thousands of deaths, right at the start of the transition to sugar cane, a labor-intensive crop.

The Barbadian English planted and tested a variety of crops before shifting to sugar in the 1640s. Sugarcane crops seem to have originated separately in New Guinea and in the Indian subcontinent, and were spread by Arab traders during the Middle Age. Portuguese and Spanish settlers brought these crops to the Atlantic Islands in the fifteenth century, and then to the New World, and sugar eventually made it into the English Caribbean in the early seventeenth century. Dutch traders introduced it and

16. Merrill, *Historical Geography*, 55.

17. Dunn, *Sugar and Slaves*, 70.

provided the English planters the initial capital, taught them how to cultivate and process the sugar, then purchased the raw product for transport to Europe where they dominated sale of the sugar for several decades. Thus sugar became the key cash crop for the English Caribbean.

Dutch investors sustained the English and French planters for the first three decades and allowed for their collective success. In the Caribbean, European colonists generally cooperated for business reasons that helped islands like Nevis grow. Sugar planting was transplanted to Nevis in 1655.¹⁸ In Barbados, as the surviving English planters shifted to a sugar monoculture, they started importing significant numbers of West African slaves. After the switching to the planting of sugar, the Kittian and Nevisian colonists did the same and African slaves soon supplanted European indentured servants as the primary human labor force of West Indian plantations. The demographic shift created a white minority ruling a black slave majority with one single purpose: to extract wealth from a monoculture of sugar. West Indies plantations produced the first African slave based economies by English colonizers. Constant changes in population sizes and demographics created constant political uncertainty and failed to generate a sound white society before 1650 on any English Caribbean island. Although slaves dominated the population, the white English successfully controlled them.

While slaves worked the land and cut the sugarcane, the processing of sugarcane into muscovado, the semi-refined product that shipped abroad required a reduction

18. Merrill, *Historical Geography*, 53; Bonham C. Richardson, *Caribbean Migrants: Environment and Human Survival on St. Kitts and Nevis* (Knoxville: University of Tennessee Press, 1983), 60.

process of grinding powered initially by animal labor.¹⁹ The grinding extracted the juice that was collected in a cistern. The working staff then reduced the juice through boiling in large copper kettles. A boiling house may have had four or five “coppers” supervised by an experienced boiler. The staff member supervised the process, skimmed impurities, and controlled the reduction. This was more of an art than a science. When ready, workers transferred the dark, sticky substance into ceramic cones where it cured into muscovado sugar. The initial cutting and boiling took days, while the curing took weeks. Because of this, and the limited number of coppers, plantations grew and processed cane in groups, as to have a continuous rotation of muscovado sugar batches ready for export. If they cultivated all of the cane at the same time, it could rot before enough boiling coppers were available for processing. Boiling had to happen in hours from cutting and could not wait days or weeks. The other option was to distill the sugar into rum for export. Once in England the raw sugar, or muscovado, was further refined into the white sugar used in baking and on dinner tables. This system allowed the English to maintain a complete monopoly over final quality, production, distribution, and sale of the product to English markets.

According to Meniketti, the second period occurred between 1655 and 1785. This was the period when sugar cane was introduced into Nevis and by the end dominated as a monoculture. This phase brought significant population growth, a consolidation of plantations into estates, a shift from animal to wind power, and a dependence on African slave labor. Water mills had popularity in Jamaica with plentiful

19. Dunn, *Sugar and Slaves*, 191-197.

streams, but in Nevis, windmills replaced mules as the dominant source of grinding power. Some of these mills lasted well into the twentieth century, although steam-powered machinery largely overtook both animal and wind power in the nineteenth century. Through good use of wind power and slave labor, in this period Nevis became a source of great wealth, therefore worth fighting over to both the British and French. This is also the phase during which *Solebay* was lost as a result of the need to defend the islands' wealth.

Although sugar could be transported with more assurance of controlling quality than tobacco, there still remained threats to safely shipping their product to England. Hurricanes seasonally disrupted or even destroyed buildings and settlements on the tiny island of Nevis.²⁰ Earthquakes also affected the European stone buildings and one such earthquake in 1690 destroyed all of the buildings in the capital of Charlestown.²¹ Hurricanes and the associated winds and rough seas lasted several days during which time they not only damaged buildings but also battered and destroyed ships just offshore. The island could not exist in the world system without access from the sea, essential for transport of people, supplies, and products such as rum and sugarcane.

20. Editor, *An Account of the Late Dreadful Hurricane, Which Happened on the 31st of August, 1772. Also the Damage Done on That Day in the Islands of St. Christopher and Nevis, Attempted to Be Ascertained*, (Basseterre, St. Christopher: Thomas Howe, 1772); Hubbard, *Swords, Ships, and Sugar*, 29-35; Richardson, *Caribbean Migrants*; Robert Robertson, *A Short Account of the Hurricane, That Pass'd Thro' the English Leeward Caribbee Islands, on Saturday the 30th of June 1733* (London, 1733).

21. Richardson, *Caribbean Migrants*, 61.

In 1733 a letter from a Nevis Englishman to a gentleman in London described the destruction of ships, damage to windmills, uprooted trees, and loss of life.²² Ship destruction was not only significant for the temporarily reduced ability to transport people and goods, but also important before the telegraph and later modern communication technologies. In the pre-industrial world the only source of communication between islands and other countries was delivered through people and letters onboard sailing vessels. Any disruption in shipping delayed decisions and relations politically, socially, militarily, and economically.

In 1660 Charles II established the Royal African Company to develop and trade with the gold fields recently discovered along the Gambia River. The fields were soon depleted and the company turned to transporting slaves from Africa to America, particularly to the Caribbean. The company held a monopoly within the English empire and made Nevis the entrepôt slave market into the Leeward Islands.²³ For Nevisians this meant that their planters had the first pick of the best slaves and could keep as many as they needed. This gave Nevis planters a competitive advantage over those on other islands. Typical plantations had 100 acres in sugarcane with no more than 50 slaves, though some were much larger.²⁴ The Pinney estate on Nevis is a notable exception of

22. Robertson, *A Short Account*.

23. Merrill, *Historical Geography*, 56.

24. *Ibid.*, 69-70.

200 acres and less than 180 slaves in the late eighteenth century. St. Kitts in the late eighteenth century had 360 slaves per square mile, or 2.6 square kilometers.²⁵

In further comparing Nevis to St. Kitts, though smaller in size (36 square miles versus 68 square miles), Nevis produced more sugar because of the tenuous English-French relationship that divided St. Kitts into thirds during the sixteenth century.²⁶ Despite intermittent tensions, European conflicts, and Spanish raids, the divided arrangement on St. Kitts and complete English control over Nevis was intended to maintain peace and counter foreign aggression, but decreased the island's potential productivity through less efficient land management than if the island had been under single political control. The English-French agreement lasted until the 1713 Peace of Utrecht. Key to Nevis history is that the French ceded all of St. Kitts to the English.²⁷

As time passed, and as the population and economy grew, tolerance for different cultures decreased and conflict increased between groups. The world system was such that problems in the metropole influenced events in the periphery, affecting places like Nevis. Imperial tensions heightening in the 1640s, 1660s, and the 1688 Glorious Revolution, highlighted suspicions between Catholics and Protestants on the Caribbean islands. Independent colonial planters became increasingly drawn into international imperial conflicts. British and French governments played increasingly active roles in the peripheral West Indian islands through governmental, military, and naval actions.

25. Richardson, *Caribbean Migrants*, 14.

26. Merrill, *Historical Geography*, 72.

27. *Ibid.*, 66.

English Protestants treated Quakers, Irish Catholics, and Sephardic Jews with suspicion.²⁸ These negative relationships were exacerbated during European conflicts between English Protestants and French Catholics. International relations had consequences on the islands, and the islands existence depended on healthy foreign relations for trade.

The islands depended on the North American mainland colonies for lumber, and food for the slave-labored plantations. They traded for everything: hats, shoes, onions, corn, rice, peas, flour, wine, pork, beef, fish, and even building timber, since they had stripped the island of trees in clearing land for the plantations. Sugarcane became so abundant that a contemporary observer complained in 1664 of inadequate food being grown.²⁹ Sugar became currency for everything the islanders needed, especially since there existed a shortage of gold and silver coins in the Leewards. By 1678, Nevis had become more prosperous than St. Kitts, Antigua, and Montserrat.³⁰

As European colonial empires grew in the Americas, their conflicts extended from European battlefields and seas to American and Caribbean lands and waters. Settlers suffered during the recurring wars as soldiers drove colonists from their homes and burned and destroyed the crops and buildings on the abandoned estates; these would be rebuilt and last until the next seemingly inevitable conflict. The first of three wars began only a year after Nevis' colonization when, in 1629, during fighting in Europe

28. Terrell, *The Jewish Community*.

29. Merrill, *Historical Geography*, 54.

30. Dunn, *Sugar and Slaves*, 128.

between Spain and England, Spanish soldiers invaded and occupied both Nevis and St. Kitts.

The 1701-1714 European War of the Spanish Succession spread to North America in 1702, where it was later known as Queen Anne's War, in the 1760s. During this conflict, Governor Christopher Codrington, Captain-General of the English Leeward Islands, led a siege against the French at Guadeloupe. This effort failed when French forces from Martinique relieved the French. Three years later, in 1706, in retaliation, Pierre Le Moyne d'Iberville led French soldiers on a raid that overran Nevis. Most of the English residents of Nevis fled into the mountains. The French burned crops, damaged buildings and carried off 3,200 slaves, and made the English promise to deliver 1,400 additional slaves as soon as they could capture them.³¹ The raid crippled the island's economy for over a decade.

After the 1713 Peace of Utrecht, privateers continued their once-legal practices by becoming pirates, with loyalty only to themselves. Their exploits throughout the Caribbean began a short-lived period known in history as the Golden Age of Piracy. On 27 September 1720, Pirate Captain Bartholomew Roberts, known in modern popular culture as "Black Bart," raided Basseterre, St. Kitts, where they captured one ship, burned two others, and attempted to secure provisions. After harassing that community the pirates sailed south to Nevis where they threatened to burn as revenge for pirate

31. Richard Pares, *War and Trade in the West Indies, 1739-1763* (London: Cass, 1963 [1936]), 181.

hangings.³² Roberts may be remembered as the most successful pirate in this period, but failed to profit from St. Kitts or Nevis. The islanders drove him away through collective resistance, cannon fire, and unfavorable winds pushing his ships away from shore and making it difficult to hold their position while fighting the islanders.

In Nevis, captured pirates hung from gallows placed on the beaches as a warning, giving the modestly protected cove its modern name, Gallows Bay.³³ As piracy lessened, European wars renewed. The 1740—1748 War of the Austrian Succession extended to America, where it was known as King George's War. Though King George's War affected Nevis less than earlier conflicts, stability in Europe and the Caribbean was far from assured. 1756 marked the beginning of the European Seven Years' War, which ended with France ceding its claims to North America to Great Britain, and the general growth of British influence in North America and the Caribbean.

Initially, the West Indian colonies were not much different socio-politically than those established on the American mainland. Geographic distances and political and economic variation increasingly separated the cultures in the eighteenth century. In the 1765-1766 Stamp Act crisis, the Leeward Islands exhibited a very assertive opposition to England's new policy compared to Barbados or Jamaica. Their role in the imperial economy depended more heavily on foreign trade and exports than their submissive counterparts. Decisions at the metropole squeezed the colonies to varying degrees, and

32. Richard Sanders, *If a pirate I must be-- the true story of "Black Bart," king of the Caribbean pirates* (New York: Skyhorse Pub., 2007), 132-137.

33. *Ibid.*, 87.

the smaller islands felt the pressure more greatly.³⁴ Riots and violence like those on St. Kitts and Nevis did not occur in Barbados or Jamaica whose residents complied with the Stamp Act.

English planters in Nevis considered themselves to be loyal English subjects, but developed a desire to control their island's business affairs with more autonomy from England. They had a dual identity as British citizens, but were physically located in the Caribbean as English Nevisians. Their slaves toiled the land, and the English planters and their managers controlled the business decisions. In the natural and cultural environment of Nevis as a colony, Englishmen moved their families to the island, but never viewed it as a permanent home. In contrast, in the American Colonies, which started with Jamestown and Plymouth, settlers moved with entire families to start new lives. They intended to stay permanently. In Nevis, planters would return their children to England for school. They intended to stay in Nevis only long enough to get wealthy and then return to England to live out their lives in retirement.

As the plantations evolved, the planters increasingly practiced absentee ownership of the plantations, whereby an onsite manager oversaw day-to-day operations while the owner lived in England. Nevis was a place to generate wealth. Nevisian colonists did not share a sense of permanence to the land that their American Englishmen held to the mainland American colonies. This transient identity that shaped Nevisian politics and loyalties had consequences when choosing sides during the

34. Andrew J. O'Shaughnessy, "The Stamp Act Crisis in the British Caribbean," *The William and Mary Quarterly* 51, no. 2 (1994): 203-226.

American Revolution. Nevisian planters never quite reconciled their desire to have political independence with their need to be subservient due to their dependence on the American Colonies and British military for provisions and security. These challenges created irreconcilable consequences, compounded by a growth in absenteeism, and a decline in sugar value, all contributed to the decline in Nevis' prosperity and value as a colony.

The planters held economic, while the governor had political power in his role as agent of the British monarch. The representative system fostered regular political conflict. Planters producing the wealth sought to control the social and political system to their advantages. Political tensions happening in New England prior to the American Revolution paralleled some of the experiences in Nevis. The plantation economic system shaped the political process. As the prosperity and population of Nevis grew, the British metropole attempted to exert greater control over the plantation economy. Nevis' agricultural productivity thrived compared to the early years of the first phase, but the colony still depended on its economic connections to the American mainland and England for trade, materials, and markets. The planters yearned for independence and for a monopoly on political and social power, but were wholly dependent on the greater socioeconomic system for survival.³⁵

When the American Revolution began, English Nevisian loyalty to England eclipsed their desire to join the cause for freedom. Their dependence on England

35. Keith C. Simmonds, "Political and Economic Factors Influencing the St. Kitts-Nevis Polity: An Historical Perspective," *Phylon* 48, no. 4 (1987): 277-286.

increased even more so during the American Revolution once trade with the American mainland was prohibited due to war. Further, the black majority slave population contributed to a greater need for a military presence on the islands. British soldiers provided security against potential rebellions. In the mainland colonies, British soldiers were a symbol of tyranny; in Nevis, they offered safety. Meantime the sugar islands depended on preferential tariffs, while the mainland colonies grew increasingly independent from imperial need as their populations and economies grew. As sentiment in the American mainland colonies drifted further from the metropole, British West Indian colonies such as Nevis became increasingly dependent for these reasons.³⁶

During the Age of Sail, the West Indies were more closely linked to England than the North American English colonies because prevailing winds and sailing speed determined the time to communicate, more than direct distance. Seasonal dependency of Northern colonies on trading tobacco determined shipping patterns. In addition, the mainland American colonies were isolated in the winter and could survive independently with more firewood and food, while the Caribbean islands had to depend on England year-round for all their supplies. This held true in the 1600s to 1730s, before other trading patterns could be established and remained the case until the introduction of steam-powered vessels that could move in direct paths between desired locations, rather than following dominant wind and current patterns. The Leeward Islands were unique in

36. For a good understanding of West Indian colonial history during the American Revolution see Andrew J. O'Shaughnessy, *An Empire Divided: The American Revolution and the British Caribbean* (Philadelphia: University of Pennsylvania Press, 2000).

that they were more isolated from friends, and more vulnerable to enemies, even compared to Barbados.³⁷ The development of posts, papers, and mail packets helped to integrate isolated Atlantic communities between 1675 and 1740. In 1701, Edmund Drummer established the first commercial packet service to the English West Indian colonists.³⁸ For a period, the English Atlantic drew together, only to be broken by the American Revolution.

On the eve of the American Revolution, sugar wealth made Nevis a place worth fighting for, as the West Indies Sugar Islands seemed more important than the American Colonies.³⁹ In 1775, at the start of the American Revolutionary War, an average plantation acre produced five hogsheads of sugar annually, with a total yearly island production of between six and seven thousand hogsheads.⁴⁰ As the Caribbean colonies' populations and productive values grew, so too did the investments European governments exercise in capturing or defending them. The British and French stationed increasingly larger forces in the Caribbean. Dozens of ships and thousands of soldiers were often deployed in one amphibious landing to take an island. Initial defense rested

37. Ian K. Steele, *The English Atlantic, 1675-1740: An Exploration of Communication and Community* (New York: Oxford University Press, 1986), 38.

38. Steele, *The English Atlantic*, 168.

39. E. Fremantle, "Sea Power and the American War of Independence," *The RUSI Journal* 62, no. 447 (1917): 478.

40. James Rymer, *A Description of the Island of Nevis: With An Account of Its Principal Diseases. To Which Are Added, Some Sentiments on Reviewers; Particularly the Medical of the Critical Review for August 1775* (T. Evans, No. 54. Pater-Noster Row, 1775), 3.

with the local militia garrisons that could resist small raids, and perhaps buy time against a larger enemy, but depended on imperial support for defense against greater invasions. Between 1778 and 1782, Great Britain and France heavily fought for control of the West Indian colonies, including Nevis. After 1783, Nevis lost trade with the United States.

In the final phase of Meniketti's model, the period between 1785 and 1833, production output reached an ultimate intensification before declining. After the 1790s, individual estates could remain profitable, but overall the industry declined. Capital became concentrated in the elite estates with poor freemen that replaced slave labor. They still used wind-powered mills, but were largely displaced by steam-powered mills to grind the cane in the new industrial age.⁴¹ As the industrial revolution transformed England, the steam engine transformed the English periphery through increased the rate of cane grinding.

An enslaved African labor force developed the island into a prosperous plantation economy. As slaves worked to produce wealth for the English-centered economy, they offered resistance where possible. Malnutrition, food shortages, diseases, and hard labor fueled their opposition. They would steal plantation foodstuffs, butcher plantation livestock, chew the cane juice, reduce work efforts, and intentionally destroy or burn fields. Resistance did not end the institution of slavery, but did reduce profits as one Kittitian planter in the 1830s estimated he lost 20 percent of his yearly crop from slaves consuming the juice.⁴²

41. Meniketti, *Sugar Mills*, 53-80.

42. Richardson, *Caribbean Migrants*, 69.

Economic, industrial, and moral transformations brought an end to slave labor in the British Empire during this period. Slave trade abolition in 1807 followed by the 1833 British Emancipation Act instituted compensation to the planter class for the loss of their slave property. Records for Nevis in 1833 reveal the island had 399 slaveholders and 7,225 slaves.⁴³

The paradox of Victorian Britain's policies is that they strengthened the empire, but at the same time planted the seeds of self-destruction. Legislative changes, industrialization, and liberal ideals proved ruinous. Britain's imperial "civilizing mission" ended slavery and sought progress through enlightening natives.⁴⁴ The nineteenth-century abolition movement and antislavery efforts such as the suppression of the slave trade by the Royal Navy were part of this process. More locally, Nevis colonial administrators implemented the civilizing process through "strong government ... fair and prompt administration of justice, and ... full and complete protection of the lives and properties of subjects" was "so necessary, so absolutely essential, to give confidence to capital enterprise."⁴⁵ This view by Governor Benjamin Pine shows both the acknowledgement of decline and attempts at revitalization through political praxis. The efforts met with resistance from planters, who were fearful of more centralized federal authority and a stronger police force. Invariably, reform efforts did little to change the

43. *Ibid.*, 56.

44. James P. Smith, "Empire and Social Reform: British Liberals and the "Civilizing Mission" in the Sugar Colonies, 1868-1874," *Albion* 27, no. 2 (1995): 253-277.

45. *Ibid.*, 271.

historical trajectory of Nevis in the world system, because the island was competing against global capital markets.

Emancipation in 1833 gave way to an apprenticeship system, beginning in 1834. This system developed out of geographic pressure. A small Caribbean island like Nevis did not have land to spare for freed slaves. On larger islands like Jamaica, former slaves could move away from the plantations. In mountainous islands slaves moved up from the plantations to higher altitudes, or down toward coastal villages. Fishing or subsistence farming provided for them in their newfound independence. Planters on small islands owned all of the land and needed labor. The transition from slave to apprentice continued a de facto plantation system without full economic emancipation until 1 August 1838 throughout the British Caribbean. At one point, the change triggered a three-week work stoppage and riots.⁴⁶ British soldiers and a naval force from Antigua enforced martial law under the leadership of Governor Evan MacGregor. While homes were burned, the violence ended without loss of life.

Although the British government enforced the end of slavery, some inequities continued well into the twentieth century on Nevis. Planters continued to control property and provisions while former slaves and their descendants continued to work the land. Poverty increased with an economic depression in the sugar industry that lasted throughout the nineteenth century. The imperial system amplified social stratification and inequality that persisted until St. Kitts and Nevis' gained independence from Great

46. Richardson, *Caribbean Migrants*, 77.

Britain in 1983. Together they formed the Federation of Saint Christopher and Nevis with the national capital in Basseterre on St. Kitts.

The nineteenth century economic shift from mercantilism to capitalism cemented through legislation in the British Empire. These changes compounded the challenges to growing foreign competition. The 1846 Sugar Duties Acts removed preferential tariff protections for British West Indian planters. The effect equalized competition with Cuban and Brazilian sugar producers. This coincided with the 1846 Importation Act that removed the 1815 Corn Laws that similarly moved Britain into greater international competition and a loss of monopolies in sugar and tariff protections. Beginning in the 1840s sugar production decreased further with the loss of slave labor.⁴⁷ The collective result hurt Nevis' economy and pushed it into a precipitous decline.

In 1853, the British abandoned Brimstone Hill Fortress on St. Kitts. New technology made the bastion obsolete. Key amongst the technological developments was the explosive shell that made such fortifications impotent against artillery or naval guns firing them. Defending the islands could be accomplished with new iron and later steel-hulled, steam-powered warships, with more powerful guns and their infantry carrying more rapid-firing rifles, eventually machine guns, and newer artillery pieces. Either from sea or land, the explosive shell threatened the very premise of trying to defend Brimstone Hill. These changes became more dramatic and rapid during the decades prior to the First World War.

47. "The Retired West India Merchant: The Sugar Colonies and Free Labour," *The Economist, Weekly Commercial Times, Bankers' Gazette, and Railway Monitor: A Political, Literary, and General Newspaper Vol. VIII, No. 343* VIII, no. 343 (1850): 315.

The end of Brimstone Hill symbolizes the end of an era when a West Indian sugar industry was exceedingly important to the British economy. More important than technology and changes in warfare were the changes in the British and global economy. As the West Indian sugar industry declined, St. Kitts and Nevis became less important to the British Empire. A new industrial age had diversified and transformed the British economy in a new era of global capitalism.

By the mid to late nineteenth century, Nevis' plantation economy could not adequately compete against larger foreign sugar producers. Despite capital investments to increase efficiency, such as steam machinery for processing, the introduction of rail, or the modernization of the factory system, the era of Nevisian sugar plantations was ending. Competitors such as the Spanish, and even within the British Empire itself, included sugar cultivation in India, Brazil, Cuba, and Puerto Rico, along with the rest of the West Indian sugar islands. Once a leader in the late seventeenth century, Nevis lost out to lower cost competition as a result of globalization and weak governance in Britain. The political power Nevis derived from its once thriving sugar economy declined in parallel. The Nevisian government went so far as to dissolve its independent parliament into the St. Kitts government in 1883.⁴⁸

Just as industrialization and changing world cultures transform Great Britain and Nevis, so too did English planters leave permanent changes on the island of Nevis. Between 1628, when the first settlers encountered a few hundred Amerindians, and 1853, Nevis experienced dramatic cultural and environmental transformations from

48. Hubbard, *Swords, Ships, and Sugar*, 186.

colonization.⁴⁹ The changes have been permanent, making it difficult to imagine Nevis in a pre-Columbian state.



Figure 6 A protected historic Flamboyant tree once marked property boundaries. Today they are simply beautiful trees that provide shade. (Photograph by the author)

Settlers cleared the island's natural flora for agriculture, building materials, firewood, and exports such as Gilbert's *lignum vitae* extraction. Natural flora before European arrival included tropical forest pines and deciduous trees, gumlin, burrwood, and plants important to native Carib Indians such as cabbage palm, arrowroot, coconut, guayaba, and papaya. English settlers imported plants such as palm trees, tobacco, ginger, sugar cane, and cotton (Figure 6). Palm trees are almost synonymous with a

49. Wilson, *Prehistoric Settlement Pattern*, 428.

modern vision of a tropical island. Yet, palms are not native. As the seventeenth century progressed, workers chopped and burned the dense vegetation to deforest and make way for sugarcane. As the populations cleared land, expanded plantations, and moved from the more level lowlands and up the volcanic slope of Mt. Nevis, they captured runoff water for drinking and irrigation.

The introduction of foreign fauna further eroded the vegetation and consumed the limited water resources. Pre-contact animals included small rodents, iguanas, land crabs, many bird types, large sea turtles, and many fish species.⁵⁰ Natural fauna covering the island before plantations were supplanted by imported species. Examples include camel, cattle, pigs, horses, donkeys, sheep, and goats. Many can still be seen on the island today. Through the lasting effects of the Columbian Exchange, donkeys and vervet monkeys freely roam the island.

The intense deforestation, agricultural practices, and animal and human activity, exposed the hillsides to topsoil erosion. The loss of nutrient-rich soil not only affected growing new crops and vegetation, but also sent runoff into the windward reefs on the east side of the island. Erosion became an irreversible, destabilizing process with severe ecological consequences. It is estimated that around 80 percent of the reefs have been destroyed as a result of human-induced environmental change. This removes a natural seaward protective barrier and exposes the shoreline to further erosion from Atlantic waves and currents. Another natural transformation includes the destruction of lagoons from draining or filling that has occurred on the west side of the island as well. The loss

50. *Ibid.*, 429.

of reefs and lagoons increases the effects of seasonal storms and hurricanes impacting the island.

Hidden behind the modern evidence of change is a deep history and buried archaeological past. Nevisian history in the seventeenth through nineteenth centuries was defined by a metropole-periphery relationship. Nevis was always dependent on foreign trade for supplies. Before the Revolution, the North American Colonies were key trading partners. After the Revolution, planters became dependent exclusively on England and other British colonies because of the trade restrictions imposed through the British Navigation Acts. Nevis existed to serve the growth and wealth of the British Empire within the economic model of mercantilism. The net wealth flowed to England. In this context, planters borrowed and financed their operations through increasing debt. The merchants supplying the planters became the real wealthy entrepreneurs of the system.

