

Jason S. R. Paling. A HISTORY OF WHALING IN BERMUDA. (Under the direction of Dr. Lawrence E. Babits, Director) Department of History, East Carolina University, May 2003.

This thesis examines whaling in Bermuda. Bermudian whaling dates as early as the sixteenth century when Bermuda Company colonists began supporting themselves as whalers. Shore whaling existed on the islands for nearly 340 years, spanning four centuries, but never developed into a major industry, although Bermudians' demand for food, goods, and merchandise was especially strong. Unlike other nations, Bermudian whaling was a seasonal activity, conducted by a variety of socio-cultural groups. By the late nineteenth century, whaling companies included whites, liberated slaves, and Portuguese island immigrants. This thesis also examines Bermuda's participation in the global whale commodities exchange during the nineteenth century. By examining import and export ledgers from 1840 to 1880, this work analyzes the movement of lighting oil made from whales and investigates Bermuda's role as an intermediary trading port for Atlantic nations. Finally, this work records the cultural materials abandoned by whalers. An examination of the equipment and structures illustrates the development of the nineteenth and twentieth century trade through technology. The study also reveals the influence other nations had on Bermuda. The assimilation of new technologies and the need for whale meat ensured that whaling continued into the twentieth century, lasting longer than many other whaling nations.

A HISTORY OF WHALING IN BERMUDA.

A Thesis

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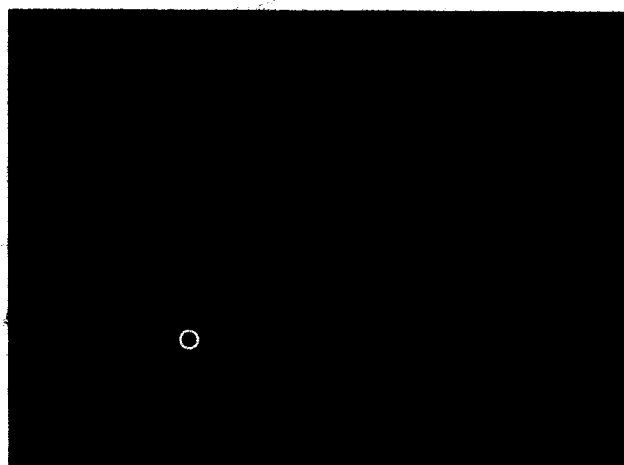
Introduction

Bermuda's pink beaches, dark n' stormies, and tales of lost ships are impressions generally absorbed by tourists. Tourism may be Bermuda's most important business nowadays, but long ago, Bermuda once bustled with maritime and agricultural trades. During the eighteenth and nineteenth centuries, shipbuilding, privateering, and salt trafficking were among Bermuda's greatest maritime pursuits. During wartime, Bermuda served as a key port for British naval operations. By the late nineteenth century and early twentieth century, farming matured, edging out maritime industries as the islands' leading commercial endeavor.

Somewhat overshadowed by Bermuda's larger industries is one of the island's lifeblood trades, fishing. Fishing in Bermuda is a distinctive trade because Bermuda boasts the northernmost coral reef ecosystem, offering an abundance of exotic sea life. Geography and location have played important roles shaping Bermuda's fishing industry. Bermuda is an atoll formed by the rim of an ancient volcano, which includes six main islands and other island clusters. The volcano base stretches nearly 2 miles north and ½ mile south of the islands. On top of this base lies a maze of coral reefs responsible for Bermuda's legendary shipwrecks.

Bermuda's location provided an excellent opportunity for the development of whaling. The Gulf Stream flows west of Bermuda and, depending on the season, teems with schooling fish and migrating whale pods. Bermudians, naturalists, and marine biologists note humpbacks (*Megaptera novaeangliae*), blue (*Balaenoptera musculus*),

sperm (*Physeter catodon*), and northern right whales (*Eubalaena glacialis*) migrate past and feed in Bermudian waters.¹ Short-finned pilot (*Globicephala macrorhynchus*), minke (*Balaenoptera acutorostrata*), and Cuvier's beaked (*Ziphius cavirostris*) whales occasionally appear around Bermuda.² From February to June, as warmer currents flow into the northern Atlantic, humpbacks and right whales follow these currents and an upwelling of food toward their northern breeding grounds. Map 0.1 shows humpback, right, and sperm whale migratory routes. Humpbacks are the most common visitors to Bermudian waters, appearing north and south of the islands. Although not as abundant as humpbacks, sperm and pilot whales appear in the Gulf Stream's deeper waters to the west.



Map 0.1. Migratory Routes of Whales in the Atlantic Ocean.³

¹ D. Procter and L.V. Fleming, eds., "Biodiversity: the UK Overseas Territories." Joint Nature Conservation Committee report. (Peterborough, United Kingdom, 1999), p. 34.

² *Ibid*, p. 34.

³ Map in Bermuda Maritime Museum, Dockyard. Bermuda encircled by (©). Arrows indicate movement of sperm whales in the Gulf Stream. The migratory path closest to North America and around Bermuda indicates right and humpback whale migration.

To date no one has written a comprehensive study of Bermudian whaling.

Bermuda whaling is limited to museum collections and oral traditions, although the topic has appeared in international journals. In a 1911 *National Geographic Magazine* article titled "Shore-whaling: A World Industry," Roy Chapman Andrews briefly stated that Bermuda had substantial shore-based whaling operations throughout the nineteenth century.⁴ Chapman's work failed to examine Bermuda's own whaling operations; as it was more a general description of shore-based whaling. In a 1969 *Mariner's Mirror* article, Edward F. Schortman wrote a short description of Bermudian whaling, proposing that Bermuda once had a productive industry. Unlike Andrews' article, Schortman indicated that the height of Bermuda's whaling operations existed "in 1785 when Bermuda was almost caught up in the whaling enterprises of Nantucket."⁵ By the late nineteenth century, Schortman submitted that Bermudian whaling had dwindled to just a few boats.

This thesis expands beyond contemporary histories, presenting new data and initiating different arguments regarding Bermudian whaling. The foremost argument in this thesis is that Bermudian whaling was a sporadic enterprise, undertaken when opportunity or a dire need arose, and influenced by other nations' whaling achievements. This thesis will examine information presented in international and Bermudian, contemporary and historical literature. In conjunction with literary sources, primary

⁴ Roy Chapman Andrews, "Shore-whaling: A World Industry." *National Geographic Magazine*. (Washington, May, 1911), Volume XXII, Number 5, pp. 411-442.

⁵ Edward F. Schortman, "A Short History of Whaling in Bermuda." *Mariner's Mirror*. (New York, February, 1969), Volume 55, Number 1, pp. 77-86.

investigations of whaling equipment and sites will also strengthen the arguments presented in this thesis.

Bermudian whaling never achieved international acknowledgment because the operations were small, local endeavors. There was only one eight-year period when whaling operations extended beyond Bermuda's territorial waters; all other whaling was shore-based. Bermudian whaling in the nineteenth and twentieth centuries was also not as profitable as the operations performed in the seventeenth and eighteenth centuries, even though whalers incorporated more advanced whaling methods and equipment. In order to examine Bermuda's whaling past, comparisons will be made with the shore-based and pelagic industries of other nations, such as the Basque, Dutch, British, Portuguese, Norwegian, and American.

Since colonization, whales were important to Bermuda's development. Whaling was the islands' earliest occupation; ambergris and whale oil composed two of the five original royalties desired by British investors. Whale meat was consumed and candles were made from whale fat, but early Bermudians placed more emphasis on the oil processed from whale blubber or rendered from the junks⁶ of sperm whales. By the eighteenth and nineteenth century, whale oil was processed and refined as an illuminate for lamps and as a lubricant for machinery. Furthermore, whale skin could be dried and tanned to form shoes or aprons. Baleen (whalebone), extracted from right and bowhead whales, was also used. As flexible and durable as plastic, whalebone was bent and

⁶ A junk is the second, lower compartment of a sperm whale's head (case), which contains a dense oil (spermiaceti) separated by vertical columns of collagen. Clifford W. Ashley, *The Yankee Whaler*. (New York, 1926), p. 134.

wary of the human presence, forcing colonists to travel beyond the natural coral boundary into deeper waters.

The method Bermudians employed was shore whaling, which differed from pelagic whaling. Performed aboard a ship in the open oceans, pelagic whalers pursued whales from boats lowered from the deck, processed captured whales alongside the vessel, and tried ⁸ the blubber onboard in the vessel's own tryworks. Shore whaling was organized and carried out from land. Although Bermudian whaling developed unique traditions, the methods employed were typical of shore whaling. A lookout station situated at the highest point on shore monitored passing whales. Once a lookout spotted and announced the position of the whale or pod, whalers launched a boat(s) from a whaling station positioned on the beach. They rowed the boats in pursuit and, once close enough, the boatsteerer prepared to dart his harpoon. Until the early nineteenth century, Bermudian whalers used hand-thrown hunting equipment, but by the mid-nineteenth century, Bermudian whalers began experimenting with mechanized equipment produced in the United States and elsewhere. Once the harpoon held, the crew would endure an anxious ride from the frantic whale. Normally, the whale would tire itself out just enough for the mate to lance it, and as soon as the whale was subdued, it was towed back to the station.

Early whaling stations and whale houses were in six of nine Bermudian parishes (parishes). The earliest stations and houses were in St. George's parish on the northern islands of St. David's, Smith's, Paget, and Ferry Reach. Whaling structures were also

⁸ Trying-out is the process of boiling oil out of whale blubber. Ashley, *The Yankee Whaler*, p. 144.

built in Tucker's Town, as well as Warwick, Southampton, Devonshire, and Sandy's parishes. Whalers who remained at a station during pursuits initiated the pre-processing steps, such as lighting fires and sharpening butchering equipment. Each station included capstans for hauling whales closer to shore, tryworks, try-pots, cooling tanks, and coopering equipment. Typically, a whale house was built nearby. Barreled oil and equipment could be stored there, and during hunting season, whale houses served as a whaler's domicile.

Whaling was rarely a primary occupation, and thus occurred seasonally. The whale migration past Bermuda occurred in the spring and early summer. Most Bermudian whalers worked as agriculturalists, shipbuilders, or dockworkers. Other Bermudians served as fishermen throughout the entire year, only switching to whaling when opportunities arose.

The Bermudian whaling tradition was heavily influenced by other whaling nations. These influences derived from tools and methods used by whalers. In early Bermudian history, the Bermuda Company hired British whalers to hunt whales. Later, independent Bermudian whaling crews carried on until American whaling ships appeared in Bermudian harbors. While calling for supplies, Americans may have exchanged new methods for hunting and processing, as well as tools. Until the nineteenth century, Bermuda's elite supported whaling operations financially, but indentured servants undertook the actual whaling activities.⁹ Whaling companies were primarily white until

⁹ E. A. McCallan, *Life on Old St. David's: Bermuda*. (Toronto, 1986), pp. 104-5

1834 when Britain abolished slavery.¹⁰ Thereafter, independent black whaling companies formed in Bermuda. Later, immigrants from the Madeira Islands, Azores, Cape Verde, Sweden, and Portugal arrived as agriculturalists, but with family traditions in whaling.¹¹ By late nineteenth century and twentieth century, diverse ethnic whaling companies worked together.

Bermudians conducted whaling from colonization (early seventeenth century) until the mid-twentieth century, but the trade was a periodic enterprise. There were never enough whales to develop the trade into a major industry. Few successful accounts of pelagic voyages were outfitted from Bermuda, although the movement was short-lived. Bermuda whaling occurred whenever there was a dire need for food or oil, or when a profitable opportunity presented itself. Even though the local trade was insignificant, Bermuda participated extensively in the international trade of whale commodities. Bermuda played the role as go-between for the exchange of goods between America, Britain, British North America (Halifax), and Caribbean nations, such as Puerto Rico, Cuba, and Demerary (British Guiana)¹². Bermuda's role as an intermediate way station became very important during wartime, especially during the American Civil War. Not only did Bermuda ship military equipment and supplies to the Confederacy, but whale (lamp) oil was sent as well. The exchange of whale products and goods, as well as whaling equipment and whaleboats, were meticulously recorded in the Records of the Colonial Secretary. These records, known as the *Blue Books*, were annual import and

¹⁰ Wilkinson, *Bermuda from Sail to Steam*, p. 513.

¹¹ Patricia Marirea Mudd, *Portuguese Bermudians: Early History and Reference Guide, 1849-1949*. (Louisville, Kentucky, 1991), p. 145.

¹² British Guiana now known as Guyana- Demerara (city) located outside Georgetown.

export ledgers that tracked the prices and/or quantity of merchandise. An analysis of ledgers from 1840 to 1880 indicates mass importation of whale and lamp oil in 1855, the early 1860s, and 1877, while large exports of whale and lamp oil are observed in 1840, 1841, 1855, and 1864. These ledgers demonstrate the impact the trade in whale (lamp) oil had on Bermuda's economy and history.

Besides documented confirmation, physical evidence of whaling is found throughout the islands. Many tools and implements are displayed in local museums, while private residents possess the dilapidated features and occupy structures that once bustled with whaling activities. While conducting research, I inspected known public whaling collections and examined two whaling sites. The remains of a vessel that belonged to the last well-known Bermudian whaler were also inspected.

This thesis examines the history and the significance of Bermudian whaling. The first chapter describes whaling in Bermuda, including the men involved, their exploits, and the nature of the business. The second chapter investigates the international exchange of whale goods in Bermuda. Whale and sperm oil was globally important during the nineteenth century, and this chapter shows Bermuda's participation in the international market of whale commodities. The final chapter examines cultural material left by whalers. The third chapter is more than a catalog of whaling features, sites, and equipment, as it examines the equipment by exploring technological advancements and the ways in which other whaling nations influenced Bermuda's own trade.

Bermuda

York

demon

Chapter 1

Ambergris, Oil, and Manna: A History of Whaling in Bermuda.

The Sixteenth and Seventeenth Centuries

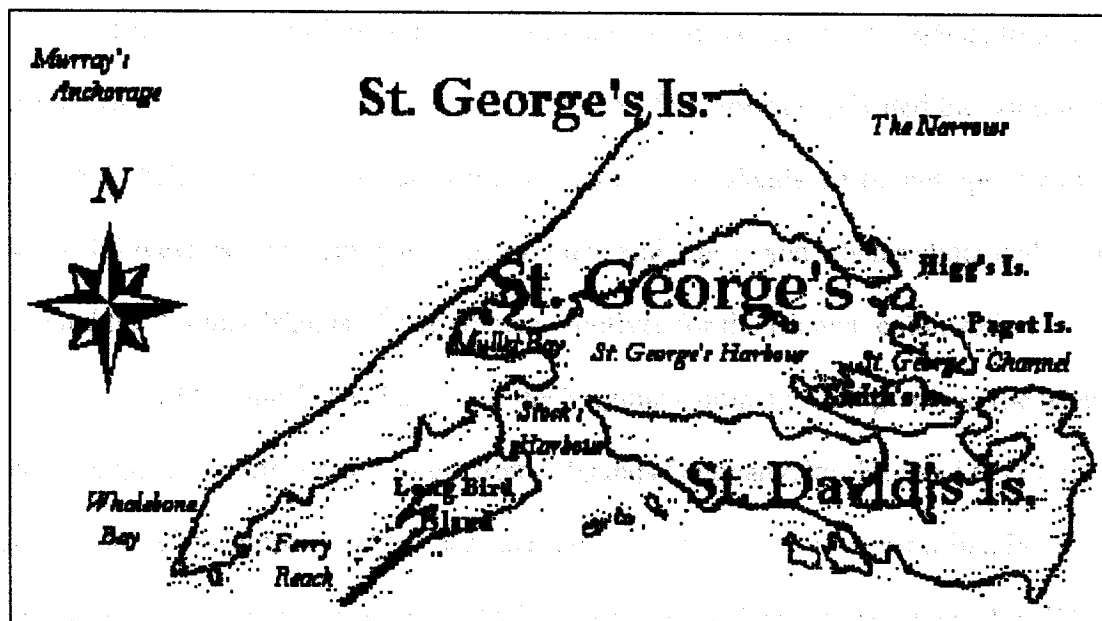
Bermuda's whaling history was as odd and intermittent as the story of how the industry first appeared on the island. On June 2, 1609, a group of 600 English colonists set out from Plymouth, England, heading for Jamestown, Virginia, aboard a fleet of nine vessels. Sir George Somers led the flotilla with 150 onboard the flagship, *Sea Venture*.¹ During the voyage, a hurricane separated *Sea Venture* from the convoy. Blown off course, she wrecked on a chain of deserted islands some six hundred miles from Virginia.²

Reportedly discovered by Juan de Bermudez in 1503, the Spanish had long avoided the "Isle of Devils." The Spanish believed squealing demons inhabited the islands, making them inhospitable.³ George Somers and his crew found quite the opposite. The islands were accommodating and the colonists set up a temporary camp on the northernmost island where St. Georges is today (Map 1.1). During the colonists' stay, the islands provided food and shelter. Native cedar trees, along with the remains of the *Sea Venture*, supplied enough building material to construct two ships, the *Deliverance* and *Patience*. These ships later sailed to Virginia with all but two colonists.

¹ Wesley Frank Craven, *An Introduction to the History of Bermuda*. (Royal Navy Dockyard, Bermuda, 1990), p. 15.

² General Sir J. Henry Lefroy, R.A., ed., *Historye of the Bermudaes or Summer Islands*. (New York, 1882), pp. 11-2.

³ Somers crew discovered that a large population of boar lived on the islands, not squealing demons.



Map 1.1. Northern islands, including St. George's, St. David's, and Smith's Islands.⁴

Two colonists, Christopher Carter and Robert Walters, remained behind while the rest sailed to Jamestown.⁵ One explanation proposes the two men were left by Somers to guard the islands. In June 1610, Somers returned to obtain pork, fish, and lumber for the struggling Virginia colony. It is possible that Somers intended to establish his own plantation on the islands. As his crew acquired supplies, they also inspected the area for potential settlements, planted seeds to test soil quality, and noted the variety of natural resources. That fall, Somers died and his crew sailed to England with the corpse. Three men elected to stay behind, including Christopher Carter.⁶

⁴ After Henry C. Wilkinson, *Bermuda from Sail to Steam: The History of the Island from 1784 to 1901*. (London, 1973), Volume II, end page.

⁵ Lefroy, *Historye of the Bermudæes*, p. 14.

⁶ *Ibid*, p. 15.

Tales of the *Sea Venture*'s adventure and the discovery of the islands followed the arrival of Somers' crew and his body in London. The stories captivated the court and inspired Shakespeare's *Tempest*, while accounts of the islands' resources appealed to English investors. According to Somers' men, ambergris⁷ and whales abounded in and around the "Somer Islands,"⁸ two of many motives for the islands' colonization.

In 1611, King James I awarded the Virginia Company land grants to the islands.⁹ Sixty English settlers, known as the Somer Islands Company, left England to colonize Bermuda. The Company settled near the same site the *Sea Venture* crew had inhabited. A year later, Christopher Carter and two Somer Islands Company colonists, Mr. Edwin Kendall and one "Dauis," recorded as "the master of the ship," stumbled upon a large amount of ambergris heaped up and beached on one island.¹⁰ An early record placed the value at nine score pounds, or the equivalent of £ 6, 480.¹¹ In other reports, the ambergris weighed between eighty and one hundred and eighty pounds, worth nearly three to six thousand pounds.¹² The three men plotted to keep the ambergris a secret until they could acquire transportation back to England, where they would profit from its discovery.

⁷ Ambergris (amber-græce, ambergreese) is a porous, waxy secretion formed in the intestines or abdominal passages of sperm whales. It was an essential and sought after substance used in some pharmaceuticals and as a fixative for very fine perfumes. Ambergris is found in a number of colors including black, yellow, ash, yellow with black mottling, and gray. In the late eighteenth century, gray ambergris was the most valuable. Granville Allen Mawer, *Ahab's Trade: The Saga of South Seas Whaling*. (New York, 1999), pp. 24-5.

⁸ The Somers Islands Company later became the Bermuda Company as the name of the islands evolved through Somer Islands, Somers Islands, Sommer Islands, Summer Islands, Bermudae Islands, to the present "Bermuda."

⁹ Godfrey Davies, *The Early Stuarts, 1603-1660*. (Oxford, 1959), pp. 330-1.

¹⁰ Lefroy, *Historye of the Bermudaes*, pp. 21-3.

¹¹ *Ibid*, pp. 21-3.

¹² At three pounds per a troy ounce, the approximate modern value for the ambergris comes to 3,000 pounds sterling. Craven assesses the value of the ambergris as high as nine to ten thousand pounds. Craven, *An Introduction to the History of Bermuda*, p. 63.

The first colonial laws issued by the Company indicated any ambergris found on the islands was to be divided between the discoverer(s), the governor (Richard Moore), Somer Islands Company investors, and the King. The governor received three shillings and four pence on every ounce of ambergris shipped to England as his salary. The company kept a fifth, and the king shared as set forth in the orders of the court.¹³ In 1619, the law changed and the distribution of wealth from discovering ambergris included the landowner, finder, and governor.¹⁴ It was unlawful for colonists to hoard any find for their own personal gain; exploiting any such resource without official consent was a punishable crime.

Carter's conscience likely caught up with him because he disclosed the plan to Governor Moore. Moore imprisoned all three, but on good faith the governor released them, so that Kendall could disclose the hiding spot. Although Kendall made known "a" hideaway spot and the colony recovered a substantial amount of ambergris, the governor continued to suspect Kendall of withholding a large quantity.

Ambergris generated the colony's first revenue, but the story continues. When the colony finally sent the ambergris to England, financial investors insinuated that the ambergris was "sent by the company in piecemeal."¹⁵ Sending only a partial supply was contrary to the fashion of merchants, but Governor Moore feared that if he sent all the ambergris, English merchants would neglect to promptly send the colonies' supply ship,

¹³ Craven, *An Introduction to the History of Bermuda*, pp. 66, 72-3.

¹⁴ *Ibid.*, p. 73n.

¹⁵ Edward F. Schortman, "A Short History of Whaling in Bermuda." *Mariner's Mirror*. (New York, February, 1969), Volume 55, Number 1, p. 77.

the *Adamant*.¹⁶ This angered English investors, and they sent a ship, the *Elisabeth*, to collect the whole quantity. In spite of this, Governor Moore sent only another third back with the ship.

Like Carter, Governor Moore's conflicting morality likely overwhelmed him. In June 1613, the *Martha* arrived from Virginia with sixty more colonists. The *Martha*'s arrival occurred about the time *Elisabeth* was preparing to sail from Bermuda.¹⁷ Governor Moore loaded the remaining ambergris on the *Martha*. When the *Martha* arrived in England with the remaining ambergris, the colony's shareholders were outraged. In fact, the *Elisabeth* returned to St. Georges three weeks later with forty new residents and an "iniunction [injunction] for the Governour for the sending away of the residue of the amber-greece."¹⁸

Ambergris continued to torment Governor Moore throughout his term. It is more than likely that the colonial investors overestimated the islands' potential with the initial discovery of ambergris, so it was crucial for the governor to establish a façade against English investors until the colonists located more ambergris.¹⁹ Consequently, of the five original royalties (whale oil, ambergris, tobacco, silk, and pearls) produced or gathered by the colonists, ambergris was the only resource with its price fixed by the king; three

pounds sterling per troy ounce.²⁰ Collection of ambergris by the colonists continued

¹⁶ Lefroy, *Historye of Bermudaes*, p. 28.

¹⁷ The *Elisabeth* was to travel first to Virginia and then on to England.

¹⁸ Lefroy, *Historye of Bermudaes*, p. 30.

¹⁹ Craven, *An Introduction to the History of Bermuda*, p. 61.

²⁰ A troy ounce was a unit of measure. Twelve troy ounces equaled a pound and 20 pennyweights (3440 grains) equaled one ounce. J.A. Simpson and E.S.C. Weiner, eds. *The Oxford English Dictionary*. (Oxford, 1989), Volume XVIII, pp. 599-600.

and, in a 1616 letter, Nathaniel Butler²¹ summarized the amount of ambergris already amassed:

I haue recouered as much amber-greece as amounts in all to twentye eight ounces three quarters and a halfe. I haue payed the finders here their moyetye, after your Order of Court, the which at the rate of three pounds the ounce (for so much I haue allowed them) ariseth to fortie three pounds six shillings three pence....²²

There are no other accounts of large quantities of ambergris found on Bermuda, although lucky colonists found smaller amounts throughout the 1620s.

Thereafter, colonists turned their attention to the leviathans responsible for the ambergris. The waters surrounding the islands abounded with whales in the spring and autumn.²³ Colonists noted that humpbacks and right whales penetrated the reefs and entered shallow waters. They commonly sighted whales in several island bays and sounds, such as the Great Sound and Castle Harbour. Colonists celebrated the occasional appearances of sperm whales in deeper Gulf waters west of Bermuda. Spermaceti, or sperm whale oil, was purer than "black" or "blackfish"²⁴ oil, which allegedly had a vile smell and contained more impurities. Spermaceti also solidified when in contact with air, a desirable quality when making candles. Wealthy Europeans desired spermaceti oil and

²¹ Nathaniel Butler later becomes the fourth governor of Bermuda in 1619. Lefroy, *Historye of the Bermudaes*, p. 120-1.

²² *Ibid.*, p. 218.

²³ Modern marine biologists note that certain species of baleen whales, especially humpbacks, migrate past the island from February to June. Historically, colonists observed whales migrating to northern waters in the spring and returning south in the autumn. Contemporary marine biologists agree that humpbacks do migrate from southern to northern feeding grounds in the spring; however, recent studies point out humpbacks do not travel past Bermuda in the fall. Randall Reeves and Edward Mitchell, "How Many Humpbacks: Then and Now?" *The Log of Mystic Seaport*. (Mystic, Connecticut, 1982), pp. 73, 75.

²⁴ Blackfish or pilot whales, also known as grindval, grampus, or caa'ing whales, are smaller whales found in most oceans. They travel in large pods and eat cuttlefish. Their oil made a fine lubricant for machinery or watches. "Black" oil was rendered from right whales. Charles B. Hawes, *Whaling*. (Garden City, New York, 1924), p. 11; A. Hyatt Verrill, *The Real Story of the Whaler: Whaling, Past and Present*. (New York, 1916), pp. 26-7.

candles over blackfish products, so any cast up dead sperm whales were seen as a potentially lucrative business endeavor.²⁵

During 1616-17, the Bermuda Company organized its first whaling expedition during the tenure of the second governor of the Somers Islands Company, Governor Daniel Tucker.²⁶ Sir Nathaniel Rich of England sent his ship, the *Neptune*²⁷ and Governor Tucker instructed John Headland (chief harpooneer), Henry Hughes (his mate), and a Mr. Wilmot²⁸ (pilot) to venture out for whales.²⁹ The *Neptune* anchored in "King's" Castle Harbor (Map 1.2), and skillful crews of seven or eight manned the ship's five shallops.³⁰ Seventeenth and eighteenth century shallops were small, open, utilitarian craft fitted with sails and oars for use in shallow waters,³¹ and thus were optimal vessels for pursuing whales in the open ocean. Whether *Neptune* sailed outside Castle Harbor into the open ocean or whether the crew simply dropped the ship's shallops and chased trapped whales around the harbor is unknown. It is unlikely that the *Neptune*'s crew conducted true pelagic whaling operations, since tryworks were not built aboard ships until the 1750s.³²

²⁵ Sperm whaling was an extremely difficult endeavor until the nineteenth century when new methods and equipment were invented. Most whaling activities until then concentrated on the right whale. Mark Staniforth, Personal Communication. (Adelaide, Australia, 15 March 2003).

²⁶ Craven believed that Governor Moore expected to try whaling, but lacked the necessary equipment to do so. Craven, *An Introduction to the History of Bermuda*, p. 61.

²⁷ Vernon A. Ives, *The Rich Papers: Letters from Bermuda 1615-1646*. (Toronto, 1984), p. 28. Sir Robert Rich was one of the principal traders and Adventurers ("Adventurers" was the term given to both colonizers and traders) to the "Company of Adventurers and Planters of the City of London," or Virginia Company.

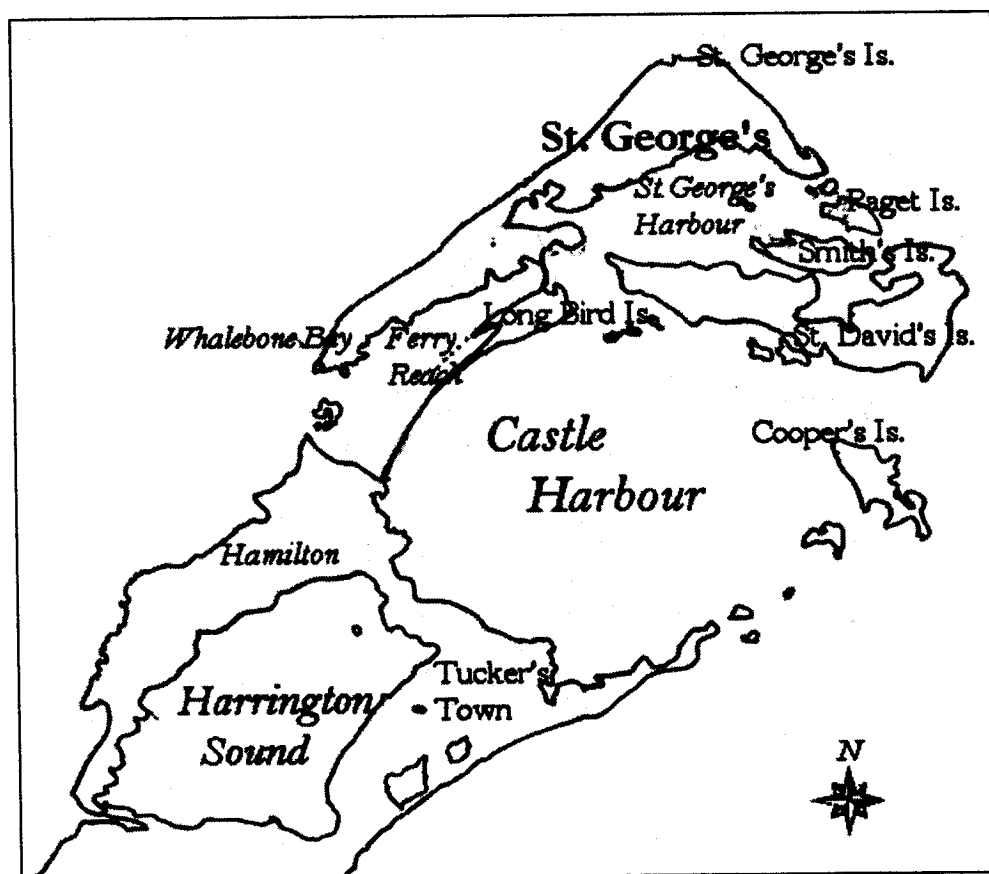
²⁸ Also recorded as Wilmoth or Wilmott. Mr. Wilmot arrived with the ship and was recorded as being quite knowledgeable and skillful in whaling.

²⁹ Ives, *The Rich Papers*, p. 29.

³⁰ Lefroy, *Historye of the Bermudaes*, pp. 92-3.

³¹ Lesley Brown, ed., *The New Oxford English Dictionary*. (Oxford, 1993), p. 2809.

³² Lance E. Davis, Robert E. Gallman, and Karin Gleiter, *In Pursuit of Leviathan: Technology, Institutions, Productivity, and Profits in American Whaling, 1816-1906*. (Chicago, 1997), p. 36.



Map 1.2. "Kings" Castle Harbor.³³

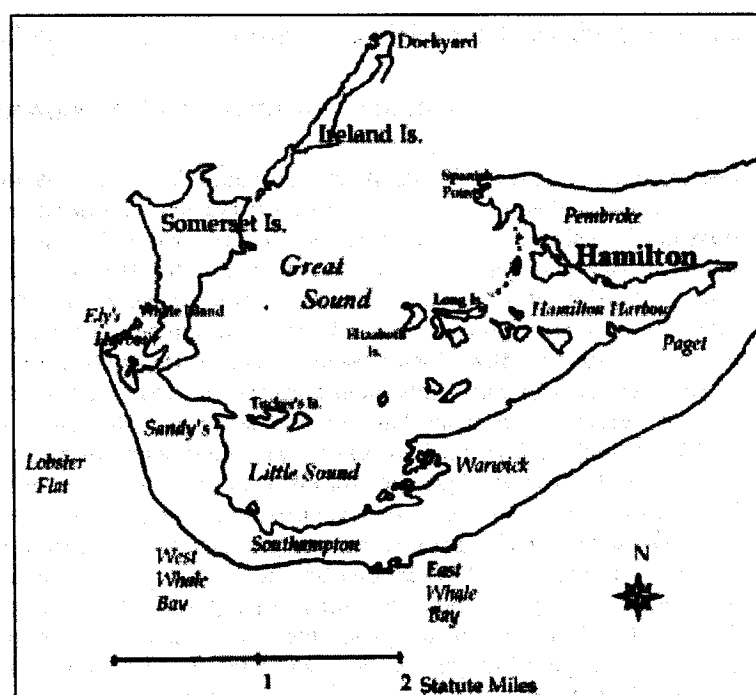
The first whaling expeditions were so futile that the Company believed "there was a conspiracy for the project's defeat."³⁴ In a letter sent to his elder brother Nathaniel in May 1617, Robert Rich indicated that the situation so angered Governor Tucker that Richard Day replaced Mr. Wilmot.³⁵ One rumor hinted that Governor Tucker "was instructed in the event of a shortage of whale oil to freight two ships out from England to

³³ After Wilkinson, *Bermuda from Sail to Steam*, end page.

³⁴ Craven, *An Introduction to the History of Bermuda*, p. 65.

³⁵ Ives, *The Rich Papers*, p. 16.

supply squared cedar trees as a supplementary cargo."³⁶ Allegedly, whales were taken those first two years in the Great Sound near Warwick (Map 1.3).



Map 1.3. The Great Sound.³⁷

Tobacco and other colonial developments sidetracked whaling until mid-century. After many unsuccessful years, whalers caught two adult humpbacks and three calves in 1665.³⁸ The next year, islanders caught sixteen whales, yielding fifty to sixty tuns³⁹ of oil, and whaling began to emerge as a growing business. During Governor Heydon's

³⁶ Schortman, "A Short History of Whaling in Bermuda," p. 77.

³⁷ After Wilkinson, *Bermuda Sail to Steam*, end page.

³⁸ Addison E. Verrill, *The Bermuda Islands: An Account of their Scenery, Climate, Productions, Physiography, Natural History and Geology, with Sketches of their Discovery and Early History, and the changes of their Flora and Fauna due to Man*. (New Haven, Connecticut, 1902), p. 272. This reference will be subsequently referred to as *The Bermuda Islands*.

³⁹ *Ibid*, p. 272. A tun is equivalent to 252 gallons or eight barrels. Each barrel contained thirty-one and half gallons, equaling anywhere between 12,600 to 15,120 gallons of oil shipped to London that year. Simpson, *The Oxford English Dictionary*, Vol. XI, p. 667.

term from 1666-1669, the Council recorded that the island shipped 131 tuns of oil to England.⁴⁰

The only successful Bermudian whale hunting method during the seventeenth century used small boats. In a response to inquiries made by the Royal Society in June 1667, Richard Norwood, colonial surveyor, reported,

For killing of Whales, it hath been formerly attempted in vain, but within these 2 or 3 years, in the spring-time and fair weather, they take sometimes one, or two, or three in a day. They are less, I hear, than those in Greenland,⁴¹ but more quick and lively, so that if they be struck in deep water, they presently make into the deep with much violence, that the Boat is in danger to be haled down after them, if they cut not rope in time. Therefore they usually strike in shoal-water. They have very good Boats for that purpose, mann'd with six oars, such as can row forwards or backwards, as occasion requireth. They row up gently to the Whale, and so he will scarcely shun them; and when the Harpineer, standing ready fitted, sees his opportunity, he strikes his Harping-Iron into the Whale, about or before the Fins rather than towards the Tayl. Now the Harping-Irons are like those usual in England in striking Porpoises, but singular good metal, that will not break, but wind, as they say, about a mans hand. To the Harping-Iron is made fast a strong lythe rope, and into the Socket, so when the Whale is something quiet they hale up to him by the rope, and, it may be strike into him another Harping-Iron, or lance him with lances in staves, till they have kill'd him. This I write by relation, for I have not seen any kill'd myself. I hear not that they have found any Sperma Citi in any of these Whales; but I have heard from credible persons that there is a kind of such as have the Sperma at Eleutheria,⁴² and others of the Bahama-Islands (where also they find quantities of Ambergreese) and these have great teeth (which ours have not) and are very sinewy. One of this place (John Perinchief) found one there dead, driven upon an Island, and though I think ignorant of the business, yet got a great quantity of Sperma Citi out of it. It seems, they have not much Oil, as ours, but this Oil, I hear, is at first like Sperma Citi; but they clarify it, I think, by fire. At present with the tended of my humble service to the Royal Society, and commending your Noble Designe to the blessing of the Almighty, I take my leave.⁴³

⁴⁰ Verrill, *The Bermuda Islands*, p. 273.

⁴¹ In 1619, a tactical agreement gave the Dutch the north of Spitsbergen (Greenland), while the British, by right of discovery, kept their original 'best' bays in the south. Davis, *In Pursuit of Leviathan*, p. 32.

⁴² In 1640s, Bermuda was troubled by religious disputes, and in 1647 Bermudian colonists and a group called the Company of Elutherian Adventures of London looked to colonize an island so they could worship as they pleased. In October 1648, Captain William Sayle, twice governor of Bermuda (1640 and 1658), led himself and seventy prospective settlers to an island in the Bahamas, then known as Cigatoo. Renamed Eleutheria by the colonists, Eleutheria was a constantly struggling colony until the Spanish returned to the area in 1782-3.

⁴³ E. A. McCallan, *Life on Old St. David's: Bermuda*. (Toronto, 1986), p. 102.

Richard Norwood's account of early Bermudian whaling is precise; groups of seven men in twenty-eight foot, rowed boats pursued and captured whales. Bermudian whaleboats included an additional oarsman, one more than American boats had in the eighteenth and nineteenth centuries.⁴⁴ The hunt climaxed when the whaleboat's crew rowed alongside a whale. Once close enough, the whaleboat's harpooner⁴⁵ attempted to strike the whale. If the harpoon stuck, the whale took boat and crew for a long and exhausting ride. The weight and buoyancy of the whaleboat, equipment, and crew more often than not prevented the whale from sounding and therefore tired the whale. When the whale was tired enough, the boat again moved in close. The mate would exchange places with the harpooner and lance the whale in a vital organ. The crew then towed the dead whale to a designated shore processing area, either a whaling station or house.

Whaling houses and stations were erected in many different areas of Bermuda beginning on Smith's Island, Paget Island, Castle Harbour, and Ferry Reach.⁴⁶ As the industry grew, it spread westward and whalers built structures in Tucker's Town, Devonshire, Warwick, Southampton, and Whale Island in Sandy's parish.⁴⁷ At these sites, whalers used masonry stoves or stone hearths, copper and iron pots, an assortment

⁴⁴ Davis, *In Pursuit of Leviathan*, p. 204.

⁴⁵ Harpooneer, harpineer, harponier, harponeer or harpooner are all terms that appear in whaling literature. Harpooner was term used by British; however American whalemens referred to the harpooner as boatsteersman. The duty of the boatsteerer included pulling the forward oar, harpooning the whale, and then steering while the mate killed it. William Scoresby, *The Whale Fishery: An Account of the Arctic Regions with a History and Description of Northern Whale-Fishery*. (New York, 1969), pp. 234-5; Willits D. Ansel, *The Whaleboat: A Study of Design, Construction and Use from 1850 to 1970*. (Mystic, Connecticut, 1978), p. 144; Clifford W. Ashley, *The Yankee Whaler*. (New York, 1926), p. 133.

⁴⁶ Wilkinson, *Bermuda from Sail to Steam*, p. 656.

⁴⁷ Wilkinson, *Bermuda from Sail to Steam*, p. 656.

of flensing (cutting) tools, and cooling pits. After the whale was towed near the site, the men lit fire pits below the boiling pots and flensing commenced.

Whalemen remarked that Bermuda's warm climate caused the rapid deterioration of oil quality if too long a time elapsed between killing and trying out a whale.⁴⁸ Therefore, each processing step was carried out as quickly and efficiently as possible. The first step in processing a whale, "flensing," was a messy process. Underneath the whale's hide lies a thick, fatty layer known as blubber. The whalemen manually stripped, or "flensed," the carcass. Next, whalers cut the blubber into finer pieces called "horse" pieces.⁴⁹ Then, whalers threw the "horse" pieces into heated iron or copper pots built in or on top of a stove called the "tryworks." Extraction or "trying out," of oil occurred, and once the pots were full of oil, men drained the pots and cooled the oil in neighboring open-air pits. Cooling pits were plastered with tarras, a German earth or natural cement.⁵⁰ It was assumed that if the pit were plastered, a copper pot was not needed to prevent the oil from escaping.⁵¹ An example of a plastered cooling pit exists near the whale house at East Whale Bay, Southampton.

Once the oil cooled, whalers ladled it into wooden barrels.⁵² Depending on the species of whale, other steps transpired including the bailing of spermaceti from the

⁴⁸ Schortman, "A Short History of Whaling in Bermuda," p. 79.

⁴⁹ These pieces were called "horse" pieces because the meat was cut on top a mincing horse (cutting board).

⁵⁰ Schortman, "A Short History of Whaling in Bermuda," p. 79.

⁵¹ *Ibid.*

⁵² Mawer, *Ahab's Trade*, p. 354. Several other sources, such as Edward F. Schortman and E. A. McCallan, note that one barrel of oil held thirty-three gallons. Conversions from barrels to gallons in this thesis will use Mawer's measurement of thirty-one and a half gallons.

whale's head,⁵³ extraction of bone, or the recovery of ambergris from the viscera.

Removal of baleen from humpbacks and right whales also occurred. Butchering a whale was extremely labor intensive and unpleasant, and often a task allotted to lower class folk.

Late seventeenth century records indicate that some of the island's leading men, including Hugh Wentworth and William Peaslie, were involved with the industry.⁵⁴ These men were not whalers themselves, but rather sent out their indentured servants. Early in the following century, other prominent Bermudians associated with the trade included Governor William Popple, President Francis Jones, General Butterfield, and Dr. George Forbes.⁵⁵ These men managed the industry's financial and trading operations.

By the eighteenth century, whaling was a global business and the Atlantic Ocean teemed with a plentiful assortment of whale species that could be captured and refined into marketable commodities. Food, medicine, and tallow⁵⁶ were whale products desired by all social classes; other whale parts were important to high society. In the seventeenth and eighteenth century, affluent Europeans and Americans required items fashioned from whalebone such as buggy whips and corset stays, while quality perfumes and cosmetics used ambergris. By the nineteenth century, European societies found other functions for the previously unusable and miscellaneous parts of whales, mixing them to form fertilizers or machine lubricants.

⁵³ Davis, *In Pursuit of Leviathan*, p. 29. The oil captured within sperm whale heads was so pure that it was instantly barreled without processing.

⁵⁴ McCallan, *Life on Old St. David's*, pp. 104-5.

⁵⁵ *Ibid*, p. 105.

⁵⁶ Tallow is the waxy white, 'hard fat' skimmed from the top during the trying out of whale blubber. It was used to make soaps and candles.

The most important whaling product was always oil, and the desire for whale oil originated well before Bermuda's colonization. Whale oil was desired for illumination because oil burned longer and brighter than candles. As European nations grew and industrialized, whale oil became an ever popular lighting substance. In fact, European nations fought each other over exclusive rights to Atlantic hunting grounds. Most notable was the late seventeenth century struggle between the Basques, Dutch, and British for the Arctic fishery.

Basques were the earliest and foremost European whalers. By the early seventeenth century, Basques had been whaling throughout the North Atlantic for three centuries.⁵⁷ When the population of near-shore Biscay right whales disappeared, Basques pursued migrating herds into the open ocean. Preceding John Cabot's discovery of Newfoundland, the Basques became famous for exploring uncharted Arctic seas in their search for whales. During the zenith of Basque whaling, they reached as far as Spitzbergen, Norway, sailing nearly two thousand nautical miles.⁵⁸

Until the mid-seventeenth century, Britain and Holland were major consumers of Basque oil and whale products. Whaling underwent a radical modification in the late seventeenth century when European Protestant entrepreneurs sought control of the whaling industry. Dutch and British interests turned to economic development, and both countries built large fleets to hunt whales. Initially, both countries employed Basque whalers for their expertise, but as the rivalry between the Dutch and British grew, both

⁵⁷ A.B.C. Whipple, *The Seafarers: The Whalers*. (Alexandria, Virginia, 1979), pp. 43-6.

⁵⁸ *Ibid*, pp. 45-6.

began to phase out Basques for their own countrymen. Furthermore, fewer Basques whaled at this time because of their own wars with the Spanish and French.⁵⁹

As the rivalry between Dutch and British intensified, encounters occurred between armed whaling ships, and both nations turned on the Basques. Once heavily reliant on Basque goods and services, both countries threatened to sink Basque ships if they sailed beyond the Bay of Biscay.⁶⁰ The Dutch dominated whaling until the late eighteenth century when political troubles between the British and other European nations caused their goods to be barred from the British market.⁶¹ This forced the Dutch to pursue alternative maritime interests. With the Dutch absent from whaling, the English soon possessed the world's preeminent whaling fleet and industry, which also included whaling operations by the American colonies and Bermudians.

Other factors affected Britain's control of the Atlantic whale fishery. By the 1730s, the Americans had established a rewarding whaling commerce that appeared to match the British industry. Allegations that the Americans were damaging the northern cod and seal fishery began circulating in England around 1760, leading to a rivalry between colonial and British whalers. Parliament placed a duty on colonial whalebone and oil in 1766. The duty was to pay for royal frigates that provided protection from pirates and French privateers.⁶² The situation worsened for colonial whalers on March

⁵⁹ Hawes, *Whaling*, p. 25.

⁶⁰ Whipple, *The Seafarers*, p. 46.

⁶¹ Davis, *In Pursuit of Leviathan*, p. 33.

⁶² Mawer, *Ahab's Trade*, p. 17.

30, 1775, when Parliament instituted the Restraining Act.⁶³ The Restraining Act forbid trade with any port except the British Isles and the British West Indies, and embargoed North American colonial fishing.⁶⁴ The Restraining Act was obvious imperial intimidation meant to keep colonial whalers from forcing out British competition in the seas surrounding Newfoundland. The British enforced the act, seizing thirty Nantucket whaleships for violating the act's articles during the Revolutionary War. Britain placed the prizes under their command, and American whalers were pressed into service on British ships.⁶⁵

The American industry faced a collapse after the Revolutionary War because most of its whaling fleet was destroyed during the conflict. In September 1778, the British burned New Bedford; a week later British troops ransacked Martha's Vineyard.⁶⁶ Other whaling ports, Warren, Rhode Island, and Dartmouth, Massachusetts, also experienced British raids, but no American whaling port felt British anger more than Nantucket. Of the 151 whaleships owned by Nantucket, the British destroyed 134. Another 15 ships were lost at sea.⁶⁷ By the conclusion of the American Revolutionary War in 1783, Nantucket had only two ships, while some 1,200 Nantucket seamen⁶⁸ were either lost or captured.⁶⁹

⁶³ Great Britain, Parliament. "Protest of the Lords. House of Commons, On Paffing the Bill, for restraining the British Colonies from the Fifhery on the Banks of Newfoundland, and the American Coasts, Bays, &c." March 21, 1775; Great Britain, Parliament. "Restraining Act." March 30, 1775.

⁶⁴ Davis, *In Pursuit of Leviathan*, p. 37.

⁶⁵ Mawer, *Ahab's Trade*, p. 39.

⁶⁶ *Ibid.*, p. 40.

⁶⁷ Elmo P. Hohman, *The American Whaleman: A Study of Life and Labor in the Whaling Industry*. (Clifton, New Jersey, 1928), pp. 34-5.

⁶⁸ Hohman, *The American Whaleman*, p. 35.

⁶⁹ Davis, *In Pursuit of Leviathan*, p. 37.

There are similarities between American and Bermudian whaling histories. Both struggled under British restrictions, although Bermuda never engaged in any physical confrontations. The earliest Bermudian colonists noted whales in great abundance around the islands, but sanctions imposed by the British, and later by the island government, prevented a whaling industry from developing. British interests impeded the Bermudian whaling industry for nearly a century. The earliest restrictions came from King Charles I, who forbid Bermudians from whaling until 1639, except by those granted royal permission, and even those granted the right to whale had to pay a substantial tax on every whale caught.

In 1684, the Bermuda Company ceased to exist. A year later, Bermuda became a crown colony, yet taxation on whales by England and the Bermuda government continued until 1687.⁷⁰ Toward the end of the seventeenth century, whale oil became imperative for Britain's rapid growth and urbanization, but Bermuda could not attain productive levels to warrant shipping whale oil to Britain due to English restrictions and taxation. For nearly seventy-five years, British and Bermudian laws prohibited colonists from building whaleboats, causing an unusual problem for those with special permission to hunt. In 1684, Governor Robert Robinson finally granted Bermudians the right to build whaleboats.⁷¹ In 1766, a British duty, directed at the American colonies, included Bermudian whale exports as well.⁷² Nine years later, Article VI of the 1775 Restraining Act prohibited Bermuda from whaling or fishing near Newfoundland, the coast of

⁷⁰ Davies, *The Early Stuarts, 1603-1660*, 327. A side note, on January 11, 1639, Charles I allowed British colonies the right to call their own General Assembly, which permitted partial self rule.

⁷¹ Schortman, "A Short History of Whaling in Bermuda," p. 77.

⁷² Mawer, *Ahab's Trade*, p. 13.

Labrador, or the river or Gulf of St. Lawrence unless "the ship or vessel is entirely the property of his Majesty's subjects."⁷³ Island whaling was not free of British regulation until the 1790s.

Eighteenth century Bermudian whaling did not attain levels that the British, Spanish, Dutch, French, or Nantucket colonists achieved for a number of reasons. First, in 1731, American colonies began subsidizing their whaling industry when Rhode Island allowed five shillings per barrel of oil and one penny per pound of bone.⁷⁴ The British followed suit in 1733 when they subsidized 20 shillings per ton on whaling vessels.⁷⁵ Subsidies increased dramatically with the success of the American and British whaling industries.⁷⁶ Bermuda's economic condition could not support their whalers, although the Bermudian government proposed subsidies as early as the 1790s when Bermuda's pelagic whaling industry collapsed due to loss of whaling ships. The company that established Bermuda's pelagic industry refused to continue even with the subsidy.⁷⁷

Secondly, Bermuda lacked the labor force to conduct large whaling operations. By the mid-eighteenth century, the total Bermudian population was 9,270 people.⁷⁸ According to Governor Popple's estimates, 3,980 were slaves.⁷⁹ Of the 5,290 white colonists, less than a third were probably women and children, leaving approximately 3,000 men who engaged in business matters. Excluding those who governed the island and managed island affairs, privateering, piloting, shipbuilding, agriculture, the tobacco

⁷³ Great Britain, Parliament. "Restraining Act." March 30, 1775.

⁷⁴ Starbuck, *History of the American Whale Fishery*, p. 35.

⁷⁵ *Ibid*, p. 36-7; Schortman, "A Short History of Whaling in Bermuda," p. 82.

⁷⁶ Davis, *In Pursuit of Leviathan*, p. 462.

⁷⁷ Wilkinson, *Bermuda from Sail to Steam*, Volume I, p. 31.

⁷⁸ Terry Tucker, *Bermuda: Today and Yesterday, 1503-1973*. (London, 1975), p. 173.

⁷⁹ *Ibid*, p. 173.

and salt trades employed the greatest number of men. Able-bodied, experienced men available to participate in whaling were too few to outfit a whale ship, let alone a flotilla of whaleboats.

Finally, whaling was a heavily taxed enterprise. In 1733, a license was required to hunt whales and part of the licensing fee went to pay the governor's salary, despite the fact that the island government already charged ten pounds per whale to pay the governor.⁸⁰ Governor Alured Popple removed all restrictions on whale hunting in 1738, but the fee of ten pounds per whale remained until 1740.⁸¹ The fishery did not become free until 1782.⁸² Taxes remained until the early 1780s due to poverty, the lack of other commercial resources, and the hardships created from the Revolutionary War.⁸³

By the early 1780s, the whaling industry lacked proper equipment and was becoming hopeless. Oil prices in St. George's parish were 2 shillings and 8 pence per gallon for lamp oil, while in more remote parishes, such as Somerset, oil was 3s. 4d. per gallon.⁸⁴ In 1787, the price jumped to 5s. 4d. in St. George's.⁸⁵ The rise affected the entire island, so many Bermudians switched from lamp illumination to candle light. Lamp oil returned when the island developed its first and only pelagic whaling company.

In 1785, the *Gazette* encouraged islanders to build whaling into a larger and more professional business, when the paper included this little rhyme,

Be this the era now of peace,
Commencing eighty-five;

⁸⁰ Lefroy, *Historye of the Bermudaes*, p. 93.

⁸¹ *Ibid*, p. 93; Schortman, "A Short History of Whaling in Bermuda," p. 77.

⁸² Verrill, *The Bermuda Islands*, p. 273

⁸³ *Ibid*, p. 273.

⁸⁴ Wilkinson, *Bermuda from Sail to Steam*, p. 18.

⁸⁵ *Ibid*, p. 31.

Let factions now among us cease,
 And join in means to thrive
 And a whaling we will go.
 Leave wrecking then my honest boy,
 Get blubber and grow fat;
 A schilling got in this employ
 Is worth a pound of that
 And a whaling we will go.⁸⁶

One year later, an island company responded to the *Gazette's* call. In 1786, Jennings, Tucker, & Co., the leading Bermudian mercantile house, sent the two hundred ton ship, *Queen Charlotte*, captained by John Darling of Nantucket, to the South Seas to hunt whales.⁸⁷ There are no records of Captain Darling's endeavor. In 1787, the company dispatched the 116-ton brig, *Governor Browne*, under Captain Bailey to the South Seas.⁸⁸ The *Governor Browne* whaled alone until 1791, when the eighty-eight ton, schooner-rigged *Governor Hamilton*, captained by John Darling, joined the *Governor Browne* in the South Atlantic.⁸⁹

Bermuda continued to expand its pelagic whaling industry and the island built its first whaling sloop, *Mercury*. The seventy-two ton ship sailed for the South Seas in October 1789 under Eber Coffin.⁹⁰ Not until 1792 do the records indicate success. In that year, Captain John Darling transferred to the one hundred and ninety-three ton brig, *Bermuda*. In seven months, the *Bermuda* collected 900 barrels of oil and 7000 pounds of bone.⁹¹ In 1792, the *Governor Browne* under Captain Bell brought in 40 pounds of

⁸⁶ Wilkinson, *Bermuda from Sail to Steam*, pp. 30-1.

⁸⁷ *Ibid*, p. 31.

⁸⁸ *Ibid*, p. 31.

⁸⁹ *Ibid*, p. 31.

⁹⁰ *Ibid*, p. 31.

⁹¹ *Ibid*, p. 31.

spermaceti, 400 barrels of oil, and 5,000 pounds of bone.⁹² The local shore-based fishery also captured twelve whales that year.⁹³

By the end of the century, Bermudians emerged as competitive rivals to American and English whalers in the South Sea Fishery but, just as pelagic whaling began to mature, the industry suffered drastic losses. A year after its good season, the *Bermuda*, under Captain Coffin, wrecked off Brazil.⁹⁴ In that same year, the *Governor Hamilton's* entire crew came down with a sickness, and Jennings, Tucker, & Company halted whaling operations, even after the Bermudian government promised financial backing.⁹⁵ The Bermuda pelagic industry ended in 1794 when Captain King, on another brig named the *Bermuda*, returned from the South Seas with 800 barrels of oil.

The Nineteenth and Twentieth Centuries

The British Embargo Act of 1807 placed an enormous duty on American products and whale oil. The tariff stifled expansion of the international whaling industry until after the War of 1812. War with the British devastated the American fleet, crippling the international whale oil trade. An early nineteenth century resurgence in British whaling may have sparked a desire by the British to stimulate whaling throughout the empire. Some evidence suggests the British insisted that Bermuda revitalize its pelagic whaling

⁹² Wilkinson, *Bermuda from Sail to Steam*, p. 31.

⁹³ *Ibid*, p. 31.

⁹⁴ *Ibid*, p. 31.

⁹⁵ *Ibid*, p. 31.

industry in 1802.⁹⁶ There are no records revealing why Bermudian whaling companies declined to carry on pelagic whaling; instead, Bermudians pursued other maritime industries, such as the salt, privateering, and shipbuilding trades. Moreover, there are no accounts that indicate any initiative by Bermudians to return to the South Atlantic, although shore whaling continued.

While the Americans entered the "Golden Age" of whaling, shore-based whaling remained an intermittent endeavor carried on throughout the islands, although pelagic whaling received more notoriety. John Hayward & Company became the first recognized and accredited fishery on the island after the War of 1812. Hayward was from St. David's Island, and his company possibly utilized the whale houses and whale stations built there by early whalers.⁹⁷ In 1839, Josiah Smith of Hayward & Company struck a sperm whale that yielded 84 barrels of oil. It was the largest taken on the island to date.⁹⁸

Soon after the Hayward Company's recognition, Captain Francis Forbes Hinson commenced whaling. Bermudian's regard Hinson as the islands' first famous whaler, and there are records of many unusual exploits. Hinson built a whale house on Paget Island where he managed his operations. One strange story recorded involved a whale net of stout cordage made by Hinson. One evening, Hinson set the net across the Narrows Channel leading into Murray's Anchorage. Instead of netting a whale, Hinson

⁹⁶ Wilkinson, *Bermuda from Sail to Steam*, pp. 31-2n.