In the twenty-first century, few Americans recognize Nevis' name or can identify its location. Nevis' history is a micro study into the macro changes of the world system that included imperial competition, indigenous genocide, environmental transformation, and a shift from mercantilism to capitalism through a slave-labor driven plantation economy. From the seventeenth through eighteenth century, however, the small island had a tremendous output of wealth, driven by slave labor, into the greater British Empire. The results produced permanent and lasting environmental changes, genocide of the indigenous Amerindians, and the involuntary migration of African people to form a new Afro-Caribbean culture in the Lesser Antilles. The island demonstrates all phases of development in a post-Columbian world. Pioneering colonists planted the seeds of

development and generations endured hardships from European wars, hurricanes, and economic depression to build Nevis into a thriving sugar economy. However, over time, the world economy and sugar market changed. Victorian Britain's "civilizing" policies and the Industrial Revolution could not reverse the socioeconomic decline. The unremarkable volcanic island offers insightful lessons into the world system and the English metropole-periphery relationships.



Figure 7 A modern wreck just off Charlestown. (Photograph by the author)

The animals, sugar and other plants, settlers and slaves, along with their supplies, tools, and ideas all moved on European ships traveling across the oceans, or on indigenous watercraft between islands. As storms and accidents continue to wreck modern ships, the loss of such ships in seasonal storms and hurricanes throughout history has built an archaeological record on the seafloor surrounding St. Kitts and Nevis (Figure 7). The ability to study this maritime history and its associated maritime

archaeological record can provide a more complete understanding of past human behavior, and Nevisian history, in the broader context of this complex British history.

Conducting a survey to inventory submerged cultural resources is that natural point to start investigating this maritime historical archaeological past. It is clear from this brief historical review, that there is much potential for the information shipwrecks may contribute, given the importance of maritime traffic to colonization, trade, human migrations, and naval warfare. The story of *Solebay* provides a case study to demonstrate the historical and archaeological value this one shipwreck can provide in illuminating this maritime history. Its loss represents the historic residue of patterned human behavior, culturally replicated through the centuries, as a product of British Nevisian history.

Advances in European seafaring, combined with the maturation of imperial nation-states, catalyzed the growth of an interdependent cultural network, the Atlantic World. Initially, the ocean was a barrier to progress. By the end of colonization, the ocean had become a bridge, connecting distant lands and peoples into an intricate worldwide network. This history interrelates imperial economies and related conflicts together in what may otherwise be viewed as disconnected experiences, mostly when studied from a continental, landed perspective, looking seaward from each of the respective shorelines. Therefore, while culturally British, the story of *Solebay* opens a maritime world system perspective. This approach affords a view that necessarily leans Eurocentric when conveyed through *Solebay*, but at the same time may connect disparate geographies and their histories.

The value and importance of the Caribbean islands to British, French, Spanish, and Dutch empires can be appreciated through understanding the history of Nevis as an example. Although vast pages have been written on the topics of the British Empire and American Revolution, little scholarship exists regarding Nevis and its role in this history, less regarding the related naval battles. Nevis and the Caribbean are typically studied as a tangential experience to an Anglocentric or American historical perspective. The American Revolution overshadows Caribbean and Nevisian history, seen largely through the modern lens of historical hindsight and importance in the rise of the United States to world history. In the 1770s this was not the case. The Caribbean was as valuable, if not more valuable than the still developing American colonies.

Moving forward, this research threads the human history of the British naval experience during the American Revolution, through events from the story of a sixth-rate, 28-gun British frigate, HMS *Solebay*. From this interpretation, the American Revolutionary War becomes ancillary to *Solebay* and the history of Nevis in the Caribbean. Here unfolds the case study.

CHAPTER IV

SOLEBAY IN THE AMERICAN REVOLUTION

As an anchor has the power to hold a ship fast to the seafloor in ocean currents, a shipwreck has the power to anchor memories of history long since past. To modern Nevisians, Kittians, Americans, British and French citizens, and the Royal Navy—*Solebay* holds this history in memory and modern culture. The idea of *Solebay* motivated a team of local residents to find look for the ship’s remains, the physical remains sparked the archaeology, and the artifacts and archives are now telling its story.

In 1689, William and Mary became co-rulers of England, Scotland, and Ireland. Following Mary’s death in 1694, William ruled alone until 1702. Their co-regency unified these three independent countries. After their rule, in 1707, the Acts of Union passed the English and Scottish Parliaments to form the United Kingdom. During this period of unification the process of creating modern British identity began. This meant understanding Britishness—language, cultural community concept, Protestant religion, trade growth, military success, and rapid population growth. Britons defined “civilization,” in their minds.¹ Incremental changes and incremental successes begat growth and consolidation into an empire that had its roots in English imperialism that began as early as the fifteenth century on the islands surrounding England, then spread across the oceans, forming the British Empire.

1. For a good book discussing the ideas of Britishness and the British Empire from a strong maritime perspective see Jeremy Black, *The British Seaborne Empire* (New Haven, Conn.: Yale University Press, 2004).

In the eighteenth century, the world had multiple power systems and partially integrated economies. The systems and application of power characterized the nations. Britain's political economy centered on the idea of mercantilism. British leaders viewed wealth as finite and competition from foreign enemies as the greatest threat to prosperity. Britain's foreign defense policy viewed the navy as an instrument of coercion to execute policy through action. In this context, 1) France was seen as the number one enemy, 2) Britain needed colonial trade to create an economy strong enough to sustain a powerful navy through a war, and 3) naval supremacy was key to security.² For the British, these conditions drove leaders to planning an offensive strategy with tactical aggression. If Britain demonstrated naval dominance to Europe, this could incline a continental state to ally with Britain, helping Britain balance its power against France. As the British learned in the 1750s and 1760s, France had a powerful continental economy and posed the greatest threat to the British Empire.

As an island nation, Britain depended on naval supremacy not just for physical security, but also for economic prosperity. Maritime trade was the most important aspect of the British economy; it built their empire.³ During the Seven Years' War, France attempted to make Britain's navy irrelevant to the outcome by focusing on overwhelmingly successful land campaigns. This policy failed during the war Britain

2. These ideas are discussed in Nicholas Tracy, *Navies, Deterrence, and American Independence: Britain and Seapower in the 1760s and 1770s* (Vancouver, Can.: University of British Columbia Press, 1988), particularly in chapters 1 and 2.

3. John J. McCusker and Russell R. Menard, *The Economy of British America, 1607-1789* (Chapel Hill: University of North Carolina Press, 1985).

used its Royal Navy to capture French colonial possessions in North America, Africa, and India. After the war France addressed the deficiency with a reinvigorated naval building program. Britain maintained France as their primary enemy, and policy decisions revolved around the role of the navy, manning reductions, costs of ships, size of the force, and debates around related topics. While the size of the Royal Navy remained reduced during peacetime, ship plans continued to progress.

To further British policy in England, Thomas Slade and his shipwrights designed and built newer and better warships, such as *Solebay*. Their efforts did not go unnoticed as the Spanish and French made similar efforts. While Slade drafted new plans, the French Secretary of the Navy in the 1760s, César Gabriel de Choiseul, worked to restore the French navy after the Seven Years War. This was a vibrant period in naval architecture fueled by a rivalry between Britain and France. Britain built *Solebay* in this political and economic environment. Defense against France depended on ships-of-the-line, i.e., 74-gun third-rate vessels or larger. Although smaller rated vessels like *Solebay* could not hold a position in the line during a major battle, they complemented the fleet and fulfilled important niche roles and year-round missions that could not be performed by the larger vessels due to operational costs during peacetime. When the American Revolution began, ships like *Solebay* became tactical weapons in the strategic British offensive to control its colonies, and fight against French aggression.

On 19 April 1775, American colonists and British soldiers exchanged gunfire at Lexington and Concord, marking the beginning of the American Revolutionary War. As the American crisis escalated into full war, the British began sending more military and

naval forces from England to the colonies. In 1774, Britain had 20,000 sailors and marines.⁴ By 1782, this number had swelled to 100,000 sailors, with 21,305 marines alone — more than existed in sailors and marines combined in 1774.⁵ This formidable, professional naval force became a significant obstacle to the American rebels.

American General George Washington had to keep his army fighting, but understood that the war would be won or lost at sea. Benjamin Franklin thought similarly as he sought French naval support, “In any operations, and under all circumstances, a decisive naval superiority is to be considered as a fundamental principle, and the basis on which every hope of success must ultimately depend.”⁶ The political and military struggles on land depended on the fate of events at sea. The Royal Navy possessed the power to choke the American economy through a wooden wall of ships. While cutting supplies and trade, the Navy had the means to reinforce, redeploy, and support the Redcoats fighting ashore. The fate of the entire revolution would be determined by the naval outcome. Once the Royal Navy failed to support the British at

4. Isaac Schomberg, *Naval Chronology: Or An Historical Summary of Naval and Maritime Events... From the Time of the Romans, to the Treaty of Peace of Amiens*, vol. 1 (London: Printed for T. Egerton By C. Roworth, 1815), 419.

5. Isaac Schomberg, *Naval Chronology: Or An Historical Summary of Naval and Maritime Events... From the Time of the Romans, to the Treaty of Peace of Amiens*, vol. 2 (London: Printed for T. Egerton By C. Roworth, 1815), 68. [henceforth Schomberg, *Naval Chronology* 2].

6. George Washington, "Memorandum for Concerting a Plan of Operations," [15 July 1780], given to the Marquis de Lafayette to communicate to Count de Rochambeau and Chevalier de Ternay, in *The Writings of George Washington from the original manuscript sources, 1745-1799*, vol. 19, edited by John C. Fitzpatrick (Washington, D.C.: United States Government Printing Office, 1931), 174.

Yorktown, the American victory was virtually assured on land. But in the absence of a strong American navy, success depended on a French fleet, not an American fleet that won this victory at sea. Beyond helping the American colonists, French military and naval involvement had consequences throughout the British Empire, including for St. Kitts and Nevis. Tracing *Solebay*'s story brings this broader naval history together from a British perspective.

When the rebellion erupted in 1775, Vice Admiral Samuel Graves was the Royal Navy officer responsible for the North American Station. Along the entire American seacoast he had 30 warships available to maintain British authority by securing British property and personnel as he could from the sea until reinforcements arrived.⁷ It took the British time to mobilize to a full wartime posture. One of the challenges involved in expanding the Royal Navy can be understood in correspondence between Philip Stephens, first Secretary of the British Admiralty, and Graves.⁸ The navy could not recruit enough sailors in North America so Parliament had to change a 70-year old law that prohibited impressment in American waters. The Admiralty also modified regulations concerning the employment of pilots to ensure enough with experience in American waters.

7. David Syrett, *The Royal Navy in American Waters, 1775-1783* (Brookfield, Vt.: Gower Publishing Co., 1989) 1-2.

8. Philip Stephens to Vice Admiral Samuel Graves, 24 June 1775, in *Naval Documents of the American Revolution, vol. 1, AMERICAN THEATRE: Dec. 1, 1774–Sept. 2, 1775, EUROPEAN THEATRE: Dec. 6, 1774–Aug. 9, 1775*, edited by William Bell Clark, et al. (Washington, D.C.: United States Government Printing Office, 1964), 491-493. [henceforth *NDAR 1*]

The Admiralty and Navy Board also had to plan for sending more ships—including *Solebay*—along with soldiers and supplies. The Royal Navy could not depend on acquiring enough provisions from the rebelling colonies to sustain their men. This was a slow process, and sailors and ships currently on station had to hold the line while awaiting reinforcements currently in service, but in England, to fit out and sail as quickly as possible.

In preparing ships for passage from England to North America, the Royal Navy had a sailor shortage to fully man its vessels. With a shortage of ships and men, British strategy to control the seas appeared as a formidable challenge. On 29 June 1775, Stephens wrote in a letter to John Pownall, an Under Secretary of State, “Lordships gave immediate directions for fitting out, with the utmost expedition, the five Frigats [sic] mentioned on the other side in order to be sent out to Boston as soon as possibly may be.”⁹ On the reverse, Stephens then lists four (despite having said five) 28-gun frigates: *Milford* (at Chatham), *Solebay* (at Plymouth), *Lizard* (at Portsmouth), and *Actaeon* (Woolwich). From the beginning, *Solebay*, and vessels like her, played critical roles in Britain’s efforts to counter the growing rebellion.

In September 1775, *Solebay* in Portsmouth had 160 sailors under the command of Thomas Symonds.¹⁰ *Solebay* was rated for 200 sailors, but due to manning at a

9. Philip Stephens to John Pownall, 29 June 1775, in *NDAR 1*, 1304-1305.

10. “List of British Ships, Admiralty Office,” [29 September 1775], in *Naval Documents of the American Revolution*, vol. 2, *AMERICAN THEATRE: Sept. 3, 1775–Oct. 31, 1775*, *EUROPEAN THEATRE: Aug. 11, 1775–Oct. 31, 1775*, *AMERICAN THEATRE: Nov. 1, 1775–Dec. 7, 1775*, edited by William Bell Clark, et al.

peacetime complement it began the war with a shortage — all vessels sailed from England were undermanned.¹¹ By 15 November 1775, an Admiralty list of ships suggests planning, possibly for victualing purposes, for increased manpower for all vessels, with *Solebay* listed at 180-man crew.¹² Admiralty correspondence on 4 May, after *Solebay* arrived in North Carolina, lists the strength at 200 men.¹³

In addition to a shortage of trained crews, the Royal Navy fleet suffered from rotting ships.¹⁴ Timbers needed replacing, and even ironwork had rusted enough to be of concern. Chain plates for deadeyes failed to secure masts, causing vessels to be dismasted and therefore disabled out of port. Unfortunately, by 8 July, *Solebay* too had been found to be rotten, in need of repairs that would take four months and required the

(Washington, D.C.: United States Government Printing Office, 1966), 156. [henceforth *NDAR 2*]

11. David Lyon, *The Sailing Navy List: All the Ships of the Royal Navy: Built, Purchased and Captured, 1688-1860* (London: Conway Maritime Press, 1993), 86.

12. "A List of His Majesty's Ships & Vessels Appointed to Accompany Seven Regiments of Infantry," [15 November 1775], in *Naval Documents of the American Revolution, Vol. 3, AMERICAN THEATRE: Dec. 8, 1775–Dec. 31, 1775, EUROPEAN THEATRE: Nov. 1, 1775–Jan. 31, 1776, AMERICAN THEATRE: Jan. 1, 1776–Feb. 18, 1776*, edited by William Bell Clark, et al. (Washington, D.C.: United States Government Printing Office, 1968), 368. [henceforth *NDAR 3*]

13. "List of British Ships of War at or Going to America," [4 May 1776], in *Naval Documents of the American Revolution, vol. 4, AMERICAN THEATRE: Feb. 19, 1776–Apr. 17, 1776, EUROPEAN THEATRE: Feb. 1, 1776–May 25, 1776, AMERICAN THEATRE: Apr. 18, 1776–May 8, 1776*, edited by William Bell Clark, et al. (Washington, D.C.: United States Government Printing Office, 1969), 1091. [henceforth *NDAR 4*]

14. Fremantle, *Sea Power*, 474-475.

frigate *Liverpoole* to replace her in the interim.¹⁵ *Solebay* had been launched in 1763 and now, a decade later, was in need of repair. The shipyard at Plymouth worked frantically to prepare her for extended operations on the other side of the Atlantic.¹⁶ Despite initial mobilization challenges, in November 1775, *Solebay* was ready to sail for America with the “first favourable winds for Ireland from whence she will escort the vessels which will take the troops from this Kingdom to America.”¹⁷

Ships sailing from England did not sail empty with just their crew, weapons, and own supplies. Spare room was precious when moving vitally needed supplies slowly across the ocean by sailing vessels. Ships carried the soldiers needed to fight the land war, supplies, dispatches, and any other items needed for the war effort. On 25 November 1775, Symonds received his orders, with *Solebay* finally sea ready, to sail immediately to Cork, Ireland, where he would receive further orders.¹⁸ *Solebay*'s crew continued waiting through Christmas Eve, as they had not sailed as of 24 December while still “awaiting favourable winds.”¹⁹ Little did Symonds know at the time that the

15. Count de Guines to Count de Vergennes, 14 July 1775, in *NDAR 1*, 1328-1329.

16. Count de Guines to Count de Vergennes, 1 September 1775, in *NDAR 2*, 699.

17. Count de Guines to Count de Vergennes, 22 December 1775, in *NDAR 3*, 443.

18. Lord Commissioners, Admiralty, to Captain Thomas Symonds, H.M.S. *Solebay*, Plymouth, 25 November 1775, in *NDAR 3*, 388.

19. Count de Guines to Count de Vergennes, 24 December 1775, in *NDAR 3*, 451.

required repairs and subsequent wind delays that kept *Solebay* from deploying to the American Theater in June set her on a path toward a fortuitous brush with fame.

On 25 September 1775, American Colonel Ethan Allen had been captured near Montreal, Quebec in the Battle of Longue-Pointe. Allen's fame came in May 1775 when he led his militia of Vermont's "Green Mountain Boys" into New York and captured Fort Ticonderoga at the south end of Lake Champlain. Nothing significant followed that summer, including a failed attempt to take Fort St. John. He aspired and worked to raise enough men to capture Montreal. In September 1775, he led an attack against Montreal, across the St. Lawrence River, but the attempt failed. He and several of his men were captured. After his surrender at Montreal, the British shipped him and fellow prisoners to England and then Ireland. His popularity made him a political liability that the British attempted to diffuse by moving him far away from the conflict or any potential audience. They first imprisoned him in Pendennis Castle, located in the southwest tip of England near Falmouth, Cornwall.

Allen's poor treatment created concerns for the British of how their captured soldiers and officers might be treated by the American rebels. American General George Washington, on 18 December 1775, wrote a letter to British Major General William Howe that contributed to these British concerns. Washington reminded Howe that the Americans held Brigadier William Prescott and "assured" Howe "that whatever treatment Colonel Allen receives - whatever Fate he undergoes - such exactly shall be the treatment & fate of Brigadier Prescott now in our hands - The Law of retaliation, is

not only justifiable in the eyes of God & Man, but absolutely a duty which in our present Circumstances we owe, to our relatives, Freinds [sic], & fellow Citizens.”²⁰

In fear of a quid pro quo exchange, Lord George Germain, Secretary of State for the American colonies, decided to send Allen back to North America for imprisonment. There he would be treated as a prisoner of war, and potentially bartered in a future prisoner exchange for Prescott or other officers. *Solebay* received orders to transport Allen and 33 of his men to Boston.²¹ After receiving Allen and his men, *Solebay* was to join Sir Peter Parker’s fleet. This expedition of warships and transports had orders to America. As can be seen on a map, Pendennis Castle is only 40 nautical miles west-southwest down the coast from Plymouth and on the way to leaving England for Ireland then North America.

Within the fleet *Solebay* had the strategic mission, once in America, to suppress the rebellion by aiding in the capture of colonial ships. Orders from the Admiralty to sea captains serving under Parker in December 1775, stated, “The Inhabitants of several of His Majts Colonies and Plantations in North America ... having traiterously combined together for the general purpose of resisting the Authority of this Kingdom, and, having in a hostile manner array'd themselves in Arms and committed Acts of open and actual

20. George Washington to Major General William Howe, 18 December 1775, *NDAR* 3, 146-147.

21. Lord George Germain to Lords Commissioners, Admiralty, 27 December 1775, in *NDAR* 3, 456; Lord Commissioners, Admiralty, to Captain Thomas Symonds, H.M.S. *Solebay*, Plymouth, 27 December 1775, in *NDAR* 3, 456-457; Lord Commissioners, Admiralty, to Commodore Sir Peter Parker, 27 December 1775, in *NDAR* 3, 457-458.

Rebellion ... to seize all ships & Vessels belonging to any of the said Colonies, or owned by the Inhabitants thereof.”²² Their challenge was thus to cut off supplies to the rebels from sea.

By 7 January, Symonds had taken the 34 American prisoners aboard *Solebay* at Falmouth and sailed for Ireland, arriving on 21 January.²³ When Allen and his men boarded *Solebay*, their hand irons were removed and Symonds had the regulations read so they would be clear on acceptable behavior. The prisoners were then ordered below as the deck was considered “a place for gentlemen to walk” (meaning officers).²⁴ Although Allen was an officer, he came aboard ill and did not challenge the order. He remained below for two days with his men while he regained his health before going topside again. When he did go on deck, Allen and Symonds had an exchange, according to Ethan Allen’s own narrative,

“The Capt. Spoke to me in a great rage, and said, ‘Did I not order you not to come on deck?’ I answered him, that at the same time he said, ‘That it was the place for

22. Lord Commissioners, Admiralty. Lord Commissioners, Admiralty, to Captains Serving Under Sir Peter Parker, 16 December 1775, in *NDAR* 3, 429.

23. Commodore Sir Peter Parker to Philip Stephens, 16 January 1776, in *NDAR* 3, 511-512; Commodore Sir Peter Parker to George Jackson, 21 January 1776 in *NDAR* 3, 522-523.

24. Ethan Allen, *A Narrative of Colonel Ethan Allen's Captivity, From the Time of His Being Taken by the British, Near Montreal, on the 25th Day of September, in the Year 1775, to the Time of His Exchange, on the 6th Day of May, 1778: Containing, His Voyages and Travels, with the Most Remarkable Occurrences Respecting Himself, and Many Other Continental Prisoners ... Particularly the Destruction of the Prisoners at New York, by General Sir William Howe, in the Years 1776 and 1777. Interspersed with Some Political Observations* (Philadelphia, Printed for the author, 1799), 16-18.

gentlemen to walk;’ That I was Col. Allen, but had not been properly introduced to him. He replied, “G~d damn you, Sir, be careful not to walk the same side of the deck that I do.”

This exchange aboard *Solebay*, sheds light on professional cultural courtesies between members of two warring powers. Allen asserted that as a gentleman he had the right to walk the deck. He also respected Captain Symonds, and if Symonds was walking with lieutenants, walked on the windward side while Allen as a prisoner would walk the leeward side. Allen did go below when ordered by the captain. According to Allen, he respected the order not out of obedience for Captain Symonds, but to maintain a professional example for the captain’s crew, “who ought to obey him.” Allen understood the importance of maintaining discipline aboard warships.

Upon arrival in Cork, Allen and his men received donations from the Irish of clothing, teas, chocolate, wine, liquor, brown sugar, and other items. When Captain Symonds returned from going ashore and learned of this, he was so “full of envy towards the prisoners, ... that the damned American rebels should not be treated at this rate, by the damned rebels of Ireland.” Symonds let the prisoners keep their clothes and Allen keep some of his alcohol, but confiscated most of the food and other items for redistribution to his own crew. The prisoners were divided amongst three vessels for the Atlantic crossing.

On 12 February, *Solebay*, with Allen aboard, sailed from Ireland for America in a fleet with 26 ships, under the command of Commodore Peter Parker.²⁵ By 7 March, only 15 vessels remained in the fleet, as the other vessels had returned to Cork largely because of storms and wind.²⁶ This mission to cross the Atlantic to the American Theater demonstrates the utility of frigates. *Solebay* was transporting high value war prisoners while protecting other vessels in the convoy: transports, ordnance ships, victuallers, and a hospital ship. After the *Solebay*'s Atlantic crossing with Colonel Allen, and before even arriving in North Carolina, on 24 April, *Solebay* had taken a schooner.²⁷ When *Solebay* arrived at Cape Fear, North Carolina, on 3 May, Symonds transferred Allen to *Mercury*, which took him to New York.²⁸ In Allen's final comment about *Solebay*, he praised the ship's surgeon whom Allen only mentions by his last name, North, for his great care of the American prisoners that became sick.

Solebay's duties varied during the war, but reflect well the roles for which it was designed. In addition to ship-to-ship engagements, *Solebay* provided fire support for British soldiers ashore. As long as *Solebay* could take up a position so that its guns were in range, it made an ideal weapons platform for this role. As a ship, under the right

25. "A List of Men of War, Bomb, Bomb Tender, Transports, Ordnance Vessels Victuallers &c, Which Sailed from Corke the 12th Feby 1776, Under Convoy of Commo Sr Peter Parker in His Majesty's Ship Bristol," in *NDAR 4*, 903.

26. Commodore Sir Peter Parker to Philip Stephens, 7 March 1776, in *NDAR 4*, 951.

27. *Journal of H.M.S. Solebay, Captain Thomas Symonds*, 22 April 1776, in *NDAR 4*, 1211.

28. Allen, *A Narrative*, 19-20.

conditions, it could deliver significant firepower with easier mobility than a land-based artillery unit. *Solebay* demonstrated this utility in June, only one month after arriving in the American Theater in May, discharging Colonel Allen, and reorganizing and resupplying at Cape Fear. The British launched an attack intended to take Charleston, South Carolina. As an important port city for the southern American coast it was well defended.

The city of Charleston is at the tip of a long inland peninsula, defined by the Ashley River to the west, the Cooper River to the east, and a four nautical mile channel connecting the tip of Charleston to the Atlantic Ocean. A natural bar inhibits movement past the harbor channel entrance, particularly for large warships like the ones the British employed. Crossing the bar would have required the British, as much as possible, to remove heavy guns and other supplies, heave the vessels over the bar, then reload the guns, all while potentially under fire from American guns.

The American militia enhanced these natural defensive barriers with fortifications. Inside Charleston they stockpiled supplies, positioned a hundred guns, and readied 6,000 soldiers.²⁹ They also fortified the islands on either side of the harbor entrance, James Island to the south and Sullivan's Island to the north. The deepest channel into Charleston Harbor ran along Sullivan's Island so Colonel William Moultrie's soldiers constructed their largest fortification there, three miles east of Charleston, to guard the northern entrance to the harbor. They built, parallel palmetto log

29. Nathan Miller, *Sea of Glory: The Continental Navy Fights for Independence, 1775-1783* (New York: David McKay Co., 1974), 149.

walls 16 feet apart and filled the area between the walls with sandy soil. They then emplaced three dozen guns, primarily on the south and east walls.

The British planned a combined attack from land and sea with Parker leading the Royal Navy from his flagship *Bristol*, and General Henry Clinton leading the British Army. Clinton landed on Long Island, immediately to the northeast of Sullivan, and began the attack. He planned to march across “The Breach,” the water separating Long Island from Sullivan, but failed. The army used naval sounding charts, which recorded the shallowest, rather than deepest positions as 18 inches. In reality they encountered impassable, seven-foot deep holes of water.³⁰ Clinton requested small boats from Parker to ferry his troops. When Parker failed to send the boats, Clinton’s entire assault force sat contained on Long Island.