⁹⁷ In the 1840 Records of Colonial Secretary of Bermuda, the colonial secretary reported that the John Hayward & Company whaling company formed in 1812. Records of the Colonial Secretary, *Blue Books*. (Bermuda Archives, 1840), p. 182.

⁹⁸ Verrill, *The Bermuda Islands*, p. 278.

netted a French brig-of-war.⁹⁹ In 1818, Hinson contemplated leaving the island and announced the sale of all property including whaleboats and gear.¹⁰⁰ He never left the island before he died. In September 1832, his property on Paget Island, including thirty acres of land suitable for whaling, a whale house, a number of wharves and tanks, and "his prized whale gun" went up for sale.¹⁰¹ A revival of whaling occurred around Hinson's death and marked the largest boom in Bermuda's whaling history. Shore whaling in Bermuda became a semi-lucrative seasonal occupation and, according to an 1829 colonial report, seventeen whales were caught by the Hinson, Higg,¹⁰² and Athell establishments on St. Georges and Burrow's company on Somerset.¹⁰³ Bermuda took 434 barrels of oil that season.¹⁰⁴

Prior to the nineteenth century, the work force in Bermuda could not support a major whaling industry. There were not enough skilled men to carry out frequent whaling activities, although by the 1830s the work force began to swell. The Assembly recorded 1,286 freed slaves in the 1833 census.¹⁰⁵ Later, on August 1, 1834, Britain emancipated all slaves in the empire; however, the liberation of Bermudian slaves was in motion as early as February when Thomas Butterfield introduced the Emancipation Bill

⁹⁹ McCallan, *Life in Old St. David's, Bermuda*, p. 233.

¹⁰⁰ *Ibid*, p. 233.

¹⁰¹ *Ibid*, p. 233; Schortman, "A Short History of Whaling in Bermuda," p. 84. It is not certain what type of whale gun Hinson owned since the Greener whale gun (1837), Pierce's harpoon gun (1865), and his breech-loaded shoulder gun (1878) were invented after 1832. Mawer, *Ahab's Trade*, pp. 313, 316-7.

¹⁰² According to an article in the *Gazette*, a Kit Burrows, or Kit Seymour, of Mr. Higg's company lost a leg in 1832 due to a whaling accident. McCallan, *Life on Old St. David's*, p. 106.

¹⁰³ Schortman, "A Short History of Whaling in Bermuda," p. 83.

¹⁰⁴ *Ibid*, p. 83.

¹⁰⁵ Wilkinson, *Bermuda from Sail to Steam*, p. 513; Tucker, *Bermuda: Today and Yesterday*, p.

to the Assembly.¹⁰⁶ Emancipation created overwhelming inflation in the labor pool, more than the traditional Bermudian trades had work for and, as a result, whaling became a vocation providing food and earnings to those who could not otherwise find employment. By 1840, several whaling companies operated on the islands (Figure 1.1).¹⁰⁷ Besides John Hayward & Company, Dan Lightbourn & Company, Port Royal Company, and Jones, Smith & Company were active whaling businesses. 'Coloured men' owned and operated the Port Royal Company and Jones, Smith, & Company.¹⁰⁸ These two companies owned five whaleboats and employed forty-four men. John Hayward & Company and Dan Lightbourn & Company owned four whaleboats and employed forty men. In that year, both companies captured nine whales; eight "black"¹⁰⁹ whales and one "Spermaceti." The total oil yield came to 9,449 gallons of oil. Of the nine whales caught, whaling companies owned by "coloured men" captured two. Jones, Smith & Company caught one black whale and the only sperm whale, taking over one-third of the total oil accumulated that season.

¹⁰⁶ Wilkinson, *Bermuda from Sail to Steam*, p. 513.

¹⁰⁷ In 1840, in the export ledger of that year's *Blue Books*, Bermuda exported a whaleboat to the West Indies.

¹⁰⁸ *Blue Books*, 1840, p. 182.

¹⁰⁹ "Black" whales refer to a certain species of whales (*Delphinidae Globicephala*), which includes killer whales and pilot whales (blackfish). Ernest P. Walker, *Walker's Mammals of the World* (Baltimore, Maryland, 1964), p. 1125. In this case, I believe that "black whales" refers to the description of the whales. Black Right whales (*Eubalaena biscayensis*) are said to be black, but are actually dark gray with some color. During the summer, right whales feed in the waters between Bermuda and the Azores. Walker, *Walker's Mammals of the World*, pp. 1143-4; Ashley, *The Yankee Whaler*, p. 67. The amount of oil rendered from each "black" whale in Figure 1.1 indicates that these whales were much larger than the species of whales denoted as black whales today.

Return of Whale Fisheries in Bermuda in 1840												
Establishment	Date of formation of establishment	Number of Whale Boats employed.	Total number of men employed.	Number of female employed.	Number of Whales taken.						Total number of gallons of oil produced.	
					Black.			Grampus et al.				
					Number taken	Sp. of oil taken	Sp. of oil taken	Number taken	Sp. of oil taken	Sp. of oil taken		
John Haywood & Co.	1819	2	21	2	5	4000					4000	John Haywood & Co.
Don. Lightbourne & Co.	1838	2	19	2	2	2019					2019	ditto.
Port Royal Company	1839	3	25	2								Colours Man.
Jones, Smith & Co.	1840	2	19	2	1	800		1	2550		3430	ditto.
Total		9	84		8	6899		1	2550		9449	

Figure 1.1. 1840s Record of Bermuda's Island Whale Fishery.¹¹⁰

Omitted from the 1840 list was the Southampton Whaling Establishment under Benjamin Richardson and Richard Conyers. Black Bermudians may have owned and operated the company, but the only evidence supporting this interpretation dates to March 31, 1840, when the *Bermuda Royal Gazette* reported,

Melancholy Accident. -On Tuesday last, a Boat (belonging to the Southampton Whaling Establishment) with a Crew of eight men, was capsized; and melancholy to relate, a colored man named Henry Taylor, belonging to St. George's Parish, was unfortunately drowned. The others were by prompt assistance from the crew of another Whale Boat, who were on shore at the time of the accident, rescued from a similar fate.---The Boat was dashed against a breaker, and entirely destroyed.¹¹¹

¹¹⁰ *Blue Books*, 1840, p. 182.

¹¹¹ *Bermuda Royal Gazette*. (Hamilton, Bermuda, March 31, 1840.)

Although there are no formal records that confirm the company's existence, *Bermuda Royal Gazette* articles include the summons of a shareholders meeting.¹¹² The newspaper also records that the Southampton Whaling Company received a loan of fifteen pounds from the "Friendly Union Society" of Southampton (Figure 1.2).¹¹³

NOTICE.

BY consent of the President and Members of the "**FRIENDLY UNION SOCIETY**" of Southampton to discontinue that Society for better amendment—now make known its Receipts and Disbursements from the year 1834 to the year 1853 inclusive, viz:—

Receipts.	
Whole Amount Collected from the	£103 19 11
Year 1834, to the Year 1853	
Disbursements.	
This Sum lent to Directors of the Southampton Whaling establishment,	£15 0 0
Paid for Sickneses, Deaths, and other Expenses,	£30 8 8
Cash lent to Members of the Society,	£16 14 7
Balance in Hand	£21 16 8
	£103 19 11

Any Person belonging to the Society will receive One Shilling and upwards by applying to Mr. GEORGE RAYNOR, of Southampton Parish, up to the 30th day of September next, ensuing, after which Date, no notice will be taken. The Balance due the Society will be (when obtained) distributed (in proportion) to the several Members.

GEORGE RAYNOR

Southampton Parish, }
August 29, 1853. }

Figure 1.2. Notice.¹¹⁴

In 1840, cholera and yellow fever epidemics broke out in Bermuda. Islanders believed the diseases first appeared in the convict hulks, and in response, officials moved

¹¹² *Bermuda Royal Gazette*. (Hamilton, Bermuda, June 11, 1839); *Bermuda Royal Gazette*. (Hamilton, Bermuda, October 19, 1840.)

¹¹³ *Bermuda Royal Gazette*. George Raynor, "Notice to Southampton Parish," (Hamilton, Bermuda August 29, 1853.)

¹¹⁴ *Ibid*.

the hulks to uninhabited parts of the island. At the time, no one understood disease prevention and the epidemics swept over the islands. There were 213 deaths recorded in St. George's and, by the time the epidemics ran their course, total deaths reached 828.¹¹⁵ Working and underprivileged classes suffered most. Bermuda underwent a depression, and the General Assembly calculated ways of reinvigorating the country's wealth. As a possible result of the epidemics, whaling operations were not recorded from 1843 to 1849.

Displeased with Bermuda's dismal economy, Governor Reid and the Assembly sought alternative means to rejuvenate the market. In 1849, the Assembly evaluated the island's financial potential and it was recorded that,

There is an inconsiderable whale fishery carried on at Bermuda that employs about twelve boats and their crews three months in the year; the number of whales seldom exceeds 20 in the season, yielding about one-thousand barrels of oil.¹¹⁶

Clearly, the Assembly had little interest in developing the struggling trade. Instead, the Assembly tried to promote agriculture. In that same year, Queen Victoria's council, along with Parliament, allocated monies for Bermuda to acquire agricultural laborers. Since 1845, a potato blight had laid waste to the Portuguese islands of Madeira.¹¹⁷ Many families were starving, and only a few wealthy families could afford the cost of migration. The Bermudian government allowed W. E. Zuill, Sam Nash, and twenty-five others in need of agricultural laborers to send Captain B. W. Watlington and the

¹¹⁵ Wilkinson, *Bermuda from Sail to Steam*, p. 608.

¹¹⁶ *Blue Books*, 1849, p. 175.

¹¹⁷ Patricia Marirea Mudd, *Portuguese Bermudians: Early History and Reference Guide, 1849-1949*. (Louisville, Kentucky, 1991), p. 56.

brigantine, *Golden Rule*, to the Madeira Islands to obtain twenty men and fourteen boys.¹¹⁸ The *Golden Rule* left for the Madeira Islands on September 1, 1849.¹¹⁹

During the next four decades, Bermuda focused on agriculture as the key to its fiscal recovery. Arrowroot, onions, potatoes, tomatoes and oranges were Bermuda's principal crops.¹²⁰ Strawberries, raspberries, celery, and lemons, then later coffee and ornamental flowers, were also cultivated.¹²¹ With the initial success of agriculture came the migration of more agricultural workers.

In 1850, the British legislature permitted immigration of a large group of young pauper children from St. Pancras, England to assist agriculturalists.¹²² Later, the House of Assembly granted refuge to the Madeiran families who came to Bermuda on the *Golden Rule*.¹²³ Between 1850 and 1885, the House of Assembly sponsored the immigration of agricultural laborers from Sweden, Portugal, the Cape Verde Islands, and the Azores, along with additional agriculturists from Madeira.¹²⁴ Many Portuguese islanders who moved to Bermuda were whalers or had a family tradition of whaling.¹²⁵

By the late nineteenth century, farming was the primary island occupation, although most Bermudian farmers augmented their wages by taking up odd jobs. Depending on the crop, there are two to four growing seasons on Bermuda each year.

¹¹⁸ Mudd, *Portuguese Bermudians*, p. 57.

¹¹⁹ *Ibid*, p. 57.

¹²⁰ Wilkinson, *Bermuda from Sail to Steam*, pp. 565, 850, 919.

¹²¹ *Ibid*, pp. 565, 797, 919.

¹²² Mudd, *Portuguese Bermudians*, p. 63.

¹²³ *Ibid*, pp. 63-4.

¹²⁴ *Ibid*, p. 145.

¹²⁵ *Ibid*, p. 114.

During growing seasons, fishing and manual work occupied most agriculturists, but for others, whaling became an outlet.

As agriculture slowly developed, Bermuda whaling continued as a secondary enterprise. In January 1851, a meeting was called at Beer's Royal Hotel in Hamilton for those interested in whaling. S. S. Ingham served as the project secretary and later advertised for twenty men to whale from the company's "imported New England whale boats."¹²⁶ According to Ingham, the company spent one hundred pounds to purchase a new whale gun.¹²⁷ That year, the company caught a whale near the West End, while an independent whaling crew caught another off Ferry Point. Each whale yielded thirty barrels of oil.

From 1852 to 1854, Bermudians caught five whales. A 30-foot sperm whale was taken by Charles Fox in 1852. In 1853, Ingham's company captured two adult whales and one juvenile, but lost a whaleboat.¹²⁸ In 1854, the Port Royal crew captured a 54-foot giant, ending a profitable run for whalers and signifying the beginning of hard times in Bermuda.

Although Bermuda was not militarily involved in the Crimean War, prices on imports increased dramatically. The Irish potato famine and the collapse of the British sugar industry added to a stressful situation for many in the British Empire.¹²⁹ High prices devastated Bermuda's economy and the islands' poor felt the economic slump the hardest. Whale meat had been a feature of Bermudian diets since the early seventeenth

¹²⁶ Wilkinson. *Bermuda from Sail to Steam*, pp. 656-7.

¹²⁷ *Ibid.*, p. 657.

¹²⁸ *Ibid.*, p. 657.

¹²⁹ *Ibid.*, p. 646.

century. Salted and dried whale flesh, known as sea-beef or "manna,"¹³⁰ was reintroduced as a ration. As economic relief, any captured whales were a blessing to poor islanders, who foraged meat off unprocessed whale carcasses. Whale skin also substituted for shoe leather.¹³¹ After the Crimean War, conditions on the island worsened when a potato blight decimated the island's crop in 1858.¹³² The economic crisis continued until Bermuda became involved in the American Civil War.

Even during desperate times, Bermudians still found time for recreation and sport. Rowing regattas were recorded as far back as 1786 when Edward Goodrich,¹³³ a merchant on St. George's, raced a crew against a crew of slaves owned by a Mr. Muir for one hundred and fifty pounds of turtle.¹³⁴ Goodrich lost the race. The next year he challenged his whaleboat, said to have a "25-foot keel," against a boat belonging to a Mr. Smith over a mile and a half course, and lost again. Sixty-seven years later, in the midst of the Crimean War, Bermudians continued the tradition. This time, the island held a regatta honoring the mayor, Dr. Hunter, when he accepted commodoreship of the island's yacht club. In one event, four whaling gigs raced and an east island boat won.¹³⁵

During the 1860s, Bermuda's whaling industry paralleled the United States'. Both Americans and Bermudians almost abandoned whaling at the commencement of the Civil

¹³⁰ McCallan, *Life on Old St. David's*, p. 106. According to islanders, whale meat tastes like veal.

¹³¹ The tough leather-like skin of the whale was a desirable material to make shoes. American and European whalers, including Bermudan, had been making shoes from whale skin since the seventeenth century.

¹³² Wilkinson, *Bermuda from Sail to Steam*, p. 649.

¹³³ Edward Goodrich, his father John Goodrich, Sr., and his brother John, Jr., of Portsmouth, Virginia ran and captained loyalist privateers out of New York during the American Revolution. Barry E. Frye, "Privateers and Letters of Marque in North Carolina during the American Revolution." Master's Thesis, East Carolina University. (Greenville, North Carolina, 1980), pp. 55-58.

¹³⁴ Wilkinson, *Bermuda from Sail to Steam*, p. 58.

¹³⁵ *Ibid*, p. 628.

War, but for different reasons. War ended conventional trade between northern and southern states. By July 21, the Union navy had blockaded Norfolk, New Orleans, Galveston, and Wilmington.¹³⁶ In retaliation, the Confederate Navy attacked northern whaling ships. During the war, the *Shenandoah*, *Alabama*, and other Confederate raiders captured or destroyed forty-six New England whalers, while the Federal government deliberately sunk thirty-nine more to blockade Charleston and Savannah.¹³⁷

For a short time, international trading between the United States and Bermuda came to a standstill, which directly hurt England's economy. In 1859, Britain alone imported 78% of the southern cotton crop. The British textile industry employed four to five million people and generated a profit of fifty nine million pounds.¹³⁸ Britain required cotton for its textile mills while the Confederacy required military arms and supplies. On July 2, 1862, Queen Victoria and the British parliament regarded Britain and her territories as politically neutral. After Parliament authorized trade with the Confederacy, Confederate Captain Caleb Huse and John Tory Bourne of Bermuda organized a purchasing agency on Bermuda in 1861.¹³⁹ Bermuda subsequently became a haven for the international trade going to the Confederacy.¹⁴⁰

Located 570 miles from Wilmington, North Carolina, and 515 miles from Charleston, South Carolina, Nassau, Bahamas, was considered the best port for trading

¹³⁶ Stephen R. Wise, *Lifeline of the Confederacy: Blockade Running during the Civil War*. (Columbia, South Carolina, 1988), p. 25.

¹³⁷ Hohman, *The American Whaleman*, pp. 289-92.

¹³⁸ Wise, *Lifeline of the Confederacy*, p. 11.

¹³⁹ Frank E. Vandiver, ed. *Confederate Blockade Running through Bermuda, 1861-1865: Letters and Cargo Manifests*. (Austin, Texas, 1947), pp. xi, xii, and xvii.

¹⁴⁰ Wilkinson, *Bermuda from Sail to Steam*, p. 688.

between the English and Confederates.¹⁴¹ Bermuda's location at 674 and 772 miles, respectively, from Wilmington and Charleston was still useful to the Confederacy. At the time, Bermuda lacked sufficient shipping channels and docks for ships, could not handle the amounts of coal, and the turn around time in St. Georges' was longer than that in Nassau,¹⁴² although Union blockaders made it nearly impossible to ship out of Nassau. The Union government forbade their ships going too near Bermuda's territorial waters. In addition, Bermuda's distance from Union coaling stations made it difficult for Union ships to patrol Bermudian waters, and by 1863, blockade-running through St. Georges' increased and the island prospered.

As Bermuda developed into an important intermediate station between the Confederacy and England, the increased trade generated employment. Instead of whaling, farmers were enticed by wages offered for dock work during agricultural off-seasons. Likewise, whale houses on Smith's Island and on Castle Point were transformed into warehouses.¹⁴³ In fact, whale houses on Smith's Island and in Tucker's Town were used to store barrels of gunpowder later exchanged to the Confederacy.¹⁴⁴ The development of employment and the rise in wealth inspired changes in Bermudian society. Since whalers became dockworkers, islanders relied on large foreign-purchased lamp oil.

The little whaling that did continue after the war alleviated a desperate need for oil and food by the poor. In April 1866, island whalers took a humpback, "a maiden

¹⁴¹ Wilkinson, *Bermuda from Sail to Steam*, p. 64.

¹⁴² *Ibid.*

¹⁴³ McCallan, *Life on Old St. David's*, p. 109.

¹⁴⁴ Vandiver, *Confederate Blockade Running through Bermuda*, p. 117.

cub (calf) of last year," yielding 40 barrels of oil.¹⁴⁵ Five years later, Bermudians again took another humpback calf, yielding five and a half barrels.¹⁴⁶ Lamp oil remained the only means of illumination in Bermuda for nearly a decade after the war. Colonel Edwin Drakes' Pennsylvania oil well was drilled in 1859, but coal oil and its derivative, kerosene, were not imported through Bermuda until 1863 when Bermuda exported 124 "packages"¹⁴⁷ of kerosene to the United Kingdom.¹⁴⁸

There are no additional reports of whaling until the 1880s when Bermudians attempted large scale operations once again. This time, Azorean and Portuguese Bermudians joined in the enterprise and fittingly, for their ancestry included a long lineage of shore-whalers. In 1880, four whaleboats were working, including Henry Mortimer "Tommy" Fox's "American-made whaleboat"¹⁴⁹ the *Shamrock*, Thomas Seon Hayward's *Molly* (*Mollie*), Henry William Lightbourne's *Three Sisters* and Joseph Minor's *Rebecca*.¹⁵⁰ An estimated forty whalers worked in the four boats, but recorded no captures. The last nineteenth century heroic whaler was Joseph Fox, who reportedly took a 60-foot whale fourteen miles off St. David's Island on December 11, 1894.¹⁵¹ Despite the activity, no whale oil was recorded rendered by island whalers.

¹⁴⁵ Verrill, *The Bermuda Islands*, p. 275.

¹⁴⁶ *Ibid*, p. 275.

¹⁴⁷ A package is a loose case, casing, box or other receptacle in which goods are packed. Simpson, *The Oxford English Dictionary*, Vol. XI, p. 43. Since this is the first appearance of kerosene in Bermuda, it is possible that colonial secretaries were unaware of the exact quantity of the kerosene being exported. Later *Blue Book* ledgers have kerosene shipped by the can.

¹⁴⁸ *Blue Books*, 1863, pp. 237-8.

¹⁴⁹ The *Shamrock* measured twenty-eight feet and was rumored to be imported from United States.

¹⁵⁰ McCallan, *Life in Old St. David's*, p. 103.

¹⁵¹ *Royal Gazette*, "1st Whale Caught Here in over 40 Years: 35-Ton Mammal is Caught 15 Miles Southwest of Islands." (Hamilton, Bermuda, April 19, 1940), p. 1.

Late nineteenth century lore, rhymes, chanteys, and poems of whalers and their lifestyles have appeared in recent Bermudian literature. One such rhyme created by Pat Malone portrays whalers on St. David's Island along with their duties,

'Jump up, Charlie Fox, and don't be afraid;
Strike that whale on the shoulder-blade.'
Charlie Fox, tall and thin,
Struck that whale right under the fin.
There's Capt'n Masters with his spyglass;
'Run boys, run! Whale-boat's fas'!
There's Joe Moses with his tip toes,¹⁵²
Down to the whale-house away he goes.
There's Bro' Israel with his long knife,
'Who touches this whale, I'll take his life'.
There's ol' Tappin who thought of his fiddle-
And the warp got a tangle' round his middle.

Another epic poem entitled, "Whale Fishing in Bermuda," chronicles the adversity and dangers involved with Bermudian shore-whaling. The poem (Appendix A) includes references to traditional Bermudian practices, such as blowing a conch shell after a whale was successfully landed.¹⁵³

Bermudians had an additional appreciation towards whales once islanders realized whale by-products cured certain illnesses. Emily Pugh of St. David's recalled several medicinal household remedies used during the late nineteenth and early twentieth century that required whale oil to treat certain ailments. Some remedies included, "For a purgative, give the patient whale oil and soap, this will bring on a vomit. For a delicate

¹⁵² A line from this rhyme had been barred from the work do to its racist undertones, but in the line Joe J.'s toes were said to be full of chiggers, flea-like insects. These pesky insects went away when wearing shoes became common. McCallan, *Life on Old St. David's*, pp. 107-8.

¹⁵³ Anonymous, excerpt from *Islands of St. George's Harbour*. (Bermuda Maritime Museum Library Collection - "Whaling", Dockyard, Bermuda), p. 259.

child, dip child in sperm whale oil."¹⁵⁴ Although Pugh does not recall if whale oil ever cured the ailments, her memoirs illustrate its medicinal uses a century ago.

After World War I, Bermuda's whaling industry began using modern equipment such as motorized ships and mechanized whale guns. In Bermuda, whaleboats carried motors and fewer men. Boats now carried four or five whalers, similar to American whaleboat crews. Although there were no longer any North American markets for whale oil, whaling continued in Bermuda. To replace domestic meat during the World Wars, "manna" once again appeared in the Bermudian diet.¹⁵⁵ There was also a small European market for whale butter, said to be better tasting than cow's butter.¹⁵⁶

Forty-six years after the last capture, modern whalers struck a thirty-five ton female humpback fifteen miles off St. David's Head in 1940. Fredrick "Gunny" Astwood harpooned and bomb lanced the whale from Joseph Soares' motor-vessel, the *Tanamakoon*. "Gunny" built his own boat, the *Bonito*, although in 1916 there was no room to mount a gun, so he used the *Tanamakoon*.¹⁵⁷ Another boat, the *Sylvia*, aided and kept the sinking whale from dragging along the bottom. Joseph Fox, Thomas Smith, Granville Wilson, Arthur Bean, Reggie Pitt, Erskine Simmons, and Joshua Wilson assisted in the two day operation.¹⁵⁸ Two years later, the *Royal Gazette* recorded that

¹⁵⁴ Scott Stallard, *Bermuda 1899: The Memories of Emily Pugh, 1888-1924*. (Toronto, 1999), p. 123.

¹⁵⁵ Tucker, *Bermuda: Today and Yesterday*, p. 150.

¹⁵⁶ By the 1930s, 40 % of the margarine and 30 % of the lard produced in the United Kingdom were made from whale oil. Davis, *In Pursuit of Leviathan*, p. 30

¹⁵⁷ Allegedly, Gunny's whale gun was made in Norway. It will be discussed in the third chapter. *Royal Gazette*, "1st Whale Caught Here in Over 40 Years," p. 1.

¹⁵⁸ *Royal Gazette*, "1st Whale Caught Here in Over 40 Years: 35-Ton Mammal is Caught 15 Miles Southwest of Islands." (Hamilton, Bermuda, April 19, 1940), pp. 1&3.

Soares' boat and its crew attempted to hunt another whale trapped near shore, but there were no reports of the outcome.

In 1980, Frederick "Gunny" Astwood, the last island whaler, died at age eighty-nine. Whaling had been dead for thirty-eight years. Since Gunny's last attempt in 1942, electricity had replaced oil or candle illumination. The demand for vast amounts of kerosene, gasoline, and their derivatives during the 1930s and 1940s further outweighed the usefulness of whale oil for lubricants. It was rumored that the Royal Navy operations near the eastern end of the islands scared off the whales,¹⁵⁹ although after World War II, whaling was no longer practical. As gasoline, plastic, and electricity replaced whale oil and whalebone, Bermudian whaling faded into tradition, but did not vanish from history.

¹⁵⁹ McCallan, *Life on Old St. David's*, p. 108.

Chapter 2

Importation and Exportation of Whale Products.

Methods and Sources

During the nineteenth century, whale commodities shaped international markets more than in any other era. Industrialization and population explosions in both Britain and America fueled a demand for commercial goods made from whales. Raw materials such as whale oil and whalebone¹ filled needs for illumination, malleable materials, and machine lubricants. The demand for whale commodities expanded into the far reaches of British and American territories. Bermuda, in particular, played a considerable and active role in the international exchange of whale goods. Until now, no one has examined Bermuda's involvement in the global whaling market.

The Bermuda Archives possess the Records of the Colonial Secretary, known as the *Blue Books*. The *Blue Books* are annual management reports that detail the islands' state of affairs. The reports include matters such as military expenditures, population, agriculture, local revenues, and taxes. The *Blue Books* contain information on the islands' fisheries until the late nineteenth century.

The nineteenth century *Blue Books*' Mines and Fisheries report included brief statements regarding the islands' quarries and fisheries. Bermudian officials ascertained that migrating pods of whales were exploitable resources, similar to mineral or fish

¹ Whalebone actually refers to baleen, which is made of bone plates that hang off the upper jaw of right and humpback whales, and function as a strainer for krill and other nutrients. A. Hyatt Verrill, *The Real Story of the Whaler: Whaling, Past and Present*. (New York, 1916), pp. 14-18.

stocks. For the greater half of the nineteenth century, an account of the "whale fishery" accompanied these reports. For instance, in the 1849 *Blue Book*, the colonial secretary recorded,

There is an inconsiderable Whale Fishery carried on at Bermuda that employs about twelve Boats and their Crews three months in the year;- the number of Whales seldom exceeds 20 in the Season, yielding about One thousand Barrels of Oil. This fishery being carried on very near the Land, is capable of considerable extension at the Small risque, by the employment of additional Capital.²

This description is atypical. Bermudian whaling enterprises were short-lived, infrequent endeavors. Twenty-one years later, the secretary noted, "the once flourishing Whale fishery of these Islands has declined a long time since. It was a profitable employment and might be pursued with advantage by persons skilled in the Trade."³ Although Bermudian officials claimed the end of the whale fishery prior to 1870, whalers pursued and occasionally captured whales after 1870.⁴

From 1840 to 1880, the colonial secretaries kept, at best, mediocre accounts of island whaling. In fact, most reports during this forty-year period duplicated the 1849 account. Figure 1.5, (page 32), was the only reference found in the Mines and Fisheries report that accurately detailed the islands' whale fishery. In 1849, the secretary recorded the number of whales taken, the number of men working in the trade, and the degree of island whaling operations. In all other years, colonial secretaries omitted these particulars. Until 1870, colonial secretaries simply recorded that Bermuda maintained nominal whaling operations. After 1870, colonial secretaries reported that Bermuda no

² Records of the Colonial Secretary, *Blue Books*. (Bermuda Archives, 1849), p. 175.

³ *Ibid*, 1870, p. 245.

⁴ E. A. McCallan, *Life in Old St. David's: Bermuda*. (Toronto, 1986), p. 103.

longer conducted whaling, but each report included recommendations to revive the fishery with additional capital or skilled labor.