On 28 June, Parker aboard *Bristol* led an attack against Sullivan’s Island, thinking he could defeat the fort with naval guns alone.³¹ *Solebay* was one of nine warships involved. From 10:30 in the morning until 7:00 that evening, *Solebay* and the

30. Ibid., 150.

31. Captain Symonds’ journal describes *Solebay*’s actions at Sullivan’s Island. See Captain Thomas Symonds, *Journal of H.M.S. Solebay, Captain Thomas Symonds, 28 June 1776*, in *Naval Documents of the American Revolution, vol. 5, AMERICAN THEATRE: May 9, 1776–July 31, 1776*, edited by William James Morgan, et al. (Washington, D.C.: United States Government Printing Office, 1970), 797-798. [henceforth *NDAR 5*] In addition to Captain Symonds’ account, in *NDAR 5*, pages 797-906, 997-1004, there are copies of many primary sources that document the attack on Sullivan’s Island. For example, Major General Henry Clinton’s narrative is printed on Morgan, *NDAR 5*, pages 801-802. The pages include accounts of other officers involved, some with detailed day-by-day actions. Accounts include both American and British accountings, Peter Parker’s correspondence to Philip Stephens, and *Bristol*’s surgeon.

other warships took turns pounding the fortifications on Sullivan's Island.³² *Solebay's* draft of only 15 feet made it safely comfortable in the 6 1/2 fathoms of seawater, yet able to effectively use her anchors to hold a position and pivot. The ships delivered a heavy fire, swinging on their anchors to alternate starboard and port broadsides. Inside the fort, Moultrie directed four-hundred Americans in returning fire. As the action progressed, some of the British ships became entangled, grounded a distance away on sand bars, or fired shots that proved ineffective. Despite the sailors' best efforts at destroying the defenses and forcing a surrender, the American rebels successfully held their position.

As the day turned to night, the fire slackened after 7:00 in the evening, ceased after 9:00, and the ships withdrew at 11:00. After a day of heavy fire on both sides, the British lost 91 sailors killed and 170 wounded. Of these, *Solebay* suffered one killed and eight wounded. Americans losses included 10 killed and 22 wounded, with plenty of soldiers left to defend against a potential landward attack. The next morning the seven British regiments recognized they were in no position to attempt an effective assault and withdrew from Long Island. The renamed Fort Moultrie and Charleston remained in American hands until the siege of 1780.

The failure of the British combined forces at Sullivan's was a collective failure that included communication and coordination problems between the land and naval forces and incapacity to match a well-disciplined American force that returned heavy fire. Tight spaces for maneuvering constrained by the shore and sand bars helped the

32. *Journal of H.M.S. Solebay, Captain Thomas Symonds*, 28 June 1776, in *NDAR* 5, 797-798.

American forces, as well as the capacity of the spongy palmetto trees that composed the fort to absorb the impact of British cannonballs. *Solebay* still proved effective as a frigate, in its ability to engage close to shore and provide fire support to the operations.

By August 1776, as the war escalated, Britain had assembled a 350-ship fleet in North American waters. This fleet included many unrated vessels such as armed sloops, bombs, and fireships. Ambrose Serle, private secretary to British General William Howe, while aboard HMS *Eagle* recorded in his official journal the rated ships by name.³³ In gloating over Britain's present naval might, Serle notably included *Solebay* as a key warship among twenty names:

<i>Eagle</i>	64
<i>Asia</i>	64
<i>Chatham</i>	50
<i>Centurion</i>	50
<i>Renown</i>	50
<i>Preston</i>	50
<i>Bristol</i>	50
<i>Experiment</i>	50
<i>Roebuck</i>	44
<i>Rainbow</i>	44

33. Ambrose Serle, *Journal of Ambrose Serle*, 14 August 1776, in *Naval Documents of the American Revolution*, vol. 6, *AMERICAN THEATRE: Aug. 1, 1776–Oct. 31, 1776, EUROPEAN THEATRE: May 26, 1776–Oct. 5, 1776*, edited by William Bell Clark, et al. (Washington, D.C.: United States Government Printing Office, 1972), 184. [henceforth *NDAR* 6]

<i>Phoenix</i>	44
<i>Orpheus</i>	32
<i>Emerald</i>	32
<i>Niger</i>	32
<i>Repulse</i>	32
<i>Brune</i>	32
<i>Solebay</i>	28
<i>Rose</i>	28
<i>Greyhound</i>	28
<i>Syren</i>	28

In August, *Solebay* began escorting transport vessels that had been passed up the coast by other escorts. They were carrying soldiers from Jamaica to South Carolina and further onto where needed. *Solebay* was better suited for such a mission than any ship-of-the-line. These first through third-rate ships performed well in fleet engagements, but their behemoth size and manning requirements made them less ideal for daily escort and patrol tasks.

One of the primary roles *Solebay* performed well as a sixth-rate vessel was in coastal blockades and patrols, in and around smaller bays and islands. Outside of fleet engagements or escorts, *Solebay*'s time along the American seacoast consisted of routine patrols with limited action. Foreign vessels, such as French merchantmen, sought to both profit and support the Americans by running past British warships. When a navy warship closed with a merchantman, the vessel would often fire a shot or two in an attempt to

deter the British long enough to evade capture and run on the open seas, or reach a safe anchorage. In some engagements, *Solebay* lost a man or two and had several wounded, but otherwise suffered minimal damage as a superior fighting vessel.

As early in the war as 31 August 1776, *Solebay* had already captured an American sloop, *Hoope*.³⁴ A passage from *Solebay*'s Captain Thomas Symonds' journal records this event. Though typical in its brevity, this entry provides a lot of detail as to the date, time, conditions, and engagement.³⁵

Journal of H. M. S. Solebay, Captain Thomas Symonds

August 1776 Sandy Hook N74: 10Wt 305 Lgs

Saturday 31 Mod: & Cloudy with Showers of Rain

1/2 past 1 p m saw a S1 ahead fired 2 3prs Shotted at the
Chace a Sloop from Philadelphia to Surinam laden with
flour, T a r & Lumber

Latt: in 35'40' N Long: in: 19:49 Et

34. James Hartley to Secretary of the Admiralty Philip Stephens, 3 January 1778, including a "A List of Captures condemned in His Majesty's Court of Vice Admiralty in Saint Vincent," in *Naval Documents of the American Revolution, vol. 11, AMERICAN THEATRE: Jan. 1, 1778–Mar. 31, 1778, EUROPEAN THEATRE: Jan. 1, 1778–Mar. 31, 1778*, edited by Michael J. Crawford, et al. (Washington, D.C.: United States Government Printing Office, 2005), 27-28. [henceforth *NDAR 11*]

35. *Journal of H.M.S. Solebay, Captain Thomas Symonds*, 31 April 1776, in *NDAR 6*, 377.

In September 1776, Symonds and *Solebay* sailed to the Caribbean with orders to convoy troop transports transferring the 6th Regiment of Foot from St. Vincent's and Barbados, to New York.³⁶ In this capacity, *Solebay* served as an armed escort for safe passage of the troop transports. During this period, when *Solebay* sailed to Bermuda, her crew had another encounter with a historically significant figure, John Paul Jones, "Father of the United States Navy." Jones had sailed from Delaware to Rhode Island, and onto Bermuda at the same time as *Solebay*. Aboard the sloop *Providence*, with seventy men, Jones encountered the 28-gunned frigate *Solebay* and her battle-hardened crew on 7 October 1776. To the Americans this was a warship in the Continental Navy; to the Royal Navy it was a privateer that needed to be stopped. As Jones recalled in his narrative, he "had a very narrow escape."³⁷ *Solebay* chased Jones for six hours within cannon range and at one point pistol-shot range, before *Providence* successfully outran it. Jones continued to capture prizes and burn and destroy British shipping. Had the circumstances been slightly different, *Solebay* might have been Jones' victim for his famous quote, "I have not begun to fight!", which made him famous during the 1779 Battle of Flamborough Head, between *Bonhomme Richard* and HMS *Serapis*. However, considering that *Providence* only had four 12-pounders, and not the 50 guns of his later *Bonhomme Richard*, it is most likely that *Solebay* would have won any engagement, had

36. Vice Admiral Richard Lord Howe to Philip Stephens, "Disposition of His Majesty's Ships & Vessels Employed in North America Under the Command of Vice Admiral the Viscount Howe," [18 September 1776], in *NDAR 6*, 892; *Continental Journal*, Thursday, September 26, 1776, in *NDAR 6*, 1002.

37. "Narrative of Captain John Paul Jones," [21 August to 7 October, 1776], in *NDAR 6*, 1148-1149.

it succeeded in overtaking *Providence*. For the crew of *Solebay*, they were just chasing one more American privateer during the course of the war.

In June of 1777, *Solebay* arrived at Kingston, Jamaica, one of Britain's major naval bases. There *Solebay* underwent needed maintenance, including careening to have its hull cleaned.³⁸ The frigate thereafter returned to duty, escorting ships and chasing enemy vessels. During this period, Vice Admiral Richard Lord Howe ordered Captain Hyde Parker, Jr., aboard HMS *Phoenix*, and vessels *Emerald*, *Solebay*, *Otter*, and *Senegal*, to intercept supplies and military stores attempting to reach the colonial rebels through ports and rivers, generally prevent trade, and destroy any armed American vessels.³⁹ By creating this mission-oriented cruising force, the British hoped to suppress the American tobacco trade. The colonial vessels moved their cargoes into Europe through French ports, and used the profits to acquire arms and related military supplies, which they took back to America.

In the winter of 1778, a British squadron under Captain Richard Onslow blockaded the Chesapeake Bay. Under the command of Captain Symonds, *Solebay* convoyed two victualler ships to the Chesapeake Bay and remained with Onslow's

38. Vice Admiral Clark Gayton to Philip Stephens, 15 June 1777, in *Naval Documents of the American Revolution*, vol. 9, *AMERICAN THEATRE: Jun. 1, 1777–Jul. 31, 1777*, *EUROPEAN THEATRE: Jun. 1, 1777–Sept. 30, 1777*, *AMERICAN THEATRE: Aug. 1, 1777–Sept. 30, 1777*, edited by William James Morgan, et al. (Washington, D.C.: United States Government Printing Office, 1986), 120-121. [henceforth *NDAR 9*]

39. Vice Admiral Richard Lord Howe to Captain Hyde Parker, Jr., H.M.S. *Phoenix*, 22 September 1777, in *NDAR 9*, 951-953.

blockading force.⁴⁰ *Solebay* was one of six warships under Onslow's command, along with logistics vessels. During this operation, *Solebay* contributed to the capturing or destruction of vessels attempting to run the blockade. Her combination of speed and weaponry challenged schooners and sloops attempting to slip up a river. She often exchanged shots as galleys attempted to deter their capture and captured several prizes by firing shots that forced them to run aground. In one notable prize, on 23 February, Symonds and *Solebay* captured the 600-ton, 24-gun letter-of-marque *Viscount De Veaux*, carrying woolens, and other cargo intended to supply Washington's army.⁴¹

In addition to escort and blockade duties, *Solebay* relayed messages to army commanders. On 15 January 1778, *Solebay* was ordered to sail up the freezing Delaware River and deliver dispatches intended to British army Commander-in-Chief Sir William Howe.⁴² *Solebay*'s size, relatively shallow draft, and firepower proved ideal for maneuvering in a riverine environment, while providing adequate speed and security for the mission.

As the war progressed, a series of events pulled *Solebay* to its fate off Nevis. As the British naval and army forces converged on the New World, they started having

40. "Disposition of His Majesty's Ships and Vessels employed in North America Under the Command of the Vice Admiral the Viscount Howe," [5 January 1778], in *NDAR 11*, 37.

41. *Journal of H.M.S. Solebay, Captain Thomas Symonds*, 23 February 1778, in *NDAR 11*, 415; News from New York City, [18 March 1778], in *NDAR 11*, 688-689; Rif Winfield, *British Warships in the Age of Sail, 1714-1792: Design, Construction, Careers and Fates* (St. Paul, Minn.: Seaforth Publishing / MBI Publishing Co, 2007), 232.

42. Frederick Mackenzie, *Diary of Captain Frederick Mackenzie*, 15 January 1778, *NDAR 11*, 134.

some success in driving back the Revolution. At the end of 1778, Savannah, Georgia, fell to the British Army. The following spring, the Royal Navy helped the British regulars capture Charleston, South Carolina. This gave Britain control of both large port cities that they held until 1782. In the autumn of 1777, American success in the Saratoga Campaign had convinced the French to back the American Revolution with financial, military, and naval support. In 1778, France formally allied with the Continental Congress and entered the war.

From July through September 1780, *Solebay* underwent a final refitting at Plymouth, after four years of wartime service since it has been last refitted in 1776.⁴³ On re-commissioning, on 13 September 1780, it was assigned to Captain Charles Holmes Everitt, with orders to patrol English coastal waters.⁴⁴ In December 1780, *Solebay* captured the 20-gun French vessel *La Comtesse Bezançois* in the English Channel. On 12 March 1781, Everitt led *Solebay* back to North America, where it took two American privateers *Dan* and *Resource*, and the sloop *Savage*. *Solebay* continued to serve along the American seacoast until the Battle of the Chesapeake, after which it went to the West Indies.⁴⁵

The political, economic, and military struggles for the American colonies rippled throughout the British and French Atlantic World. French competition with the British in

43. ADM 106/1260/112, Plymouth Dockyard 'Officers' to the Navy Board, 14 March 1780 (National Archives, UK).

44. ADM 36/9836 *Solebay*'s Muster, 13 September 1780 (National Archives, UK).

45. Winfield, *British Warships*, 231-232.

the New World, defined their roles in aiding the American Colonists in North America and attacking the British Caribbean colonies. In the Caribbean, sympathies for one side or the other amplified inter-island tensions and created political threats. Island planters' loyalties to Britain required respecting the Navigation Acts, and ending trade with the mainland American colonies. Interdicting shipping along the American seacoasts further reduced trade with Caribbean colonies. While Britain fought to maintain control of its American and Caribbean colonies, the French sought to exploit the situation.

Throughout the war, the British and French fought over the valuable sugar islands. The British attempted to gain an advantage in the Caribbean by taking St. Lucia (December 1778), St. Eustatius, St. Martin, and Saba (February 1780). France's navy generally bested the British, and afforded French soldiers the opportunity to capture or recapture several islands, beginning in September 1778 with Dominica and following with Grenada (May 1779), St. Vincent (June 1779), and retaking St. Eustatius (November 1781). The two powers also fought naval battles off Martinique. From Martinique, their main naval base in the West Indies, the French launched attacks that resulted in the capture of St. Kitts. France's ultimate Caribbean prize would have been to capture Jamaica. Despite French success on taking some islands, this strategic goal always became thwarted. A new opportunity arose after a number of British defeats in the North American colonies, in September and October of 1781.

In September 1781, American Continental Army forces under General George Washington and their French allies led by Comte de Rochambeau laid siege to Lord Charles Cornwallis' army at Yorktown, Virginia. There he intended to link up with Rear

Admiral Sir Thomas Graves' fleet. Unfortunately for the British, the French intervened at sea. French naval forces under the Comte de Grasse had sailed north, from the Caribbean to Virginia. There, at the Chesapeake, they anchored and waited for the British. Finally, on 5 September 1781, they engaged Graves' fleet before it could reach Cornwallis. *Solebay* participated in the ill-fated British endeavor to relieve General Cornwallis' army. The ensuing battle became known as the Battle of the Chesapeake, or Second Battle of the (Virginia) Capes. The fleets met for a two-hour fight that ended with the British defeat and return to New York. In the subsequent month, unsupported by sea and under siege by American and French soldiers, Cornwallis surrendered on 17 October before the British could muster a second naval effort to save his army.

In 1780, Symonds had been promoted to command of the 44-gun, fifth-rate HMS *Charon* and in 1781 was the senior Royal Navy officer present when the British surrendered. Cornwallis and Symonds signed the Articles of Capitulation with Washington and Rochambeau on 19 October 1781. After six years of fighting, Symonds became a prisoner. Cornwallis' surrender signaled the end of the war for the British in North America. While the war was over for Symonds, a major battle awaited *Solebay*.

After Yorktown, de Grasse returned with his fleet to the Caribbean, arriving at Martinique on 26 November. There he began planning operations against British islands, focusing first on capturing Barbados with the ultimate goal of taking Jamaica. British naval forces followed the French from the Chesapeake south, in an effort to defend their island colonies.

In the Age of Sail, communications moved slowly with dispatches carried aboard ships such as those *Solebay* had delivered along the American seacoast in the previous years. A fast vessel could often deliver intelligence, notifying defending forces of a pending attack quicker than the offensive forces could execute their plan. Word of a significant French naval fleet moving north spread amongst the British Leeward islanders. Though not knowing the target island, they trembled in anticipation of a pending attack.⁴⁶ While the British commander-in-chief of the Leeward Islands, Admiral Sir George Rodney, was in England, the French left Martinique. In Rodney's absence, his second, Rear-Admiral Sir Samuel Hood, prepared to face the French fleet. After several days of strong winds impeding progress, de Grasse called off the Barbados plan and directed his fleet onto St. Kitts and Nevis. This reprieve for Barbados meant a battle for St. Kitts.

On 9 January 1781, Nevis Council President John Richardson Herbert warned Thomas Shirley, Governor General of the Leeward Islands and the commander of Brimstone Hill, of 74 vessels sighted including an estimated 21 ships of the line.⁴⁷ Brimstone Hill Fortress was the largest fortification in the English Americas and the focal point of the French offensive on St. Kitts. Leading the French fleet was de Grasse aboard his formidable, 104-gun *Ville de Paris*. The ships of the line escorted vessels transporting soldiers and supplies for an amphibious invasion. On 11-12 January,

46. *Minutes of the Saint Christopher Assembly*, 22 December 1781 (National Archives of St. Kitts and Nevis, Basseterre).

47. Vincent K. Hubbard, "Lost and Found: The Discovery of HMS *Solebay* at Nevis," *Mariner's Mirror* 97, no. 2 (2011): 67-71.

Marquis de Bouillé landed 8,000 French soldiers at Basseterre. From there, the French marched toward Sandy Point, St. Kitts, to begin a siege of Brimstone Hill. Colonel Arthur Dillon led De Bouillé's lead division against Brimstone, defended by 600 British men, under the command of General Thomas Fraser.⁴⁸ The British defenders, including local militia and armed slaves, faced a significant challenge. The initial defense of the southern end of Sandy Point, before Brimstone, was set at Charles Fort, where the British troops fired guns against the advancing French column. French artillery and musket fire on Sandy Point destroyed the town, securing the position as French headquarters for the Brimstone siege. On 20 January, Nevis surrendered and the captain of *Glorieux*, the Viscount d'Escars took possession without a fight.⁴⁹ During the invasion, the Nevisian President convinced islanders to announce that they would remain neutral in the Anglo-French conflict. Though desiring to remain British, they essentially avoided a fight by respecting whomever raised a flag at Fort Charles.

While events quickly evolved for the worst on St. Kitts, at sea *Solebay* took another prize, capturing an American privateer on 18 January.⁵⁰ Learning the attack had shifted from Barbados to St. Kitts, *Solebay*, sailing with Hood, left Carlisle Bay, Barbados, for the Royal Navy base at English Harbour, Antigua, with 22 ships of the

48. Schomberg, *Naval Chronology* 2, 89.

49. Charles Ekins, *The Naval Battle for Nevis, 1782, Transcribed From the Naval Battles of Great Britain, From the Accession of the Illustrious House of Hanover to the Throne, to the Battle of Navarin* (London: Baldwin and Cradock, 1828), 6.

50. Winfield, *British Warships*, 231-232.

line.⁵¹ There, Hood's fleet took on provisions and soldiers intended to reinforce Brimstone Hill — under General Robert Prescott. The British soldiers numbered far less than the French force, but were all that were available at the time: two marine battalions and the 69th Regiment of Foot. With provisions and soldiers aboard, Hood sailed from Antigua on the evening of 23 January 1782 destined for St. Kitts, with *Solebay* in his fleet. Antigua lies approximately 37 nautical miles directly east of Nevis. Reaching Brimstone on St. Kitts requires sailing from English Harbour on the southern coast of Antigua, rounding the southern coast of Nevis at another ten nautical miles, then turning north along Nevis west coast, past Charlestown, across the Narrows, and on toward Basseterre. The French fleet awaited the British, anchored just south of Basseterre in a modestly sheltered cove now known as Frigate Bay.

The short distance between the two islands made the crossing brief and action imminent. Both sides used fast scouting vessels to gather intelligence. The French sent *Iris* to Antigua, which returned to St. Kitts and passed signals to de Grasse, before returning to Antigua to seek additional intelligence.⁵² On 24 January, Hood ordered his fleet to form the line of battle, but two of his vessels, *Alfred* and *Nymph*, ran afoul of each other during the night. This cost him one day while *Alfred* was repaired at sea. This also deprived Hood use of the *Nymph* that had to return to Antigua to repair greater damage suffered in the collision with *Alfred*. During this wait at sea, Hood's frigates

51. Schomberg, *Naval Chronology* 2, 89.

52. Ekins, *The Naval Battle for Nevis*, 6.

captured the 16-gun French cutter *Espion*, attempting to deliver shells to the French army besieging Brimstone.

On the morning of the 25th, the two fleets first observed each other directly after Hood's sailed round the southwest coast of Nevis. Expecting the pending engagement with Hood, De Grasse moved his fleet from the Frigate Bay anchorage at 3:00 on the afternoon of the 24th, seeking to gain the initiative of greater firepower at sea.⁵³ Then, Hood saw for himself the error of Governor Shirley's earlier report. Hood faced not 21, but 31 French ships of the line.

De Grasse left Frigate Bay, seeking to gain the most advantageous position. He reasoned that with a superior number of ships and guns, as with the largest flagship in the battle, he could win if properly positioned for an attack. In the Age of Sail the best position to start a battle was windward from the enemy fleet, called the weather gage. By controlling its position relative to the wind, a fleet controlled the tactical initiative in battle by setting its distance from the enemy and choosing when to force action. When ready, the ideal attack involved the windward fleet bearing down on the leeward fleet, and sailing in a line perpendicular and through the enemy line of ships. As the two fleets intersected, they would exchange gunfire from their broadsides of cannons. The windward fleet crossing the line would have the advantage of maintaining fleet integrity. The leeward fleet would become divided, reducing its fighting capability. As this windward fleet passed through the enemy line, the windward fleet's ships could fire devastating broadsides from both port and starboard guns, raking the enemy ships down

53. *Ibid.*, 7.

their long axes, bow-to-stern, or stern-to-bow. The leeward fleet would be virtually defenseless against such a successful attack and would be forced to surrender. In a textbook execution, the windward fleet should win the battle. As De Grasse's fleet weighed anchor, he intended to execute just such a maneuver.

French warships and ratings:⁵⁴

<i>Ville de Paris</i>	104	French Flagship
<i>L'Auguste</i>	80	
<i>Duc de Bourgoyne</i>	80	
<i>La Couronne</i>	80	
<i>Languedoc</i>	80	
<i>Triomphante</i>	80	
<i>Magnanime</i>	74	
<i>Northumberland</i>	74	
<i>Pluton</i>	74	
<i>Glorieux</i>	74	
<i>Caesar</i>	74	
<i>Hercule</i>	74	
<i>Zelé</i>	74	
<i>Palmier</i>	74	
<i>Hector</i>	74	

54. Isaac Schomberg, *Naval Chronology: Or An Historical Summary of Naval and Maritime Events... From the Time of the Romans, to the Treaty of Peace of Amiens*, vol. 4 (London: Printed for T. Egerton By C. Roworth, 1815), 398.

<i>Souverain</i>	74
<i>Conquerant</i>	74
<i>Sceptre</i>	74
<i>Citoyen</i>	74
<i>Destin</i>	74
<i>Neptune</i>	74
<i>Bourgoyne</i>	74
<i>Dauphine</i>	74
<i>Marseillois</i>	74
<i>Diadem</i>	74
<i>Brave</i>	74
<i>Eveillé</i>	64
<i>Refleché</i>	64
<i>Jason</i>	64
<i>Ardent</i>	64
<i>Caton</i>	64

British warships and ratings listed by intended order in the line:⁵⁵

VAN commanded by Rear Admiral Francis Samuel Drake

<i>St. Albans</i>	64
<i>Alcide</i>	74
<i>Intrepid</i>	64

55. Ibid., 396-397.

Torbay 74

Princessa 70 Van Flagship

Prince George 98

Ajax 74

CENTER commanded by Rear Admiral Hood

Prince William 64

Shrewsbury 74

Invincible 74

Barfleur 98 Center Flagship

Monarch 74

Belliqueux 64

Centaur 74

Alfred 74

REAR commanded by Commodore Edmund Affleck

Russel 74

Resolution 74

Bedford 74 Rear Flagship

Canada 74

Prudent 64

Montague 74

America 64

In addition to the line, Hood had nine frigates:

Attached to VAN

Eurydice 20

Attached to CENTER

Pegasus 28

Fortunée 28

Lizard 28

Champion 20 Repeater

Convert 32

Triton 28

Attached to the REAR

Sybil 28

***Solebay* 28**

At ten o'clock in the morning, Hood sent the ships in his Van ahead before recalling them back into line with the rest of his fleet.⁵⁶ As the British fleet rounded the southern seacoast of Nevis and pressed northward, *St. Albans* fell to fourth position and vessels in the Rear gained greater ground, reordering the fleet. Upon seeing the French, Hood determined his only chance for saving Brimstone was to take de Grasse's anchorage.⁵⁷ Hood pressed his fleet onward to present the appearance of intending to engage the French fleet. Instead, his Van and Center swept past the French with only

56. Ekins, *The Naval Battle for Nevis*, 7.

57. *Ibid.*, 2.

limited fighting, heading for the anchorage. It was Hood's Rear, commanded by Commodore Affleck, which took the brunt of the fighting, holding the French as the rest of the British fleet drove forward. Affleck's fire effectively shifted the French leeward, or further west and away from shore, while Hood's fleet sailed toward Basseterre and Frigate Bay, avoiding becoming mired in an open sea, ship-to-ship battle. All nine frigates sailed windward of the fleet, with the Nevis seacoast on their starboard, and the British line off their port, with the French to the west, further leeward of the British line.⁵⁸

In this action, *Solebay* acted on station as a repeater vessel to the Rear Division. This meant she sailed out away from the line, necessary to be visible to pass signals from Hood's flagship to the rest of the fleet. This was an important and essential task before the invention of wireless radios. Ships used signaling flags to coordinate their movements, working together to maximize their firepower against an enemy fleet, while minimizing individual weaknesses by providing a collective defense. Line of sight limited the use of flags. Each vessel in the fleet needed to see the flagship in order to correctly follow Hood's commands. Sails, rigging, masts, and especially smoke from cannon fire could obstruct visibility with the flagship. *Solebay* served to fill this gap by relaying signals. There was no standard system for signaling at this time, so each commander chose his own. Regardless of which colors, numbers, position an admiral

58. *London Gazette* 12 March 1782, no. 12277, 3-4.

selected, repeater vessels were needed to convey signals to all ships in a squadron or fleet.⁵⁹

Rounding the southern coast of Nevis, moving north, and with a French fleet responding by leaving its anchorage and moving south to meet the British fleet, *Solebay* was away from the protection of the battle line, exposed and vulnerable. In this position, a French ship of the line chased *Solebay*, pressing her ever closer to shore. Following the British line of frigates north along Nevis' southwestern seacoast, *Solebay* moved ever closer to shore, in the heaviest of the initial fighting between the fleets.