Nineteenth century island whaling provided only a small percentage of the increasing demand for whale oil. Moreover, Bermudians never manufactured products from whalebone or whale oil, instead they relied heavily on imported products. Products traded into Bermuda included riding crops, umbrellas, corsets, and machine lubricants. Manufactured in the United States, British North America, Britain, and other European nations, these items were essential to wealthy Bermudian life. Riding crops and buggy whips were particularly important since all land transportation required horses.

The chief whale product required by Bermudians from 1820 to 1860 was oil. At first candles made from whale and animal fat satisfied islanders' needs; they arrived in great abundance from the United States, Britain, and British North America. Candle importation declined steadily as the global whaling industry peaked after the War of 1812, and improved refining processes made oil cheaper than candles. Whale oil produced more light, burned longer, and, when used in lamps, was safer if left burning than candles.

Even though the *Blue Books* failed to document the islands' own whaling operations, they meticulously documented the international exchange of whale products. During the nineteenth century, colonial secretaries reported the exchange of oil (sperm and whale), whalebone, whaling equipment, and commercial goods made of whale.

According to the import and export ledgers found in the *Blue Books*, whale oil was the primary product exchanged from 1840 to the late 1870s.⁵

Ledgers from 1838 to 1855 are difficult to interpret due to the classification system used by the secretary. The colonial secretaries did not separate whale and sperm oil from other oils until 1856. Before 1856, colonial secretaries categorized oils under such headings as "Oil-Fish⁶ and Sperm" from 1840-41, "Oil-Whale and Sperm, Lard, Castor and Olive Oil" in 1845, and "Oils of all Kinds"⁷ from 1850-55. From 1840 to 1855, all ledgers grouped whale and sperm oils jointly. This chapter examines the exchange of whale oil in Bermuda from 1840 to 1880 using the *Blue Book* importation and exportation ledgers. For instance, in 1838 and 1839, the colonial secretary included whale and sperm oil under "Oils and Paint," which also included castor and olive oil, brimstone, putty and varnishes. This categorization method makes it difficult to distinguish any specific item's quantity in a year's "Oils and Paint"⁸ category. Moreover, the colonial secretaries tallied each product in monetary units, British pounds sterling, which only provided the cost, not the quantity, of goods exchanged.

⁵ As mentioned in the previous chapter, whale oil includes oil rendered from all whales, excluding sperm, blackfish, and oil from dolphins.

⁶ The term "Fish" refers to fish and whales. At the time, the world considered whales as large fish. Fish oil would have included both cod liver and whale oils.

⁷ Besides whale, sperm, castor, lard, palm, linseed, and olive oil, seal oil would have been included within this category. The only recorded case of seal oil imported into Bermuda was two casks from Halifax in 1857. *Blue Books*, 1857, pp. 185-6.

⁸ Whale oil was the primary ingredient in paint and varnish mixtures. Lance E. Davis, Robert G. Gallman, and Karin Gleiter, *In Pursuit of Leviathan: Technology, Institutions, Productivity, and Profits in American Whaling, 1816-1906*. (Chicago, 1997), p. 30.

IMPORTS.					IN STERLING.			
ARTICLES IMPORTED.		ESTIMATED VALUE						
DESCRIPTION AND QUANTITY	From Great Britain.	British Colonies.			United States of America.	Foreign States.	Duties.	Total.
		West India.	North America.	Elsewhere.				
..... Brought forward 234,498 lbs. of oil, viz.					327,400			327,400
Merchandise, viz.								
Silk and Satin of all kinds.								
Dry Goods, including Linens, cottons, flannels, &c.								
Robust ushery, hosiery.								
Wearing apparel, for men, women, &c.								
Primary, Civil, and Military.								
From foreign, viz. ironware, hardware, combs, buttons, &c.								
Books and Stationery.								
Oil, Whale, sperm.								
Caster and Olive, painted oils, &c.								
Water, colours, white, &c.								
Chalk, Putty, cotton stone.								
Primer stone and Varnish.								
Pickles, Pepper, Ginger, Mustard, Spirit, Salt, Vinegar and Salt Pickle.								
..... Carried forward 234,498 lbs. of oil, viz.								

Figure 2.1. 1838 Oil Importation.⁹

In 1838, the total value of imported oils and paints was 836 pounds, 5 shillings, and 5 pence (£ 836 5s. 5d.). Of this total, 1 pound and 5 pence came directly from Britain, while £ 161 17s. 9d. came from British West Indian colonies. British North

⁹ Blue Books, 1838, pp. 144-5.

American colonies supplied the majority of the goods at £ 658 3s., while the United States contributed about two percent of the total. The ledger also noted that no "Foreign State" provided Bermuda with any oils or paints. These figures provided only the total yearly cost of goods imported. It is impossible to determine the precise quantity of sperm or whale oil exchanged from the 1838 ledger and ledgers from 1840 to 1855; however, it is possible to find the quantity of oil exchanged during 1838 through a simple set of calculations. In order to compare these years, all forthcoming calculations and conversions from the 1840 to 1855 "Oils" category are one-hundred percent whale oil.

Not all "Oils" exchanged in Bermuda from 1840 to 1855 was whale oil; however, by stating so this period can be examined statistically. Figures recorded in Table 2.2 (page 54) are conservative and hypothetical numbers representing the maximum amount of whale oil exchanged that year. In theory, the actual amount of whale oil exchanged annually was equal to or less than the figure presented in the table. Calculations called for the greatest possible total to eliminate conjecture and assumptions based on the ledgers. The amount of whale oil exchanged cannot exceed the total "Oils" recorded for each year in Table 2.2. These figures are important to note when comparing those from 1856 to 1880. Collectively, this record will show a demonstrable increase in whale oil exchange towards the later half of the period examined.

In order to quantify import amounts prior to 1856, a simple set of calculations was performed. To illustrate the steps, the 1838 import ledger served as a model for conversions and calculations. As shown in Figure 2.1, the colonial secretary recorded

that Bermuda imported £ 836 5s. 5d. worth of whale oil. The first step required converting the total value of whale oil into gallons.

The transformation from British pounds to gallons began by converting the total amount of oil in British pounds sterling into American currency. The calculations required changing British shillings and pence into tenths and hundredths of a pound. In the nineteenth century English monetary system, 20 shillings (240 pennies) made up 1 pound. The 5 shillings and 5 pence became 65 pence or 0.27 of a pound. The smallest American currency value was one cent, (1/100th of a dollar). Therefore, all calculations from 1840 to 1855 will be rounded to the nearest British pound and hundredth cent.¹⁰ In this example, the estimated total amount of whale oil imported in 1838 came to £ 836.27.

The second step involved converting British pounds into U.S. dollars, a conversion that used the exchange rate of £ 1 to \$ 4.7059.¹¹ Hereafter, all monetary exchange values between British pounds and U.S. dollars utilized this exchange rate. In this example, £ 836.27 was equivalent to \$ 3,935.40.

The next steps convert monetary units into liquid gallons. Table 2.1 was drawn from Table 9.11 in Davis's *Pursuit of Leviathan*. The table includes the cost per barrel of sperm and whale oil and cost per pound of whalebone from 1836 to 1860. In 1838, one barrel of oil in New Bedford, Massachusetts, cost \$10.11.¹² If the total amount of oil imported during 1838 equaled \$ 3,935.40, the number of barrels equaled 389.26. All calculations for 1840 to 1855 include documented increases in the price of whale oil as

¹⁰ Appendices B and C contain exact oil import and export monetary values from 1840-1855.

¹¹ Davis, *In Pursuit of Leviathan*, p. 497.

¹² *Ibid*, p. 367. The amount per barrel for a New Bedford barrel of whale oil is comparable to Bermudian prices, since most oil imported came from the U.S. Since New Bedford dictated oil prices in the international market, I believe it is acceptable to use Davis's figures.

shown in Table 2.1. For example, the 1842 price for a barrel was \$3.04 more than an 1838 barrel.

1841-45	\$ 31.42	\$ 13.15	\$ 0.38
1851-55	\$ 45.45	\$ 19.66	\$ 0.43

Table 2.1. Prices for Sperm Oil, Whale Oil, and Whalebone.¹³

In 1838, Bermuda imported 389.26 barrels of whale oil. Normally this numerical figure would suffice; however, in 1856 the colonial secretary began recording quantities of imported/exported whale oil in liquid gallons. Instead of converting gallons into barrels, it was simpler for all calculations to be in gallons. Subsequently, the final step converted barrels of oil imported since 1838 into gallons. A nineteenth century barrel or cask of oil contained 31.5 gallons.¹⁴ The 1838 whale oil quantity entering Bermuda comes to 12,261.64 gallons (+/- one gallon).¹⁵

The Figure 2.1 ledger shows that in 1838 Bermuda imported less than 2 % of its whale oil from the United States, whereas the British West Indies supplied more than 78 %. Table 2.2 shows each year's figures and catalogs the total amount of whale oil imported from Britain and America, as well as whale oil exports.

¹³ Davis, *In Pursuit of Leviathan*, p. 367.

¹⁴ *Ibid*, p. 483.

¹⁵ A British gallon equaled 1.20095 American gallons, however, there is no need to adjust my calculations. Davis, *In Pursuit of Leviathan*, p. 483. According to calculations performed, colonial secretaries recorded liquids in American gallons after 1856. Blue Books, 1856-1880.

The colonial secretary arranged export ledgers in the same format as import ledgers. By 1856, colonial secretaries began inserting the destination of exported provisions. Until 1856, colonial secretaries recorded goods as sent to either "Britain, West Indies, United States, or Foreign States." In 1838, Bermuda exported a total of £ 75 worth of whale oil. The United States imported £ 20 worth, while Bermuda sent the remainder to "Foreign State(s)."¹⁶ The same procedure was employed to determine theoretical amounts of whale oil exported each year. The total hypothetical amount of whale oil exported in 1838 came to 1099.67 gallons, nearly 9 % of the amount imported in 1838.

Table 2.2 also includes total amounts of whale oil taken by island whalers each year. Data was gathered from the Colonial Secretary Records and other historical documents. For instance, in the 1840 *Blue Book*, the colonial secretary recorded in the Mines and Fisheries report that Bermudian whalers rendered 9,449.00 gallons of oil that year.

Table 2.2 presents hypothetical, calculated whale oil quantities imported and exported, along with an accurate assessment of oil taken by Bermudian whalers from 1840 to 1855. Each category lists oil in gallons rounded to the nearest hundredth. A four-year period stands out in Table 2.2. From 1851 to 1854, Bermudians procured nearly two thousand gallons of whale oil each year. These totals pale in comparison with 1840, when island whalers extracted nearly ten thousand gallons.

¹⁶ *Blue Books*, 1838, pp. 152-3.

1841	0.00	0.00	0.00	5771.62	
1843	800.36	2085.45	2885.81	496.00	
1845	5140.34	2829.45	7969.79	496.00	
1847	990.3	7220.95	8211.25	0.00	
1849	2867.75	5498.24	8365.99	691.15	
1851	1259.18	2669.15	3928.33	588.12	1890.00
1853	2473.11	9191.23	11664.34	4523.98	2080.00
1855	791.7	18480.47	19272.17	14069.59	

Table 2.2. **Import, Export, and In Kind Record of Whale Oil 1838 to 1855.**

In 1856, a new format appeared in the Colonial Secretary Records in which all importation and exportation ledgers were recorded in quantities instead of value. Unlike earlier periods, secretaries after 1856 recorded oil in gallons or by barrels. Import and export ledgers no longer needed to calculate, although ledgers continued to tabulate an overall value for items exchanged. Table 2.3 tracks the quantities of whale oil traded in Bermuda from 1856 to 1880.

¹⁷ According to the colonial secretary in 1840, "whale, seal, and fish oil imported and not exported within six months" had a 6 pence tax per gallon. *Blue Books*, 1840, p. 3.

¹⁸ In 1842 and 1843, the tariff was lowered to 3 pence per gallon. *Ibid*, 1842, p. 4; *Ibid*, 1843, p. 3.

1857	332	1563	1895	0	
1859	1812	1606	3418	15,868	
1861	383	7981	8364	0	
1863	2847	5852	8699	250	
1865	1780	18,511	20,291	108	
1867	0	21,545	21,545	8190	
1869	512	18,981	19,493	0	
1871	1050	19,115	20,165	8.70	173.25
1873	452	16,940	17,392	0	
1874 ²¹	10,395	28,413	38,808	0	
1875	0	66,266	66,266	0	
1876	0	33,701	33,701	0	
1877	0	24,097.50	24,097.50	57 cans	
1878 ²²	0	0	0	0	
1879	0	0	0	0	
1880	0	0	0	126 ²³	

Table 2.3. Import, Export, and In Kind Record for Whale Oil (Lamp Oil) 1856 to 1880.

Starting in 1860, the colonial secretary again designated domestic combustibles under "Lamp Oil."²⁴ Lamp oil was any liquid suitable for a lantern's fuel chamber and burned to provide illumination. Lamp oils included whale, sperm, lard, vegetable,

¹⁹ In 1860, the colonial secretary stopped using whale oil, and began using the term "lamp oil."

²⁰ In 1870, Bermuda exported 50 gallons of sperm oil to British North America.

²¹ In 1874, the colonial secretary stopped specifying "lamp oil," and began cataloging all oils under "Oils."

²² In 1878, the colonial secretary once again classified oils separately; colza and kerosene are the only oils imported that year.

²³ In 1880, Bermuda exported four casks and one "lease" of whale barbs to Great Britain. *Blue Books*, 1880, pp. 224-5.

²⁴ *Ibid*, 1860, p. 180.

camphene, and kerosene oil.²⁵ Until late in the antebellum period, whale oil remained the better lamp fluid over its competitors.²⁶ The colonial secretaries used the term lamp oil repeatedly until 1877, when they again grouped whale oil under "Oils and Paints." Whale oil importation into Bermuda ended in 1877, as colza, castor, kerosene, and astral oil²⁷ replaced whale oil as the islands' primary lighting fluid. Whale oil exports, however, continued until 1892, when the colonial secretary recorded 480 gallons of sperm oil shipped to the United States.²⁸

Analysis of Import/Export Ledgers

Tables 2.2 and 2.3 show all whale and lamp oil exported, imported, and acquired locally from 1840 to 1880. Combined, the two tables indicate oil imports rose steadily from 1841 to 1855, and then again from 1857 to 1873. In 1875, the colonial secretary reported the greatest amount of lamp oil imported into Bermuda, some 66,266 gallons.²⁹ Bermuda imported 19 times more oil in 1875 than in 1840. Tables 2.2 and 2.3 indicate when, what, and how much oil moved in and out of Bermuda, but they fail to explain or inquire why Bermuda required a constantly increasing supply of oil. What changes occurred in Bermuda that necessitated such a large increase in oil importation by 1860s

Secretaries

²⁵ Davis, *In Pursuit of Leviathan*, pp. 351, 355.

²⁶ *Ibid.*, p. 348.

²⁷ Besides whales, vegetables and kerosene were refined to produce lantern fuel. Vegetable oil substitutes included colza oil, derived from rapeseed, and castor oil, a pale, fatty oil derived from castor beans. Castor oil was a better lubricant than an illuminant. Astral oil is a high-grade kerosene introduced in Bermuda in 1880, but it is possible that the substance was introduced soon after the Civil War.

²⁸ *Blue Books*, 1892, p. 238.

²⁹ *Ibid.*, 1875, pp. 207-8.

in the 1840s? Why did these amounts plummet between 1855 and 1856 and, again, between 1875 and 1880? In order to answer these questions, the recorded histories of Bermuda were compared with the variables found in Tables 2.2 and 2.3.

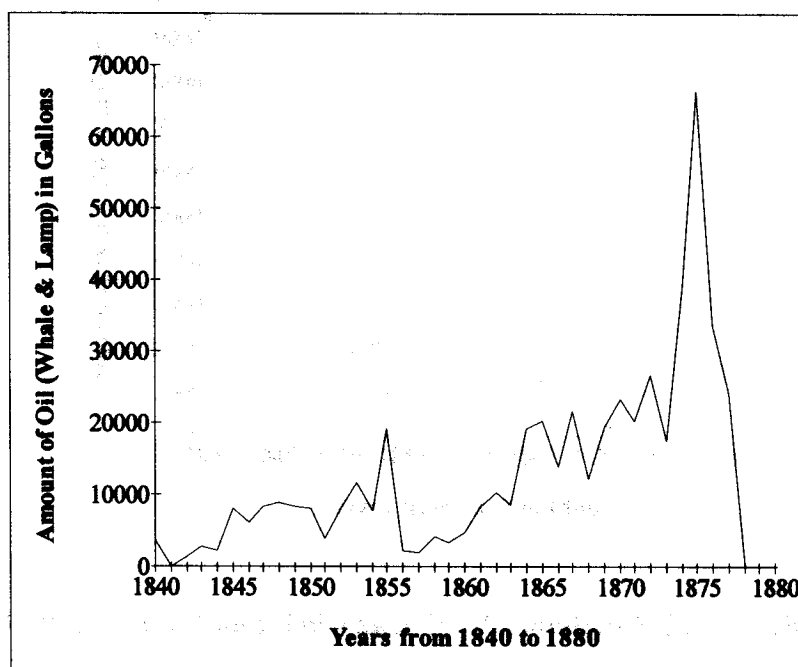


Figure 2.2. Whale Oil Imported into Bermuda -1840 to 1880.

Figure 2.2 tracks whale/lamp oil entering Bermuda from 1840 to 1880. This graph illustrates that, from 1878 to 1880, Bermuda imported no oil. The Colonial Secretary's Records indicate that whale oil imports ended in 1877. The annual amount of oil entering Bermuda until 1855 fluctuates, but shows limited oil imports from 1840 to 1855. Oil increases from 1840 to 1855 occur in three small surges between 1841-45, 1851-52, and 1854-55. Why did Bermuda demand a greater amount of whale oil during

these periods? To answer this question, imports from 1840 to 1855 were compared with whale oil taken by local whalers.

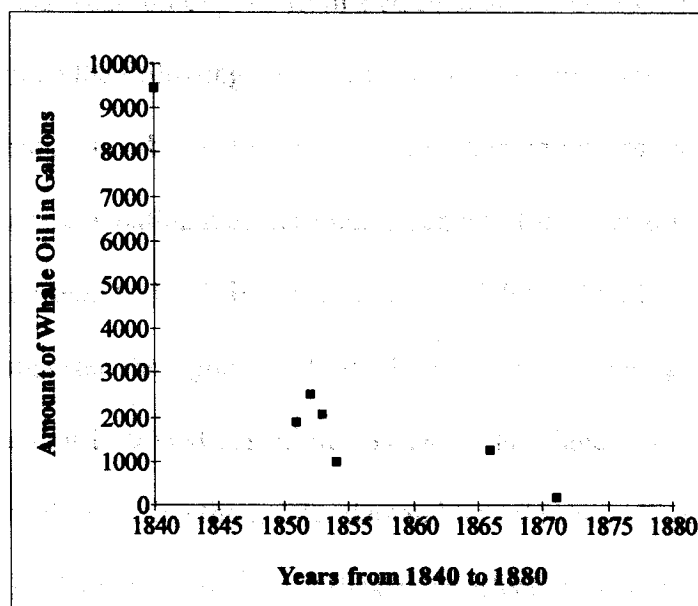


Figure 2.3. Whale and Lamp Oil Taken by Bermudian Whalers -1840 to 1880.

Figure 2.3 illustrates whale oil garnered by island whalers. Before 1855, islanders recorded five successful whaling seasons. Bermuda's oil imports, seen from 1841-45, 1851-53, and 1854-55, are a result of Bermudians not capturing enough whale oil locally. Except for the period from 1851 to 1853, whaling did not occur during periods of increasing oil importation. For instance, in 1840, four whaling companies (Figure 1.5 on page 32) took close to 9,500 gallons of oil.³⁰ In 1840, Bermuda amassed 12,923.97

³⁰ *Blue Books*, 1840, p. 182.

gallons of whale oil (imported and taken by Bermudian whalers) and exported 6,055.53 gallons (twice as much as imported), which left 6,868.44 gallons for Bermudians.

Bermudian whaling had its greatest effect in 1840, when whalers took 9,449 gallons of oil. In that year, oil exports from Bermuda nearly doubled imports, and no oil entered into Bermuda the following year. After 1840, oil imports rose until 1850. From 1851 to 1854, Bermudian whalers took an average 1,868 gallons of whale oil each year.³¹ Since successful island whaling met Bermuda's demand for whale oil, only minor amounts were imported. In 1851, Bermuda imported 3,928.33 gallons of lamp oil, nearly half the amount imported throughout 1845 to 1850. In 1851, whaling resumed after a ten-year lull, amassing 1,890 gallons of oil. By 1855, the islands' whaling experienced an unsuccessful spell, requiring the greater demand for oil seen in Figure 2.2. The loss of oil imports from 1855 to 1856 probably indicates an effect of the Crimean War. Bermuda did not engage in any military action, although the war and Britain's poor economy diffused into Bermuda as prices on imports increased. By the 1860s, oil importation rose again.

Referring back to Figure 2.2, the graph shows that from 1857 to 1865, lamp oil totals entering Bermuda doubled in 1861 and nearly tripled by 1865. In 1866, oil imports dropped sharply. A rise in population could generate a larger demand for oil, and the islands did witness a population increase of 1,029 people between 1853 and 1870.³² The population increase does not equate with the sudden increase of imported whale oil, since

³¹ Henry C. Wilkinson, *Bermuda from Sail to Steam: The History of the Island from 1784 to 1901*. (London, 1973), p. 657.

³² Terry Tucker, *Bermuda: Today and Yesterday, 1503-1973*. (London, 1975), pp. 173-4.

a previous population spurt of 996 people was recorded from 1844 to 1853.³³ The population growth of 1844-53 was virtually equivalent to that of the 1853-70 growth, except that the growth of 1844-53 occurred over nine years, while the growth of 1853-70 took seventeen years. Unlike the 1853-70 expansion, whale oil imports for nine years prior remained consistently stable, as seen in Figure 2.2.

From 1841 to 1850, Bermuda consumed approximately 5,620.60 gallons of whale oil annually. Bermudian whalers were not recorded as capturing whales during this period. Compared to the rise in imported oil from 1857 to 1865, the annual average of consumed oil rose to 6,125 gallons or 504.4 gallons more than seven years earlier.

A 500-gallon rise in oil consummation is conceivable, but this number does not accurately illustrate what occurred between 1858 to 1865. Figure 2.4 shows annual oil imports, exports, and taken by Bermudians between 1840 and 1880. With the exception of 1858, most whale and lamp oil entering Bermuda from 1840 to 1877 came from the United States. Figure 2.4 shows two other unusual events occurring between 1858 and 1865. The first occurs in 1859 when oil exports exceed imports. According to the Records of the Colonial Secretary, 2,364 gallons of common whale and 13,504 gallons of sperm oil were exported to the United States.³⁴

The second event shows that in 1863 and 1864 oil imports rose approximately 10,000 gallons, nearly 4,000 gallons more than the average consumed by Bermuda in a year. Not only does the 1863-1864 rise occur over an extremely short period, but Figure

³³ Tucker, *Bermuda*, pp. 173-4

³⁴ *Blue Books*, 1859, pp. 218-9.

2.4 shows that the exports for 1864 were only 245 gallons, suggesting that Bermudians consumed nearly 19,000 gallons of oil that year.

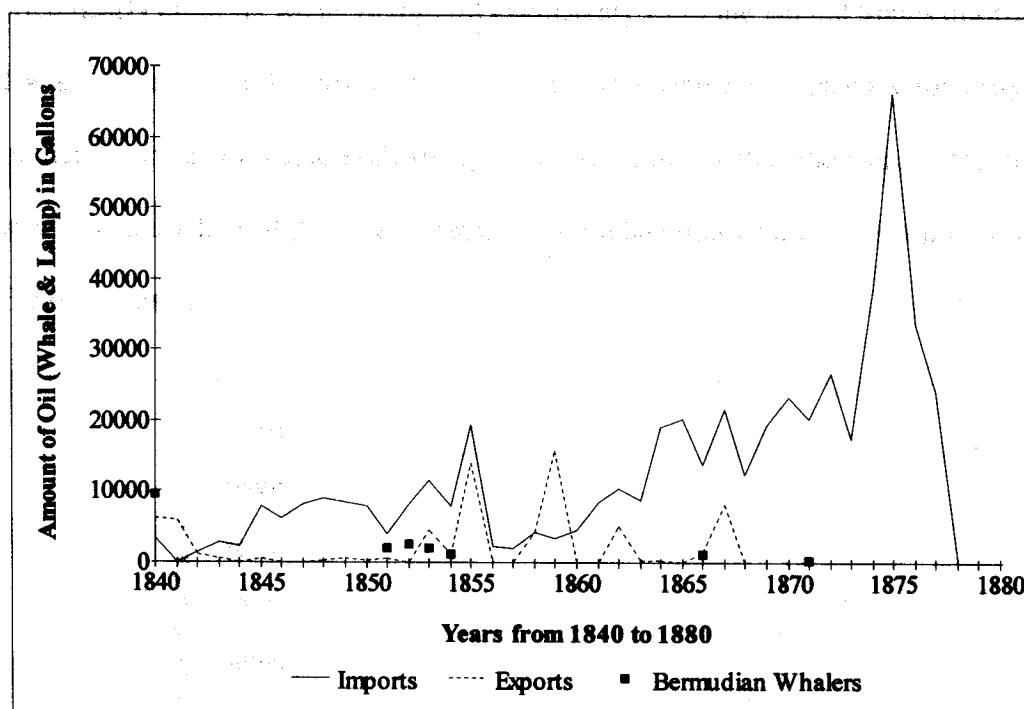


Figure 2.4. Import, Export, and In Kind Acquisition of Whale & Lamp Oil 1840 to 1880.

The rise in the demand for whale (later, lamp oil), cannot be explained by either a growth in population or the rise in demand arose from events transpiring in North America. As already mentioned, the Confederacy established a purchasing office on Bermuda shortly after the Civil War started. As war intensified, St. Georges, Bermuda, and Nassau, Bahamas, became stations exchanging Southern cotton for British military goods and provisions. Whale, sperm, and lamp oil were some items exchanged for cotton.

In 1862, Queen Victoria stated that England would remain neutral during the American conflict.³⁵ The Queen's response is reflected in Figure 2.5, which illustrates the U.S. whale (lamp oil) importation verses total imports from every country. Bermuda imported nearly all of its whale (lamp) oil exclusively from the United States during the Civil War. Figure 2.5 validates only half of Victoria's sentiment, since the majority of Bermudian imported oil came exclusively from the United States, the Union. Bermuda, likewise, counterbalanced the Queen's stance by exchanging whale and lamp oil for Confederate cotton.

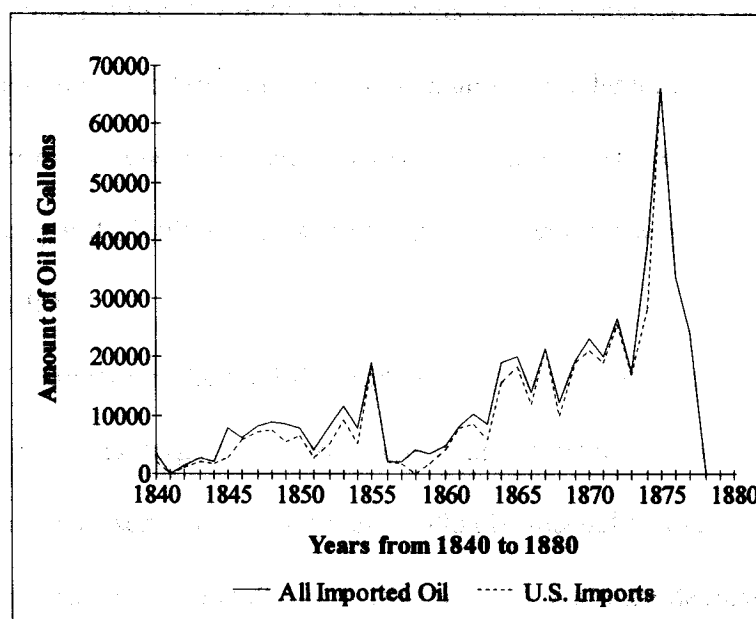


Figure 2.5. Total Importation of Oil into Bermuda vs. Oil Imported from the United States.