At 2:20 in the afternoon, *Solebay*'s Captain Charles Holmes Everitt received a warning that the depth of water was dangerously shallow and ordered his helmsman hard to starboard, but it was too late.⁶⁰ *Solebay* grounded off the southwest coast of Nevis. At about the same time that *Solebay* grounded, the *Ville de Paris* fired three shots to begin ranging her guns prior to the main opening broadsides.⁶¹ At three o'clock, the French began the fight with the *Ville de Paris* opening the exchange by firing on Hood's Rear Division, initiating the firing of a dozen more French ships. The British Rear returned fire and the Battle of Frigate Bay had begun.

59. Fremantle, *Sea Power*, 482.

60. ADM 1/313 f181 Charles H. Everitt to Samuel Hood, 26 January 1782 (National Archives, UK); D. Hannay, ed., *Letters Written by Sir Samuel Hood (Viscount Hood) in 1781-2-3: Illustrated by Extracts From Logs and Public Records*, (London, Navy Records Society, 1895), 67.

61. Ekins, *The Naval Battle for Nevis*, 8.

With *Solebay* aground, Hood's fleet continued toward its their objective on St. Kitts. The British Rear Division passed, leaving *Solebay* alone and exposed to the Rear of the enemy fleet. As they sailed by, French ships directed broadsides at *Solebay*.⁶² Everitt kept his colors flying, determined to save *Solebay* and get back in the fight. At first, his crew kept firing their port guns toward the leeward French vessels.⁶³ The sailors jettisoned the ship's starboard guns, lightening the weight of the vessel in an effort to free her.⁶⁴ They manned the pumps as well, to remove excess bilge water, but were also fighting a falling tide. In the meantime, two French frigates off *Solebay*'s leeward, or port side, fired their broadsides into the stranded *Solebay*.⁶⁵ Without alternative options, under heavy enemy fire, and fearing capture or death, Everitt consulted his officers and determined to order his crew to abandon ship and seek protection ashore on Nevis where the British flag still flew at Fort Charles. At around seven o'clock in the evening, Everitt ordered the *Solebay* set afire to prevent its capture by the French.

While *Solebay* burned, Hood's fleet pushed north, and began anchoring in line ahead at Frigate Bay, bypassing a battle with the French navy in open seas. De Grasse, having originally held Frigate Bay, having chosen to meet the British in an open water fleet battle, now faced having to drive into an anchored enemy at the exact defensive

62. Hannay, *Letters Written by Sir Samuel Hood*, 67.

63. Ekins, *The Naval Battle for Nevis*, 9.

64. ADM 1/5319 pt 3 ff 463-469, *Solebay*/Everitt Court Martial, 21 February 1782.

65. Schomberg, *Naval Chronology* 2, 90.

position the French had just held that morning. By taking the French position Hood separated de Grasse's fleet from the French soldiers ashore. De Grasse attacked the British hoping to prevent them from cutting his communication with the troops ashore at Brimstone Hill Fortress, but was driven off by intense fire from the British Rear under Commodore Edmund Affleck.⁶⁶ Up to fourteen French ships concentrated their fire on the last three ships in the British line.⁶⁷ Affleck's Rear Division held fast. Hood's Center engaged to help the Rear while Hood's Van added sail to reach Frigate Bay. This hour-and-a-half action held back the French, and allowed Hood's fleet time to station in a strong, defensive position before sundown. De Grasse, recognizing the futility of the situation withdrew to deep water for the night.

As the battle between Hood and de Grasse continued, the fire aboard *Solebay* spread. At eight o'clock it reached and ignited the 160 barrels of gunpowder in *Solebay*'s hold, causing an explosion that reverberated like thunder off Nevis Peak.⁶⁸ *Solebay* exploded on the shoal, but Everitt and his men made it safely ashore. Wasting no time, Everitt marched his men north to Fort Charles where he lowered and raised the British flag to signal recapture of the island.⁶⁹ Everitt, determined to rejoin the sea fight for St. Kitts, commandeered two vessels, boarded his crew, and set off across the Narrows for the English fleet at Basseterre. Everitt's last official action on Nevis was to send a letter

66. Ibid.

67. Ekins, *The Naval Battle for Nevis*, 8-9.

68. Ibid., 9.

69. Ibid.

demanding the islanders surrender to the British. Thus ended the first full day of fighting between the fleets.

At eight o'clock the next morning, de Grasse led his entire fleet in another determined attack that lasted two hours.⁷⁰ Hood's Rear became the focus of French efforts, determined by the winds relative to the British Van. Recognizing the threat, Hood re-positioned his ships to reinforce the Rear. The British held their defensive anchorage at Frigate Bay, as the French fleet passed, both sides exchanging broadsides. The French again withdrew to sea, and Hood used the pause to adjust his line by moving the exposed seven ships in the Rear. His fleet now formed a better defensive position, in an obtuse-angled line that stretched from the saltpans by Frigate Bay all the way to Basseterre. With the British ships on spring anchors, they could deliver a broadside, and pivot to deliver the alternate broadside while reloading the first.⁷¹ It was a strong defensive position. In the afternoon, de Grasse reengaged, focusing his efforts on Hood's Center and Rear. The British repulsed him, inflicting even greater damage, including shot holes in the *Ville de Paris*, which was seen heeled for hours on the morning of the 27th. The sea battle was over; the French withdrew. The British suffered 72 killed, 244 wounded, and the French reportedly delivered over 1,000 wounded to St. Eustatius.⁷² Hood secured a tactical naval victory.

70. Ibid., 3, 10-11.

71. Jacob Nagle and John C. Dann, *The Nagle Journal: A Diary of the Life of Jacob Nagle, Sailor, From the Year 1775 to 1841* (New York: Weidenfeld & Nicolson, 1988), 52.

72. Schomberg, *Naval Chronology* 2, 91.

While the naval battle ended, the struggle ashore continued. On the 28th, General Prescott landed 700 soldiers to relieve the besieged British soldiers holding Brimstone.⁷³ As Prescott and his men approached Brimstone Hill, the French blocked their advance forcing them to retreat to Basseterre. Marquis de Bouillé led 400 French troops from Sandy Point to drive off Prescott. Fortunately for the British, despite Prescott's initial defeat, he had established a strong defense on a hill commanding Basseterre. With Bouillé not being able to attack Prescott at Basseterre, and Prescott not being able to attack Bouillé and his 8,000 soldiers at Brimstone, Bouillé withdrew his soldiers to continue his attack on Brimstone and Prescott's soldiers re-embarked onto Hood's fleet. Bouillé had successfully cut off both relief and communications between Hood and Fraser inside Brimstone.

Despite losing the naval battle, the French continued the siege with ferocity and unrelenting determination. The garrison, reduced in strength to 500 men, capitulated on 13 February. Once in possession of Brimstone Hill Fortress, the French soldiers began to position mortars and guns on the surrounding hills to bombard the British fleet at anchor below. Hood recognized the danger of holding his position, with the soldiers on high ground ashore, and the French fleet waiting at sea like sharks circling. At 11:00 on the night of 14 February, under orders that had quietly been passed ship-to-ship and without flags, his ships cut their anchors loose and the fleet slipped out to sea. St. Kitts had fallen, followed soon after by Nevis and Montserrat.⁷⁴ On 19 February, Hood anchored

73. Ekins, *The Naval Battle for Nevis*, 13.

74. Schomberg, *Naval Chronology* 2, 92.

once again in English Harbour, Antigua, where he met Rodney, who had returned from England with additional warships. While it was too late to save St. Kitts and Nevis, this combined fleet had another battle with the French, and a destiny with history looming.

Three months after the Battle of Frigate Bay, the French made one final push to invade Jamaica. On 12 April 1782, Comte de Grasse, aboard his flagship *Ville de Paris*, led his fleet against a British fleet that included many of the veteran vessels from Frigate Bay. This time the British, under the command of Admiral Sir George Rodney and with Hood as his second, defeated the French. Three dozen warships on each side engaged south of a tiny group of islands known as the Saintes, located between Guadeloupe and Dominica, 100 nautical miles southeast of Nevis. During the Battle of the Saintes, the British fleet broke the French line, raking them with devastating fire. The French were defeated. De Grasse surrendered his flagship, thus ending French hopes of capturing Jamaica anytime soon. The Treaty of Paris was signed just over a year later, on 3 September 1783. By its terms, France returned St. Kitts and Nevis to Britain. Great Britain had lost America, but regained St. Kitts and Nevis.

CHAPTER V

INTERPRETING *SOLEBAY*

British naval architectural history and many individual ship histories are well documented in theory. This documentation continued after the launching of a vessel, one that may have served for decades. *Solebay* sailed for almost two decades. Lines drawings and associated design books and treatises provide a basis for understanding these vessels. However, modifications, upgrades, or real use can only be understood through their archaeological remains, complemented with historical service records. The archaeological remains of *Solebay* are sparse, but they offer clues and prompt historical research. Teasing the story of *Solebay* focuses one's attention on understanding late eighteenth-century naval science, and the role of frigates in combat, as well as peacetime service.

In the late seventeenth century, long wars involving the United Provinces, Spain, England, and France necessitated the building of powerful navies, involving hundreds of ships. States tested a variety of new vessel types with multiple decks, guns, and sail configurations. This formative era prompted the maturing nation-state to institutionalize battle fleet organization into a rating system. This served administrative as well as tactical purposes. Into the eighteenth century, ships ratings standardized which improved the construction, outfitting, and deployment processes. For the British Royal Navy, the 1719 Establishment set formal design and construction guidelines, just prior to channeling all work through the Surveyor of the Navy with the 1745 Establishment.

Ships were rated first through sixth rate. On the most powerful end, a first-rated warship was the largest, had the most decks, and mounted the most guns. On the lower end, a sixth-rated vessel was smallest in size, with the fewest decks, and had the least number of guns. The remaining ratings fell in between these two extremes. In the seventeenth and eighteenth century, classification of ratings by number of guns and number of gun decks evolved depending on the exact period, but followed these general guidelines. For example, in the eighteenth century, fourth-rate warships became third-rates, or operated as flagships in smaller fleets. And, the line between sixth-rates and unrated vessels could be negotiable.

Together, first, second, and third-rate warships formed ships-of-the-line, designed to serve cohesively as a fleet for a large battle. Such a fleet was built around several 74-gun, third-rate warships—ideal for their size and firepower. These could then be augmented with a few second-rate vessels. An admiral led them aboard a first-rate ship that carried 100 or more guns. This warship served as the fleet's flagship, and would fight enemy flagships. Together, a fleet carried a tremendous amount of firepower and could only be effectively opposed by an enemy fleet of similar size and firepower. In practice, governments could only afford to operate such ships during major wars. While powerful, the size, maneuverability, manning, and victualing requirements of first through third-rate ships limited their use to planned battles in major wars. Otherwise, these ships laid in ordinary, as a reserve until needed for a future war.

In contrast, on the lower spectrum of the rating system, were the fourth, fifth, and sixth-rate warships that could be used year round. These carried as many 64 guns, while

the smallest sixth rates carried 24 to 28 guns on a single deck, augmented with swivel guns and later carronades. Though lesser in size and strength, these ships conducted essential functions for the success of the greater fleet and state. They could assist the larger fleets in a major battle, or operate independently or in small groups for missions other than fleet-on-fleet combat. The array of tasks assigned to these vessels included reconnaissance, blockading, convoy escorts, delivering essential persons and dispatches, general cruising, and standing as repeaters, outlying the main fleet during battles amongst first through third rate vessels.

In the eighteenth century, more tightly defined ratings came with advances in naval architecture. British designs borrowed heavily from lines taken off captured French warships, which were generally considered to be better than British designs. British naval architects studied the designs and drafted new models, outfitted with the latest weapons and technology. Thomas Slades' *Mermaid*-class *Solebay* represents this initial generation of better-designed British warships built in the 1760s based on new designs. It also underwent technological upgrades during its service lifetime. These included the addition of carronades and copper-sheathed hull, which extended its performance and fleet value.

Solebay's destruction and subsequent site formation conditions do not provide the circumstances to study the hull at present, but remaining metal artifacts may answer questions regarding its outfitting. Moreover, analysis of the vessel class serves to understand its purpose, as a warship with a specific fleet role. Vessels were designed to serve naval missions, with performance considerations in mind. These objectives

ultimately exist to fulfill naval and diplomatic goals of a nation-state. In the macro picture, it becomes of insightful importance to understand how a lower echelon vessel works as an instrument of the state.

England's navy and military matured in step with its role in European politics, in the early eighteenth century. Maintaining an influential position required a navy capable of controlling the English Channel by successfully defending against potential Spanish, Dutch, or French fleet attacks. While the British Navy built a sufficient quantity of ships, they lacked the performance capabilities of their competitors' designs. French Master Shipwright Blaise Ollivier's two-decked *Medée*, built in 1741, represented an archetypal frigate, leading the British in design. Beginning in the 1740s, the English sought to capitalize on captured enemy vessels--such as Jacques-Luc Coulomb's *Panthère* in 1745, *Embuscade* in 1746, and *Medée*'s sister ship *Renommée* in 1747--by operating them against the French.

The 1745 Establishment provided the Royal Navy greater centralized control over the design of warships, leading to a rigid standardization that catalyzed efforts to replicate captured French warships, beginning in earnest during this decade. British shipwrights accomplished this by lifting the lines of the French vessels and reverse engineering their plans to create new vessels for the Royal Navy. Ultimately, the British shipwrights improved and scaled the designs from lesser Sixth Rates to line-capable 74-gun third rates. This turning point started working in the late-1740s when the British Navy constructed new warships based on taking lines off the French privateer *Tygre* in 1747.

As these efforts grew and continued, the Royal Navy was gifted in 1755, with a new Surveyor of the Navy, Thomas Slade. He exploited the French prizes and led British naval architecture into a flourishing phase by improving British ship design. Slade's plans served through the Napoleonic Wars and into the nineteenth century, including his most famous design, HMS *Victory*, famous for its role at the 1805 Battle of Trafalgar. From these efforts the British eventually built great ships to complement their well-trained and disciplined sailors. The second half of the eighteenth century was a period of rapid technological innovation and overall improved quality for the British Navy and the supporting bureaucracy.

In 1757, during the middle of the 1754-1763 Seven Years War, the British captured a French prize, the 950-ton *L'Abenakise*. Rechristened HMS *Aurora*, its lines contributed greatly toward collecting naval architecture intelligence. The scaled lines served as a model of Thomas Slade's designs from third-rate, 74-gun vessels, to sloops. A sixth rate design taken from *L'Abenakise*'s lines became the *Mermaid* class.¹ Six vessels with *L'Abenakise*'s lines were built between 1760 and 1775, in two separate batches of three vessels each (Table 1). These vessels were similar, except for some minor differences in the second batch including a slightly longer keel by 8 5/8 inches.

1. Lyon, *The Sailing Navy*, 86.

<u>Vessel</u>	<u>Completed</u>	<u>End of Service</u>
First Batch		
<i>Mermaid</i>	1761	1778
<i>Hussar</i>	1763	1779
<i>Solebay</i>	1763	1782
Second Batch		
<i>Greyhound</i>	1775	1781
<i>Triton</i>	1773	1796
<i>Boreas</i>	1774	1802

Table 1 *Mermaid*-class vessels and their service years.

Triton and *Boreas* were scrapped in 1796 and 1802, respectively. *Mermaid*, *Hussar*, *Greyhound*, and *Solebay*, were lost at sea. *Hussar* has the distinction of wrecking in the waters of Hell Gate, traversing between Manhattan Island and Long Island, New York. This area had been known as a navigation hazard for dangerously low rocks and the confluence of the East River currents around Wards Island, which made navigation by sail precipitous. Since *Hussar*'s sinking, treasure hunters have sought the wreck, driven by popular folklore claiming millions of dollars in gold aboard. This is likely legend more than fact, and the area has since been heavily modified the U.S. Army Corps of Engineers to improve safe navigation. Admiral Horatio Nelson

commanded *Solebay*'s sister ship, *Boreas* in 1784. In this duty, he grew as an officer as he enforced the Navigation Acts in the West Indies near Antigua. It was during this assignment that Nelson spent eight months on Nevis, where he met his wife, Frances "Fanny" Nisbet. Of all these ships, *Solebay* had the longest life, and saw the greatest amount of wartime service.

The prototype, *Mermaid*, was ordered on 24 April 1760 and commissioned in April 1761.² Orders for *Hussar* and *Solebay* followed on 30 January 1762. Thomas Airey & Company built *Solebay* in Newcastle beginning on 10 May 1762 with the laying of her keel. Her keel length was 102-feet 8 1/2-inches, with a 33-foot 8-inch beam, 11-foot 0-inch hold. On the gun deck it measured 124-feet 0-inches. It was named on 30 April 1763, as the fourth "*Solebay*" in the line, after the Battle of Solebay on 7 June 1672 during the Third Anglo-Dutch War. It was partially fitted at Newcastle, including sails, rigging, ballasting, after launching on 9 September 1763 at 619 72/94 bm (tons burden, builder's measurement).³ While being outfitted, on 1 December 1763, her career almost ended before it even began. There was a major storm around Newcastle during which *Solebay* and twenty other vessels broke their moorings and drifted free before being safely secured in the harbor.⁴

2. Winfield, *British Warships*, 231-232.

3. ADM 180/3 f665 Progress and Dimension Book. (National Archives, UK).

4. John Sykes, *Local Records; Or, Historical Register of Remarkable Events, Which Have Occurred in Northumberland and Durham, Newcastle Upon Tyne, and Berwick Upon Tweed, From the Earliest Period of Authentic Record, to the Present Time; With Biographical Notices of Deceased Persons of Talent, Eccentricity, and Longevity* (Newcastle, UK: Printed for, and sold by, J. Sykes, 1833), 243.

Solebay completed fitting and commissioning for Channel service at Sheerness between 2 January and 15 March 1764.⁵ For this duty, it was stationed in Cork, Ireland, starting in 1765 until 1772, and rotated four captains during this period. Her captains included William Hay⁶ (1763-1766), James Bremer⁷ (1767), Lucius O'Brien⁸ (1767-1770), and George Vandeput⁹ (1770-1772). From 1772 to 1775, *Solebay* was put in ordinary for general refitting and repairing some decay that had begun after a decade of service life.¹⁰ It needed repairs to the hull, and replacement of masts, yards, rigging, and stores.¹¹ *Solebay* reentered service for the start of the American Revolutionary War. For a brief period from June to August 1775, before Symonds took command, Henry Bellew captained *Solebay* upon its return to duty.¹²

As sixth rate, 28-gun frigates that combined a balance of speed and firepower, Slade designed all the *Mermaid*-class vessels with twenty-four 9-pounder guns as their

5. Winfield, *British Warships*, 231-232; ADM 354/172/205 'Philip Stephens. Proposal that the *Solebay* is ordered to Sheerness to be fitted for the Channel service,' Navy Board Bound Out-Letters, 19 August 1763 (National Archives, UK).

6. Winfield, *British Warships*, 231-232; Hay, William, ADM 36/7498, *Solebay* Muster 25 August 1763 - 30 December 1766 (National Archives, UK).

7. ADM 106 Navy Board: Records (National Archives, UK).

8. Ibid.

9. Ibid.

10. ADM 354/186/261 Survey of the *Solebay* by the Plymouth Officers, 28 July 1772 (National Archives, UK).

11. ADM 180/8 f304 Progress and Dimension Book (National Archives, UK).

12. Winfield, *British Warships*, 231-232.

main broadside weapons, fired from the upper deck. On the quarterdeck the frigates carried four 3-pounder guns initially, later upgraded to 6 or 18-pounder carronades as they became available, with the later addition of two 18-pounder carronades on the forecastle. After the pivotal Second Battle of the Capes, *Solebay* docked in Charlestown for a refit. While taking on ballast, bread, butter, cheese, beer, and water, Captain Everitt, along with Captain Montagu of *Juno*, had requested additional guns to increase their ships' firepower.¹³ Up to this point, *Solebay's* primary guns consisted of twenty-four 9-pounders and four 6-pounders.¹⁴ As originally built, *Solebay* had twenty-four 9-pounders and four 3-pounders. By 1780 the 3-pounders had been upgraded to 6-pounders. The addition of another four 6-pounders or even carronades represents an escalation demonstrating both changes in available technology, but also changes in practice. Naval captains simply wanted and needed more firepower to outgun their enemies. By 1793, 28-gun frigates, with their 9-pound guns, were being outgunned and no more were introduced.¹⁵ Frigates continued to exist, but with more numbers of guns, in larger calibers, and with carronades. Despite the evolving naval rates, frigates like *Solebay*, with an unarmed lower deck, did have advantages over ships with multiple gun

13. ADM 51/4345 no. 5 Log of Second Lieutenant Edmund Crawley, 18 September 1780 – 30 October 1781 (National Archives, UK, 1780); ADM 1/1762 Letters from Captains, E, Charles H. Everitt to Philip Stephens, 5 October 1780 (Caird Library, Greenwich, UK: National Maritime Museum).

14. Ibid.

15. Brian Lavery, *Nelson's Navy: The Ships, Men, and Organisation, 1793-1815* (Annapolis, Md.: Naval Institute Press, 1989), 49-52.

decks. Frigates could heel into heavy seas with a lot of sail, performing well where ships with multiple gun decks would have to ease back.

Carronades represented new weaponry for the period with many advantages: shorter, lighter, reduced windage, and very potent. Founded in 1759, the Carron Iron Company had a bit of ironic failure that led them to become the largest European iron works by 1814. In 1773, the Board of Ordnance forbid the company from casting long guns after too many had burst during the proofing, or initial test firing. The Royal Navy could not trust their product. This prohibition, which lasted until 1795, forced Carron to shift its efforts toward producing short, stubby guns that famously became known by the portmanteau “carronade.” While their calibers ranged from 6 to 68-pounders, the same as conventional long guns, their overall sizes mattered more. They could be operated more easily by crews of 2-3 men, three times less than a typical long gun, and took less deck space for their smaller dimensions. These characteristics appealed to merchant ships with small crews that purchased them as defensive weapons. Further, their lighter weight and smaller footprint meant more available space for cargo. Moving more goods, more efficiently, meant more profit – their *raison d’être*.

In comparison to merchantmen focused on defense, naval warfare was much more complex and naval fleets had different requirements. In the eighteenth-century naval warfare had evolved and the need for long-range guns changed. In the preceding centuries, naval battles throughout history were fought as *mêlées*, where vessels closed range and battled by sending marines to fight on an enemy ship. When gunpowder and cannon were introduced in the Age of Sail, fleets attempted to win battles by blasting an

enemy ship into submission, or at least attempted to gain a destructive advantage before sending marines to capture the ship. Long guns were ideal for such battles initially, but near engagements inevitably resulted as ships closed their distances to better target and capture ships. Close-ranged tactics persisted. Since range mattered less than the amount of firepower delivered, navies adopted carronades on both small and large vessels. Despite their short length that reduced a projectile's range, carronades advantages became apparent in ship-to-ship tactics. These engagements depended on rates of fire more than distance. On frigates like *Solebay*, adding carronades could greatly increase the ship's firepower for less weight than long guns, without increasing crew sizes, or upsetting the structural integrity of the vessel. These worked initially well on quarterdecks, to replace the lighter long guns.

In July 1779, the first carronade establishment officially began arming Royal Naval vessels with carronades.¹⁶ The Navy started adding carronades to quarterdecks, forecastles, and poops as captains requested. Within three years, 167 ships had adopted the new weapons, reflecting a swift change of technology throughout the fleet.¹⁷ When carronades proved unavailable in port, Everitt requested four additional six-pounders for the quarterdeck.¹⁸ In a discussion regarding the original armaments of USS *Constitution*, John Jennings notes the "great latitude" afforded to officers in deciding the sizes,

16. "The First Carronade Establishment, July 1779," in Lavery, *Arming and Fitting of English Ships of War*, 274.

17. Lavery, *Nelson's Navy*, 82-3.

18. ADM 1/1762 Letters from Captains, E, Charles H. Everitt to Philip Stephens, 5 October 1780 (Caird Library, Greenwich, UK: National Maritime Museum).

numbers, and types of guns. These reflected a combination of securing guns from available options, and choosing guns that would most meet the commanding officer's fighting theories.¹⁹

A response from the Navy Board to the fleet captains by means of the Admiralty, addressing Secretary Philip Stephens, dated 12 October 1780, denied the approval of long guns. In the letter, the Board authors, instead recommended carronades and commented on the general positive reports from other officers fielding carronades.²⁰ When the Navy Board denied Everitt's request for additional long guns in October 1780, it did not dismiss his intention. Instead, it acknowledged the need for additional firepower by recommending carronades. The Board based its decision on the fact that the combination of size and firepower meant carronades would not interfere with rigging, take any significant additional space, weaken the ship's frames, or require anything additional crew.²¹ The bureaucratic irony must have frustrated Everitt and his crew. An ocean away from home, in a theater of war with limited resources, he requested long guns to replace carronades that he could not procure, and got a response that denied him long guns, while telling him to obtain carronades.

In addition to carronades, another new technological innovation made its way to *Solebay*: that of coppering ship hulls. This process involved covering a vessel's hull

19. John Jennings, *Tattered Ensign* (New York: Crowell, 1966), 18-19.

20. *ADM 359/1/111 (formerly ADM/BP/1 piece 111)* (Navy Board Unbound Out Letters, Caird Library, Greenwich: National Maritime Museum, October 12, 1780).

21. *Ibid.*

below the water line in copper sheathing, with cupreous-alloyed tacks, to prevent the destruction of ship timbers from wood-boring teredo worms, and slower performance from biofouling. The Royal Navy began experimenting with coppering hulls in the 1760s. This research accelerated with the start of the American Revolution, and the navy soon learned how to mitigate the galvanic relationship effect between the copper sheathing used to protect the hull, and its corrosive effect on the iron fasteners holding the hull together. By 1778, the navy solved these problems and began a program for sheathing their fleet in May 1779, starting with vessels of 32 guns or less.²² The navy soon extended this effort to 44-gun warships, then cutters, then 74s, then the whole fleet. They recognized the performance differences between coppered and uncovered vessels, and the ability of a fleet to sail only as well and as fast as the slowest vessel. Copper sheathing made British warships faster and more maneuverable, affording them an opportunity to counter the French advantages in superior numbers of vessels.²³ Copper-hulled ships proved decisive at the 1780 Battle of Cape St. Vincent in which British ships successfully ran down fleeing Spanish vessels to secure a victory.