During the American Civil War, Bermudian merchants redirected Union and British North America whale oil to the Confederacy. Appendix E is an abstracted

³⁵ Wilkinson, *Bermuda from Sail to Steam*, p. 688.

compilation of cargo manifests found in the Custom House in St. George's, Bermuda.³⁶

The abstract identifies, by name, blockade-runners that ran goods from Bermuda to Wilmington, North Carolina, during the Civil War. Ship manifests also included the vessel's tonnage, master, departure date, cargo, and final destination.³⁷ One vessel, the *Emma Henry*, delivered ten barrels of sperm oil to Wilmington, North Carolina, in November 1864.³⁸ It is probable that other blockade-runners transported cargos of whale and lamp oil to the Confederacy as well since most blockade-runner manifests omitted the actual nature of the cargo. For example, the *Emily* cataloged 409 barrels of miscellaneous merchandise.³⁹ *Emily's* 409 barrels could theoretically contain anything from alcohol to potatoes to lamp oil. Bermudian and Confederate custom agents possibly kept cargo manifests vague to prevent disclosure to Union agents of goods moving into the South, making it difficult to demonstrate that U.S. lamp oil was smuggled into the Confederate States.⁴⁰

Table 2.4 illustrates the total Bermudian imports of lamp, linseed, and olive oil from 1861 to 1866. The largest volume item is lamp oil, which seems normal, since lamp oil was a commodity used daily by islanders. What is unusual is that the quantities of all imported oils increased dramatically from 1861 to 1864, and then decreased just as quickly from 1865 to 1866. It seems that the increase in imported oils from 1861 to 1866

³⁶ Frank E. Vandiver, ed. *Confederate Blockade Running through Bermuda, 1861-1865: Letters and Cargo Manifests*. (Austin, Texas, 1947), pp. 109-48.

³⁷ The only discrepancy recorded by Bermuda's custom officials from during the American Civil War, was each ship's final destination. Reportedly, all vessels departed from St. George's headed for Nassau. No vessels, however, reached Nassau; instead, they steamed to Wilmington.

³⁸ Vandiver, *Confederate Blockade Running through Bermuda*, p. 141.

³⁹ *Ibid.*, p. 126.

⁴⁰ Stephen R. Wise, *Lifeline of the Confederacy: Blockade Running During the Civil War*. (Columbia, South Carolina, 1988), p. 117; Vandiver, *Confederate Blockade Running through Bermuda*, p. xii-xlii.

was due to the Civil War. Most items, although locally consumed, did not remain in Bermuda.

1862	10,355	328.73	992	31.49	255 cases
1864	19,124	607.11	511	16.22	50 packages
1866	13,886	440.83	305	9.68	30 cases

Table 2.4. Quantities of Lamp, Linseed, and Olive Oil Imported into Bermuda.⁴²

Linseed, olive, and lamp oil were items required by the Confederate army for cooking, lubricants, and illumination. These items were also needed in Bermuda; however, it is unlikely that Bermuda imported such high quantities for their own consumption because all three oils doubled in quantity by 1863. After the war, linseed and olive oil totals return to pre-war figures. Lamp oil drops the most; in 1866, imported lamp oil drops 7,000 gallons, (222 barrels or 34.50 %).

Next, cargo manifests (Appendix E) of blockade-runners were compared to Table 2.4. The cargo manifests do not specify what oil was taken to Wilmington, but they do

⁴¹ In 1863, the colonial secretary recorded 1,925 gallons under the heading, "Lamp and Linseed Oil." Since I was unable to determine individual quantities of each, I placed the amount under both categories. When comparing the linseed and lamp oil amounts throughout the entire Civil War period, it appears that the 1,925 gallons could distribute evenly. According to Table 2.4, imported linseed oil never exceed one thousand gallons, while the subtraction of one-thousand gallons of lamp oil in 1863 makes the total the lowest amount recorded during the Civil War.

⁴² *Blue Books*, 1861-1866.

provide a count of the barrels of oil transported. Bermuda was importing a large quantity of oil the islands could not utilize, so the cargo taken aboard Confederate blockade-runners must have been lamp and linseed oil. This interpretation excludes olive oil since it was traded by the case or package, not in barrels.⁴³

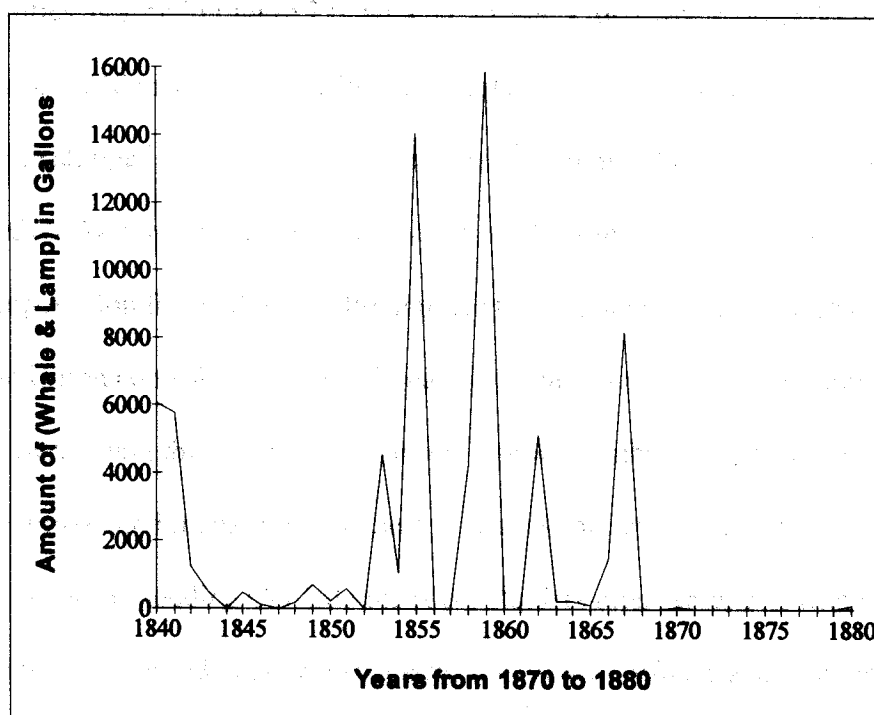


Figure 2.6. Export of Whale/Lamp Oil -1840 to 1880.

Over three years, lamp oil imports grew steadily. In 1863, the colonial secretary recorded Bermuda imported approximately 276 barrels of lamp oil and 61 barrels of linseed oil. When compared with 1860 imports, Bermuda imported nearly 52.9 % (130

⁴³ *Blue Books*, 1856-1880.

barrels) more lamp oil in 1863 than 1860. Bermuda's population between 1861-1865 could not consume that much oil. Bermudians were not stockpiling lamp oils made from vegetables, lard, or whales because these oils degrade or congeal over time.⁴⁴ From 1861 to 1865, Bermudians exported lamp oil to other Caribbean and South American nations such as Puerto Rico, Cuba, and Demerary (British Guiana). The exports, however, were small quantities as seen in Figure 2.6, which represents total whale oil exports and later lamp oil, from 1840 to 1880.⁴⁵ In 1863, all non-Confederate lamp oil exports (250 gallons) were shipped to the Spanish West Indies.⁴⁶ Lamp oil exports during the American Civil War were not equivalent to Bermudian imports. Therefore, the rise in lamp oil importation from 1860 to 1863 implies transshipment to the Confederacy.

The Union controlled whale and coal oil refineries that supplied Southern oil before the war. Upon the outbreak of war, the Union prohibited exportation of products, including lamp oil and industrial lubricants.⁴⁷ The South retaliated and attempted to cripple the North by sending Confederate Navy Raiders after American whaleships. At the same time, the Confederacy required large amounts of refined whale oil as a lubricant for heavy machinery, including railroad engines. The Confederacy depended on railroads to move cotton to southern ports such as Wilmington, North Carolina, Galveston, Texas, and New Orleans, Louisiana. Likewise, the Confederacy required refined sperm oil to lubricate high-speed Confederate industrial machinery such as the textile mills in Augusta, Georgia. In addition, both military personnel and civilians desired lamp oil.

⁴⁴ Davis, *In Pursuit of Leviathan*, pp. 345-58.

⁴⁵ The steady importation of whale or lamp oil into Bermuda ended in 1877, although small amounts of lamp and whale oil continued to be exchanged into the twentieth century.

⁴⁶ *Blue Books*, 1863, pp. 243-4.

⁴⁷ Wise, *Lifeline of the Confederacy*, p. 3

In 1860, Bermudians imported approximately 146 barrels of lamp oil. There were no oil exports in 1860, suggesting that in one year Bermudians burned 4,620 gallons of oil. Within three years, the total amount of imported oil doubled. In 1863, Bermuda imported 8,699 gallons of oil (276 barrels), and exported 8 barrels to the Spanish West Indies (Cuba).⁴⁸ If Bermudians consumed the same amount in 1863 (approximately 150-175 barrels), as they did in 1860, some 90 to 118 barrels were unaccounted for. It was possible that thousands of gallons of imported oil were rerouted to the Confederacy. In 1863, six blockade-runner cargo manifests totaled 46 barrels of "oil" leaving Bermuda, bound for Wilmington, North Carolina. The same situation exists for 1862, 1864, and 1865. It is possible that Bermudians consumed more oil than they had before the war, but it is unlikely that the island consumed twice the amount used three years earlier.

It appears the majority of blockade-runner cargos, labeled "oil" or "boiled oil," and shipped by barrels, was, in fact, lamp oil. By the time the Civil War commenced, other oil substances were used as illuminates and lubrication, including coal oil (kerosene) and distilled turpentine (camphene).⁴⁹ These fuels were still in the developmental stage and unavailable to Bermudians until well after the war. Until 1863, the majority of lamp oil imported to Bermuda was whale oil, until 1863 when kerosene was introduced to Bermuda. In 1863, the colonial secretary recorded that Bermuda exported 124 "packages"⁵⁰ of kerosene to the United Kingdom.⁵¹ The appearance of

⁴⁸ *Blue Books*, 1860-1865.

⁴⁹ Davis, *In Pursuit of Leviathan*, pp. 345-58.

⁵⁰ Since this is the first appearance of kerosene in Bermuda, it is possible that colonial secretaries were unaware of either the exact quantity of the kerosene being exported or the container unit used for shipment. Later *Blue Book* ledgers have kerosene transported by the can.

⁵¹ *Blue Books*, 1863, pp. 237-8.

kerosene in the 1863 ledger indicates that Confederate attacks on the northern whaling industry were successful, and alternatives to whale oil were being sought by Britain.

Figure 2.2 illustrates that, in 1863, the amount of lamp oil entering Bermuda dropped by nearly 2,000 gallons. It appears that a shift in the international combustible market was developing, but Bermuda continued to import whale oil along with other inexpensive oils, since the majority of the islands' population could not afford the high cost of kerosene.⁵²

Sometime during the war, a slow transition occurred as Bermudians began substituting turtle, vegetable, lard, camphene, and coal oils for whale oil.⁵³ By the end of the Civil War, the transition from whale oil to other illuminates was well underway. This can be seen in 1866, when lamp oil imports dropped by 7,000 gallons. In 1875, lamp oil imports reached a record 66,266 gallons. Whale oil was not included among lamp oils imported into Bermuda according to the colonial secretary,

There was a time when Whale Fishery in Bermuda was pursued to advantage, and the Oil thereby obtained met with ready sale for home consumption, but the pursuit of this industry has long since declined and is only occasionally revived and even then to no great extent. Now and then a fish is captured but difficulty is experienced in disposing of even the small quantity of Oil derived therefrom. Kerosene having superseded the use of Whale Oil for domestic purposes, and the high protective duty imposed on this article in the United States of America - precludes the disposal of in there, so that it has become rather a drug than otherwise in the market.⁵⁴

In 1863, kerosene entered the Bermudian market. The chemical properties of refined coal oil were just as suitable for home use as whale oil. As the American whaling industry waned, kerosene became more popular. In 1877, the colonial secretary recorded the last large lamp oil imports. Still, lamp oil entered Bermuda as late as 1889, when the

⁵² In 1863, 124 packages of kerosene were valued at £ 317. In that year, one barrel of whale oil cost approximately £ 95. *Blue Books*, 1863, pp. 237-8.

⁵³ *Ibid*, 1863-1880; E. A. McCallan, *Life on Old St. David's: Bermuda*. (Toronto, 1986), p. 105

⁵⁴ *Blue Books*, 1875, p. 272.

colonial secretary recorded the arrival of 711 packages.⁵⁵ By 1863, other lamp oils found their way into Bermudian markets, and kerosene surpassed all other oils imported into Bermuda by 1878.

Bermudian imports also included whalebone. In 1856, the United States dispatched four packages of whalebone worth £ 9 14s. 10d. to Bermuda.⁵⁶ In 1857, the United States sent Bermuda one package of whalebone valued at £ 1 3s. 4d.⁵⁷ "Whalebone," the baleen plates from the heads of right and bowhead whales, was sought by manufacturers. Whalebone possessed properties such as elasticity and durability, which were desirable traits for creating sturdy, long-lasting products. The demand for whalebone allowed American whaling to continue for two decades after the Civil War.⁵⁸

It was unusual for Bermuda to import whalebone from the United States. In 1856, 1857, and 1859, the colonial secretary recorded that one, four, and two packages of whalebone, respectively, were imported from the United States.⁵⁹ What is unusual is that most raw American whalebone was sent to northwestern European countries such as Germany, England, and France.⁶⁰ These countries manufactured items, including umbrellas, buggy whips, corset stays, watch springs, industrial brooms and brushes, fishing rods, skirt hoops, and fertilizer. Smaller household items such as jaggig wheels and yarn swifts were manufactured by whalers, but were not sold wholesale.

⁵⁵ *Blue Books*, 1889, p. 222.

⁵⁶ *Ibid*, 1856, pp. 217-8.

⁵⁷ *Ibid*, 1857, pp. 208-9.

⁵⁸ Davis, *In Pursuit of Leviathan*, pp. 342-3.

⁵⁹ *Blue Books*, 1856, pp. 208-9; *Ibid*, 1857, pp. 217-8; *Ibid*, 1859, pp. 210-11.

⁶⁰ Davis, *In Pursuit of Leviathan*, pp. 366-7.

Bermuda's exports require more examination. Figure 2.5 and Appendix E show the amounts and destinations of whale and lamp oils, but do little to explain the whale trade occurring between Britain, the United States, Caribbean, and South American nations. According to the *Blue Books*, Bermuda distributed whale and lamp oil to the Spanish West Indies, Cuba, Puerto Rico, the United States, Britain and Demerary.⁶¹ In 1880, Bermuda sent Great Britain four casks of whale oil.⁶² In 1889, Jamaica shipped 711 packages of lamp oil to Bermuda.⁶³ The last whale oil shipment from Bermuda occurred in 1892 when 480 gallons of sperm whale oil were sent to the United States.⁶⁴

In the nineteenth century, Bermuda administered trade between Britain, her territories in the west, the United States, and many other Caribbean nations. Except by trading, whale oil was only available to nations involved in whaling. Before kerosene entered the Bermudian market in 1863, poorer Caribbean and South American nations depended on Bermudian exports of whale and other forms of lamp oil as an illuminate. Unable to afford the transition from whale (lamp oil) to coal oil, the exchange of lamp oil between Bermuda and other Caribbean nations continued for another decade.⁶⁵

Since the seventeenth century, Bermuda exchanged whale and sperm oil in a global market. Whale oil continued to be an important substance traded until the late nineteenth century. As the international whale products market reached a zenith in the nineteenth century, Bermuda actively participated in the exchange of whale products.

⁶¹ *Blue Books*, 1856-1940.

⁶² *Ibid*, 1880, pp. 224-5.

⁶³ *Ibid*, 1889, pp. 222-3.

⁶⁴ *Ibid*, 1892, pp. 238-9.

⁶⁵ *Ibid*, 1860-1880. The table in Appendix D illustrates the exchange of lamp oil continuing between Bermuda and other Caribbean nations after the introduction of kerosene in 1863.

Although the islands' own whaling trade struggled during the mid-nineteenth century, whale oil and items made of baleen found a market in Bermuda.

From 1840 to 1855, British North America and the United States supplied Bermuda with a small but steady stream of whale oil. As island whaling succumbed to other endeavors, the country imported larger amounts of whale oil. By 1860, whale oil competed with other forms of combustible, domestic fluids and was renamed lamp oil. A year later, during the American Civil War, the island engaged in a large-scale whale and lamp oil trade between two opposing forces. Large quantities of lamp oil imported from the northern states and Nova Scotia were rerouted into Wilmington, North Carolina.

The effects of the American war surfaced in foreign economies as Britain and Bermuda looked for alternative substances for illumination. Kerosene made its first appearance in Bermudian markets in 1863, creating a strong rival for lamp oils. After the Civil War, kerosene demonstrated that it was a far more efficient light fuel than whale oil, and by 1877, Bermuda stopped importing whale oils. Exportation of whale oils continued as Bermuda secured a small niche in Caribbean and Latin American markets. The last exchange of whale oil occurred in 1892, about the same time international whaling was ending in the United States and northwestern Europe.⁶⁶

⁶⁶ Davis, *In Pursuit of Leviathan*, pp. 342-3.

Chapter 3

Whaling Stations, Whale Gear, and Whaleboats.

Even though whaling activities conducted by Bermudians ended nearly sixty-three years ago, evidence of the islands' whaling history still exists. Iron pots, once used for trying out whale oil, are now ornaments holding tropical flowers. In Richardson's Bay in Ferry Reach and on Whale Island in Ely's Harbour, private residences stand on old whale house foundations. On Smith's Island in St. George's Harbour and Whale Island, tryworks still stand after years of inactivity. Whaleboats that formerly epitomized the struggle between man and nature are in museum collections, while skeletons of countless whales are scattered around the islands as a grim reminder of the trade's dangerous reality.

The Bermuda Maritime Museum, the Bermuda Aquarium, History Museum and Zoo, and the Bermuda Archives exhibit and contain extensive collections of photographs, equipment, and lore left by whalers. Whaling operations occurred throughout the islands' parishes, and likewise, whaling memorabilia still materializes. Over two summer seasons documentation and recording of private and public collections was conducted. This chapter examines the whaling equipment, structures, and vessels involved with Bermudian whaling.

In August 2000, two whaling sites were examined. The first site inspected was on Smith's Island in St. George's Harbour. Now a private residence, the site is the oldest whaling station on the islands. The East Whaling Company laid the foundation of the site's whalehouse in 1759. The original whale house no longer exists, and a new

residence stands atop the old foundation;¹ however, not far from the house are the remnants of the original tryworks.



Figure 3.1. Front Profile of Smith's Island Tryworks.

Figure 3.1 shows three Smith's Island tryworks furnaces and flues. The tryworks appears in good condition, even though the cast iron furnace doors are missing. The tryworks actually held four try-pots arranged similar to a range and each try-pot had its own furnace. Each furnace had a set of flues. Upon inspection, the tryworks' Bermudian limestone mortar has weathered, the try-pots have rusted and cracked, and some undergrowth has rooted itself in the structure, although in a personal communication with

¹ Terry Tucker, *Bermuda: Today and Yesterday, 1503-1973*. (London, 1975), p. 92; Edward F. Schortman, "A Short History of Whaling in Bermuda." *Mariner's Mirror*. (New York, February, 1969), Volume 55, Number 1, p. 79.

Dr. Mark Staniforth, he maintained that this tryworks was probably the best and most complete tryworks found on land anywhere in the world.²

The tryworks' dimensions measured 5.75 meters (18.86 feet) in length, 2.46 meters (8.07 feet) in width, and 1.14 meters (3.74 feet) in height. The interior masonry was constructed from imported bricks,³ but the mortar used to seal the trywork fireplaces was made using Bermudian limestone and sand. The arched shape of each furnace measured 36 centimeters wide by 32 centimeters high. Each furnace had, at one time, a cast iron door. While long gone, the cast iron door's hinges remain embedded in the masonry.



Figure 3.2. Furnace Interior.

² Dr. Mark Staniforth, Personal Communication. (Adelaide, Australia, 15 March 2003).

³ Schortman, "A Short History of Whaling in Bermuda," p. 80.

The interior of each furnace was not measured, but each showed signs of use. Figure 3.2 illustrates a furnace interior. The photograph reveals scotching and charcoal ash within the furnace; however, in the investigation no black oil residue, caused when frits were added to stoke the fires, was noted.⁴ Each furnace measured longer than three meters. Furnace interiors were made up of two compartments, seen in Figure 3.2. The first was a pentagonal corridor that measured approximately two meters long, leading to a slightly wider, square chamber upon where the try-pot rested. Each furnace contained a set of flues to vent escaping smoke. The flues were located above each furnace and in the rear wall.

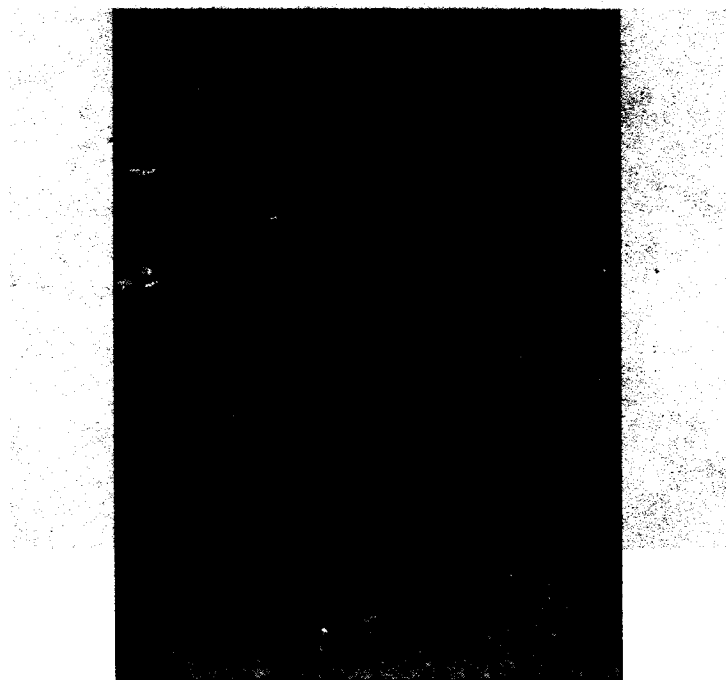


Figure 3.3. Three Iron Try-Pots.

⁴ Frits are scraps of left over blubber that float on the surface after the oil is tried out. Clifford W. Ashley, *The Yankee Whaler*. (New York, 1926), p. 131.

The original try-pots in the tryworks were believed to be made of copper.⁵ Inspection of the tryworks revealed only iron try-pots. Figure 3.3 and Figure 3.4 illustrate the lay out and conditions of the tryworks' try-pots. The Figure 3.4 try-pot diameter measured 82 centimeters (2.67 feet). The diameter of each try-pot measured roughly 87 centimeters, 80 centimeters, 90 centimeters, and 82 centimeters. Each try-pot had an approximate depth of 65 centimeters (26 inches), and showed signs of severe weathering, rusting, some cracking, and/or bioturbation, as seen in Figure 3.3. Conversely, limestone mortar around each try-pot shows remarkable resiliency to the elements.

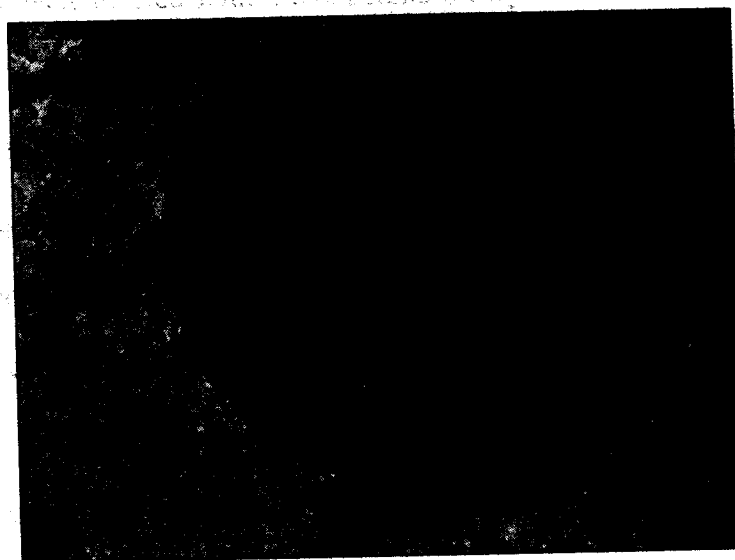


Figure 3.4. Iron Try-pot.

⁵ Frank Haworth, "Whaling Was Once Big Business In Bermuda: Relics Of Big Fish Can Still Be Seen." in *The Sunday Royal Gazette*. (Hamilton, Bermuda, September 2, 1951), p. 8. Copper try-pots were resistant to rusting from the salty sea air and water.

Bermudian historians recall that the capstan used for hauling whales closer ashore was located near this slip,

A capstan once stood between high and low water to haul the whale into shallow water. There is a large block of stone, again at about the mid-tide mark, into which is cut a roughly triangular slot about 8 inches from top to bottom, and about 12 inches wide at the base which is nearest the water. A line was made fast to the whale, the other end of the line attached to a weight shaped to fit the slot, and the weight dropped into place. With this line, and the line to the capstan, the whale could be securely moored parallel to the shore for the cutting in.⁶

The Smith's Island shoreline was overgrown with thick vegetation, making it difficult to pinpoint the whaleboat slip, locate the capstan, or find more bone. The survey did not call for access through private gardens, thus the capstan was not discovered. The site contained two rainwater tanks that held 10,000 gallons each.⁷ These tanks, along with a water catchment, were located somewhere behind the tryworks, and were not also located.

The Smith's Island tryworks design may have replicated the design and function of Caribbean sugar tryworks.⁸ An illustration in Appendix F shows a late eighteenth century sugarcane tryworks. The illustration reveals some striking similarities between rendering blubber for oil and rendering sugarcane for molasses. Similar to the Smith's Island tryworks, the sugarcane tryworks contains variable-sized try-pots. The variation in try-pots were essential for processing sugar, it is unclear why the Smith's island tryworks contains unequal size try-pots. On the other hand, the illustration's sugarcane try-pots were arranged according to size; the Smith's Island try-pots were not. Although the two

⁶ Schortman, "A Short History of Whaling in Bermuda," p. 80.

⁷ *Ibid*, p. 80.

⁸ A. Mondadori, ed., *Diderot's Encyclopedia: The Complete Illustrations, 1762-1777*. (New York, 1978), p. 84.

trades appear to have shared similar processing methods, there is no evidence to link the Smith's Island tryworks to sugar. It is known that only whalers used the site intermittently from 1759 until the Civil War, when the whale house was used for storage.⁹ Furthermore, the brief examination of the Smith's Island tryworks revealed disarticulated skeletal debris suggesting that the site experienced heavy usage. The site contained what could be whalebone scattered in and around the tryworks; DNA tests or affirmation from a qualified cetologist could verify the remains. Figure 3.5 is one example of incised bone discovered on site. More bone is believed to be around the whaleboat slip, where primary butchering occurred.

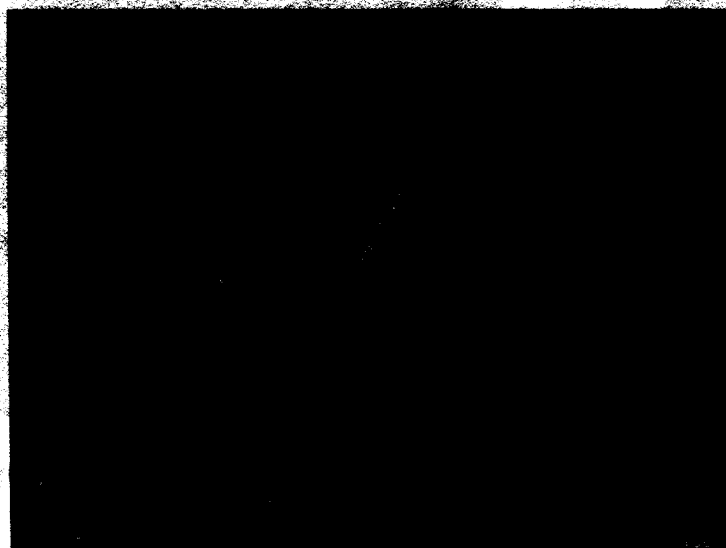


Figure 3.5. Incised Bone Fragment Found at Tryworks.

⁹ Frank E. Vandiver, ed. *Confederate Blockade Running through Bermuda, 1861-1865: Letters and Cargo Manifests*. (Austin, Texas, 1947), p. 117.

The second whaling station visited was located on Whale Island in Ely's Harbour, Somerset. The site was located on a small, private islet near the only residence. As with the home on Smith's Island, the original building's foundation once supported a whale house, but property owners rebuilt the foundation. Ten feet from the house are two unique features cut from the island's natural limestone bedrock. Upon inspection, the two features were overgrown with vegetation and held compost.



Figure 3.6. Vegetation on Whale Island Whaling Structures.

Feature 1, barely visible in the left hand corner of Figure 3.6, is a rectangular basin cut into a limestone knoll. Feature 1 has three sides and measures 5.5 meters (18.04 feet) in length and 2.2 meters (7.26 feet) wide. The walls were cut into the crest of the knoll, which is more than 3 meters high. From the back wall, the basin slopes down

to ground level. Approximately 1.8 meters of debris fill the feature. Due to the undergrowth and compost, it was impossible to get an accurate profile or photograph of the feature's interior. The design of Feature 1, and its location adjacent to Feature 2, suggests that the feature is either a cooling tank for rendered whale oil or a blubber storage tank. It is possible that Feature 1 did have a fourth wall, and the enclosure could then have stored thousands of gallons of cooling oil. A thorough inspection of the feature's walls was not conducted; however, if the walls contained tarras or plaster, then the feature served as a cooling area. If not, the feature served as a temporary blubber storage area before pieces were rendered.

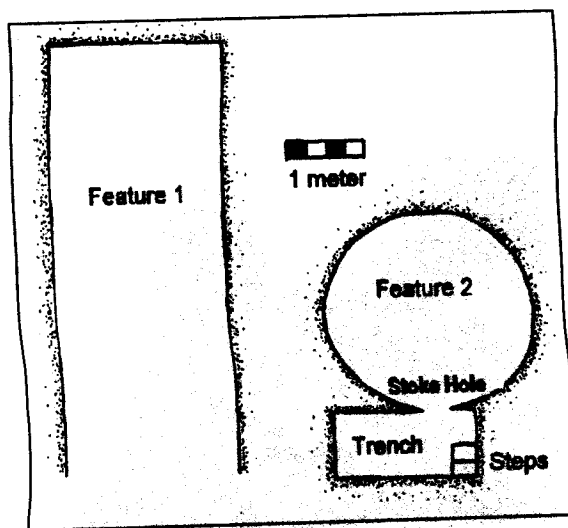


Figure 3.7. Feature 1 and 2 Plan View.

Unlike the tryworks found on Smith's Island, Feature 2 is an enormous structure once used to heat whale blubber. Feature 2 is a rounded pit carved from the same limestone knoll as Feature 1. Figure 3.7 is a plan view of both features. The diameter of

Feature 2 is 2.3 meters (7.55 feet) and has an approximate depth of 2.5 meters (8.2 feet). Again, compost buildup prevented precise measurement. Figure 3.8 illustrates the vaulted stoke hole associated to Feature 2. Its dimensions measure 1.35 meters in height, 28 centimeters in width at the top. The entranceway expands to 63 centimeters at the bottom. The stoke hole wall measured approximately 8 centimeters thick. The stoke hole included a set of stairs that descended down to the doorway. The first step measured 1.52 meters in height and the second step measured 37 centimeters, although each steps' length measured approximately 26 centimeters. Step 1 had a width of 26 centimeters and Step 2 measured 28 centimeters wide. The steps descended into a trench that led to the doorway. The trench measured approximately 1.9 meters in length, was 90 centimeters wide, and had a height of 79 centimeters.

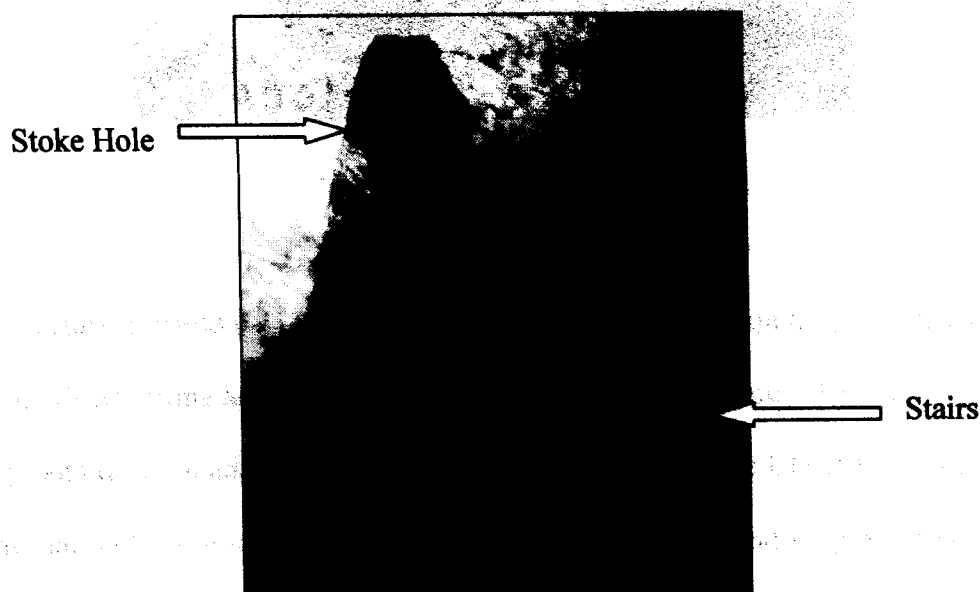


Figure 3.8. Feature 2 Stoke hole

The entire feature appeared solid, but was entangled in thick vegetation. The residents utilized the interior as a compost storage area, as seen in Figure 3.9. When the site operated as a whaling station, Feature 2 served as the furnace for boiling large quantities of whale oil. Analysis of other known whaling furnaces and pictorial references were employed to verify the Whale Island features' authenticity.

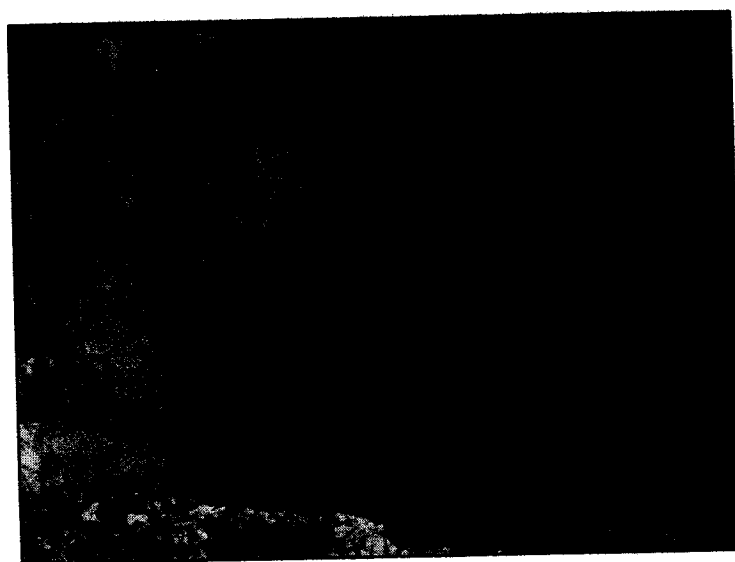


Figure 3.9. Inside Feature 2.

Feature 2 would have held a large try-pot not unlike an iron try-pot displayed in the Bermuda Maritime Museum¹⁰ or the try-pots featured in Figure 3.10. The Figure 3.10 try-pots were found in Banks Peninsula, New Zealand at the Island Bay's shore-whaling station.¹¹ Similar to New Zealand tryworks, Whale Island's try-pot was

¹⁰ The try-pot can be viewed at <http://www.bermudamall.com/marmuse/officialguide/whaling.htm>.

¹¹ Chris Jacomb, "Shore Whaling Sites of Banks Peninsula: An Archaeological Survey" in *The Archaeology of Whaling in Southern Australia and New Zealand*. (Gundaroo, Australia, 1998), p. 74.

suspended atop the circular pit and was heated by a large fire built underneath. Similar tryworks have been found on the beach of Amsterdam Island, Greenland. Figure 3.11 exhibits the remains of a 17th century, double tryworks furnace.¹² Dutch whalers living at Smeerenberg, Greenland, which was a multi-year whaling settlement near the hunting area known as "Hollandsche ofte Mourits-Bay," built the tryworks.¹³

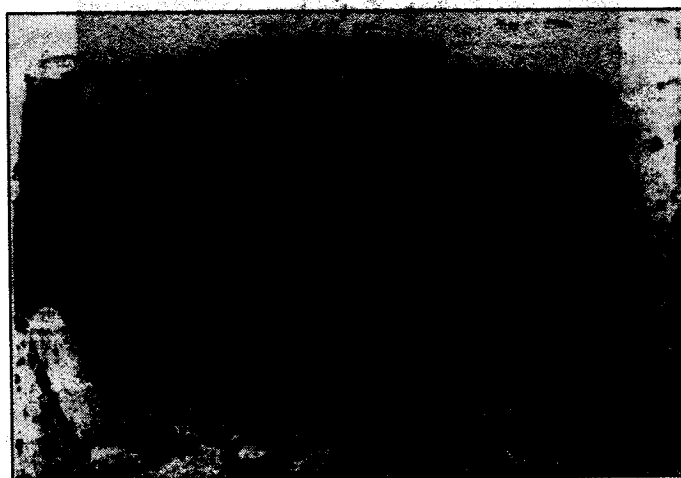


Figure 3.10. Island Bay, New Zealand Try-pots.¹⁴

The design of the Whale Island tryworks' furnace and furnaces found on Amsterdam Island resembled the spermaceti tryworks furnace seen in Figure 3.11, although the Whale Island tryworks included only one furnace. Other figures indicate that cooling pits would have been built next to the furnace. Figure 3.12 is a copy of a

¹² Louwrens Hacquebord, "The Smeerenburg Project: A Study into the 17th Century Dutch Whaling Settlement in Spitsbergen from the Ecological Angle." *NUFFIC Bulletin*. (The Hague, Netherlands, 1981), p. 21.

¹³ *Ibid*, pp. 20-1.

¹⁴ Jacomb, "Shore Whaling Sites of Banks Peninsula," pp. 73-4.

plate taken from Diderot's *Encyclopedia*.¹⁵ The furnace dates to 1760.¹⁶ The illustrations show a large, circular furnace with boiler on top. The illustrations prove that when rendered, spermaceti oil was drained down wire-lattice chutes into a cooling tank. Feature 1 on Whale Island may have been, in fact, the cooling tank for the furnace.

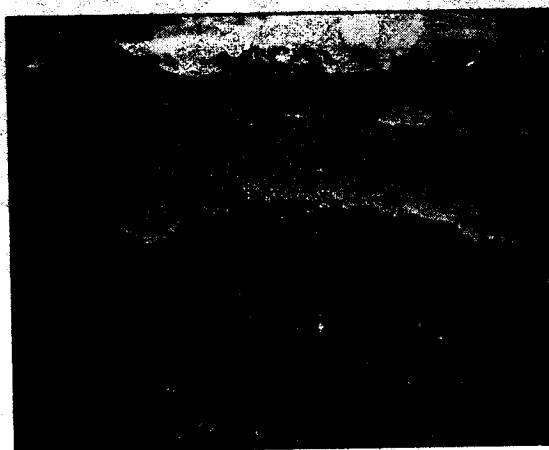


Figure 3.11. Dutch Double Tryworks Furnaces on Amsterdam Island.¹⁷

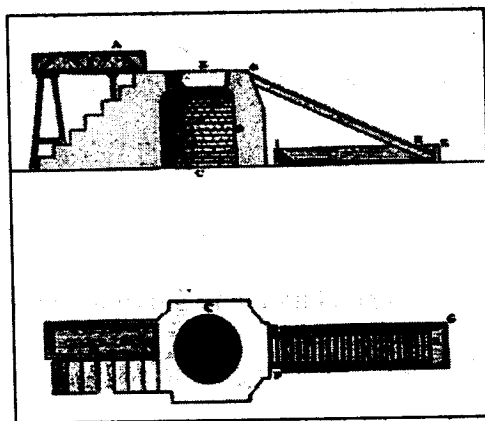


Figure 3.12. Diderot's Spermaceti Furnace.¹⁸

¹⁵ Mondadori, *Diderot's Encyclopedia*, p. 84.

¹⁶ *Ibid*, p. 84.

¹⁷ Hacquebord, "The Smeerenburg Project, p. 21.



Figure 3.13. 1890 Lithograph of Tryworks with Chimneys.

Stoking and rekindling the fire would have occurred via the stoke hole seen in Figure 3.9. The Whale Island furnace stoke hole size and shape allowed enough airflow to circulate and fuel the fire, as hot air flowed up and out the top, like a gigantic chimney; however, this is debatable. According to pictorial evidence, furnaces in the nineteenth and twentieth centuries had chimneys. Figure 3.13 is an 1890 lithograph depicting California whalers trying out oil.¹⁹ The furnaces Figure 3.13 have chimneys; however, seventeenth century lithographs and sketches depict tryworks without chimneys. Figure 3.14 is a 1613 Robert Fotherby drawing of a double tryworks minus a chimney. The furnace's smoke exits through a hole at the tryworks' base. The Whale Island stoke hole may have served as the furnaces' flue. A 1675 lithograph, titled "Russiæ et Novae

¹⁸ Hacquebord, "The Smeerenburg Project, p. 84.

¹⁹ Afklaus Barthelmess and Svend Tougaard, *Rekonstruktion af Tranuinding*. (Esbjerg, Denmark, 1999), p. 108.

Zemlæ,"²⁰ depicts the tryworks' smoke exiting alongside the try-pot, probably the method intended by Whale Island's furnace. Working conditions at tryworks without chimneys would be very dangerous, since undirected smoke would blind whalers trying to ladle out boiling oil. A chimney was not found at the Whale Island tryworks and a more thorough investigation of the site would need to be undertaken to determine the actual Whale Islands' tryworks operation.



Figure 3.14. Robert Fotherby's Double Tryworks.

Unlike the tryworks on Smith's Island, there were no obvious signs of use inside the furnaces. No charcoal or signs of scorching were observed due to compost accumulation. Furthermore, there were no traces of whalebone near or in the features, although guests said abandoned tools and discarded skeletons of whales were in the waters surrounding the island.

²⁰ Barthelmess, *Rekonstruktion af Tranuinding*, p. 104

The Bermuda Aquarium, Natural History Museum and Zoo exhibit includes a random collection of whaling implements that once belonged to H. M. "Tommy" Fox of St. David's Island.²¹ The equipment ranges from hunting, flensing, and mincing tools that date to the early through late nineteenth century. Tools exhibited in the Aquarium's collections include various lances, irons, harpoons, spades, mincing equipment, forks, and pikes. Figure 3.15 illustrates a partial equipment collection housed at the Bermuda Aquarium in Flatts.



Figure 3.15. Whaling Implements Exhibited at the Bermuda Aquarium, Natural History Museum, and Zoo.

²¹ Haworth, "Whaling Was Once Big Business In Bermuda," p. 8.

From left to right the items include a mincing knife, a boat spade, a lance, a cutting spade, a swivel-barb iron, and a Pierce harpoon gun that is missing its bomb lance. Processing equipment, such as cutting spades, blubber forks, and pikes, lacked maker's marks, making it very difficult to date this equipment. An American may have introduced Bermudian whalers to butchering in the late eighteenth century.²² Whether or not this is true, American whaling equipment was brought to Bermuda in the late nineteenth century.²³

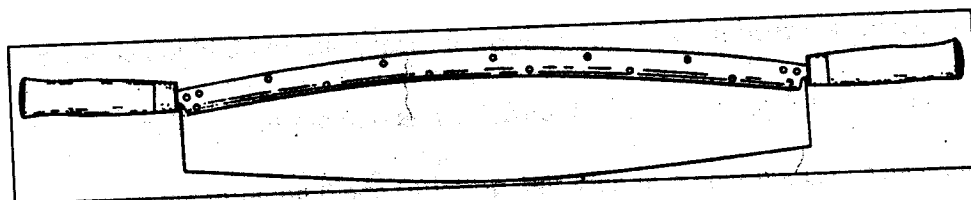


Figure 3.16. Hand-mincing Knife.²⁴

The hand-mincing knife, farthest to the left in Figure 3.15, is definitely an American invention. In 1822, W. Bull of New York City first patented the hand-mincing knife's design.²⁵ Cutting blubber was a two person operation; one man cut the meat with the mincing knife on top of a mincing horse (cutting board), while the second man pulled the 'horse' piece forward with a small hook. Thinner slices of meat were favored since

²² In 1780, there was a revival in Bermudian whaling, and an American named Pinkham instructed Bermudians how to cut blubber with spades, thus avoiding waste. Anonymous, Excerpt from *Islands of St. George's Harbour*. (Bermuda Maritime Museum Library Collection – "Whaling", Dockyard, Bermuda), p. 259.

²³ Records of the Colonial Secretary, *Blue Books*. (Bermuda Archives, 1872), pp. 202-3.

²⁴ George Brown Goode, *The Fisheries and Fishery Industries of the United States*. (Washington, 1887), plate 209.

²⁵ Thomas G. Lytle, *Harpoons and Other Whalecraft*. (New Bedford, Massachusetts, 1984), pp. 144-5.

slim pieces tried out faster. Hand-mincing took a tremendous amount of time and was labor intensive. By 1843, new equipment invented in the United States reduced time and labor required in this process.

George W. Sowle and William Cursely of New Bedford, Massachusetts, introduced mechanized cutting in 1843.²⁶ These men invented the first hand-cranked, blubber-mincing machine. The Aquarium exhibits an early version of a mincing machine (Figures 3.17, 3.18). The arrival of this machine in Bermuda has not been documented, but such a machine was used by H. M. "Tommy" Fox around 1880.²⁷ The hand-cranked mincing machine cut blubber into pieces for trying out. The blubber was placed on a leather conveyer belt, and as the operator cranked the large flywheel, the blubber moved smoothly towards the mincing blade (missing, but seen in Appendix G). The conveyer belt and mincing blade were linked to the crankshaft via gears and a cam. A pawl on the ratchet wheel prevented reverse motion. Around 1880, the mincing machine underwent various alterations.²⁸ Patrick Cunningham of New Bedford patented a modified version of the mincing machine. Instead of a mincing blade, Cunningham's machine moved the blubber towards a spiral knife (Figure 3.19).²⁹

²⁶ Lytle, *Harpoons and Other Whalecraft*, pp. 146-7.

²⁷ E. A. McCallan, *Life on Old St. David's: Bermuda*. (Toronto, 1986), p. 103.

²⁸ Lytle, *Harpoons and Other Whalecraft*, p. 147.

²⁹ *Ibid*, p. 147

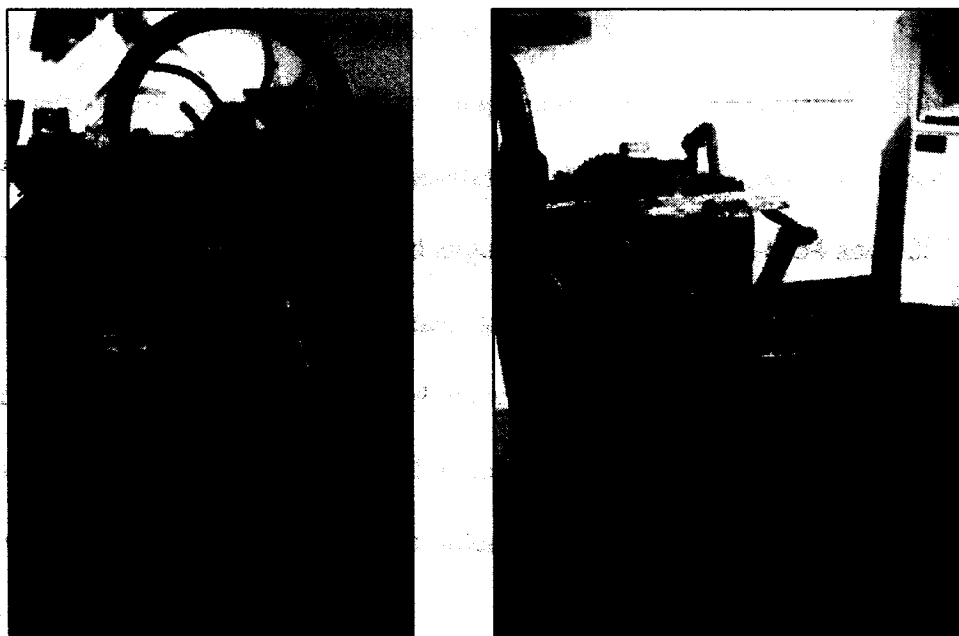


Figure 3.17. & 3.18. Front and Side Profiles of Mincing Machine.

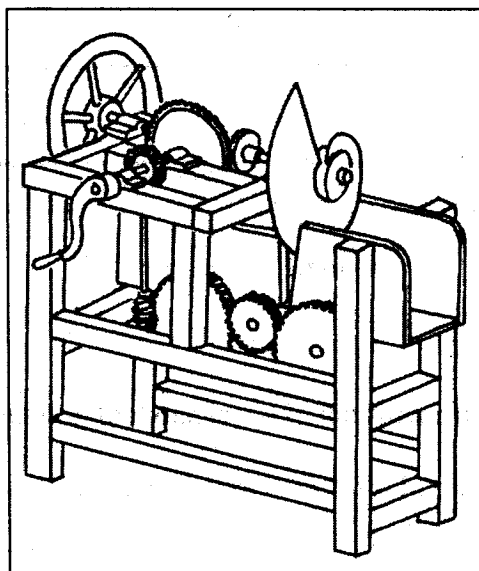


Figure 3.19. Sketch of Cunningham Mincing Machine.

The Bermuda Aquarium's collection includes an early lance (Figure 3.15, third from the left). The lance head's bulbous shape indicates it was fashioned well before 1850.³⁰ Lance #255 in Figure 3.19 resembles the shape of the Aquarium's lance. After 1850, lance heads became narrower and angular, similar to lances #254 and #256.³¹ Again, the Aquarium's lance lacks a maker's marks, so it is impossible to date. Lances and harpoon shanks formed before 1864, were made of pliable wrought iron,³² but after 1864, as steel became more economical, lance heads were steel.³³ Unlike harpoons, lances were designed to be inflexible in order to penetrate bone and flesh. The Aquarium's lance was iron.

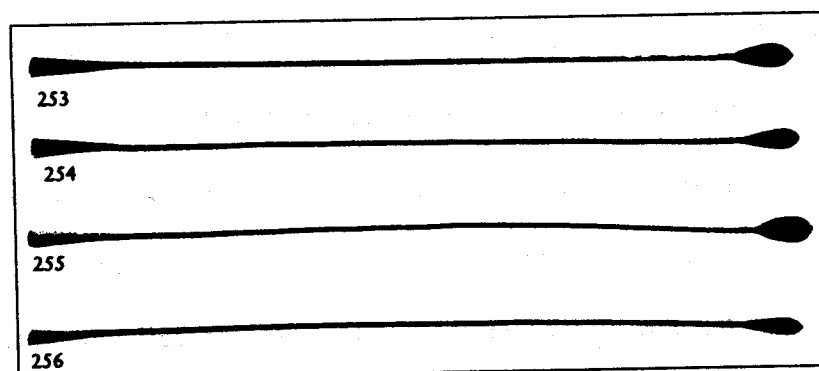


Figure 3.20. Lances.

Another unusual hunting tool displayed in the Aquarium's collection is a swivel-barb whale iron with detachable head (Figure 3.15, fifth implement from the left).

³⁰ Lytle, *Harpoons and Other Whalecraft*, p. 133.

³¹ *Ibid.*, p. 133.

³² Granville Allen Mawer, *Ahab's Trade: The Saga of South Seas Whaling*. (New York, 1999), pp. 307-8; Lance E. Davis, Robert E. Gallman, and Karin Gleiter, *In Pursuit of Leviathan: Technology, Institutions, Productivity, and Profits in American Whaling, 1816-1906*. (Chicago, 1997), p. 291.

³³ Mawer, *Ahab's Trade*, pp. 307-8.

Charles Randall of Palmyra, Georgia, invented the swivel-barb in 1846; it included a head mounted on the harpoon shank and socket.³⁴ Randall did not patent the iron with a detachable head, but he did include the feature in early printed specifications. The Aquarium's swivel-barb postdates 1846, although the use of the swivel-barb iron in the United States was short-lived, due to the invention of Temple's toggle iron.³⁵

The double-flued, iron harpoon found in the Bermuda Maritime Museum's whaling collection, is the oldest whaling artifact displayed on the islands as it dates to the earliest records of European whaling.³⁶ For centuries, whalers condemned the double-flued harpoon because it occasionally cut itself back out of the whale. By the 1840s, blacksmiths modified the harpoon by removing a flue.³⁷ A single-flued iron had a longer flue, and when the iron "held," it would turn at right angles, creating a firmer grip.

By the mid-nineteenth century, innovations, other than the swivel-barb iron and single-flued iron, were introduced for hunting whales. The most prominent technological advancement was achieved in 1848. This year marked the invention of the toggle iron by Lewis Toggle of New Bedford, Massachusetts.³⁸ His design allowed the fluted head to pivot perpendicularly. Once the harpoon penetrated the whale's flesh, the iron's head pivoted, creating a more secure hold. The toggle iron was immediately incorporated into the U.S. industry and underwent minor design alterations from 1850 to 1870. The toggle iron remained true its original design, even when integrated with mechanized harpoon guns.

³⁴ Lytle, *Harpoons and Other Whalecraft*, p. 29.

³⁵ *Ibid.*, 29.

³⁶ Davis, *In Pursuit of Leviathan*, p. 288.

³⁷ Ashley, *The Yankee Whaler*, p. 85.

³⁸ Mawer, *Ahab's Trade*, p. 310.

The first mechanized whaling implement was the harpoon gun. In 1837, William Greener, an English gunsmith, invented a small cannon that could be mounted to the bow of a whaleboat.³⁹ Designed like a swivel gun, the harpoon gun shot a non-explosive harpoon attached to a line. The gun had a greater range than a hand thrown harpoon, but in open seas the harpoon gun was harder to aim and the recoil strained the boat.⁴⁰ The Greener harpoon gun soon led to the creation of other guns.

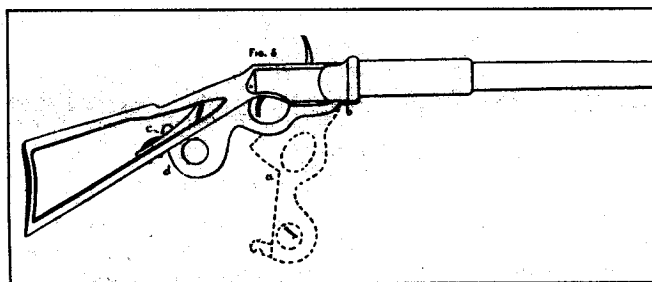


Figure 3.21. Pierce Breech-loading Bomb-gun.⁴¹

The first marketable shoulder gun appeared in 1855 and functioned similar to a shotgun.⁴² When fired, the gun released an explosive projectile called a bomb lance that could fatally wound a whale if fired accurately.⁴³ The Bermuda Maritime Museum possesses a breech-loading version of the shoulder gun once owned and modified by Gunnison Astwood, (Appendix H presents various shoulder guns). The Bermuda Maritime Museum noted that Astwood made his own cartridges, and he recalled, “the

³⁹ Davis, *In Pursuit of Leviathan*, p. 289.

⁴⁰ Mawer, *Ahab's Trade*, p. 313.

⁴¹ Goode, *The Fisheries and Fishery Industries of the United States*, plate 198.

⁴² The first explosive shoulder gun was invented by C.C. Brand of Norwich, Connecticut, but was too heavy to use continuously. Ashley, *The Yankee Whaler*, pp. 87-8.

⁴³ *Ibid*, pp. 87-8.

gun fired high and had a powerful recoil."⁴⁴ The gun probably had powerful recoil because Astwood's gun used metal cartridges and black powder instead of percussion caps used in the more common model. With a percussion cap, some of the propellant force is expelled out the nipple.⁴⁵ The metal cartridge case acted as a gas seal and increased the propellant force, thus the recoil.⁴⁶ Astwood's gun underwent more modifications, changing from a shoulder gun to a darting gun.

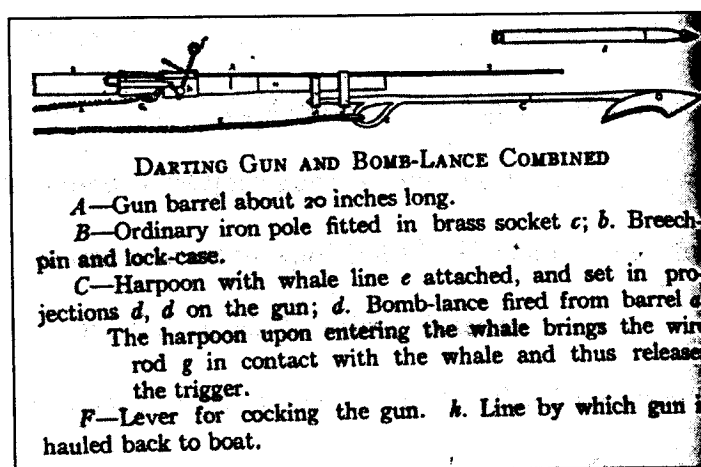


Figure 3.22. Pierce Darting Gun.⁴⁷

Ebenezer Pierce and Patrick Cunningham of New Bedford invented the darting gun.⁴⁸ The gun was patented in 1865, and challenged the precision of shoulder guns.⁴⁹

The design of Pierce's gun resembled a conventional hand-thrown toggle iron, but

⁴⁴ Recorded and documented by the Bermuda Maritime Museum, The Dockyard, Bermuda. Found on plaque besides gun.

⁴⁵ Lawrence E. Babits, Personnel Communication. (Greenville, North Carolina, 7 April 2003).