In *Solebay*'s 1775 refit, it received wooden sheathing for the first time in its career, in an effort to protect the hull.²⁴ From its launching in 1763 to it being laid in ordinary in 1772, *Solebay* had a ship's lifetime of bioturbation on its hull that required

22. Brian Lavery, *The Arming and Fitting of English Ships of War, 1600-1815* (Annapolis, Md.: Naval Institute Press, 1987), 62-65.

23. Richard Middleton, "Naval Resources and the British Defeat at Yorktown, 1781", *The Mariner's Mirror* 100, no. 1 (2014): 29-43.

24. ADM 180/8.

repairs. The initial wood sheathing created a sacrificial layer, an attempt to protract the hull by hindering the effects from shipworms. By 1780, this protective wooden sheathing had become badly eaten by worms.²⁵ Wood sheathing was a temporary fix. Based on historical experiences, it lasted between eighteen months and seven years, depending on the environment a vessel sailed.²⁶ Teredo worms thrived in warm waters, such as those of the Caribbean, and ships operating in these areas for extended periods needed much sooner attention. *Solebay*, operating mostly in the colder climates around England and the northern American colonies, benefited with a longer life from its wooden sheathing. In its refitting at Plymouth, between February and November 1780, *Solebay* received copper sheathing for the first time.²⁷ The wood sheathing was completely removed at the graving dock, and replaced with copper.

By 1900, the relatively small island nation of England had become the metropole of a global empire through control of overseas colonies. This vast maritime network survived through seaborne commerce, defended by a flexible and strong navy. This phenomenon did not happen overnight, but rather through centuries of growth. *Solebay*'s history and the Battle of Frigate Bay capture the nascent rise of the First British Empire, examining the tools and conflicts that made it possible. Further, it does so by study of a lesser-known vessel operating in a lesser-known battle on along a lesser-known seacoast, such as that of Nevis, a bottom-up approach.

25. Plymouth Dockyard, 14 March 1780.

26. Lavery, *Arming and Fitting of English Ships of War*, 60.

27. ADM 180/8.

The archaeological remains, archival evidence, and site location currently support the site as HMS *Solebay* based on a best fit of evidence. Since *Solebay* grounded and scuttled without any loss of life, this site should not be considered a war grave, but it still warrants documentation for historical significance. Additionally, the artifacts that have survived offer clues not only to *Solebay*'s life, but may suggest adaptive human behavior during wartime. The materials consist of copper (brass) and lead artifacts. These include items such as a trigger guard for a sea service musket, musket balls, coaks, chain, and copper keel staples. Therefore, site interpretations may be based on relating four primary sources: the court-martial transcripts, the 1808 Arrowsmith chart, the sailing performance records, and a few key artifacts, including the site identification of six shipboard cannon, or guns in naval parlance.

Historical archaeology benefits from the trove of written records to better understand not just the material culture associated with a particular site, but the historical context of the site itself. Moreover, documents need to be considered as part of the complete material cultural record. Shipwrecks lost in naval battles may be considered catastrophic sites, sinking in a few hours, sometimes in a few minutes. The rapid deposition fosters a greater opportunity to materially record a single event, as opposed to a site that may form over years of occupation and deposition, such as midden deposits. By exploring documents produced because of a single event, archaeologists can both plan excavations and interpret findings with a richer context. The site of HMS *Solebay* provides an example of written historical accounts complementing the archaeological study of a naval shipwreck.

Although *Solebay* sank as a casualty of war, the British nevertheless required an official investigation and account by the captain responsible. Whenever Royal Naval ships were lost, a court-martial convened to document the incident and officially conclude justifications. Captains may have performed exceptionally well despite losing to the effects of inclement weather or combat. On 21 February 1782, less than a month after *Solebay* ran aground, Rear-Admiral Samuel Drake presided over a court-martial aboard HMS *Princessa*, at St. John's Road, Antigua.²⁸ The purpose was to question the line of evidence surrounding *Solebay*'s loss and judge the captain's decisions. This record survives in the official minutes of the court-martial and reveals clues to the loss.

The transcription begins with a record of officers present. The next paragraph introduces the loss with a general description that includes action, date, and location. In this section *Solebay*'s position in the fleet is described as a "Repeater" (to pass signals from the flagship to the rest of the fleet). The next paragraph acquits the captain of any wrongdoings and acknowledges his honorable service. This is followed by a series of signatures. A transcriber can note the different penmanship styles. This section clearly distinguishes between individual signatures compared to the list of officers in the previous section, all written by the same person.

Generally, the court-martial questions focused around probing for any sign of poor leadership or judgment during the final actions of *Solebay*'s crew. The officers testified that every man did his job honorably, that they worked to do their best under the circumstances. Captain Everitt testified that no man was aware of the danger of

28. *Solebay*/Everitt Court-martial.

grounding. *Solebay* sailed on station, exactly as ordered, but unfortunately hit shallow water and grounded. Furthermore, the officers and crew attempted to free *Solebay*, and only set it on fire as a last resort. The British feared leaving the ship to fall into French control as a war prize. The fire and subsequent explosion served to destroy *Solebay* where it remains as a battle wreck on the seafloor.

Despite a violently destructive end, archaeology has demonstrated that significant archaeological materials remain after such processes. While the original structure of an object such as a vessel may completely disarticulate in an explosion, and disintegration from burning destroys organics such as wood, rope, and leather, there may still exist timbers below the waterline and shipboard metals that would be scattered across a seafloor. Even for *Solebay*, one would expect to find such artifacts shortly after the wrecking event. However, specific site conditions may provide other clues as to the fate of the wreck. The hard, volcanic substrate in *Solebay*'s particular location likely limited any timbers becoming buried and protected in a sandy depositional process. Two centuries in warm Caribbean waters suggest ample opportunity for teredo worms to destroy most ship timbers. Further, seasonal storms and hurricanes, along with daily ocean surge and currents, likely accelerated erosion. In this context, the environment has continued to degrade and scatter both the organic and metal remains.

In addition to natural oceanic and biological factors, human interaction likely transformed site. The 1808 Arrowsmith chart marks "*Solabay*" with surprising accuracy to the site in question as that of *Solebay*. This fostered its 2010 discovery and suggests a few possibilities that become important in understanding site formation processes and

site interpretation. The wreck may simply have been marked for its historic significance, nothing more than a symbolic notation reflecting social memory of a then recent event. Given the accuracy of the position, another alternative may be implied, that the site was well known. If it was a navigation warning to sailors, this suggests that the wreckage existed in a significant form for at least a quarter-century after the battle, preserved well-enough to warrant its documentation. With enough remaining material, and a known location only 500 yards offshore, opportunistic salvors could have recovered cannon, lead ballast, and other valuable metals for recycling. Environmental degradation, human salvaging, or a combination of both must be considered. What ultimately became of the remaining guns, with only six located from a 28-gun warship, remains a mystery. Though, additional materials may be found in future research surveys.

The Arrowsmith chart includes bearings to key geographically distinguishable features for mariner navigation, and latitude and longitude coordinates. As will be discussed in Chapter 5, this chart has been scanned into a high-resolution digital format and imported into a Graphical Information System (GIS) software package. This allows a test of the cartographic accuracy, comparing historic coastlines, towns, and other key features against a modern georeferenced map layer. The Arrowsmith map marks historic forts, towns, and anchorages. It also includes soundings in close proximity to the word “*Solabay*,” and these may be contrasted to modern bathymetric charts and layered against remote sensing data, as well as compared to the recorded vessel draft for analysis of the wrecked location.

A document from 1772, “Observations of the Qualities of His Majesty’s Ship the *Solebay*,” provides performance characteristics.²⁹ This document is a half-typed, preprinted form on the left side, with hand-written notes on the right side. This proves useful for a number of reasons. A duplicate form was recorded again for the same purposes in 1780, during its refitting at Plymouth.³⁰ The existence of a preprinted form suggests many more of these may exist for other Royal Naval vessels of the period. This encourages a search for other vessels’ characteristics and allows for somewhat consistent qualitative comparisons.

Specifically regarding *Solebay*, it served for two decades, having been designed in 1760 and launched in 1763. The 1772 observations exist from the middle of its life, after almost a decade of sea service. By this period, *Solebay* would have been well tested and this record likely represents typical characteristics during its life. Overall, the crew would likely have solved repairs and adjustments to rigging, mast positions, hull repairs, or other modifications to achieve the maximum desired performance. Wood and copper sheathing represent a significant modification not accounted for in the performance characteristics. Copper did not become widely used until the end of the decade, about eight years after this record.

The sailing qualities offer insight into the grounding and archaeological interpretation. *Solebay*'s draft of fifteen feet in 1772 and sixteen feet when recorded

29. Geo Vandeput and Wm Burians, ADM 95/32/36 Ships' Sailing Qualities, 22 August 1772 (National Archives, UK).

30. Thomas Symonds, ADM 95/32/30 Ships' Sailing Qualities, 2 March 1780 (National Archives UK).

again in 1780, more contemporary to the 1782 battle, supports the field research that recorded the wreck's debris in depths mostly between fifteen to twenty feet.³¹ By reviewing seafloor bathymetry, rising contours, accounting for small tidal changes, an archaeologist can use the draft as an approximate depth benchmark from which to search for the vessel. Inversely, artifacts found from a survey in the approximate depth and location may allow an inference to identifying the material as having come from *Solebay*. This suggests that *Solebay* may have grounded in the shallower depths toward shore, and then drifted in the subsequent burning and explosion to slightly deeper seas. It is possible that more artifacts, including guns, may be discovered there in a future survey. However, it appears that the debris field has been largely delineated, and key artifacts warrant discussion.

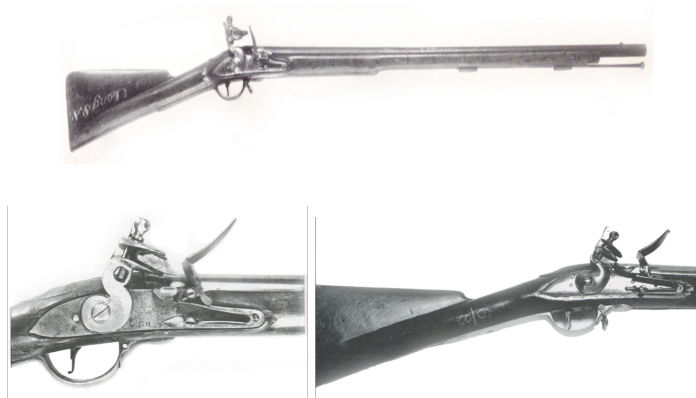


Figure 8 Sea Service Musket examples showing trigger guard details.³²

31. Vandeput and Burians, *Ships' Sailing Qualities*; Symonds, *Ships' Sailing Qualities*.

32. Top image, Howard L. Blackmore, *British Military Firearms, 1650-1850* (New York: Arco Publishing Co., 1961), 100; bottom left image, Anthony D. Darling,

For about a century, from the 1730s through the end of the Napoleonic wars, British infantry carried a smoothbore musket, popularly known today as Brown Bess. While the etymology of the name has been lost, the term serves discussions of a weapon that changed little during this period through minor technical design modifications. This musket type standardized ordnance for British soldiers. Shipboard marines carried the same fundamental musket for their primary weapon, only in a sea service variant (Figure 8). In total, four major types existed: the Long Land pattern, the Short Land pattern, the India pattern, and the Sea Service version.



Figure 9 Artifact no. 10, trigger guard. Scale in centimeters. (Photograph by the author)

As mentioned, there existed slight variations of all these patterns that evolved over time, but key characteristics remained largely consistent and allow for pattern

Red Coat and Brown Bess, Historical Arms Series (Alexandria Bay, N.Y.: Museum Restoration Service, 1993), 28; bottom right image, De Witt Bailey, *Pattern Dates for British Ordnance Small Arms, 1718-1783* (Gettysburg, Pa.: Thomas Publications, 1997), 73.

typing. Musket metal locks, sideplates, and trigger guards exhibit distinct attributes. Once the specific firearm is identified, this can contribute to a better site identification. A brass trigger guard has been identified amongst the artifacts recovered, metal artifact number 10 (Figure 9). Upon accepting this analysis, it immediately informs on the function, and can be typed for a date of production, and nation of origin. The function is self-explanatory, as a trigger guard to a shoulder fired, gunpowder musket. More specifically, it distinguishes itself as having come from a British Sea Service Musket, as opposed to the Long, Short, or India patterns of the Brown Bess musket series. This artifact suggests a *terminus post quem* to the middle of the eighteenth century, and fits well with Solebay's service period 1763-1782.

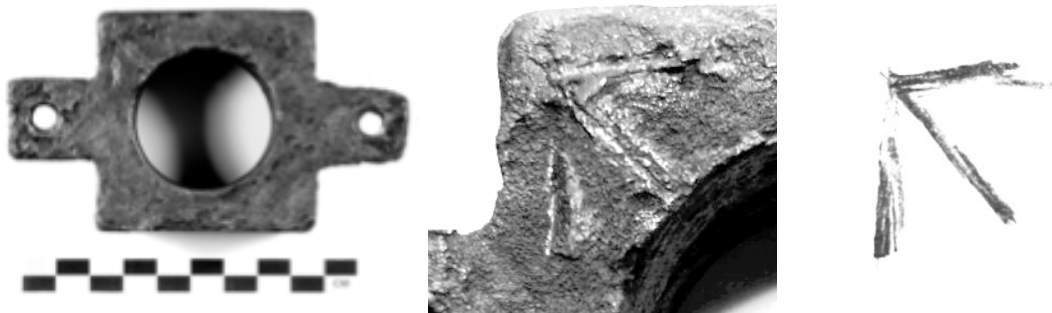


Figure 10 Artifact no. 15 coak with Broad Arrow in upper left corner, second image close-up, and third image illustration of Broad Arrow observed in second image. Scale in centimeters. (Photographs and illustration by the author)

Despite not having an entire musket, a single component of a musket proves very useful. The trigger guard provides cultural origin and date supporting the wreck as

Solebay. However, relying on one artifact can produce a false ruling theory. Examining associated artifacts can support or refute the interpretation greatly. In this case, three other copper-alloy artifacts offer direct support: artifacts numbers 15, 34, and 2. Artifact number 15 appears as a coak to a block (Figure 10). The striking observable attribute of concern is a Broad Arrow stamped onto a corner.



Figure 11 Artifact no. 34 with four, clearly visible Broad Arrows, two on each side highlighted by the author in white. Scale in centimeters. (Photographs by the author)

Artifact number 34 has yet to be identified (Figure 11). Initial observations by divers considered its purpose as a chain roller, perhaps off a modern yacht's bowsprit to assist in lowering an anchor. No distinguishable attributes could be seen at first. After conservation, the function has yet to be answered, but this artifact has proven highly informative in another way. There are two Broad Arrows stamped onto both flat sides, for a total of four on this one artifact.

Artifact number 2 has yet to be identified (Figure 12). It at first appeared similar to a bent keel staple. Close examination reveals a Broad Arrow on the apex of the exterior bend.

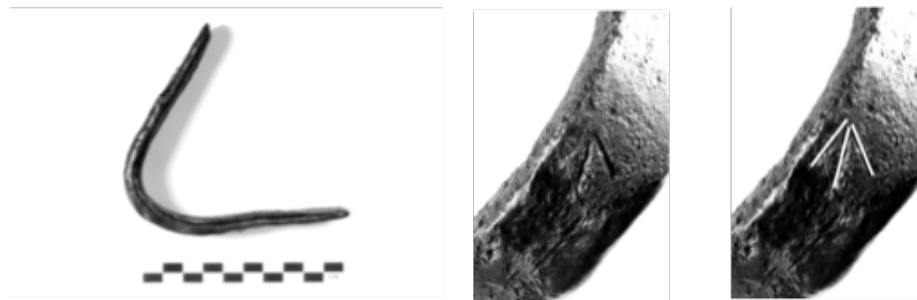


Figure 12 Artifact no. 2 showing a clearly visible Broad Arrow, highlighted in white in third image. Scale in centimeters. (Photographs by the author)

Each of these four completely different artifacts--a trigger guard, a coak, an unidentified roller and copper fastener suggests a British origin. Artifacts 10 and 15 both support a shipboard function. The coak once fitted into a block would have served the rigging of vessel. The trigger guard from not just a musket, but specifically a Sea Service Brown Bess, connects the site to a British Royal Marine. The roller artifact, while puzzling and requiring further study, offers credence to British origin through the four Broad Arrows. Taken individually, any one of these artifacts is not particularly unique. Together, they support the discovered wreckage identity as the lost warship *Solebay*'s final resting place. Like in all good archaeology, the artifacts themselves may be either interesting or not, but the stories they tell together prove to be the ultimate value.

While the diagnostic artifacts support the identity of the wreck as *Solebay*, questions remain surrounding the guns recorded on the site (Figure 13). Providing more than conjecture regarding the guns would require full recovery and documentation, after de-concreting them in a conservation process. Such an effort could reveal details on precise dimensions and maker's marks. These clues could provide an ability to date and track the guns through the historic records, determining their procurement for *Solebay*. While this may be possible in a future field season with better funding and resources, currently it is still worth hypothesizing in regard to the related historical, anthropological implications.



Figure 13 Scientific Diver recording a long gun on *Solebay*. (Photograph by the author)

Influential scholars such as Lewis Binford in the 1960s built upon their predecessors work to usher in the spirit of New Archaeology.³³ This approach developed further in the 1970s, as seminally applied in historical archaeology by James Deetz.³⁴ Thousands of scholars have built upon the notion that archaeology's ultimate goal is to explain laws of cultural processes, recognize patterns, and explain phenomena. The Post-Processual approaches have stretched interpretations to extreme limits of subjective possibilities. Regardless of theoretical paradigms, all sites deserve a fair analysis to tease out the data and shed light on any new understandings. Recognizing broader historical processes creates context for understanding the particular, archaeological, micro perspective from site artifacts, which can then be extrapolated back to a macro historical explanation.

On the *Solebay* site, a total of four long guns and two carronades have been identified. After accounting for concretions, all appear to have characteristics that fit within specifications for a sixth-rate, 28-gun, British frigate, specifically the Mermaid Class 1760.³⁵ The long guns fit within acceptable dimensions for historic long guns, 7 to 9 feet for 9-pounder guns. The long guns all measured 8.2 feet. The two carronades are each of a different type (Figure 14).

33. Lewis R. Binford, "Archaeology As Anthropology," *American Antiquity* 28, no. 2 (1962): 217-225.

34. James Deetz, *In Small Things Forgotten: An Archaeology of Early American Life* (Garden City, N.Y.: Anchor Press / Doubleday, 1977).

35. Lyon, *The Sailing Navy*, 86.

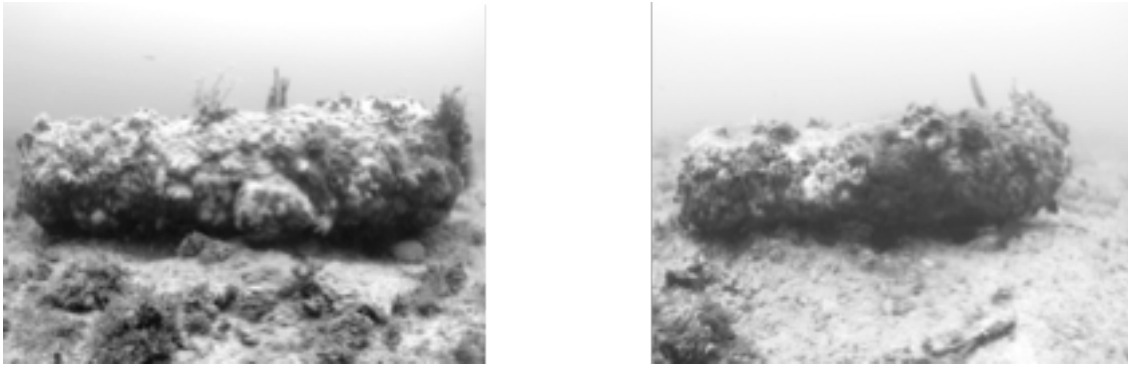


Figure 14 Carronades: Gun F on left with trunnions; Gun C on right with lug and lacking trunnions. (Photographs by the author)

Gun C, as observed through the concretions, has typical fat body of carronades, possibly an encrusted lug and elevation screw, with smooth exterior sides and lacking trunnions. The second carronade, Gun F, appears more as a gunnade with a cascabel and trunnions. Although this is likely an early carronade, since gunnades did not come into use until the nineteenth century, early carronades had trunnions. This could be a very early example. Quite possibly, however, this is a different type of gun, and may even belong to another shipwreck. It could perhaps be a perrier or possibly howitzer, for example. Although its lines appear to resemble a carronade, it is difficult to determine its type without further study and excavation. While no other guns have been found, the ones that exist do more than identify the site. The carronades pose questions as to their origin. Trying to answer how they may have arrived on the site poses interesting questions that may only be answered with their recovery, but are worth asking nevertheless.

Explaining how the guns may have arrived on site requires understanding how Captain Everitt may have acquired the guns, recalling that in 1780 he requested more long guns, and was denied by the Navy Board, who told him to obtain carronades. During the Age of Sail, armaments flowed through the colonies and were sold to both naval and merchant vessels alike. Everitt may have obtained the carronades from private vessels, rather than through an official naval supply chain. This would have been possible considering that merchantmen required guns to protect themselves from pirates and formal enemies. Therefore, guns were available throughout the British colonies, including those in the Caribbean.

Initially, the procurement of guns and personal weapons by private owners was possible through legislation and regulations, or a lack of it. The state did not prohibit merchant ships from buying guns. Arms dealers that sold to navies also sold guns to merchant ship owners without distinction. Chandlers served as ordnance intermediaries between the manufacturer and ship, like with any other ship supply. In England, competition for munitions between commercial and military contracts became a greater concern during wartime by a state that wanted to insure adequate arms supplies.

While merchant sea captains regularly endeavored to run from other sailing vessels, fighting was often an inevitable experience. Antipersonnel weapons included muskets, pikes, and other metal probing or cutting weapons. Large ships, like those of the East India Companies, carried dozens of guns. The English and Dutch East India Companies, for example, operated large vessels with dozens of guns for defense. Archaeological research has suggested that a 1727 Dutch Indiaman ship, *Aagtekerke*,

carried thirty-six main guns and an unknown number of swivel guns. This quantity of armament appears typical for an Indiaman of the period. Smaller vessels used smaller guns that were more easily managed by smaller crews. When Captain Everitt could not receive the carronades he had sought through official naval supply chains, it is possible that he received them from a private merchant. If the site is indeed *Solebay*, an explanation of how the carronades came to be is warranted, and revealing of adaptive wartime behavior.

In the eighteenth and nineteenth centuries, before diplomatic agreements and later laws limited armed merchantmen, buying guns from a foundry may have been as simple as obtaining sundries from a chandlery. In the late 1700s the Carron Company produced a booklet promoting their famous carronades and the importance of armed vessels for national defense.³⁶ Their business was booming as the American Revolution exploded on the seas. By the company's own count they had produced fourteen-thousand guns between 1775 and 1779.³⁷

This booklet discusses means for defending vessels with boarding nets, using one gun caliber to limit confusion in battle, recommends shot types for merchant ships, and ultimately promotes its carronade gun.³⁸ It was a reasonable appeal; a carronade provided equivalent firepower to a standard gun with less weight — preferable for

36. *An Attempt to Improve the Method of Arming Trading Vessels. With a Description of the Carronade, and Some Hints Concerning Shot* (Falkirk, UK, 1779), 6.

37. *Ibid.*, 7.

38. *Ibid.*, 9-10, 23-24.

merchant vessels not built as strong as dedicated warships.³⁹ Fewer sailors could operate a carronade — as few as two men for a 12-pounder, and three men for 18 and 24-pounders.⁴⁰ The booklet contends that mercantile gentlemen desired the carronades for the security of their commerce.⁴¹ With a bit of imagination, one could almost envision an equivalent television advertisement for a new automobile.

From reading this booklet it becomes clear that in 1779 private vessels could purchase large guns and were encouraged to do so. After manufacture and before selling a gun, carronades were test fired to ensure quality. This was called a “proof test.” Guns that passed testing would then be marked with a stamp impressed into the metal. These stamps are unique numbers. When guns are recovered from archaeological sites, the numbers can be traced in the archival record to historically track provenance. Should *Solebay*’s guns be recovered in a future archaeological project, these proof marks may aid in understanding this history.

The booklet’s appendix includes examples of proof records as a way to show their appeal to a broad range of customers for further marketing purposes. These buyers include a Spanish 74-gun ship, the British Ordnance Board, and several private gentlemen. It appears that the company served the Royal Navy and private merchants with equal care and quality of service.⁴² Specifically purchasing and outfitting a

39. Ibid., 10.

40. Ibid., 18.

41. Ibid., 13.

42. Ibid., 27-32.

merchant vessel with a gun directly from a foundry might prove difficult and expensive. A more common method may have been buying used guns from another vessel directly, or through an auction in a seaport. In 1747, an advertisement in the *Pennsylvania Gazette* announced the pending auction of the privateer *Marlborough*.⁴³ The owners separated the vessel, and the vessel's guns, small arms, and gunpowder into separate sales. Historical local laws may have limited eligibility to purchase such arms. Otherwise, one might assume that a "going out of business" liquidation of this type allowed any merchant owner with enough capital to buy the guns and arm their own vessel. For Captain Everitt, Carron's guns were becoming available in significant numbers, and could have been obtained from a private vessel. More research would be needed to accurately quantify the number of guns available to Everitt during the height of the American Revolution. However, he may have had great opportunity with access to purchasing directly from merchant vessels or chandlers that both bought and sold guns.

By July 1782, six months after the loss of *Solebay*, Secretary of the Admiralty Stephens had a record prepared of all ships armed with carronades.⁴⁴ All rates were well represented, from the 100-gun *Victory*, to sloops, cutters, and even a hospital ship. This record lists eleven vessels in the middle ratings, at 28-guns. *Solebay* is not included in this list of eleven vessels. Though, it should be noted, the 36-gun *Juno*, whose captain

43. Carl E. Swanson, *Predators and Prizes: American Privateering and Imperial Warfare, 1739-1748* (Columbia: University of South Carolina Press, 1991), 133.