⁴⁶ *Ibid.*

⁴⁷ A. Hyatt Verrill, *The Real Story of the Whaler: Whaling Past and Present*. (New York, 1916), p. 38.

⁴⁸ Ashley, *The Yankee Whaler*, p. 88.

⁴⁹ Mawer, *Ahab's Trade*, p. 316.

included a barrel for a projectile. Once the whale was harpooned, a trigger activated, releasing the bomb lance. The invention was successful, and for thirty years after its invention, Pierce's contemporaries refined it. The Aquarium's darting gun, Figure 3.14-far right, exemplifies a true darting gun. Astwood, on the other hand, removed the stock of his shoulder gun and mounted the barrel on a harpoon pole.

The Pierce gun became a very popular method for hunting whales until the late nineteenth century, when Sven Foyn of Tönsberg, Norway altered the swivel gun.⁵⁰ The Foyn cannon had a range of 10 to 20 fathoms and sent a warhead filled with half a kilogram of powder towards a whale's spine.⁵¹ The Americans did not adopt this gun but in 1940, Bermudians used Norwegian guns. Gunnison "Gunny" Astwood fired the last harpoon from his gun into a whale in April 1940.⁵² The gun, reportedly built in Oslo, Norway, is on display at the Bermuda Maritime Museum.

In 1872, the colonial secretary recorded in the *Blue Book* import ledgers that "a lot" of whaling implements were shipped to Bermuda from the United States.⁵³ Most nineteenth century American technological innovations were designed to advance U. S. whaling. The introduction of new tools into Bermuda, such as the shoulder gun, toggle iron, and Pierce gun, took longer because Americans protected their patents from rival whaling nations; by 1870, though, the entire whaling world was using modified versions of these tools. After 1872, the island economy deflated and, as farmers and fishermen

⁵⁰ Mawer, *Ahab's Trade*, p. 319.

⁵¹ *Ibid*, p. 320.

⁵² Royal Gazette, "1st Whale Caught Here in Over 40 Years: 35-Ton Mammal is Caught 15 Miles Southwest of Islands." (Hamilton, Bermuda, April 19, 1940), p. 1.

⁵³ *Blue Books*, 1872, pp. 218-9. The secretary also recorded that the whaling equipment was traded to Bermuda for free.

looked for alternative sources for income, whaling again became popular. The whaling boom during the 1880s saw whalers using this new or modified equipment. Use of American tools by Bermudian whalers may have also included the importation of American whaleboats.

The Bermuda Archives houses a large photograph collection. Within that collection are scenes of island whalers in and near their vessels. Although Bermudian-built whaleboats are distinct and unique, they bear a striking resemblance to American whaleboats. During the nineteenth and twentieth century, American whaleships came to Bermuda "either to call on supplies or transship their oil."⁵⁴ Often new whaling equipment brought from the United States was exchanged with local whalers.⁵⁵ In a few cases, American whaleboats were imported to the islands, as well.

The introduction of American whaleboats to Bermuda occurred at least as early as 1851, when an inexperienced whaling company "imported several New England whaling boats."⁵⁶ In 1880, H.M. "Tommy" Fox claimed that his whaleboat, *Shamrock*, was American built.⁵⁷ With his whale gun mounted to the *Shamrock's* bow, Tommy's crew ran a more successful outfit than other local companies. The success of Bermudian whaling companies with American whaleboats led to assimilating American whaleboat designs into later Bermudian whaleboats.

⁵⁴ Henry C. Wilkinson, *Bermuda from Sail to Steam: The History of the Island from 1784 to 1901*. (London, 1973), Volume II, p. 656.

⁵⁵ *Blue Books*, 1872, pp. 202-3.

⁵⁶ Wilkinson, *Bermuda from Sail to Steam*, p. 656

⁵⁷ McCallan, *Life on Old St. David's*, p. 103.

Whaleboats from Bermuda are much different in design and function than those in other whaling nations.⁵⁸ The design of local Bermudian fishing craft is unique because they were built specifically to combat the strains of Bermuda's environment, especially the islands' surf and intricate coral reef system. Bermudian whaleboats of the 1880s, such as Hayward's *Molly* or Minors' *Rebecca* (Chapter 1), were designed and employed specifically for the islands' whaling trade. No records or plans of any nineteenth century Bermudian whaleboat exist in any public museum or library, but information regarding one twentieth century whaleboat was found at the Bermuda Maritime Museum.

In 1916, Mr. F. Gunnison "Gunny" Astwood of Warwick built the *Bonito*. Local lore describes Gunny as a solitary fisherman in his later years who would peddle his daily catches barefoot through Warwick in a wheelbarrow. Although Gunny primarily used the *Bonito* to haul fish, the *Bonito*'s design contains attributes characteristic of whaling vessels. There is, however, no proof that his boat ever captured a whale.

Remembered as a frayed, old fisherman, Gunny hunted whales in his youth. In 1940, he successfully harpooned the last whale taken in Bermuda. He did this aboard Joseph Soares' whaleboat, the *Tanamakoon*.⁵⁹ The *Royal Gazette* reports that Gunny's boat was not used because it could not be fitted with his whaling gun, which was then mounted on the *Tanamakoon*.⁶⁰ Gunny may have pursued whales from his own boat using hand-thrown harpoons and irons.

⁵⁸ From Norwood's description of seventeenth century Bermudian whaleboats to McCallan's account of late nineteenth century crew sizes, Bermudian whaleboats were larger than American whaleboats. McCallan, *Life on Old St. David's*, pp. 102-3. When not whaling, Bermudian whaleboats served other purposes, such as commercial fishing and ferrying.

⁵⁹ *Royal Gazette*, "1st Whale Caught Here," pp. 1&3.

⁶⁰ *Ibid.*

Mystique surrounds the *Bonito*. Local lore insists that the keel of the *Bonito* was made of teak, salvaged off the shipwrecked *Pollockshields*. No literature verifies or refutes this tale, but the story is suspicious because the *Pollockshields* was an iron steamship built in the 1890s.⁶¹ The *Pollockshields* possibly had teak decking. Regardless, construction plans for Gunny's boat have never been found. It is probable that Gunny constructed the *Bonito* entirely by "work of eye." The only way to examine whether the *Bonito* was suitable for whale hunting is to examine what is left.

Sometime during the late 1970s, Astwood abandoned the *Bonito* on property now belonging to the Sonesta Beach Resort Hotel in Southampton. In February 1979, the Bermuda Maritime Museum staff brought the *Bonito*'s remains to the Dockyard.⁶² The *Bonito* was found in poor condition, and only the bow could be salvaged. Measurements generated from photographs taken by the Bermuda Maritime Museum staff in 1970s suggest the boat was 26-28 feet long and nearly 6 feet in beam. The museum's database includes a brief description of materials used to build the vessel. The thwarts and planks were spruce, and the internal frames and knees were cedar. The *Bonito* was fastened with roved copper nails and had bronze bolts in the keel. Her freeboard was raised by short timberheads. The harpoon thwart was reinforced with grown cedar knees and extra limbs.

⁶¹ The story of *Pollockshields* continues, as Antonio Marshall, Bermudian farmer and whaler, rescued all but the captain of the ship in his whaleboat. Photographs in the Bermuda Archives show both the shipwreck and the whaleboat used to aid in the rescue.

⁶² On April 23, 1980, Gunny died at age 89 nearly a year after the Bermuda Maritime Museum retrieved the *Bonito*.

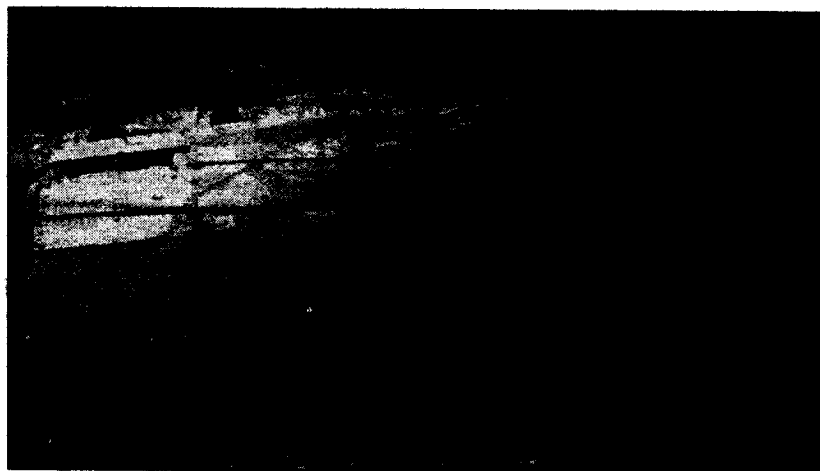


Figure 3.23. Port Side of the *Bonito*.

Bonito's existing bow measures nearly 5 feet in length, 5 feet, 8 ½ inches in width, and 2 ½ feet in depth. The museum has launched conservation measures to stabilize the vessel and halt wood rot. Figure 3.23, 3.24, and 3.26 illustrate the current state of the *Bonito*. Figure 3.22 is the port side view of the *Bonito*. From appearances, the vessel may have had eight strakes per side, excluding the sheer and gunwale strakes. It is difficult to tell since some strakes are missing. Only a few ceiling planks are left, which has exposed the bow's frames (See Appendix I). Each frame was attached to the keel by a single copper nail. The green color of corroding nail heads suggests the fasteners were copper or bronze.

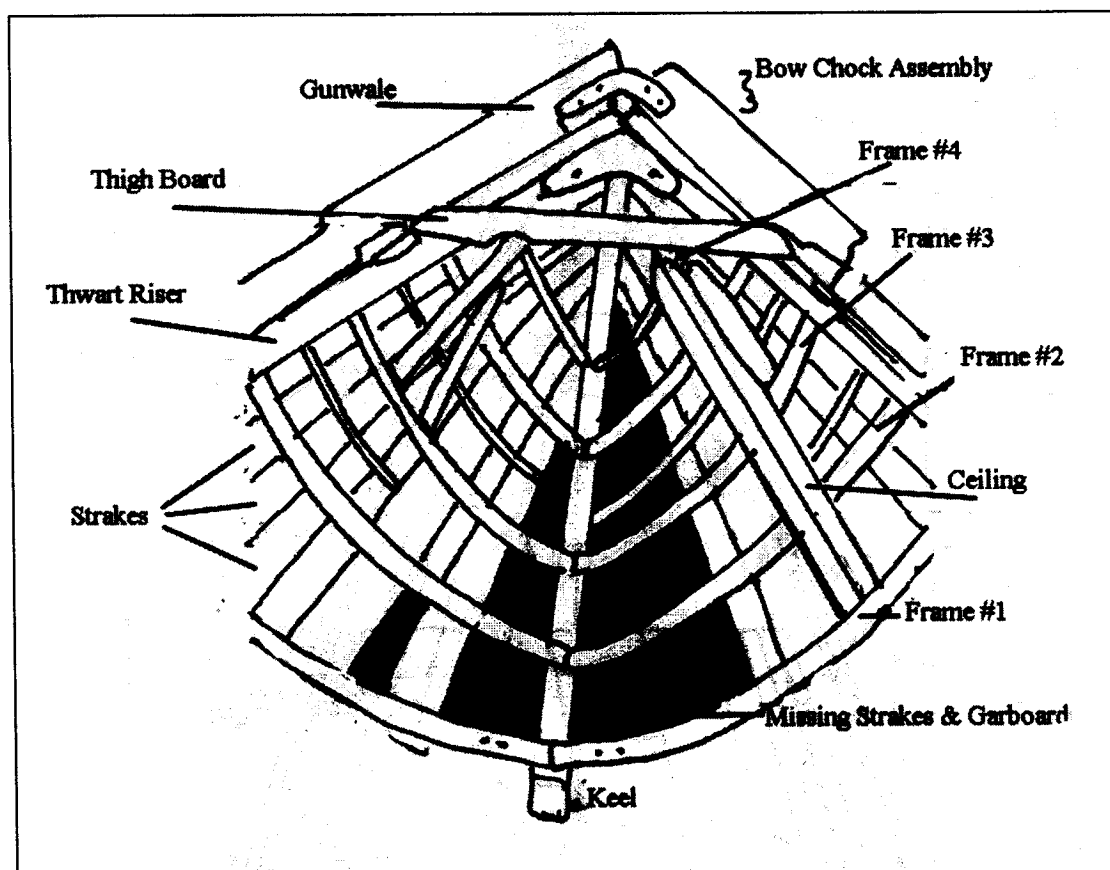


Figure 3.24. Internal Sketch of *Bonito*.

Figure 3.24 is an internal sketch of *Bonito*'s bow, and shows the bow chock assembly. The bow chock suffered major wood rot. The chock is formed by two thick pieces of wood on each side of the bow that form a slot in which the whale line runs.⁶³ The thin internal frames and the lack of a bow chock support reveal that the vessel was structurally inadequate for whaling when compared to the bow assembly of a true whaleboat.

⁶³ Willits D. Ansel, *The Whaleboat: A Study of Design, Construction, and Use from 1850 to 1970*. (Mystic, Connecticut, 1978), p. 143.

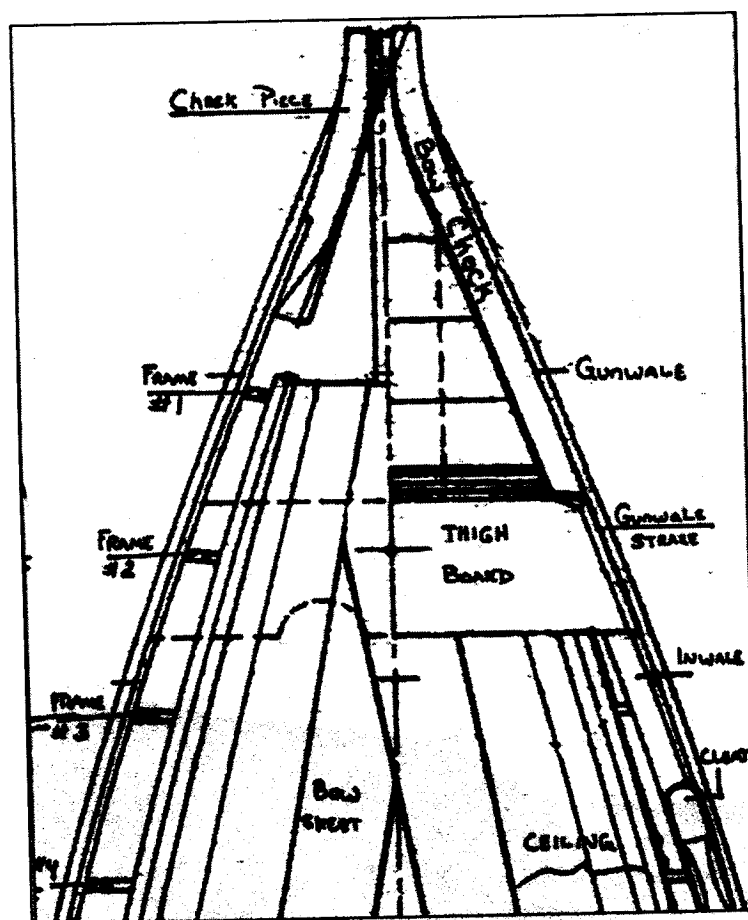


Figure 3.25. Internal Sketch of a Whaleboat.⁶⁴

Figure 3.25 illustrates the bow portion of a genuine whaleboat. When compared to the whaleboat bow, the *Bonito* lacks a true bow chock assembly. The bow chocks are heavy pieces of wood formed to create a slot between which the whale line runs.⁶⁵ The bow chocks are also positioned inside the gunwale, giving additional support to the boat's sides. The *Bonito*'s bow chock assembly is created by its gunwales, and provides little support when stressed.

⁶⁴ Erik A. R. Ronneberg, Jr., *To Build a Whaleboat: Historical Notes and a Modelmaker's Guide*. (New Bedford, Massachusetts, 1985); end page.

⁶⁵ *Ibid*, p. 143.

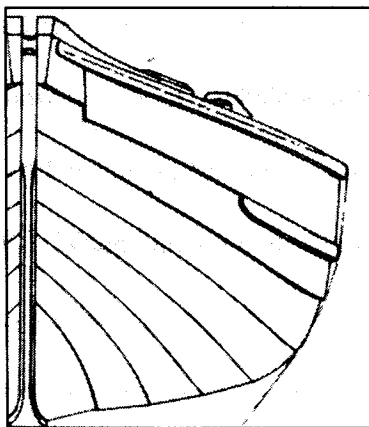


Figure 3.26. Bow Profile of Delano Whaleboat.⁶⁶

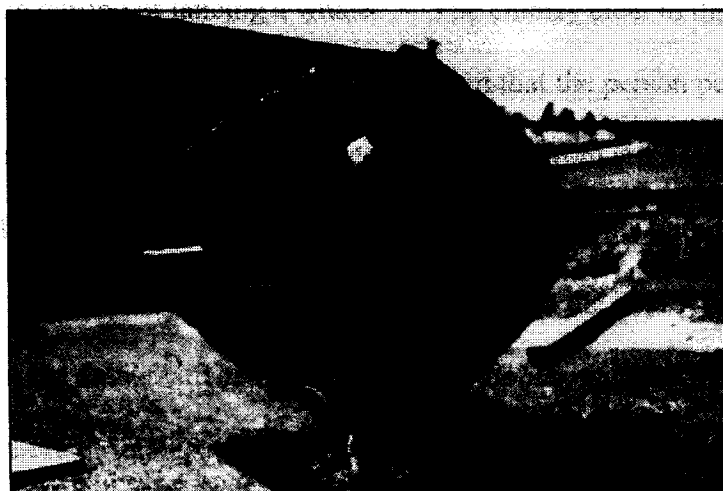


Figure 3.27. End On View of Bow.

The *Bonito* would have also been an inefficient whaleboat because it has a sharper deadrise. American whaleboats had a flatter bottom.⁶⁷ Flatness and a rocker keel

⁶⁶ Ronneberg, *To Build a Whaleboat*, end page.

⁶⁷ Ansel, *The Whaleboat*, p. 35.

allowed the boat to be turned quickly, although British boats tended to have more deadrise.⁶⁸ Boats with less deadrise and harder bilges accommodated more men and equipment.⁶⁹ Figure 3.26 is a bow profile of a whaleboat from the whaling bark *Lagonda*.⁷⁰ Joshua H. Delano of Fairhaven, Massachusetts, designed and built whaleboats from 1850 to 1870.⁷¹ When Delano's profile is compared to Figure 3.27, the *Bonito* presents a greater degree of deadrise.

Conversely, Astwood's boat includes many features common to whaleboats. The *Bonito* had a thigh board with a rather abrasive, clumsy cleat cut into it. In whaling, a clumsy cleat was a notch cut into the thigh board, used by both the boatsteersman and mate's thigh while darting or lancing a whale.⁷² The clumsy cleat in the *Bonito* was built into the port side of the thigh board, which meant that the person performing the harpooning was right-handed. Rubbing pieces, which run from stem to stern along the outsides of the sheer, were also fastened to each side. Whaleboats with rubbing pieces were commonly found aboard pelagic whaleships to protect the boat's sides when raised and lowered from the davits.⁷³ Their presence on the *Bonito* suggests that the boat was either dragged ashore or tied up. It is unlikely that the boat was lowered from a whaleship's davits.

Gunny's boat was probably built for fishing. The addition of a clumsy cleat and bow chock suggests that Gunny may have intended to use a hand-thrown harpoon or

⁶⁸ Ansel, *The Whaleboat*, p. 35.

⁶⁹ *Ibid*, p. 35.

⁷⁰ Ronnberg, *To Build a Whaleboat*, end page.

⁷¹ *Ibid*, pp. 15-38.

⁷² Ansel, *The Whaleboat*, p. 143.

⁷³ *Ibid*, p. 145.

shoulder gun, although the bow plan may have been constructed to raise the anchor. The bow's structural weakness indicates that the *Bonito* would not have survived a whaling expedition, although it is difficult to tell whether Gunny did or did not attempt to pursue whales in the *Bonito*.

In August 2000, a whaleboat was advertised for sale as a fishing vessel. According to the owner, the boat had not been used for whaling for decades. During World War II, the boat was used as a tugboat to maneuver American warships in and out of St. George's Harbour. Sometime later, the boat was remodeled and fitted with an outboard motor. Even though the *Bonito* may not have been a true Bermudian whaleboat, information that could lead to an accurate assessment of Bermudian whaleboats exists. Both the tug/whaleboat and photographic evidence, housed in the Bermuda Archives, might prove that the design of these boats imitated the construction and form of American whaleboats.

Further research may also yield information concerning American influence on Bermudian whaling. Equipment and customized tools of American origin assembled in Bermudian museum collections illustrates a transition in Bermudian whaling. Initially, Bermudians imported tools and whale crafts from European whaling nations, then modified them, but during the nineteenth century, they adopted American whaling tools and methods. No evidence suggests, however, whether the incorporation of American tools and methods improved Bermudian whaling.

The relics and ruins illustrated and documented during the 2000 and 2001 field season include only a small fraction of what is left of Bermudian whaling. Nearly every

parish from the islands of St. George's Harbour to Somerset includes miscellaneous artifacts, features, or sites that confirm Bermuda's whaling past. Regrettably, many sites or features are unrecorded and overlooked. Unlike other activities in Bermuda, shore whaling was never a major occupation for Bermudians. Then again, when whaling was conducted, the benefits from whaling affected the entire country. Whaling was an under-documented tradition, but by continuing research in this area, it is possible to expose additional information regarding the trade or the whalers that will expand Bermuda's own understanding of their islands' history.

Conclusion

On December 2, 1946, an international convention was held in Washington, D.C. in order to preserve the world's whale stocks.¹ As a result of that meeting, the International Whaling Commission (IWC) established the first whale sanctuary between New Zealand and South America. Since its beginning, the IWC has created other whale sanctuaries and drawn support from over thirty-two nations. The IWC includes nations that have had a history of whaling, still continue whaling, or have never engaged in whaling. Most members have abandoned whaling, although some members continue the trade, such as the United States. The objective of the IWC remains to protect whales and their breeding areas, and to discourage commercial exploitation of whale stocks. Bermuda is not a member, but in 1999 at the IWC meeting in Adelaide, Australia, the United Kingdom government reported that Bermuda declared its territorial waters, the 200-mile Exclusive Economic Zone, a sanctuary for whales.²

Prior to 1999, Bermuda passed legislation to protect its natural heritage, including the Protected Species Order of 1978.³ This order protects all Bermudian coral, sea turtles, marine mammals, and threatened species of mollusks and fish. Bermuda was party to the Convention on the Conservation of Migratory Species of Wild Animals founded in 1983, which included the protection of humpback whales.⁴ Bermuda is also

¹ G.P. Donovan, Reports of the International Whaling Commission. (Cambridge, United Kingdom, 1999).

² *Ibid.*

³ Bermuda Statutory Instrument, "Fisheries Act 1972." (Hamilton, Bermuda, 1978), section 5.

⁴ D. Proctor and L.V. Fleming, ed. "Biodiversity: the UK Overseas Territories." Joint Nature Conservation Committee. (Peterborough, United Kingdom, 1999), p. 23.

associated under the United Kingdom's jurisdiction in the Convention of International Trade in Endangered Species of Wild Fauna and Flora, which started in 1992 to protect wildlife from the regulation of international trade.⁵

Before Bermuda began protecting whales, the islands engaged in whaling. Bermudian whaling was a sporadic enterprise because the seasonal migration of whales prevented whaling activities to be performed year round. Successful Bermudian whaling appeared in the seventeenth and eighteenth centuries while Bermuda struggled to find other resources and means to develop the country. As Bermuda developed other maritime industries and a strong agricultural trade, whaling declined. It appears that during the mid-nineteenth century to mid-twentieth century whaling operations occurred in ten-year increments.

This phenomenon has not been specifically addressed within the thesis, although it provides additional questions such as whether Gulf Streams extended closer to Bermuda every ten years. This phenomenon does refute the original idea that whaling was performed under dire circumstances. This is true in some cases, particularly after the depression created by the Crimean and World Wars, but ordinarily, whaling was undertaken by agriculturalists and fishermen to augment their incomes during growing periods.

Research also suggests that the American influence on Bermudian whaling was not seen until after the Revolutionary War. Investigations indicate that as the American industry recovered and developed after the Revolutionary War, Bermudian whalers began

⁵ Proctor, "Biodiversity: the UK Overseas Territories," p. 23.

incorporating American equipment into island whaling. The transformation occurs during the war in 1780 when Pinkham introduces Bermudians to American processing techniques.⁶ In 1872, the *Blue Books* record the exchange of "a lot" of whaling equipment from the United States.⁷ American equipment housed in public museums confirms the arrival of the American's influence. Pictographic evidence of Bermudian whaleboats also suggests the exchange of hunting techniques, although more research must be performed in this area.

This study is far from complete. Only two whaling sites were examined in this investigation. Many questions remain regarding Whale Island and the station located on Smith's Island. Many more sites were not inspected. For example, in St. George's Parish, whale stations and activities were also located on St. George's, St. David's and Paget Islands. Whalers conducted their operations from Tucker's Town, as well as Warwick and Southampton parishes. Bermuda's entire whaling history involved shore-based whaling, although for a short period in the late eighteenth century pelagic operations were conducted. Most references merely confirm the pelagic operations. One future study might examine why they were started and who composed the crews of the whaling ships. Still, much is unclear concerning Bermuda's shore-based whaling activities.

In 1616-17, the first Bermudian whaling operations took place within the shallows of Castle Harbour. The abundance of ambergris and whale stocks on and around the

⁶ Anonymous, Excerpt from *Islands of St. George's Harbour*. (Bermuda Maritime Museum Library Collection - "Whaling", Dockyard, Bermuda), p. 259.

⁷ Records of the Colonial Secretary, *Blue Books*. (Bermuda Archives, 1872), pp. 218-9.

islands encouraged colonization. The earliest hunting methods involved crews of men in shallops chasing pods of whales caught in the shallow bays around St. George's. The means of capturing a whale entailed the boats' crew rowing close enough for the boatsteerer to dart the whale. Once the whale was subdued and fatally wounded, the whale was towed to a designated processing station. The whale station included the necessary butchering tools, tryworks, cooling tanks, and coopering equipment. Often whale houses built near the station served as domiciles and storage facilities for gear and barreled oil.

As the colonial population grew and whaling became more popular, whales departed from the bays. Whales continued to be present near the islands in the spring and early summer when pods migrated from their winter-feeding areas in the southern Atlantic to their northern breeding grounds. Humpbacks were frequently spotted feeding outside the coral boundaries of Bermuda, while sperm whales appeared in the deeper Gulf Stream waters. It was customary for the highest points nearest the ocean to be used for spotting whales. A signal was used to inform crews when and where a whale or pod was spotted. Crews of seven to eight whalers would launch from the beach and pursue, while others sharpened the cutting spades and knives or prepared the furnace fire. Whalers pursued whales in 28 to 30 foot, shore-launched, rowed whaleboats. The strategy was to row close enough for the boatsteerer to harpoon the whale. Once the harpoon held, the crew was often taken for a ride until the whale tired. The mate then exchanged places with the boatsteerer to perform the lancing. Once the whale was dead, it was towed back to a designated processing area. Shore whaling was conducted not

only by whalers, the operations also included blacksmiths, financial supporters, coopers, and laborers.

In the late eighteenth century, Bermudians engaged in another form of whaling. In 1786, the first organized pelagic whaling voyage was performed. Similar to American and European industries, Bermudians sent whale ships out to hunt in the Atlantic Ocean fisheries. Unlike shore whaling, pelagic activities were deployed from and conducted onboard the whale ship. The ship took on the role as the lookout, launch, quarters, and whale station and was equipped with boats, gear, tryworks, processing tools, barrel staves, and crews for sailing and whaling. Six vessels were recorded as embarking on pelagic voyages including the *Queen Charlotte* in 1786, *Governor Browne* (1787 & 1791-2), *Governor Hamilton* (1791) and *Mercury* (1789). Two brigs named the *Bermuda*, the first sent out in 1792 and another *Bermuda* in 1794 also performed whaling operations in the South Sea Fishery. By the end of the eighteenth century, Bermuda lost a third of her fleet when an unknown disease beleaguered the crew of the *Governor Hamilton*, and the *Bermuda* wrecked off the coast of Brazil. The Bermudian pelagic whaling industry never carried over into the nineteenth century, even though Britain and the Bermudian government promised pelagic companies financial support.