44. "Navy Office, 22nd July 1782. A List of All the Ships and Vessels Which Have Been Supplied with Carronades, Prepared Pursuant to An Orderd From the Rt Hon Lords Commissioners of the Admiralty, Signified by Mr Stephens Letter of the 16th Inst.," in Lavery, *Arming and Fitting of English Ships of War*, 275-276.

had requested carronades with Captain Everitt in October 1780, did receive two 18-pound carronades. This appears typical in the range with almost all vessels, including *Victory*, having from two to six carronades in each of the quarterdeck, forecastle, roundhouse, and/or upper deck.

Vessel Rate by Total Guns	No. of Vessels per Rate
100	1
98	2
80	1
74	20
70	1
68	11
50	9
44	8
40	1
38	4
36	30
28	11
26	1
24	6
20	8
16	7
14	11
12	3
Armed Transport	4
Armed Storeship	4
Fireship	3
Cutter	11
Hospital ship	1
Ordered to be supplied with carronades:	8
TOTAL:	166

Table 2 Vessels supplied with carronades as of 22 July 1782.

This transition period of ships procuring carronades includes some vessels that received significant numbers. Notable examples include *Rainbow* with 44 carronades, *Swan* with 18 carronades, and more heavily armed transports with carronades as well, such as an armed storeship, fireships, and cutters; plus the ordered 28 carronades for the *74 Egmont*, and 32 carronades for the *32 Proselyte*. For the remaining line ships, carronades were added as augmented firepower with the long guns still functioning as a primary battery.

As of October 1780, *Solebay* lacked carronades. If the site in question is indeed *Solebay*'s, then the archaeological record suggests that carronades were acquired between October 1780 and the ship's loss on 25 January 1782, a period of less than sixteen months. In the three years after the first carronade establishment of 1779, carronade use within the Royal Navy had spread rapidly. In this period they were not yet the primary weapons, but becoming widely adopted. That *Juno* received two guns may suggest that *Solebay* did as well. Though this is merely conjecture, it reflects a strong possibility, but is not in the official records.

The artifacts recovered fit within acceptable material culture for the site to be HMS *Solebay*. Further, the map and historic sail performance documents support the location in conjunction with Everitt's court-martial record. *Solebay*'s design and construction came at the beginning of Slade's contributions to Royal Naval vessel designs. Its service during the American Revolution allowed it to be upgraded with a

copper hull and likely carronades. The naval history and archaeological study of *Solebay* highlight this period well, and it serves as an example for nautical archaeology in Nevis.

CHAPTER VI

MARITIME HERITAGE PRESERVATION IN NEVIS

As discussed in Chapter 1, this research began with a desire to inventory maritime archaeological resources off Nevis. To protect known shipwrecks and identify specific ones for further investigation, the first step must be to assess what exists. Remote sensing surveys combined with diver verification of locally known or suspected sites served as the standard archaeological process for beginning an investigation in a new area. *Solebay*'s discovery shifted attention, energy, and resources to its study, delaying the survey and inventory of other possible shipwreck sites. Nevertheless, the *Solebay* shipwreck site has proven to be a good example for addressing heritage management questions and policy.

In preparation for a remote sensing survey, an early question asked was, “in anticipation of finding undocumented shipwrecks around Nevis, what legislation exists that would protect such finds from immediate looting or decimation by treasure hunters?” An ethically professional research proposal must consider the physical security of the resources. If artifacts are excavated, then this includes their immediate conservation, along with long-term preservation financing and planning. Materials not recovered require a plan for proper site protection. Such a plan may be nothing more than allowing only official government stewards to disclose site coordinates to vetted researchers. As an alternative, the steward may work with a local dive shop to create a recreational dive permit, or an access plan to the public and the tourist community.

For the archaeologist preparing a research plan, this includes following existing permits and policy. If none exist to protect underwater archaeological resources, as none exist in the Federation of St. Kitts and Nevis, an archaeologist's ethics recommend the establishment of such regulations to the government. Professional guidance accelerates site protection, rather than expecting a country to learn this through its own mistakes. Decades of experience and lessons-learned from archaeologists working in other countries can help. Recreational looting and treasure hunting have been a problem throughout the world, with national and international legislation built after decades of court battles. These regulations must consider local cultural practices, the availability of realistic means, and whether the political will to implement such measures exists.

While shipwrecks remain a vital physical connection to our past, protecting them is difficult, although not impossible. When trying to craft a maritime heritage preservation plan for Nevis, the obstacles that must be overcome, in terms of limited financial resources, a lack of local training, and reluctant political will to act, quickly become apparent. There will never be one final plan, but a dynamic process that evolves over time. As a foreign advisor, it is more important to foster a mindset toward responsible management; that is, how to think, not what to think. One of the primary reasons for preserving historic colonial buildings may be to make them usable by modern society, perhaps as apartment homes, business or government offices, cultural centers, or even shops. This provides an innate, practical incentive. It is an unfortunate truth that ships can almost never be reused in the same manner. Their value lies elsewhere. They may be used as tourist sites, aiding an economy, lending memories to a

landscape, serving as education tools for what they can teach us about our past. These are their main uses.

In Nevis ruined sugar plantations in the rainforest are regularly robbed of cut stones, which are then sold for new, modern construction. This may be seen as “dead white man’s history” — garbage left behind that should rightly be reused by the new landlords, largely descendants of black African slaves. Convincing them to give concern for a lost British warship, which they cannot even see on a daily basis, compounds the indifferent attitudes that must be overcome. One advantage with a shipwreck may be an adventurous perception associated with exploring and diving on a sunken wreck. Enthusiasm with the archaeological process itself may be enough to attract positive attention that can then be directed toward preserving the sites.

Exploring *Solebay* contributes to materially connecting Nevisians with their seafaring past. Publications, lectures, and the exhibiting materials in museums on both Saint Kitts and Nevis creates educational opportunities, not just on history, but also as themes of archaeology and site protection. The rewards for successful outreach may encourage historical appreciation for material patrimony and discourage an acceptance of cultural theft from looting or treasure salvors. This sets a precedent, a public dialogue, to achieve a sound maritime heritage plan. *Solebay*’s team cannot solve these problems. Durable and meaningful protective measures must be enacted by the people of St. Kitts and Nevis through legislation with teeth, followed by enforcement. What the *Solebay* research project can provide is a set of suggestions and examples of beneficial archaeological experiences that can encourage positive management action. A first

priority in managing sites, beyond identification and documentation of known resources, is ensuring adequate legislation and enforcement resources exist to protect sites.

In December 2009, the Federation of St. Kitts and Nevis deposited their instrument of full ratification for the United Nations Educational, Scientific and Cultural Organization (UNESCO) 2001 Convention on the Protection of the Underwater Cultural Heritage (UCH). This international agreement provides basic principles with cooperative mechanisms to support member countries in managing their underwater cultural resources. Key amongst the support mechanisms are the relationships of the UCH Convention to five other UNESCO Conventions: 1954 Convention on the Protection of Cultural Property in the Event of Armed Conflict, 1970 Convention on the Means of Prohibiting the Illicit, Export and Transfer of Ownership of Cultural Property, the 1972 Convention Concerning the Protection of the World Cultural and Natural Heritage, and the 1982 Law of the Sea Convention regarding maritime zones. These five conventions work to encourage stable international cooperation for all stakeholders by protecting from chance with explicitly forbidden activities.

More than just a legal framework, the conventions generate respect between member states through appreciating the cultural, national, and emotional value an artifact may evoke. Should an artifact be stolen from one country, member countries are encouraged to cooperate toward repatriating the artifact out of empathy. Following the conventions, it becomes difficult for unauthorized persons to sell looted artifacts in convention countries. Should an artifact, such as a cannon, be exported from one member country to another member country, the two countries will work together to

repatriate the artifact. The goal is both to discourage the illegal sale of artifacts, while mitigating problems that have occurred.

The core principles focus on means to protection, preservation, and cooperation. The basic principles outlined in the Convention Annex provide ethical guidelines such as promoting scientific research with sound research designs, supporting public access, and encouraging training and publications. The Convention has generated some controversy among professional archaeologists. Although all support its merits, some view it as a possible problem to the future of archaeology, because it discourages archaeological excavations. It fosters a vision that argues to always prefer conservation *in situ* of all archaeological sites, and sustains that archaeologists should only excavate when necessary, when a really good research design has been prepared, and a substantive advancement in knowledge is expected from the excavation. The main idea is to save the sites for future generations, which may have better technologies to excavate and conserve archaeological materials. This is a sound argument to a degree, considering the destructive nature of archaeology, and the finite number of cultural sites available. However, if archaeologists do not excavate, do not study new materials, and above all if young archaeologists do not excavate to learn these skills, then how will archaeologist exist other than as stewards of some mythical future time, when these subjective inflection points have been reached? There will always be a better time, a better future, with better technology...

Added to this, a key point of contention in the Annex revolves around a dogmatic push towards *in situ* preservation as a first option, without really providing the material

resources for countries to execute proper protection.¹ Without adequate management resources, or permission to excavate, wrecks may continue to be destroyed by looters and treasure hunters, lost naturally to environmental degradation, or lost culturally from trawling. It is a sound advice that archaeologists should never undertake any excavation without a sound research design and both finances and plans for long-term responsibility or stewardship of the resources. Acknowledging that argument, there still exist countless opportunities and resources for professional archaeological excavations.

Furthermore, countries with established maritime heritage legislation and greater resources might view participation in the Convention as diminishing sovereign control, and unnecessary legislation, which is redundant with existing laws. The United States, for example, has numerous laws at both the state and federal level protecting cultural resources. Notable legislation includes: the 1906 Antiquities Act, the 1916 National Park Service (NPS), the 1935 Historic Sites Act, and include the 1960s National Historic Preservation Act (NHPA) and National Environmental Policy Acts, the 1974 Archeological and Historic Preservation Act, and the 1979 Archaeological Resources Protection Act.

The 1916 NPS legislation begat the NPS Submerged Resources Center in 1976, which manages underwater material culture in all the national parks, including such famous examples as the battleship BB-39 USS Arizona in Pearl Harbor, Hawaii. In

1. Thijs Maarleveld, Ulrike Guérin, and Barbara Egger, eds., *Manual for Activities Directed at Underwater Cultural Heritage: Guidelines to the Annex of the UNESCO 2001 Convention*, (United Nations Educational, Scientific and Cultural Organization, 2013).

2006, one-hundred years after the Antiquities Act was signed into law, President George W. Bush used it to designate an area of around 140,000 square miles in Hawaii, as the Papahānaumokuākea Marine National Monument. The President chose this legal instrument because it allowed him to swiftly bypass the lengthy U.S. Congressional process required for a new NOAA sanctuary, and delineate the area for protection. The result was the same, the site became protected, only much sooner. The surviving tall ship USS *Constitution*, “Old Ironsides,” falls under this protection as well.

In addition to existing legislation, in 1972 the Marine Protection, Research and Sanctuaries Act created the National Oceanic and Atmospheric Administration’s (NOAA) Marine Protect Areas (MPA). As of 2014, there are fourteen national sanctuaries tightly controlled by the federal government. However, only two sanctuaries have been created that protect cultural heritage specifically. The first is the USS *Monitor* National Marine Sanctuary (MNMS). This sanctuary protects the Civil War ironclad USS *Monitor*, which foundered in rough seas 16 miles off Cape Hatteras on 31 December 1862. Rediscovered in 1973, the sanctuary was established in 1975, and is only one nautical mile wide. Nearly thirty years later the most recent sanctuary was designated as Thunder Bay National Marine Sanctuary (TBNMS) in Alpena, Michigan. Thunder Bay protects hundreds of nineteenth century shipwrecks of all types.

Section 308 of the Act allows the Sanctuaries to issue regulations and determine what types of activities can and cannot occur in their protected waters. The sanctuaries use this act to create regulations that will protect their resources. According to Sections 306, 307, and 312, the Sanctuaries also have the authority to issue severe fines to those

who violate the National Marine Sanctuary Act. In some cases the fine can be as much as \$130,000 dollars per day per violation. These severe consequences are essential to deter unauthorized activity.

I believe that similar measures should be legislated in Nevis to protect *Solebay* and other wrecks. In the event that another Federal Agency chooses to pursue a course of action that may adversely affect a sanctuary resource, the Federal Agency must consult the sanctuary manager first. The manager is then required to recommend alternative options that do not threaten sanctuary resources (Section 304d).

Outside these limited parks and zones, vast expanses of territorial waters remain with jurisdictions divided between state and federal authorities. The 1980s a legal battle between the State of Florida and the famous treasure hunter Mel Fisher, over his discovery and claim to the Spanish galleon *Nuestra Señora de Atocha*, prompted the U.S. Congress to pass the 1987 Abandoned Shipwrecks Act (ASA). The U.S. Supreme Court favored for Mel Fisher since no laws existed to otherwise deny his claim. The 1987 ASA legislation protects historic wrecks found within state waters automatically by transferring title to the respective state. Each state through their own legislative and enforcement process, together with the NHPA's creation of State Historic Preservation Officers (SHPOs) and the Sections 106 & 110 mitigation processes, have the authority and responsibility to manage such wrecks. Through these numerous nuanced layers of state and federal laws, the United States has sophisticated legal mechanisms and resources to manage wrecks within American jurisdiction.

Though the Federation of St. Kitts and Nevis is a sovereign state, it exists as a Commonwealth nation under the United Kingdom, with the English monarch as the official head of state. Given its British history, and in this continued context, it may be preferable to model English heritage laws in what pertains to the protection of the archaeology of submerged cultural heritage. The 1974 Protection of Wrecks Act is a British example that explicitly protects a list of enumerated wrecks. Famous examples include on the list include the *Cattlewater Wreck*, *Mary Rose*, and *Grace Dieu*. Scientists or anyone seeking activity on these wrecks must first obtain a license. Similar to protected access in the United States, the permitting process provides a mechanism by which governments can monitor a site, and allow police to suspend unlicensed behaviors. Fines and even jail time with enough severity may act to deter criminal damage, such as the unauthorized removal of artifacts.

Outside of United States or United Kingdom models, UNESCO provides a balanced and internationally supported approach. The move toward protecting shipwreck sites is positive, particularly for a country that does have well-established maritime heritage laws as the United States or United Kingdom. The UNESCO Convention for the Protection of the UCH may be viewed as superfluous or even detrimental to national sovereignty. However, for countries like St. Kitts and Nevis, without the laws, resources, or experience of many archaeologists and examples, it may be argued that this convention should not be viewed as an all-or-none solution, but rather for what it is—a step toward protecting shipwrecks and other cultural resources on an international level. *Solebay* was located in March 2010, three months after the Federation ratified the UCH.

For proper implementation, signatory countries need to adapt national laws that have serious consequences to deter unauthorized destruction and follow through with prosecution when necessary and possible. Countries such as St. Kitts and Nevis are encouraged to join such conventions to aid in filling a void with existing legislation. Their same lack of experience with such matters may benefit from assistance in drafting legislation.

On 25–27 June 2013, UNESCO held a three-day workshop to directly help, *Sub-Regional Workshop On Underwater Cultural Heritage Protection Laws for The Caribbean Small Island States*. This meeting was held on the island of St. Kitts was led by Dr. Craig Forrest, a University of Queensland law professor with experience prosecuting treasure hunters internationally, and Dr. Ulrike Guerin, UNESCO’s UCH Convention Secretary. Participating states included St. Kitts and Nevis and their island neighbors: Anguilla, Antigua and Barbuda, Aruba, British Virgin Islands, Sint Maarten, and St. Lucia. Participants spent the first day discussing the history of the UCH Convention, and how the related five UNESCO conventions work together. Participants then reviewed a template legislation to modify and adapt it to their respective country’s legal codes and needs. The next two days were spent scrutinizing, editing, and finalizing the details to carry draft legislation home to their parliaments. Legislation should be clear, consistent, simple, efficient, and enforceable. Once passed, this important first step will aid Nevis in protecting *Solebay* and contributing to its management plan.

In addition to national legislation and international support from UNESCO, *Solebay* has one more legal advantage for protection— *Solebay* was a Royal Navy

warship. Like the United States, Great Britain implicitly retains title over all its wrecked warships and aircraft, unless explicitly abandoned. This *sovereign immunity* approach serves nations with significant resources to enforce, respect, and support each other's rights to lost naval wrecks. Many wrecks are war graves and associated with significant national emotional value. While *Solebay* did not suffer any human losses, the Royal Navy retains ultimate rights. Upon discovery and initial investigation, Mr. Dan Carruthers flew in from the British High Commission in Barbados for a meeting in Nevis. Through him, Peter MacDonald at Britain's Navy Command in the Ministry of Defence was notified. In the end, if any of *Solebay*'s guns or artifacts are stolen, the British government may choose to investigate with international legal authority. Otherwise, scientific, scholarly research is not explicitly prohibited, and *sovereign immunity* has an added layer of legal protection if needed.

Legislation is only as effective as the resources available and the will to enforce it. In the absence of legislative efficiency, archaeologists and the supportive public must consider other options until such legal efforts become more viable. Even then, a combination of factors should always work together for the best outcome. A key advantage to physically protect *Solebay* over Nevis' terrestrial sites is its environmental location—a third of a mile offshore—underwater. The site is easily accessible by divers, even snorkelers, and a person could potentially swim from shore to the site. However, in general, it is out of visible sight on a daily basis, and requires knowing the exact position and usually a boat to access it. Maritime archaeological sites require great effort and resources to study, but also require the same effort to visit with intent to pilfer.

Looting of wrecks in the Federation has already begun. In 1997 a hurricane exposed a wreck of St. Kitts, known as the White House Bay wreck. This site exists in three meters of water, and only 34 meters from a popular recreational beach. Its vulnerable location exposed it to looting and needed professional recording before everything was lost. Between 2003 and 2008, Dr. Simon Q. Spooner with an Anglo-Dutch Maritime Archaeological Team (ADMAT) documented the wreck. They recorded the timbers and guns *in situ*, and only recovered small artifacts such as regimental soldier buttons.²

Dr. Spooner planned to use the White House wreck as an example, a starting point investigating and managing underwater cultural heritage in St. Kitts.³ His work involved the government on various levels from higher administrative sanctioning to more fundamental camp policing by the St. Kitts and Nevis Coast Guard. As well, he gained support from local businesses to purchase supplies and fuel, and involved local school children with initial camp setup and sharing of the project once going through live closed-circuit television.⁴ The goal, by reaching multiple audiences and levels of participation, was to instill local cultural ownership of the underwater heritage and

2. Simon Q. Spooner, *St. Kitts Maritime Archaeological Project 2003--2008. Phase 1: White House Bay Wreck*, ADMAT Interim Report (2003).

3. Simon Q. Spooner, "How Tourism Benefits From the "ADMAT Model" for the Preservation of Underwater Cultural Heritage" (Paper Submitted to the 5th Annual Caribbean Conference on Sustainable Tourism Development, St. Kitts: September, 2003).

4. Spooner, *St. Kitts Maritime Archaeological Project*.

protect the site. Despite his best efforts, since ADMAT's work end in 2008, the five guns on the wreck have been looted.

Site protection would also benefit wrecks of more recent, but highly emotional value. On the afternoon of 1 August 1970, in what was just another day in St. Kitts and Nevis, disaster struck. MV *Christena*, a 1,160-foot island ferryboat, had left Basseterre, St. Kitts, bound for Charlestown, Nevis. As this was the final run of the day, it had double the passengers of its 155 capacity. Overloaded, it entered the Narrows between the two islands when rougher seas overtook the vessel and sank it. Only 91 survivors made it out to be rescued. Divers attempted to recover bodies trapped in the wreckage, but the depths, conditions, and shark infested waters made it too difficult. The government ended the recovery efforts and *Christena* has remained a memorial site. For Kittians and Nevisians, almost everyone on the island knew someone affected either directly or indirectly. This wreck remains on the seafloor in depths accessible by recreational divers. This legacy could both contribute to enacting underwater cultural protection laws, and benefit from their passage.

While both St. Kitts and Nevis have museums on their islands, they lack any conservation labs for treating waterlogged artifacts recovered from the seafloor. Smaller artifacts may leave the country for treatment before returning for exhibit in island museums. However, transporting artifacts internationally, while keeping them wet until treatment, creates challenges. Larger artifacts, such as cannon, will be much easier to treat locally. In the short term, artifacts may be stored ashore by submerging them in tanks with fresh rainwater rinses. Since the ability to desalinate and properly conserve

artifacts is not yet a reality, recovering artifacts for storage without conservation in place may be ethically questionable. To move toward conservation requires building a lab, as Dr. Spooner has suggested. It is relatively reasonable to introduce and teach the skills required for iron conservation using electrolytic reduction with a chemical catalyst. Organic ship timbers using polyethylene glycol or silicone would require more substantial funding and training. Regardless, establishing a sustainable conservation program will require a skilled technical staff dedicated to overseeing each artifact to completion. Western archaeologists from Great Britain or the United States, for example, can assist in training and practice, but there needs to be a permanent person entrusted to artifact curation.

The seventy-two artifacts recovered during the 2011 field project have become part of an ongoing investigation that may warrant future field research. The analysis of a limited sample from the site can test the identification of the shipwreck when complemented with historical documents. To conserve these artifacts, they were brought to Texas A&M University's Conservation Research Laboratory (CRL), as no trained personnel or facilities exist in Nevis. When exhibited in the island's museum, they may serve to promote awareness and greater support toward heritage preservation by Nevisians.

With proper legal protection, and conservation plans in place, identifying what shipwrecks exist is a crucial first step in managing any cultural resources before further work may continue. Typically, this would require a remote sensing plan using such instruments as a side-scan sonar and a magnetometer. Conducting a survey off the island

of Nevis is not without similar precedent. Between 1979 and 1980 a Texas A&M University alumnus, Roger Smith, directed a maritime survey for the Cayman Islands' Government in cooperation with the Cayman Heritage Trust.⁵ He used remote sensing equipment, positioning systems, and visual searches to locate wrecks. These were aided by information from local inhabitants obtained through extensive oral histories. Dr. Smith also conducted extensive archival investigations throughout Europe, the United States, and the Caribbean, to provide context for the data.

The survey team plotted wrecks with precise locations on a master sea chart. They recorded their observations of characteristics such as cannon, anchors, or ship timbers and rigging. Limited excavation sampling provided diagnostic artifacts to date, type, and identify nationality of the wrecks, as possible. Given the fragile nature of submerged materials, as previously discussed, Dr. Smith chose to examine, take notes, and photograph the artifacts, then return the majority to the wrecks. Very few items kept were of historical significance or for further analysis. In the end Dr. Smith's team recorded at least seventy-seven shipwrecks. Since 1980 the database has expanded to over 140 sites, which represent four centuries of seafaring and at least fifteen nationalities. Additionally, Dr. Smith tied the maritime resource to a greater context of the islands, and examined numerous coastal fortifications, homesteads, and other structures. Roger Smith's work established the foundation for the Cayman Islands underwater heritage. This data set gave the government the ability to protect their

5. Roger C. Smith, *The Maritime Heritage of the Cayman Islands* (Gainesville: University Press of Florida, 2000).

heritage from recreational looters, and more serious treasure hunters. A similar effort in Nevis should achieve the same lasting effects.

In a similar study in Malta, beginning in 1999, Ayse Devrim Atauz began the first of three seasons surveying the seafloor around the Island.⁶ The topography from shore has several steep drop-offs that exceed safe diving limits. Wrecks detected in these areas by remote sensing equipment had to be investigated using remotely operated vehicles (ROVs). These robots can descend to depths beyond the ability of humans. They are like mini-submarines tethered to the surface with cables that provide electricity and wired controls. They also have cameras that send images to the user at the surface and can be observed on a television or computer monitor.

The island of Nevis allows more gradual approaches. There was once a thriving coral reef surrounding the island, mostly long gone and historically decimated by colonists mining for lime in construction. Protective measures for any remaining coral are in place. Historically, the reefs and rocky bottoms could trap and tear ships apart. *Solebay* was victim to running aground not far off Charlestown. Further from the coast it may be worth a future deeper survey. Such a study may require ROVs, but for now this is not a concern. The positive outcome of this project showed that Nevis' wrecks are within reach of the scientific community and responsible sport divers. The less positive consideration means that the government will have to remain diligent in guarding against illegal operations aimed at plundering the shipwrecks. This is particularly worrisome in a

6. Ayse Devrim Atauz, *Eight Thousand Years of Maltese Maritime History: Trade, Piracy, and Naval Warfare in the Central Mediterranean* (Gainesville: University Press of Florida, 2008).

troubled economy. Bronze guns for example can be sold on the black market to collectors, or to scrap metal dealers for their metallic value. For Nevis, fostering public ownership, through educational materials at the museum and partnership with the local dive shop, will be the best strategy to combat treasure hunters. Museums provide one avenue to deliver this message and involve the community.

Wrecks in Nevis may also be officially recorded after being located by fishermen and recreational divers. Both the White House Bay wreck and *Solebay* serve as initial examples that may be built into a database. This can be aided by the use of a geographical information system (GIS), software designed specifically to relate data to geographic features in the search for patterns. As maritime archaeology celebrated its 50th anniversary in the summer of 2010, the field has since evolved rapidly and finally matured as a proven historical social science. GIS in many ways has reached a maturation process in a similar period over the past few decades, both theoretically, and through better computer software.

The benefits of visualizing remote sensing data in GIS are well proven. Air and space vehicles routinely capture large amounts of data that can then be manipulated in GIS software packages such as ESRI's ArcGIS. In American archaeology, GIS is used more by government initiated projects such as the MPAs and shipwreck surveys, and less so by academic-based maritime research. The momentum of change is underway as a newer generation of researchers and professors becomes more familiar with GIS concepts and tools such as ESRI's ArcGIS. Archaeologists increasingly recognize the

benefits of using GIS for its strong tools of spatial analysis — fundamental to archaeological interpretations.

Archaeology was one of the first disciplines to take advantage of remote sensing with early aerial photography.⁷ This is an important discussion in that while GIS has been increasingly used in archaeology since the 1990s, it remains a science that requires dedication to learning software, typically an easier endeavor for a newer generation of archaeologists. The relationship between GIS and remote sensing in maritime archaeology is less mature but may benefit from a similarly rigorous practice. The problem may stem from a lack of understanding or training by maritime archaeologists. The challenge is the complexity of three specialties: archaeology, remote sensing technologies, and GIS.⁸

There exist good examples of using GIS in maritime heritage management. Efforts to manage maritime archaeological materials in Scotland have successfully implemented GIS over the past decade.⁹ Surveys along rivers or similar coastal waterfronts may be carried out both on land and underwater, defining a holistic maritime

7. Chris Cox, "Satellite Imagery, Aerial Photography and Wetland Archaeology: An Interim Report on An Application of Remote Sensing to Wetland Archaeology: The Pilot Study in Cumbria, England", *World Archaeology* 24, no. 2 (1992): 249-267; Thomas L. Sever, "Science in Archaeology: A Review. Remote Sensing", *American Journal of Archeology* 99, no. 1 (1995): 83-84.

8. Atsuyuki Okabe, *GIS-based Studies in the Humanities and Social Sciences* (Boca Raton, Fla.: CRC/Taylor & Francis, 2006).

9. Ian Oxley, "Towards the Integrated Management of Scotland's Cultural Heritage: Examining Historic Shipwrecks As Marine Environmental Resources", *World Archaeology* 32, no. 3 (2001): 413-426.

approach.¹⁰ A recent trend has been to use GIS as a spatial analysis tool for maritime landscape studies.¹¹ It is well suited for reviewing broad landscape patterns. In another area, archaeologists are more sensitive to descendant communities of the indigenous cultures they are studying.¹² While indigenous Caribs have long been assimilated into modern Afro-European decedents on Nevis, terrestrial sites remain. Along the southern coast, near Indian Castle, vast amounts of Indian pottery may be regularly observed washing into the sea through coastal erosion (Figure 15).

10. Gustav Milne, Martin Bates and Webber Mike, "Problems, Potential, and Partial Solutions: An Archaeological Study of the Tidal Thames, England", *World Archaeology* 29, no. 1 (1997): 130-146.

11. Stefano Campana and Salvatore Piro, *Seeing the Unseen. Geophysics and Landscape Archaeology* (London: CRC Press, 2008); Lynn Dyson-Bruce, "Historic Landscape Assessment: The East of England Experience, Paper Product to GIS Delivery," *Journal of GIS in Archaeology* 1 (2003): 63-72; Ben Ford, ed., *The Archaeology of Maritime Landscapes* (New York: Springer, 2006); "Down by the Water's Edge: Modelling Shipyard Locations in Maryland, USA," *International Journal of Nautical Archaeology* 36, no. 1 (2007): 125-137; Jun Kimura, "Interpreting maritime cultural space through the utilization of GIS: a case study of the spatial meaning of shipwrecks in the coastal waters of South Australia" (Thesis, Flinders University, 2006); Sunil Narumalani, Deepak R. Mishra and Robert G. Rothwell, "Analyzing Landscape Structural Change Using Image Interpretation and Spatial Pattern Metrics," *GIScience and Remote Sensing* 41, no. 1 (2004): 25-44; Basil A Reid, *Archaeology and Geoinformatics: Case Studies From the Caribbean* (Tuscaloosa: University of Alabama Press, 2008).

12. Shelley Greer, Rodney Harrison and Susan McIntyre-Tamwoy, "Community-Based Archaeology in Australia", *World Archaeology* 34, no. 2 (2002): 265-287.



Figure 15 Southern Nevis seacoast scattered with prehistoric potsherds.

(Photograph by the author)

Documenting such sites in the same GIS database may protect and relate them to historic terrestrial and underwater sites. Importing the processed data into a GIS software could allow users to examine spatial patterns in relation to each other, in relation to modern fishing or economic zones, in relation to historic charts, or predictive modeling at infinite scales.¹³

13. Roel Brandt, Bert J. Groenewoudt and Kenneth L. Kvamme, "An Experiment in Archaeological Site Location: Modeling in the Netherlands Using GIS Techniques," *World Archaeology* 24, no. 2 (1992): 268-282; Ford, *Shipyards, GIS, and Predictive Modeling*; Trevor Harris, "Scale As Artifacts: GIS, Ecological Fallacy, and Archaeological Analysis," in *Confronting Scale in Archaeology: Issues of Theory and Practice*, eds. Brian Molyneux and Gary Lock (New York: Springer, 2006); Marcos Llobera, "Past Landscape Perception with GIS: Understanding Topographic Prominence," *Journal of Archaeological Science* 28 (2001): 1005-1014; K.L. Westcott

Maritime archaeologists have often studied a single site in isolation from other sites. Famous shipwrecks or sunken cities require a lifetime of work to interpret. GIS may be an appropriate tool that can address both site-specific patterns and broader patterns. For example, GIS may aid archaeologists examining a wreck spread across miles of ocean floor. Currents, waves, natural geology, dredging, and other historic cultural behaviors can influence site formation processes. More broadly, GIS may now be able to synthesize and analyze historic charts, shipwrecks, historic data in attribute tables, coastal communities, oceanographic data, economic patterns, and other data to search for broad patterns that can then be used to ask broader questions. The ease with which historic charts can be digitized and georeferenced with GIS software provides a new tool to the analysis of cartography previously unavailable to the archaeologist.¹⁴ The micro examination of single sites may fuel the macro study by relating vast amounts of data together to foster new understandings. GIS is a powerful tool that can aid in this quest for new knowledge.

Building a database will be done using both computer software and traditional files in a vertical cabinet. Software has longevity problems that cannot be trusted with such valuable information. While computer data may be useful for interpretations,

and R.J. Brandon, eds., *Practical Applications of GIS for Archaeologists, A Predictive Modeling Kit* (London: Taylor and Francis, 2000).

14. Scott Madry, "The Integration of Historical Cartographic Data Within the GIS Environment," in *Between Dirt and Discussion: Methods, Methodology, and Interpretation in Historical Archaeology*, eds. Steven N. Archer and Kevin M. Bartoy (New York: Springer, 2006); David Rumsey and Meredith Williams, "Historical Maps in GIS," in *Past Time, Past Place: GIS for History*, ed. Anne Kelly Knowles (Redlands, California: ESRI Press, 2002).

analysis, organization, and search queries, all data should have a paper copy and each wreck should have its own file. This provides a balance between longevity and accessibility. The computer data can be used and maintained, but as a safety, the paper will always exist.

The database system used is not as important as the fact that one exists and is usable. With this in mind, it may prove beneficial to follow the model in the United Kingdom, a Sites and Monuments Record (SMR). These are records of archaeological sites. When applied to a list of shipwrecks, the list should contain as much information as known: location, type of vessel, nationality, period or date, and identity. This can be done digitally and printed as paper lists. One advantage to the software would allow a user to query by characteristics and look for patterns or similar wrecks.

For Nevis, the author has begun the process of collecting, digitizing, and layering historic charts of Nevis into ESRI's ArcGIS software. This tool allows for interpretation of historical cartographic changes, assists with understanding the location and loss of *Solebay*, and may help in future research toward locating and documenting additional shipwrecks. Once an archaeological site is located, the GIS software may be used to identify wrecking patterns such as ship traps, where multiple vessels fell victim to unknown hazards due to poor charts, or perhaps risk-taking behavior of cutting too close to shore, for example.

The Nevis Historical and Conservation Society (NHCS), the British High Commission, and the local dive shop Scuba Safaris can use a shared database to implement resource management plans. The use of GIS will provide a medium to

communicate and visually share ideas regarding the spatially-based data. Scholars, such as university research-oriented professors and students, may use the data to form historical interpretations and plan excavations. Additionally, the public may be allowed access to portions of the data through an internet version of the GIS database.

At the core of the best maritime heritage plan, with laws, conservation resources, and GIS databases, success ultimately depends on people. The political relationship between St. Kitts and Nevis remains challenging and affects the way shipwrecks such as *Solebay* are protected. The federation is officially represented in the international community at the United Nations through the government in St. Kitts, the national government of both islands. However, on practical, daily matters, Nevis has its own autonomy and government, the Nevis Island Administration. Navigating this relationship as a foreign archaeological advisor can be difficult in that the two islands often compete for opportunities, and fail to support each other in more local matters, despite forming a single country. In the case of *Solebay*, Mr. Carruthers has expressed that the British government would offer support if the national parliament in St. Kitts legislates to protect the site. St. Kitts has not done this, seeing it as a Nevisian matter, despite being a British warship. This creates the perpetual conundrum of failure to act.

To overcome this problem, given the challenges to funding underwater archaeology and limited resources in Nevis, a well-developed group of interested participants, with the will to work toward managing the resources will be the key. Western scholars can share experience and provide guidance. In Nevis, there needs to be continued presence and efforts to educate and enforce protection. Mr. McClean Hobson,

Director of Maritime Affairs for St. Kitts and Nevis, remains a point of contact at the national level that supports efforts to document and protect shipwrecks. Mr. Cameron Gill, General Manager, Brimstone Hill Fortress National Park, serves as a supportive connection between the two islands. He maintains empathy with Nevis as he is originally from there. As a historian, he understands *Solebay*'s role in the Battle of Frigate Bay and the relationship with the siege of Brimstone Hill Fortress. Mr. Gill's work managing Brimstone also provides him with excellent experience and credentials to understand heritage preservation, whether applied to a fortress or a shipwreck. His continued support will help to open dialogues between the two islands and potentially resolve eventual disagreements.



Figure 16 Alexander Hamilton Museum and offices of NHCS along Charlestown waterfront. Notice two-story colonial design. (Photograph by the author)

In Nevis, the NHCS serves by providing the channel through which preservation initiatives and dialogue are conducted (Figure 16). The National Conservation and Environment Protection Act of 1987 delegated historic protection to the NHCS. It coordinates efforts of the government, private business, and private citizens to responsibly care for Nevis' natural and historic resources. NHCS oversees the Museum of Nevis History, the Alexander Hamilton Museum, Field Study Center, and historic archives. Further, the members provide educational resources and programs for schools and the public. A key member of the NHCS has been Mr. Arthur "Brother" Anslyn. He is listed as the conservation chair. He too is valuable to the organization. Mr. Anslyn is a member of Nevis' parliament and strong supporter of underwater archaeology. He provides a respectable link between NHCS and the higher authorities within the government of Nevis, including the Premier.

Through the NHCS, a preservation mindset already exists in Nevis (Figure 17). The government established laws regulating building architecture in the capital, Charlestown. This town maintains a historic colonial appearance. All new construction must be approved and be sympathetic to the existing theme. This improves the quality of life for residents and tourists by preventing corporations from building modern structures that detract from the overall experience. Buildings may have modern features inside, including computers for businesses and air conditioners, but must maintain the characteristics that make Charlestown charming. This approach has proven successful and strikes a delicate balance between appealing to historic aesthetics and modern business technologies.



Figure 17 The preservation mindset: Heritage Trail signs maintained by the NHCS around the island educate tourists of historic places. (Photographs by the author)

At a higher level, the Deputy Premier of the Nevis Island Government, the Honorable Mark A. G. Brantley's continued support remains important. In October 2008 Hurricane Oscar destroyed one of the islands major resorts, the Four Seasons. This business generated income for over half of the population. Due to financial constraints from the world recession and debt, the resort took more than two years to be renovated and reopened. The financial hardship on the local economy could be seen. Brantley understands the importance of heritage tourism to the economy, and the need to offer as many opportunities as possible. Protecting the archaeological resources and supporting research that produces museum materials can indirectly help the economy by attracting tourists even from cruise ships docking in St. Kitts.

There are other individuals that contribute to the collective goal of promoting and supporting maritime archaeology. At a more basic level, working with Ellis Chaderton, owner of Nevis' only dive shop, *Scuba Safaris*, will help monitor the site on a more

immediate basis, while working with tourist divers. The opportunities and people exist, convincing them to follow through with action and work together proves challenging.

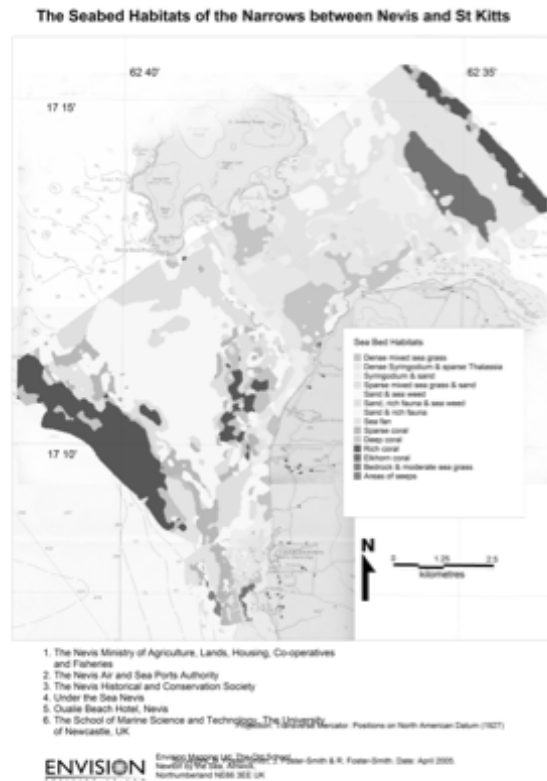


Figure 18 Chart showing the results of Bob Foster’s Seabed Survey. (Image provided by Bob Foster-Smith, Envision Mapping)

Externally, Bob Foster-Smith’s pro bono biological seafloor surveys may provide additional impetus to make management decisions (Figure 18). Starting in 2005, Mr. Foster-Smith, from a company called Envision, began a series of surveys to chart the seafloor. The result is a chart showing bottom composition, e.g. seagrass, rock, coral, or

sand. A poster has been created, showing the results thus far. His work could help enact protective legislation, possibly with a movement toward creating an MPA around *Solebay*, as part of a broader effort to protecting maritime resources. This could be similar to a NOAA MPA or more site-specific protection such as the Monitor National Marine Sanctuary that protects the American Civil War ironclad USS *Monitor*, shipwrecked in 1862.

For *Solebay*, as for all wrecks, site management options exist in a spectrum of choices, with limits based on available resources and environmental conditions. The case for full excavation would be difficult to justify. As a wreck site *Solebay* appears extraordinarily obliterated, compared to shipwrecks that more simply took on water and sunk more or less intact. In *Solebay*'s case, the explosion and subsequent scattering pattern across a mostly hard, volcanic seafloor, leaves little archaeological material to recover. Organics, including wooden hull timbers, or the possibility of surviving organics is unlikely given the shipwreck's location and lack of places for materials to have become buried. Items that have survived the centuries are limited to metals, including the cannon and ballast remains. Iron remains are all encrusted. If these encrustations were recovered, there may only be hollows left in the shape of what was once an iron artifact. In this case, to extract any data, the artifact would require x-rays, followed by an experienced conservator creating epoxy molds to recreate the shape of the iron artifact that each concretion once enclosed. Such iron pieces would come from a disarticulated hull, twisted, broken, with bent fragments of a ship, potentially without

showing great diagnostic significance. For the time and cost, the potential return on knowledge does not warrant recommending action at this time.

In situ preservation remains the best option, as a heritage tourist resource for divers. In this capacity, the wreck will have greater value to educate both tourists and Nevisian islanders of the value of protecting such wrecks. One other option recommended is a continued partial excavation as resources allow. The artifacts recovered thus far represent a respectable sample. These artifacts include weapon parts (trigger guard, musket balls, and gun apron), rigging components (coaks), and hull parts (staples, fasteners, tacks, nail, chain).

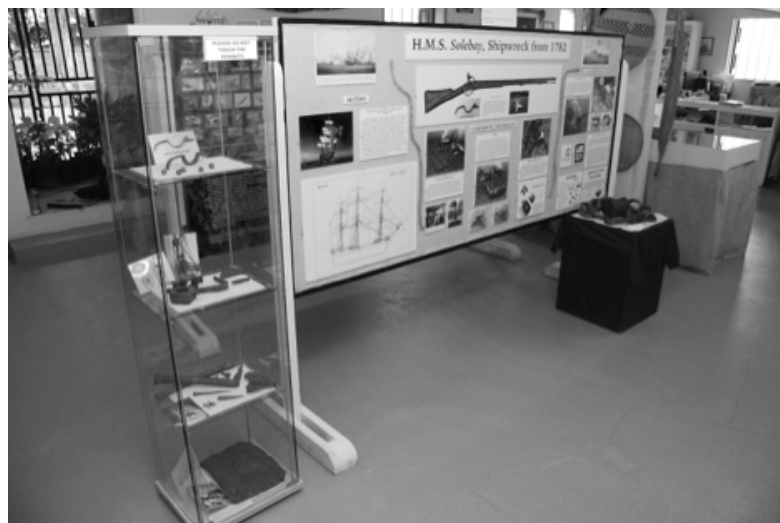


Figure 19 Exhibit displaying conserved *Solebay* artifacts at the Alexander Hamilton Museum, Charlestown, Nevis. (Photograph by the author)

These items have served to support the wreck's identity, but also are serving a more important aspect to the broader resource. As part of a museum exhibit, their

educational value is helping to teach visitors about protecting wrecks, the science, conservation process, and laws (Figure 19). In this context, future site visits that find unique artifacts most vulnerable to looting may be recovered, conserved at little cost, and added to the exhibit. These would include very diagnostic items such as the trigger guard, gun apron, or coaks.

In a future project, the argument may be strongly made for recovering some of the guns. In particular, conserving the two carronades and one long gun may answer many questions about the shipwreck raised within this research. One long gun may serve as a representative sample from the four known long guns. Through conservation, maker's marks may help source the gun and document its journey to the seafloor. The two carronades may similarly be recorded, clarifying how they came to *Solebay* and resolving the unanswered questions surrounding their existence: their type, manufacturer, and procurement to *Solebay*.

The Lighthouse Archaeological Maritime Program (LAMP), based out of St. Augustine, Florida, has been studying a shipwreck contemporary to *Solebay*, with an archaeological code name of the *Storm Wreck*. Since 2010, LAMP Director Chuck Meide has led the excavation of this wreck, believed to have sunk in December 1782, as part of a Loyalist fleet retreating from the further northern port cities of Charleston and Savannah. Guns recovered in the excavation include two early carronades, with one believed to be the oldest, or perhaps second oldest surviving carronade in the world. *Solebay* sunk over eleven months before the *Storm Wreck*, implying the possibility that *Solebay* contains even older carronades. If not older, they are certainly early examples.

Throughout the Caribbean and around the world such guns are littered as historic relics, particularly near historic colonial coastal fortifications. Despite their prevalence, often these guns have lost their provenience. Guns may be displayed at fortress museums to enhance the ambience for visitors. A particular gun can inform and educate visitor about cannons in general, but lack an associated history without a provenience. Whether *Solebay's* guns are the oldest in the world or not, they do exist in an archaeological context. Recovering three of them could answer some questions, would make excellent museum pieces, and leave three on site to help mark the wrecks location and provide an appealing dive for tourists.

Educational outreach as a protection strategy is the best approach given limited resources for policing.¹⁵ Creating future stewards as a strategy may reduce or eliminate harmful behaviors to limited archaeological resources. In addition to the physical museum and underwater dive site, a virtual museum has been created online to address a wider audience. The internet has the ability to use *Solebay* as a mechanism for contributing to greater educational efforts within the archaeological community. The *Museum of Underwater Archaeology* (MUA) is a nonprofit organization that shares, promotes, and advocates maritime archaeological projects. This approach serves as an excellent portal whose only intention is ethically promoting education about the science

15. Della A. Scott-Ireton, "Preserves, Parks, and Trails: Strategy and Response in Maritime Cultural Resource Management" (Dissertation, Florida State University, 2005); John H. Jameson and Della A. Scott-Ireton, *Out of the Blue: Public Interpretation of Maritime Cultural Resources* (New York: Springer, 2007).

and resources. For the MUA, a Project Journal has been created that briefly documented the 2011 fieldwork, and some of the subsequent conservation topics (Figure 20).

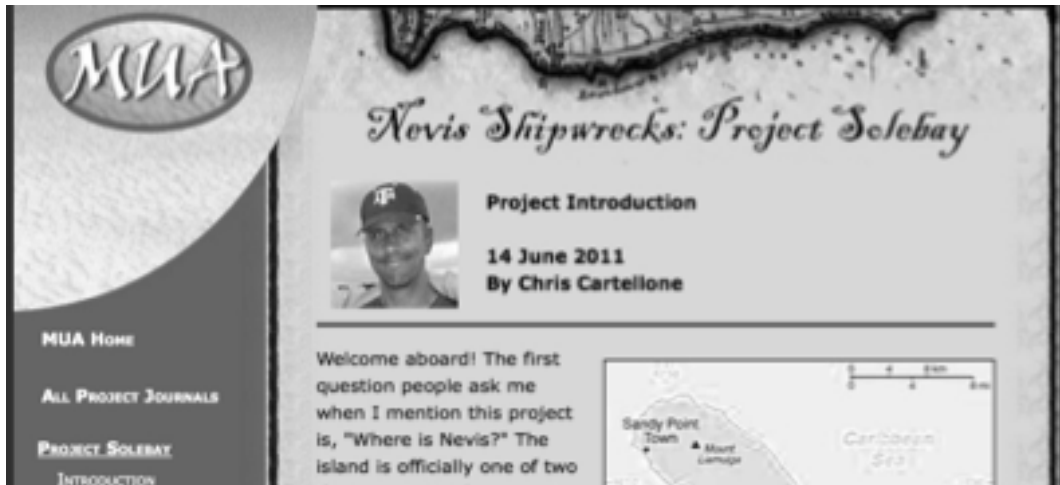


Figure 20 Computer screen image capture showing MUA *Solebay* website.

In the end, historic preservation in Nevis is a battle against environmental actions and cultural behaviors. Building site inventories should be a priority. Wrecks will have to be carefully monitored to assess destruction by natural forces. Hurricanes are one of the most destructive forces on Nevis. The winds can move sediments and expose shipwrecks to altered ecosystems. The changing environment can speed the process of deterioration. Humans can also have the same effect. Destructive processes can result from placing permanent mooring lines through a wreck. Divers may recover souvenirs and unknowingly remove a piece of history. Without proper conservation, an artifact would quickly deteriorate and be lost forever. Sites that have survived decades or centuries can quickly be lost to humans, as was the case of the White House Bay wreck.

In Nevis, the storms will continue, but the greatest initial challenge is human, mobilizing the political will toward legislative protection and enforcement.

CHAPTER VII

CONCLUSIONS

This dissertation used a case study to document the beginnings of an active underwater archaeological research program in Nevis. Investigating *Solebay* presented challenges that turned into opportunities for guiding maritime heritage policy. For the NHCS, this process modeled professional, ethical, scientific nautical archaeology in Nevis. Studying Nevisian history and archaeology provides an opportunity for examining the rise and decline of the British Empire in a microcosm — from a wealthy and prosperous sugar colony to post-colonial tourist-driven economy. Nevisian fate is inseparable from its seafaring history. Developing underwater archaeology in Nevis will provide cultural information important to the island's history.

The research developed within the scope of this dissertation has also shed new light on a specific wreck and British naval history from a new perspective. Naval history is replete with tales of significant battles that altered the course of history and of famous fighting men and ships, such as Admiral Horatio Nelson aboard *Victory* at Trafalgar. In contrast, studying a minor war vessel such as *Solebay* offers an opportunity to investigate lesser-known engagements at a micro level, involving thousands of soldiers and sailors. Such an examination begs an understanding of the macro experience between the French and British struggles for control of the sugar islands, and the islands' socioeconomic context within the American Revolutionary War.

In many aspects, the Royal Navy evolved significantly during the American Revolution in training, scale of men and ships, better-designed ships, improvements in technical features such as coppered hulls, and carronades. The greatest challenge that the British forces faced was the impossibility of locking the French at their homeports such as Brest. Once the French were free to operate off the American seacoast and throughout the Caribbean, the British found themselves spread too thin to achieve their objectives.¹ From their base in Martinique, the French concentrated their fleet to win decisive victories against the British in North America at Chesapeake, and in the West Indies. This kept the British reacting to American and French initiatives. Nevis, the Battle of Frigate Bay and the Siege of Brimstone Hill demonstrate a British defensive reaction to French aggression.

Since being observed by Columbus in 1493, Nevis has held a position in the European history of the Americas. One hundred and thirty five years later, the island began a dramatic ecological and cultural transformation through British colonization. Ancestral Europeans and enslaved-Africans completely displaced the indigenous Carib Indians. Non-native flora and fauna were introduced, including West African palm trees, African vervet monkeys, donkeys, and horses.

Creating a permanent museum exhibit for a general public that speaks to rich, conflicted, and multicultural Nevisian identities has been challenging, but solved with a series of thematic presentations. Given that the Nevisian economy is driven by tourism, the products must appeal across ages and cultures. *Solebay* can easily be related to the

1. Fremantle, *Sea Power*, 471-505.

island's material legacy of colonial plantations controlled by white men. Transcending culturally racial identities requires a broader approach. Nautical archaeology may offer a homocentric means to attract the African descendants into a different appreciation for science, and thereby encourage an appreciation to explore their contemporary histories. Topics for these histories may include research into slave ships or less conflicted history of maritime trade with Saint Kitts and more distant islands.

Over two-hundred years ago, the battle to control Nevis helped define a course of history for the Caribbean. Despite the strong presence of British colonists in the Caribbean, their security in the seventeenth and eighteenth centuries depended heavily on naval deterrence, even with fortresses such as Brimstone Hill. While seemingly formidable, such defenses were sometimes captured relatively quickly, as in 1782. Larger islands such as British Jamaica or Antigua, with better protected coves, sheltered naval forces that could be sent to defend the smaller islands such as Nevis. That legacy remains today, and the material to understand the historical journey partially rests on the seafloor. Investigating *Solebay* begins an effort to discover, document, and share this cultural history. This dissertation intersects historical problems while opening new data sources from underwater archaeology. *Solebay* yields meaningful implications across space, time, and scale.

Solebay's size, speed, and flexibility support the importance of studying lesser vessels in naval history. The *Mermaid*-class frigate illustrates a vessel built to fulfill a variety of roles and needs. American Revolution soldier and British prisoner Ethan Allen recalled how upon their arrival in Cape Fear, North Carolina, *Solebay* sailed into the

harbor, while Commodore Peter Parker's 50-gun flagship *Bristol* and the deeper draft vessels had to anchor further out because they could not clear a sand bar.² During the time at Cape Fear, Commodore Parker transferred his flag to *Solebay*.³ In a variety of roles throughout the war, *Solebay* could aid fleets during ship-to-ship actions as a repeater or skirmish vessel, provide the speed and firepower needed for an escort protecting transports from privateers, bombard shore fortifications like Sullivan's Island in 1776, and operate independently to interdict blockade runners or deliver dispatches.

Nine-pounder frigates became a standard size for similar vessel classes during this period: 1756 *Lowestoffe*, 1757-1785 *Coventry*, 1761-1774 *Mermaid*, and 1774-1787 *Enterprise*. *Solebay* served Britain's needs and firepower during war, and remained useful during peacetime, while higher rated vessels were laid up in ordinary. While not able to fight in line, frigates could combat privateers and operate at speeds that higher rates could not match. During the 1790s, the United States Navy built six frigates: *United States*, *Constellation*, *Constitution*, *Chesapeake*, *Congress*, and *President*.⁴ Although these were heavy, or "super frigates," they nevertheless reflect the desirable qualities of frigates: economy, independence, multi-mission capabilities, and adequate or

2. Allen, *Narrative of Colonel Ethan Allen's Captivity*, 19.

3. Journal of H.M.S. *Bristol*, Captain John Morris, 30-31 May 1776, in *NDAR* 5, 324; *South-Carolina and American General Gazette*, Friday, May 31, 1776 to Friday, August 2, 1776, in *NDAR* 5, 373.

4. In direct relation to Nevis' history, on 9 February 1799, during the Quasi-War with France, USS *Constellation* defeated and captured the French warship *L'Insurgent*. This battle occurred off Nevis and signified the US Navy's first ever victory at sea. Secretary of the Navy Benjamin Stoddert then commissioned *L'Insurgent* into the US Navy as USS *Insurgent*, serving for one year before being lost in a storm.

even great firepower, in the case of the American frigates. The 1763 *Mermaid* design proved successful enough to justify the order of three more vessels in 1773. Of the six total frigates, *Solebay*'s wrecked remains constitute the only direct physical evidence of this vessel class.

Studying vessel classes, specific vessels, and technical specifications should never be done without consideration for the most important aspect, the human story. *Solebay* was designed and built by shipwrights, outfitted by specialized men, managed by administrators and politicians that sent it to sea and to war, and crewed by officers and sailors all with their own stories. Their decisions affected the lives of the enemy, and the fate of the British colonists they were sent to protect.

The underwater archaeology promotes archival research for historical context and understanding of a minor historical ship. Before being promoted to larger vessels and higher commands, all officers began their careers at the lower navy echelons. Sixth rate ships such as *Solebay* taught officers the essential skills of command at sea, leadership, seamanship, sailing from following a flagship as part of a fleet in battle, or independently operating on missions suited only for such a vessel class. Nelson honed his command skills aboard the *Mermaid*-class *Boreas* in 1784. Great officers did not appear suddenly, but rather took years of experience to grow into the leaders they became. Lesser-rated vessels performed important missions for the navy, but also served to grow such officers. It was aboard these vessels that they learned the leadership skills necessary to become future admirals, such as Nelson.

This research represents the intersection between limited archaeological data and historical questions. A wide range of other nautical archaeology sites such as *Kizilburun*, the *Pepper Wreck*, *Batavia*, *Westfield*, and other examples too numerous to mention all represent shipwrecks, archaeologically studied from across centuries, exhibiting limited surviving material, but each is of historic and scientific value. *Solebay*'s limited remains contribute to the archaeological database. The underwater archaeology promotes maritime heritage enthusiasm and the need for protective laws, and proposes new questions that may only be addressed through further research. *Solebay* reveals human adaptation to a maritime environment, but also human adaptation to the human endeavor of warfare.

Consequences of human behavior have been patterned as an archaeological signature of conflict. Interpretation of the artifacts offers an understanding into the process of human adaptation during wartime. This research asked anthropological questions surrounding the behavior of *Solebay*'s captain, based on the archaeological evidence, regarding the meaning of the smaller carronade guns on the site. The interpretations hypothesize human behaviors that fit within the site formation model. The site suggests potential archaeological signatures for resourceful behavior in acquiring the guns, achieved while maintaining cultural identity across great distances, and combined with the stresses of conflict. In a future excavation, the guns may be raised to test these hypotheses, and allow empirical evaluation of technological modifications understood within a theoretical context of human adaptation during war.

Studying the nuanced details of the ship is important, but the greater context places *Solebay* as a feature within the battlefield as the site. Scaling and interpreting *Solebay* more broadly across space and time serves to understand how *Solebay* and her crew transported cultural values and technology across the global landscape. The navy was a product of British culture, which executed goals to support its mercantilist economy.

The Battle of Frigate Bay and the Siege of Brimstone Hill Fortress are mere footnotes in naval history. But for a brief period, they were important as thousands of British and French sailors and soldiers fought for control of the island. This struggle represents a chapter in the greater fight for control of the Caribbean economy. Capturing or raiding and destroying sugar plantations in the eighteenth century became a means for imperial European powers to damage a rival empire's economy.⁵ Plantation slavery contributed to the economic growth of the British Empire. The battles on and off St. Kitts and Nevis demonstrated the intricacy of the imperial geopolitical networks. French soldiers attacking St. Kitts saved Barbados and Jamaica. While the French succeeded in taking Brimstone, the 1783 Peace restored the island to British control.

The fortress today is a St. Kitts National Park and UNESCO World Heritage Site. Its history, architecture, and scenic views draw thousands of tourists every year. Its formidable appearance scars the landscape and reminds people of the purpose it once served. Again, the fortress and island would not exist without the maritime history and *Solebay* serves as a physical link, connecting Brimstone to the sea in a tangible

5. Meniketti, *Sugar Mills*, 53-80.

relationship. *Solebay* represents a tool in this imperial effort to control strategic resources through the stress of war, while oppressing a defined people for labor. This historical knowledge and archaeological site empowers local communities through a material cultural resource that enhances heritage tourism.

While an inanimate object, *Solebay* is as much a character influencing historical events as any person, with a birth, a life, and a death. *Solebay* existed from 1763 until wrecking during the Battle of Frigate Bay in 1782 and its existence continues as a shipwreck. Interactions amongst her crew and between her and enemy ships contributed to shaping the fate of empires. The crew encountered Ethan Allen and John Paul Jones, commanding the ship educated and developed Captain Symonds for promotion, a captain who later surrendered to the American colonists at Yorktown, and contributed to the fate of Brimstone. While *Solebay* has metaphorically died, she has also metaphorically been resurrected. Through archaeology, *Solebay* catalyzed the study of maritime archaeology in Nevis, serving as an example for heritage policy — as a measurable starting point. Together, the physical museum exhibit, the virtual MUA museum exhibit, and the site remains provide opportunities to educate.

Future research in Nevis should target a broad remote sensing survey, the original intention of this dissertation research. This should include scientific diver investigations of promising targets, along with diver investigations of sites as suggested by Nevisian fishermen and divers. This effort would help the NHCS build a working database of sites for management and further studies.

It is expected that any shipwrecks discovered in future research are most likely of European construction. Indigenous seacraft before European arrival would include variations on the Carib Indian canoes. While their archaeological existence cannot be ruled out, locating them would prove more difficult and serendipitous. Their smaller sizes and absence of large iron artifacts such as anchors and cannon found on European vessels would prove more challenging to observe in a side-scan sonar or magnetometer signature from a remote sensing survey. Any such vessel would likely need to have been quickly buried in sand on the seafloor from a storm, lest risk exposure to environmental destruction primarily from shipworms.

A larger local vessel that may be found in an archaeological survey would be a Nevis lighter. These vessels were used for years as workhorse ferryboats between St. Kitts and Nevis until the last retired in 2001.⁶ Modern diesel powered vessels capable of carrying cars, people, and cargo have replaced them. Despite the lighter's significance as a backbone to Nevisian transportation, no known vessels survive today. Maritime archaeological investigations may uncover a wrecked lighter, underwater or along a shoreline.

6. Marco Meniketti, "And Now They Are Gone: Documenting the Last Sailing Lighter of Nevis, West Indies", *International Journal of Nautical Archaeology* 41, no. 1 (2012): 134-147.



Figure 21 Postcard showing Nevis lighter. (Scanned from a postcard by the author)

As previously discussed, research on the *Solebay* site may continue as resources allow. Recovering and conserving the guns could help to answer questions about *Solebay* and human behavior during war, but also help to generate higher visibility in protecting and studying other wrecks. This will foster awareness necessary to raise public funds to study wrecks while winning the battle against treasure hunters. The threat to *Solebay* is real, as the missing guns from the White House Bay wreck demonstrate.

In the 21st century Nevis may be viewed as a West Indian paradise, a tropical location to vacation at a posh resort complete with beach umbrellas, restaurants, scuba diving in warm blue waters, and a slow relaxing lifestyle. Long before the Nevisian economy catered primarily to tourists, the economy was based on plantations worked

primarily by enslaved Africans. Added to this dark history were centuries of intermittent warfare that involved thousands of soldiers and sailors. Nevisian archaeology on terrestrial sites has been important in studying these experiences. Adding nautical archaeology provides new historical resources in completing an understanding of how the sea shaped the terrestrial heritage. In the critical early months of the American Revolution, *Solebay* and her crew filled an urgent and immediate need for the British crown, while ships were built and sailors recruited to fight the growing revolution. Today, *Solebay* is fulfilling a need to develop policy that protects wrecks, but allows for the continued scientific study of shipwrecks in Nevis.

As Spanish, Dutch, French, and British forces competed for geographic control of New World resources, the Caribbean became an additional battlefield for seemingly endless continental European wars. The British and French repeatedly sent dozens of ships and thousands of sailors and soldiers to seize or defend their treasured islands. On the tiny island of Nevis, and its sister island of Saint Christopher, the French and British fought in multiple conflicts. The Nevis' western seacoast once had a wall with over one-hundred cannon to provide at least an illusion of a strong defense from a seaborne attack. While some limited traces of this wall and island fortifications remain archaeologically, much of this past has been lost to modern development and erosion through time. Nautical archaeology is an important discipline for constructing Nevis' maritime history.

BIBLIOGRAPHY

Primary Sources

Manuscripts

The National Archives of the UK

ADM 1 Admiralty Board: In-letters.

ADM 36 Royal Navy Ships' Musters (Series 1).

ADM 51 Captain's Logs.

ADM 95 Navy Board and Admiralty: Office of the Comptroller of the Navy...

ADM 106 Navy Board: Records.

ADM 180 Progress and Dimension Books.

ADM 354 Navy Board: Bound Out-letters.

The Caird Archive and Library, National Maritime Museum, Greenwich, UK.

ADM 1 Admiralty Board: In-letters.

ADM 359 Navy Board: Unbound Out-letters.

National Archives of St. Kitts and Nevis, Basseterre.

Minutes of the Saint Christopher Assembly, 22 December 1781.

Printed Primary Sources

Allen, Ethan. *A Narrative of Colonel Ethan Allen's Captivity, From the Time of His Being Taken by the British, Near Montreal, on the 25th Day of September, in the Year 1775, to the Time of His Exchange, on the 6th Day of May, 1778...* Philadelphia, Printed for the author, 1799.

An Attempt to Improve the Method of Arming Trading Vessels. With a Description of the Carronade, and Some Hints Concerning Shot. Third ed. Falkirk, UK, 1779.

Arrowsmith, Aaron. *Chart of the Caribbee Islands From the Spanish Survey with a Sketch of the Anchorage at Nevis, &c.* London: A. Arrowsmith, 1808.

Clark, William B., William J. Morgan, and Michael J. Crawford, et al., eds. *Naval Documents of the American Revolution*. 11 volumes to date. Washington, D.C.: United States Government Printing Office, 1964--.

Editor. *An Account of the Late Dreadful Hurricane, Which Happened on the 31st of August, 1772. Also the Damage Done on That Day in the Islands of St. Christopher and Nevis, Attempted to Be Ascertained*. Basseterre, St. Christopher: Thomas Howe, 1772.

Hannay, D., ed. *Letters Written by Sir Samuel Hood (Viscount Hood) in 1781-2-3: Illustrated by Extracts From Logs and Public Records*. London: Navy Records Society, 1895.

London Gazette, 12 March 1782, no. 12277.

Purchas, Samuel. *Purchas His Pilgrimage*. London: William Stansby, 1613.

"The Retired West India Merchant: The Sugar Colonies and Free Labour." *The Economist, Weekly Commercial Times, Bankers' Gazette, and Railway Monitor: A Political, Literary, and General Newspaper* Vol. VIII, No. 343, March 23, 1850.

Robertson, Robert. *A Short Account of the Hurricane, That Pass'd Thro' the English Leeward Caribbee Islands, on Saturday the 30th of June 1733*. London, 1733.

Rymer, James. *A Description of the Island of Nevis: With An Account of Its Principal Diseases. To Which Are Added, Some Sentiments on Reviewers: Particularly the Medical of the Critical Review for August 1775*. T. Evans, 1775.

Washington, George. "Memorandum for Concerting a Plan of Operations," [15 July 1780], given to the Marquis de Lafayette to communicate to Count de Rochambeau and Chevalier de Ternayn. In *The Writings of George Washington from the original manuscript sources, 1745-1799*. Vol. 19. Edited by John C. Fitzpatrick. Washington, D.C.: United States Government Printing Office, 1931.

Secondary Sources

Atauz, Ayse Devrim. *Eight Thousand Years of Maltese Maritime History: Trade, Piracy, and Naval Warfare in the Central Mediterranean*. Gainesville: University Press of Florida, 2008.

Bailey, De Witt. *Pattern Dates for British Ordnance Small Arms, 1718-1783*. Gettysburg, Pa.: Thomas Publications, 1997.

Binford, Lewis R. "Archaeology As Anthropology." *American Antiquity* 28, no. 2 (1962): 217-225.

Black, Jeremy. *The British Seaborne Empire*. New Haven, Conn.: Yale University Press, 2004.

Blackmore, Howard L. *British Military Firearms, 1650-1850*. New York: Arco Publishing Co., 1961.

Brandt, Roel, Bert J. Groenewoudt, and Kenneth L. Kvamme. "An Experiment in Archaeological Site Location: Modeling in the Netherlands Using GIS Techniques." *World Archaeology* 24, no. 2 (1992): 268-282.

Bridenbaugh, Carl, and Roberta Bridenbaugh. *No Peace Beyond the Line: The English in the Caribbean, 1624-1690*. New York: Oxford University Press, 1972.

Campana, Stefano, and Salvatore Piro. *Seeing the Unseen. Geophysics and Landscape Archaeology*. London: CRC Press, 2008.

Cox, Chris. "Satellite Imagery, Aerial Photography and Wetland Archaeology: An Interim Report on An Application of Remote Sensing to Wetland Archaeology: The Pilot Study in Cumbria, England." *World Archaeology* 24, no. 2 (1992): 249-267.

Darling, Anthony D. *Red Coat and Brown Bess*. 10th ed. Historical Arms Series No. 12. Alexandria Bay, N.Y.: Museum Restoration Service, 1993.

Davis, Ralph. *The Rise of the English Shipping Industry in the Seventeenth and Eighteenth Centuries*. New York: St. Martin's Press, 1962.

Deetz, James. *In Small Things Forgotten: An Archaeology of Early American Life*. Garden City, N.Y.: Anchor Press / Doubleday, 1977.

Delgado, James. "Gold Rush Entrepôt: The Maritime Archaeology of the Rise of the Port of San Francisco." Dissertation, Simon Fraser University, 2006.

Dunn, Richard S. *Sugar and Slaves: The Rise of the Planter Class in the English West Indies, 1624-1713*. Chapel Hill: University of North Carolina Press, 1972.

Dyde, Brian. *Out of the Crowded Vagueness: A History of the Islands of St Kitts, Nevis & Anguilla*. Oxford: Macmillan Caribbean, 2005.

Dyson-Bruce, Lynn. "Historic Landscape Assessment: The East of England Experience, Paper Product to GIS Delivery." *Journal of GIS in Archaeology* 1 (2003): 63-72.

Ekins, Charles. *The Naval Battle for Nevis, 1782, Transcribed From the Naval Battles of Great Britain, From the Accession of the Illustrious House of Hanover to the Throne, to the Battle of Navarin*. London: Baldwin and Cradock, 1828.

Flatman, Joe. "Cultural Biographies, Cognitive Landscapes and Dirty Old Bits of Boat: Theory in Maritime Archaeology." *International Journal of Nautical Archaeology* 32, no. 2 (2003): 143-157.

Ford, Ben, ed. *The Archaeology of Maritime Landscapes*. New York: Springer, 2006.

———. "Down by the Water's Edge: Modelling Shipyard Locations in Maryland, USA." *International Journal of Nautical Archaeology* 36, no. 1 (2007): 125-137.

Fremantle, E. "Sea Power and the American War of Independence." *The RUSI Journal* 62, no. 447 (1917): 471-505.

Goodwin, R. Christopher. "The Prehistoric Cultural Ecology of St. Kitts, West Indies: A Case Study in Island Archaeology." Ph.D. dissertation, Arizona State University. Ann Arbor, Mich.: University Microfilms, 1979.

Gould, Richard A. *Archaeology and the Social History of Ships*. New York: Cambridge University Press, 2000.

———. *Shipwreck Anthropology*. Albuquerque: University of New Mexico, 1983.

Greer, Shelley, Rodney Harrison, and Susan McIntyre-Tamwoy. "Community-Based Archaeology in Australia." *World Archaeology* 34, no. 2 (2002): 265-287.

Hancock, David. *Citizens of the World: London Merchants and the Integration of the British Atlantic Community, 1735-1785*. New York: Cambridge University Press, 1995.

Harris, Trevor. "Scale As Artifacts: GIS, Ecological Fallacy, and Archaeological Analysis." In *Confronting Scale in Archaeology: Issues of Theory and Practice*. Edited by Brian Molyneaux and Gary Lock. New York: Springer, 2006.

Hubbard, Lucius. "Did Columbus Discover the Islands Antigua and St. Martin?" *Geographical Review* 21, no. 4 (Oct. 1931): 584-597.

Hubbard, Vincent K. "Lost and Found: The Discovery of HMS Solebay at Nevis." *Mariner's Mirror* 97, no. 2 (2011): 67-71.

———. *Swords, Ships, and Sugar: A History of Nevis*. Corvallis, Ore.: Premiere Editions, 2002.

Innis, Sir Probyn. *Historic Basseterre*. St. Kitts: Offset Commercial Printers, 1979.

Jameson, John H, and Della A. Scott-Ireton. *Out of the Blue: Public Interpretation of Maritime Cultural Resources*. New York: Springer, 2007.

Jennings, John. *Tattered Ensign*. New York: Crowell, 1966.

- Kimura, Jun. "Interpreting maritime cultural space through the utilization of GIS: a case study of the spatial meaning of shipwrecks in the coastal waters of South Australia." Thesis, Flinders University, 2006.
- Lavery, Brian. *The Arming and Fitting of English Ships of War, 1600-1815*. Annapolis, Md.: Naval Institute Press, 1987.
- . *Nelson's Navy: The Ships, Men, and Organisation, 1793-1815*. Annapolis, Md.: Naval Institute Press, 1989.
- Llobera, Marcos. "Past Landscape Perception with GIS: Understanding Topographic Prominence." *Journal of Archaeological Science* 28 (2001): 1005-1014.
- Lyon, David. *The Sailing Navy List: All the Ships of the Royal Navy: Built, Purchased and Captured, 1688-1860*. London: Conway Maritime Press, 1993.
- Maarleveld, Thijs, Ulrike Guérin, and Barbara Egger, eds. *Manual for Activities Directed at Underwater Cultural Heritage: Guidelines to the Annex of the UNESCO 2001 Convention*. United Nations Educational, Scientific and Cultural Organization, 2013.
- Machling, Tessa C.S. *The Fortifications of Nevis, West Indies, From the 17th Century to the Present Day: Protected Interests?* Oxford: Archaeopress, 2012.
- Madry, Scott. "The Integration of Historical Cartographic Data Within the GIS Environment." In *Between Dirt and Discussion: Methods, Methodology, and Interpretation in Historical Archaeology*. Edited by Steven N. Archer and Kevin M. Bartoy. New York: Springer, 2006.
- Mahan, Alfred T. *The Influence of Sea Power Upon History, 1660-1783*. Boston: Little, Brown and Co., 1890.
- McCusker, John J., and Russell R. Menard. *The Economy of British America, 1607-1789*. Chapel Hill: University of North Carolina Press, 1985.
- Meniketti, Marco. "And Now They Are Gone: Documenting the Last Sailing Lighter of Nevis, West Indies." *International Journal of Nautical Archaeology* 41, no. 1 (2012): 134-147.
- . *Sugar Cane Capitalism and Environmental Transformation. An Historical Archaeology of Colonial Nevis*. Tuscaloosa: University of Alabama Press, Forthcoming 2015.

———. "Sugar Mills, Technology, and Environmental Change: A Case Study of Colonial Agro-Industrial Development in the Caribbean." *The Journal of the Society for Industrial Archeology* (2006): 53-80.

Merrill, Gordon C. *The Historical Geography of St. Kitts and Nevis, the West Indies*. Mexico City: Copilco-Universidad, 1958.

Middleton, Richard. "Naval Resources and the British Defeat at Yorktown, 1781." *The Mariner's Mirror* 100, no. 1 (2014): 29-43.

Miller, Nathan. *Sea of Glory: The Continental Navy Fights for Independence, 1775-1783*. New York: David McKay Co., 1974.

Milne, Gustav, Martin Bates, and Webber Mike. "Problems, Potential, and Partial Solutions: An Archaeological Study of the Tidal Thames, England." *World Archaeology* 29, no. 1 (1997): 130-146.

Mintz, Sidney Wilfred. *Sweetness and Power: The Place of Sugar in Modern History*. New York: Penguin Books, 1986.

Nagle, Jacob, and John C. Dann. *The Nagle Journal: A Diary of the Life of Jacob Nagle, Sailor, From the Year 1775 to 1841*. New York: Weidenfeld & Nicolson, 1988.

Narumalani, Sunil, Deepak R. Mishra, and Robert G. Rothwell. "Analyzing Landscape Structural Change Using Image Interpretation and Spatial Pattern Metrics." *GIScience and Remote Sensing* 41, no. 1 (2004): 25-44.

Okabe, Atsuyuki. *GIS-based Studies in the Humanities and Social Sciences*. Boca Raton, Fla.: CRC/Taylor & Francis, 2006.

Orser, Charles E. *A Historical Archaeology of the Modern World*. New York: Plenum Press, 1996.

O'Shaughnessy, Andrew J. *An Empire Divided: The American Revolution and the British Caribbean*. Philadelphia: University of Pennsylvania Press, 2000.

———. "The Stamp Act Crisis in the British Caribbean." *The William and Mary Quarterly* 51, no. 2 (1994): 203-226.

Oxley, Ian. "Towards the Integrated Management of Scotland's Cultural Heritage: Examining Historic Shipwrecks As Marine Environmental Resources." *World Archaeology* 32, no. 3 (2001): 413-426.

Pares, Richard. *War and Trade in the West Indies, 1739-1763*. London: Cass, 1963 [1936].

- Reid, Basil A. *Archaeology and Geoinformatics: Case Studies From the Caribbean*. Tuscaloosa: University of Alabama Press, 2008.
- Richardson, Bonham C. *Caribbean Migrants: Environment and Human Survival on St. Kitts and Nevis*. Knoxville: University of Tennessee Press, 1983.
- Rodger, N.A.M. *The Wooden World: An Anatomy of the Georgian Navy*. Annapolis, Md.: Naval Institute Press, 1986.
- Rumsey, David, and Meredith Williams. "Historical Maps in GIS." In *Past Time, Past Place: GIS for History*. Edited by Anne Kelly Knowles. Redlands, California: ESRI Press, 2002.
- Sanders, Richard. *If a Pirate I Must Be-- the True Story of "Black Bart," King of the Caribbean Pirates*. New York: Skyhorse Pub., 2007.
- Schomberg, Isaac. *Naval Chronology: Or An Historical Summary of Naval and Maritime Events. From the Time of the Romans, to the Treaty of Peace of Amiens*, 4 vols. London: Printed for T. Egerton by C. Roworth, 1815.
- Scott-Ireton, Della A. "Preserves, Parks, and Trails: Strategy and Response in Maritime Cultural Resource Management." Dissertation, Florida State University, 2005.
- Sever, Thomas L. "Science in Archaeology: A Review. Remote Sensing." *American Journal of Archeology* 99, no. 1 (1995): 83-84.
- Sheridan, Richard B. *Sugar and Slavery: An Economic History of the British West Indies, 1623-1775*. Baltimore: Johns Hopkins University Press, 1974.
- Simmonds, Keith C. "Political and Economic Factors Influencing the St. Kitts-Nevis Polity: An Historical Perspective." *Phylon* 48, no. 4 (1987): 277-286.
- Smith, James P. "Empire and Social Reform: British Liberals and the "Civilizing Mission" in the Sugar Colonies, 1868-1874." *Albion* 27, no. 2 (1995): 253-277.
- Smith, Roger C. *The Maritime Heritage of the Cayman Islands*. Gainesville: University Press of Florida, 2000.
- Spooner, Simon Q. "How Tourism Benefits From the "ADMAT Model" for the Preservation of Underwater Cultural Heritage." Paper Submitted to the 5th Annual Caribbean Conference on Sustainable Tourism Development. St. Kitts: September, 2003.
- . *St. Kitts Maritime Archaeological Project 2003--2008. Phase 1: White House Bay Wreck*. ADMAT Interim Report. 2003.

- Staniforth, Mark. *Material Culture and Consumer Society: Dependent Colonies in Colonial Australia*. New York: Kluwer Academic/Plenum Publishers, 2003.
- Steele, Ian Kenneth. *The English Atlantic, 1675-1740: An Exploration of Communication and Community*. New York: Oxford University Press, 1986.
- Swanson, Carl E. *Predators and Prizes: American Privateering and Imperial Warfare, 1739-1748*. Columbia: University of South Carolina Press, 1991.
- Sykes, John. *Local Records: Or, Historical Register of Remarkable Events, Which Have Occurred in Northumberland and Durham, Newcastle Upon Tyne, and Berwick Upon Tweed, From the Earliest Period of Authentic Record, to the Present Time; With Biographical Notices of Deceased Persons of Talent, Eccentricity, and Longevity*. Newcastle, UK: Printed for, and sold by, J. Sykes, 1833.
- Syrett, David. *The Royal Navy in American Waters, 1775-1783*. Brookfield, Vt.: Gower Publishing Co., 1989.
- Terrell, Michelle M. *The Jewish Community of Early Colonial Nevis: A Historical Archaeological Study*. Gainesville: University Press of Florida, 2005.
- Tracy, Nicholas. *Navies, Deterrence, and American Independence: Britain and Seapower in the 1760s and 1770s*. Vancouver, Can.: University of British Columbia Press, 1988.
- Watts, David. *The West Indies: Patterns of Development, Culture, and Environmental Change Since 1492*. New York: Cambridge University Press, 1987.
- Westcott, K.L. and R.J. Brandon, eds. *Practical Applications of GIS for Archaeologists, A Predictive Modeling Kit*. London: Taylor and Francis, 2000.
- Wilson, Samuel M. "The Prehistoric Settlement Pattern of Nevis, West Indies." *Journal of Field Archaeology* 16, no. 4 (1989): 427-450.
- Winfield, Rif. *British Warships in the Age of Sail, 1714-1792: Design, Construction, Careers and Fates*. St. Paul, Minn.: Seaforth Publishing / MBI Publishing Co, 2007.