There are many reasons why shore whaling in Bermuda never became a commercial enterprise. The greatest influx of whales in the waters surrounding Bermuda occurred only in the spring and late summer, which restricted whaling to a seasonal activity. In addition, as the American and European industries expanded, the numbers of whales in the Atlantic Ocean dwindled, and in turn, fewer whales roamed around the

islands by the nineteenth and twentieth century. Furthermore, restraints imposed by British kings and the islands' own government reduced the prosperity of the trade. Charles I forbid whaling in Bermuda until 1639, except to those granted royal permission; nevertheless, those given the permission paid the crown a considerable tax on every whale taken. Exorbitant duties and taxes continued through the seventeenth century, when the governor's authority increased on the islands. Bermudian law placed a fee of ten pounds on each whale taken to supplement the governor's salary until 1733, despite the fact that a licensing fee for whaling already went to pay the governor. In 1738, Governor Popple removed all restrictions on whaling; however, the fee of ten pounds per whale stayed until 1740. Limitations of the islands' trade continued up to the end of the century. Although the Restraining Act of 1775 was directed at the American colonies, Bermuda was included in the list of territories in Article VI that prohibited whaling or fishing the North Atlantic Fishery. By the turn of the nineteenth century, Bermudian shore and pelagic whaling companies could not achieve the profits needed to warrant the heavy duties imposed on whale oil by the British, and it was not until after the British Embargo Act of 1807 when whaling appeared as a prosperous trade.

Throughout Bermudian whaling, operations were conducted by many socio-cultural groups. Indentured servants conducted whaling preceding those performed by the *Neptune's* crew. Records indicate that many prominent Bermudians sponsored the industry by supplying men and equipment, but as the social custom of servitude diminished in the early seventeenth century, the number of able-bodied men to whale decreased. A resurgence in the labor force occurred with the emancipation of slaves in

1834 when a new and eager assemblage of whalers bolstered the trade. The number of Bermudian whalers increased again in the mid-nineteenth century when agriculturalists from the Madeira, Azores, Cape Verde Islands, Sweden and Portugal, whose families had a long history of whaling, immigrated to the islands. By the late nineteenth century, officials recorded the greatest number of whaling companies on the islands.

The demand placed for whale goods was consistently strong in Bermuda. Whales provided illumination and medicines for all classes of Bermudians. Baleen (whalebone) and bone were also useful, as it could be fashioned into various items and functional tools. Whale meat and tanned whale skin also served as an economic relief during Bermuda's most desperate times. Although the Bermudian whale trade never became a staple business, the exchange of whale goods provided substance to the islands' economy.

Bermudian import and export ledgers from 1840 to 1880 indicated that Bermuda became an intermediate way station for the exchange of whale and lamp oil. British North America, the United States, and Britain were principal exporters of whale and lamp oil, while Britain and Latin American nations such as Cuba, Demerary, and Puerto Rico consumed Bermudian exports. According to these ledgers, the United States was the leading exporter of oils to Bermuda except in 1845 and 1858. Bermudians required great demands of oil, which could not be amassed by the local fishery; however, Bermuda exported fluctuating quantities of oil. The exchange of lamp oil gradually intensified until the early 1860s, when the exchange of oils became extremely erratic, and the amounts imported was nearly double that of two decades before.

Increase of imported oils was attributed to the outbreak of the American Civil War. It was probable that islanders required more oil, but the great majority of oil was transshipped to the Confederacy. With the outbreak of war, the South was cut off from Northern industries, including the northern whale market. The Confederate Navy contributed to the destruction of northern whale fleets, but so too did the North by intentionally sinking whale ships to blockade southern ports. Although the American whale industry was shattered, the demand for lubricants and illuminates created from whale blubber remained. Along with munitions and war supplies, whale and sperm oil was shipped aboard blockade-runners from Bermuda to Wilmington, North Carolina.

Kerosene first appeared in Bermuda during the Civil War. By mid-century, lamp oils such as colza, camphene, astral, lard, and castor oils replaced whale oil in lamps. By 1863, Britain and other European nations were searching for alternatives to whale oil. The transition from whale to other lamp oils occurred after the 1880s, when kerosene became affordable even to the poor.

The whaling tradition survived the first World War, but not the second. The last successful whaling venture occurred in 1941. The hunt received much publicity, but there are little details that report the flensing or whale distribution. Oil may have been rendered, since whale butter at the time remained a desirable fare in European diets. Regardless, whale hunting in Bermuda was no longer economically practical.

Abandoned features, structures, and equipment housed in private and public collections reveal the technological and methodological changes that occurred in Bermuda's shore whaling trade. Whaling in Bermuda in the seventeenth and eighteenth

centuries was based on the methods and equipment employed in the British industry. By the nineteenth century, the growing American influence appeared in the islands. Records indicate the exchange of American boats and tools as early as 1839. New methods and techniques may have transpired earlier as American whale ships called upon Bermuda for provisions and supplies. Private and public collections of Bermudian whaling equipment chronicle technological advancements. As the trade continued on the islands, new methods and equipment for hunting and processing whales were introduced, then modified in accordance to the particular whaling environment Bermuda offered.

The Bermudian whaling culture was unlike any other nation's. By the mid-nineteenth century, Bermudian whaling had developed into a fusion of whaling cultures. The customs established exemplified early British practices mixed with American equipment. The whalers included an assortment of Portuguese, Swedes, former slaves, farmers, laborers, and fishermen. This homogeny was best personified in 1941 when a mixed crew of whalers captured the Bermuda's last whale. Although the trade is no longer practiced, Bermudians still pay homage to their whaling past by preserving sites and relics in public/private collections or as ornamental fixtures.

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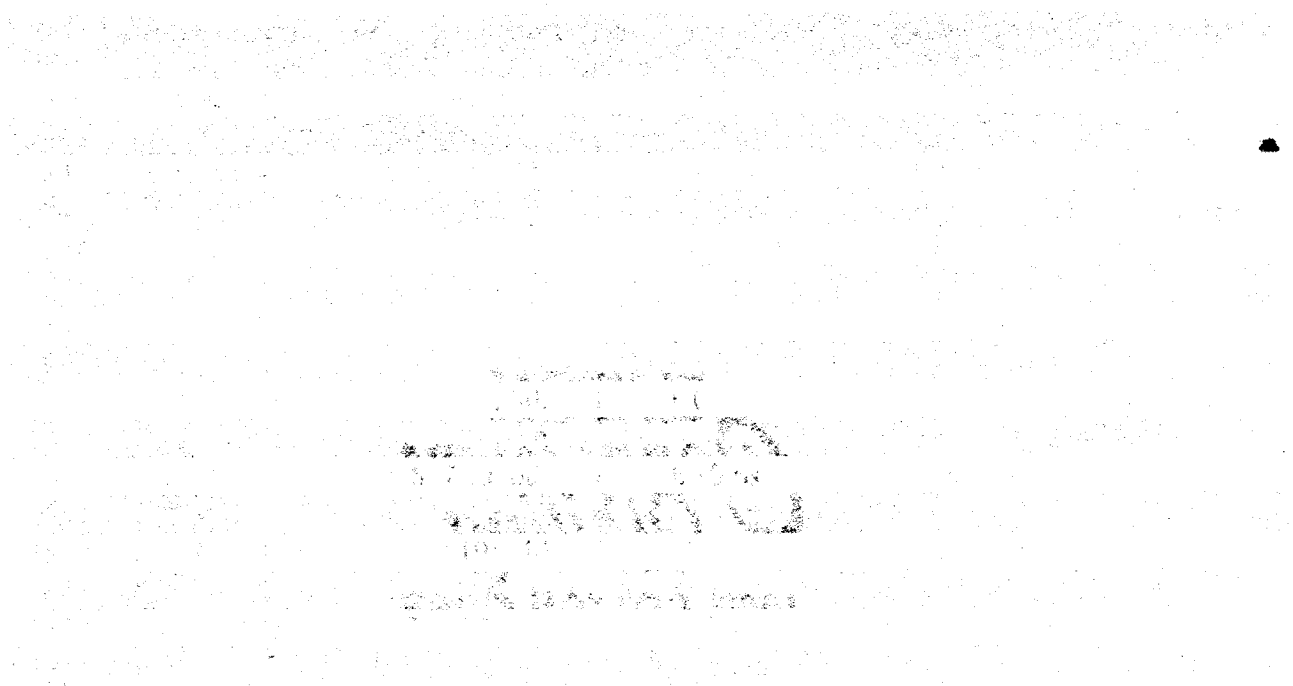
Appendix A
"Whale Fishing in Bermuda."¹

Before the moon with faintly glimmering ray
Heralds the advent of the King of Day,
The sun-burnt whaler leaves his cottage home
And hastes afar o'er liquid fields of roam.
His summon'd crew their well-armed skiff unmoor,
Sweep thro' the wave and swift recedes the shore.
The golden sun now leaves his orient bed,
But the bold fishers many a mile have sped,
High in the prow their dauntless chief surveys
Th' horizons bound with more than falcon gaze,
And marks that on the wave his destin'd prize
Wrapped in the dull embrace of morpheus lies.
Elate with hope and frantic with delight,
He tells the tidings and commands the fight.
Tho' fleet as wind, the sable boatmen urge
The armed shallop o'er the yielding surge.
But to the fish, when near, no sounds reveals
The wily foe that on his slumber steals;
For the skilled rowers the liquid mirror break,
As mute as parts the flood the wat'ry snake.
The oars are stay'd, the destined victim won;
Now deals the boat's harpoon the deadly blow,
Swift as an arrow winged from Parthian bow;
His forked tail to Heaven, the monster rears
And in the wave deep plunging, disappears;
Swift as the whirlwind on its pinions speeds,
The folded halter from its cell recedes,
And tracks the wounded fish beneath the flood,
Linked to the shaft that drinks his vital blood.
But the chief's order speaks the moment near
To check the madden'd monster's wild career.
Th' obedient crew the stern command obey
And the boat flies involved in clouds of spray,
While the loud whoop from lungs of brazen might,
On many a hill proclaims the daring fight.

¹ Anonymous, Excerpt from *Islands of St. George's Harbour*. (Bermuda Maritime Museum Library Collection – "Whaling," Dockyard, Bermuda), p. 259.

Again emerges from the deep, the whale,
 Matched with whose hue, the ebon's waxes pale;
 And like the tow'r'ing spire is seen to rise
 The liquid column that invades the skies.
 Forward impell'd to the boat, the speed is given
 That winds the lighting from its cloudy prism;
 Close to the huge Leviathan it swings
 And the pois'd lance the dextrous fisher flings-
 The giant monster pierc'd in either side,
 From his torn entrails spouts the gory tide!
 And the lash'd waves commingle with the skies,
 Till fancy sees a Charybdis rise,
 With countless wounds are pierc'd his bleeding sides
 And furious bounds the Monarch of the tides.
 An hour has pass'd – the battle lingers still
 And deafening shouts re-echo from each hill;
 But the black shallop's tardier movements tell
 The murderous steel hath done its duty well.
 The fisher feels his breast with rapture glow,
 Bath'd with the life-blood of his hard-fought foe.
 Alone no fragile skiff the peril braves,
 Tho' the bold fishers fear not wat'ry graves;
 But hov'ring near their leagued associates sweep
 O'er the smooth surface of the briny deep.
 When mark'd the conflict, 'tis their only care
 To aid their colleagues and the triumph share.
 Toss'd in his gory bed, the huge fish lies,
 Already deem'd the valiant whaler's prize.
 His limbs convulsed, in frantic movements play
 As ebbs life's current from his heart away.
 With matchless skill the bold but wearied crew,
 While perils shun, the work of death renew;
 But in their war skiffs, hurried from afar,
 Two other chiefs have reached the scene of war;
 Their rival skill, the tripled forces try,
 And the lanc'd spears in quick succession fly.
 In torrents ceaseless rolls the tide of blood,
 And crimsons far around the limpid flood.
 But to the shore – those whaler chiefs renown'd,
 Upon whom shores of summer suns have frown'd,
 With eagle keen their warring sons espy,
 While rapture kindles in each sunken eye.
 Re-echoed plaudits speak the joy they feel
 When marked the skill that aims the murderous steel.

But see! High floats the flag, the strife is done
And the conch shell proclaims the victory won.



Appendix B
Cost of Imported Oil - 1840 to 1880.¹

1840	£ 92.29	£ 363 £145.00	£ 0 £ 0	£ 237.29	
1842	£ 52 5s. 4d.	£ 76 18s. 2d.	£ 1 4s. 6d.	£ 130 8s.	£ 8 9s. 8d.
1844	£ 28 18s.	£ 143 8s. 4d.	£ 21 1s. 5d.	£ 193 7s. 9d.	£ 8 7s. 11d.
1846	£ 87 7s. 8d.	£ 562 15s. 3d.	£ 0	£ 590 3d.	
1848	£ 147 15s. 6d.	£ 726 4s. 3d.	£ 0 15s.	£ 873 1s. 9d.	£ 41 1s. 2d.
1850	£ 142 6d.	£ 617 7s. 6d.	£ 10 6s.	£ 769 14s.	
1852	£ 398 8s. 18d.	£ 680 19s. 4d.	£ 6 1s.	£ 1085 9s. 10d.	
1854	£ 342 12s.	£ 701 17s. 2d.	£ 0	£ 1044 9s. 2d.	

¹ Records of the Colonial Secretary, *Blue Books*. (Bermuda Archives, 1840-1855).

Appendix C
Cost of Exported Oil - 1849 to 1880.¹

1840	£ 363 6s.	£ 0	£ 0	£ 413 6s.
1842	£ 37 15s.	£ 74 8s.	£ 0	£ 112 5s.
1844	£ 0	£ 0	£ 0	£ 0
1846	£ 11	£ 0	£ 0	£ 11
1848	£ 19 10s.	£ 0	£ 0	£ 19 10s.
1850	£ 17 16s.	£ 8	£ 0	£ 25 16s.
1852	£ 0	£ 0	£ 0	£ 0
1854	£ 143 18s.	£ 0	£ 0	£ 143 18s.

¹ Records of the Colonial Secretary, *Blue Books*. (Bermuda Archives, 1840-1855).

Appendix D
Exported Oils and their Destinations - 1858 to 1880.¹

1858	United States of America	3100 gallons of whale oil in 134 casks	£ 600
1859	"	13, 504 gals of Sperm oil	£ 2, 805
1862	Porto Rico (Puerto Rico)	1895 gals (lamp)	£ 167 9s.
1864	Porto Rico	245 gals (lamp)	£ 30 12s.
1866	United Kingdom	1393 gals (lamp)	£ 3, 482
1867	British North America	206 barrels (lamp)	£ 260
1870	British North America	50 gals of Sperm oil	£ 200
1877	Cuba	57 cans (lamp)	£ 31
1880	"	1 lease of whale barbs?	£ 4

¹ Records of the Colonial Secretary, *Blue Books*. (Bermuda Archives, 1858-1880).

² The quantity of lamp oil exported to Barbados was undecipherable in my copy of the 1871 *Blue Book* ledger.

Appendix E
Cargo Manifests of Blockade Runners Possibly Carrying Whale Oil.

<i>R. E. Lee</i>	360	Wilkinson	July 22, 1863	3 barrels of oil
<i>Alice</i>	803	J. Egan	Oct. 16, 1863	1 drum boiled oil
<i>Advance</i> ²	902	John J. Guthrie	Nov. 3, 1863	2 casks oil
<i>Ranger</i> ³	350	John T. Holmes	Dec. 18, 1863 ?	20 drums oil
<i>City of Petersburg</i>	426	F. W. Fuller	Jan. 15, 1864	10 casks oil
<i>Emma Henry</i> ⁵	242	P. C. Reid	Nov. 23, 1864	10 barrels of sperm oil

According to the cargo manifests found in the Custom House at St. George's Bermuda, the above blockade-runners were recorded as leaving Bermuda, destined to Nassau, Bahamas.⁶ Each vessel, except for the *Emma Henry*, arrived instead at Wilmington, North Carolina. The table above includes possible products made of whale included among the ship's cargo. Besides three cases of whips shipped in 1863 onboard

¹ Chased ashore and destroyed by the *Cambridge* near Masonboro Inlet on February 5, 1864, while trying to reach Wilmington. Stephen R. Wise, *Lifeline of the Confederacy: Blockade Running during the Civil War*. (Columbia, South Carolina, 1988), p. 295.

² Captured coming out of Wilmington on September 10, 1864. *Ibid*, p. 286.

³ Driven ashore and destroyed by the *Minnesota*, *Governor Buckingham*, *Daylight*, and *Aries* on Jan. 11, 1864, off Old Inlet, North Carolina while trying to reach Wilmington. *Ibid*, p. 317.

⁴ Sank heading for Wilmington off Wrightsville Beach, North Carolina on Feb. 9, 1864.

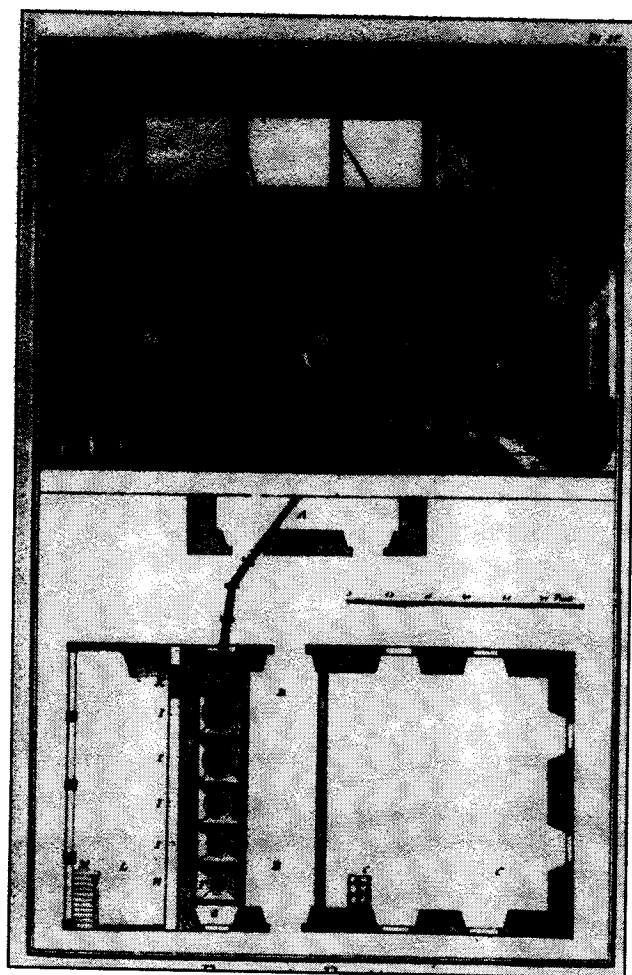
⁵ Captured heading out of Cape Fear River on Dec. 7, 1864. *Ibid*, p. 298.

⁶ Frank E. Vandiver, *Confederate Blockade Running through Bermuda, 1861-1865*. (Austin, Texas, 1947), p. 107.

the *Julia*, cargo manifests recorded quantities of whale and lamp oils traded to the Confederacy. Lard and kerosene oils can be excluded as the substances shipped, since clerks specifically noted these particulars on other blockade running cargo manifests. The oil substances could possibly be whale or lamp oil, linseed, or olive oil. Olive oil can be eliminated among the listed vessels since other blockade-runner cargo manifests and Bermuda's Records of the Colonial Secretary cataloged olive oil by the case, not barrel. The only possible substance consigned to the Confederacy is whale (lamp oil), sperm, or linseed oil.

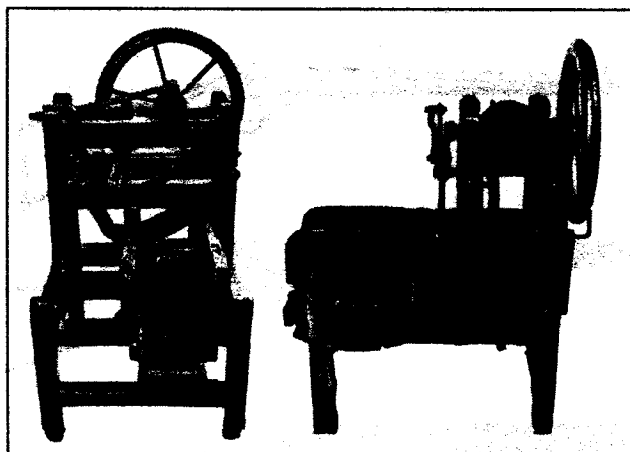
In 1863, forty-six barrels of oil were shipped from Bermuda to the Confederacy. In 1864, 10 barrels of sperm oil were supplied to the South with the possibility that an additional 12 barrels were also delivered. Twenty-one barrels were shipped the next year, which equals 1,449 gallons of oil traded in 1863, 693 gallons in 1864, and 661.5 gallons in 1865.

Appendix F
Sugarcane Tryworks.¹



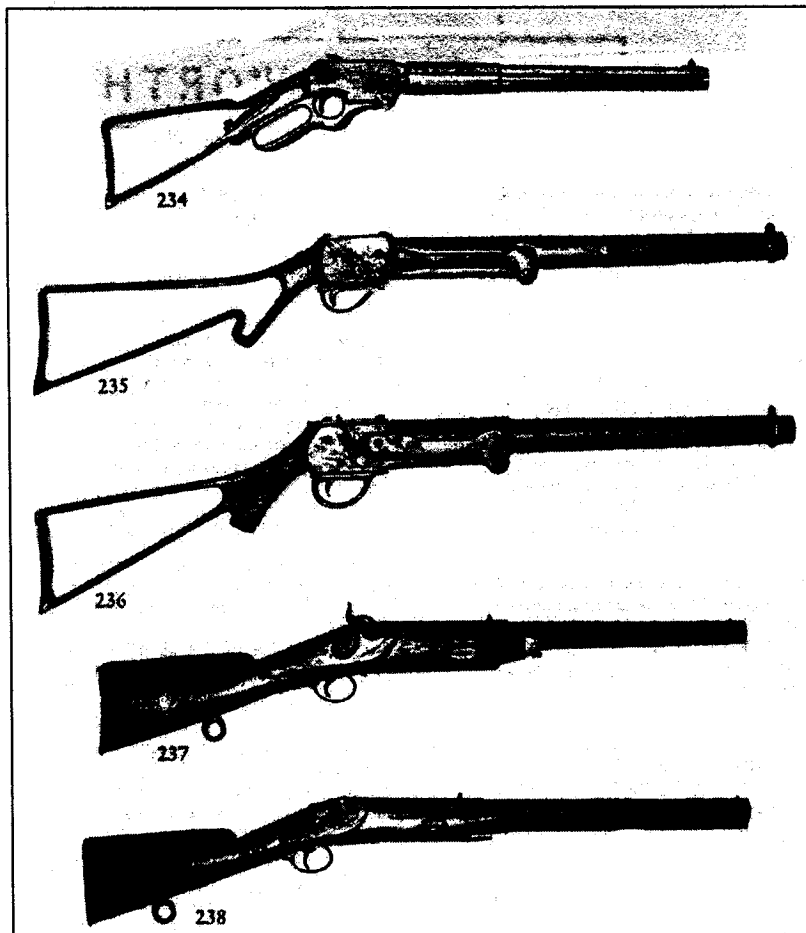
¹ A. Mondadori, ed., *Diderot's Encyclopedia: The Complete Illustrations, 1762-1777*. (New York, 1978), p. 84.

Appendix G
Sowle and Cursely Mincing Machine.¹

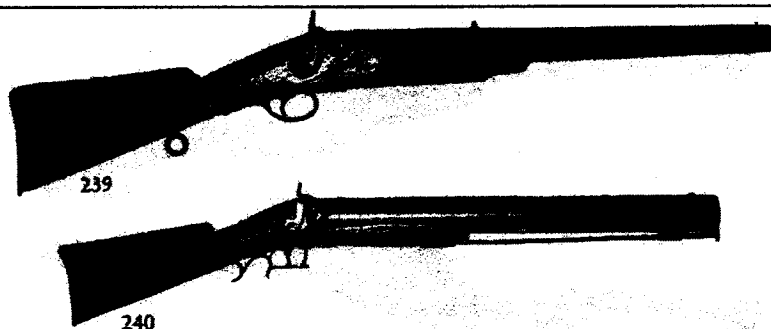


¹ Thomas G. Lytle, *Harpoons and Other Whalecraft*. (New Bedford, Massachusetts, 1984), p. 147.

Appendix H
Shoulder Guns and Bomb Lances.¹



¹ Thomas G. Lytle, *Harpoons and Other Whalecraft*. (New Bedford, Massachusetts, 1984), pp. 232-35.



ROBERT BROWN GUN LANCE, 1850

232. Cast iron; shank has I-shaped section; cast in raised letters on side of shank is R BROWN PAT JUNE 4 1850 (date in error, probably used existing part of mold pattern for earlier harpoon); spherical projection at butt to fit into hole or depression in separate cast-iron button (missing) to keep button centered during discharge; transverse hole at butt of shank for attaching two rope tails (missing). Length, $36\frac{1}{2}$ in. (92.7 cm.)

ROBERT BROWN BOMB LANCE

233. Three braided rope tails attached. Length, $33\frac{3}{4}$ in. (84.8 cm.); diameter, $1\frac{1}{16}$ in. (2.7 cm.)

PIERCE & EGGERS GUN, 1878

234. Gun metal; in place of hook-shaped stud, lever pivots a latch through a hole in the stock; latch captures portion of the trigger guard to lock breechblock closed. Length, $36\frac{1}{4}$ in. (92.1 cm.); length of barrel, 18 in. (45.7 cm.); bore, $1\frac{1}{16}$ in. (2.4 cm.)

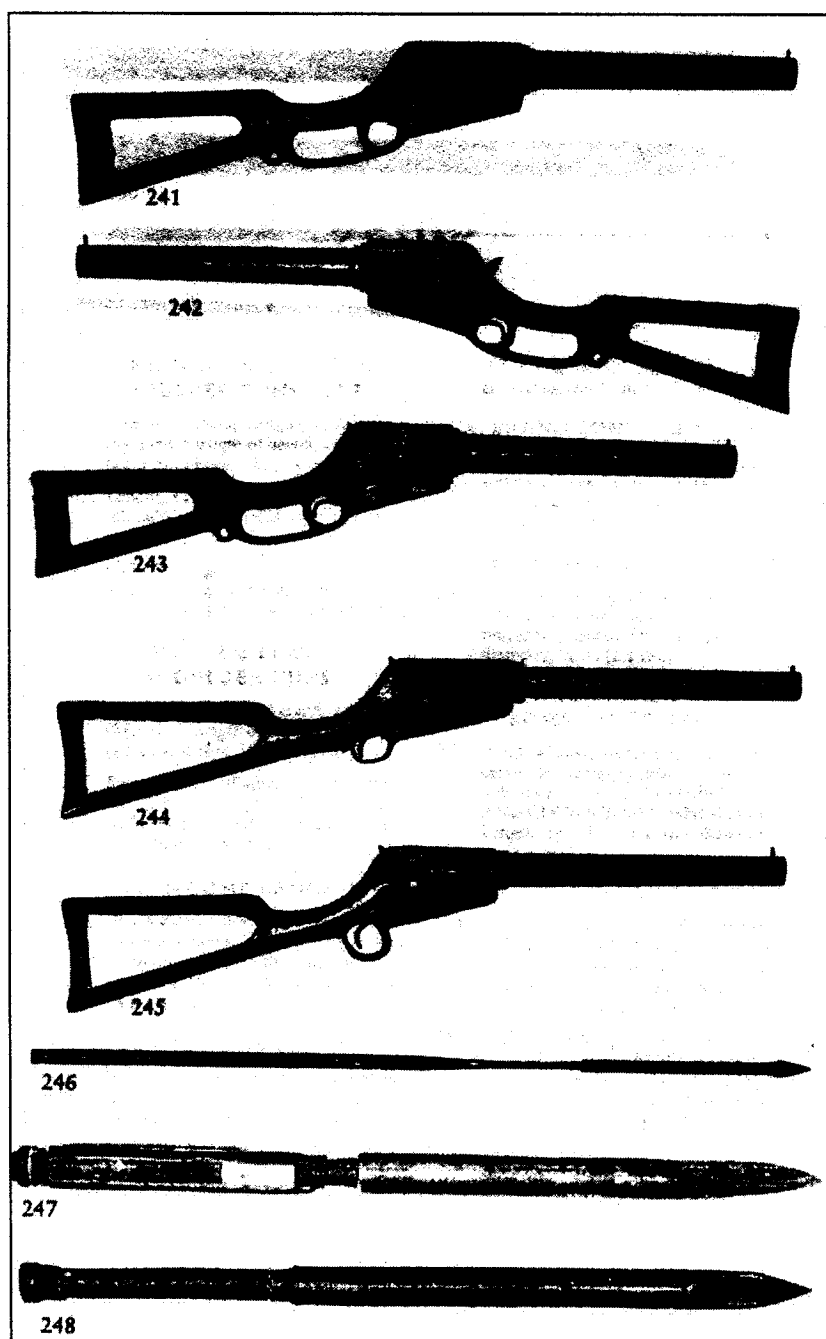
PIERCE SHOULDER GUNS, 1882

235. Gun metal; stamped on top of barrel is PATENTED / 82 / E. PIERCE. Length, 37 in. (94.0 cm.); length of barrel, $19\frac{1}{8}$ in. (49.2 cm.); bore, $\frac{7}{8}$ in. (2.2 cm.)

236. Gun metal; hollow socket at bottom of stock for mounting on a post for firing; socket is 1 in. (2.5 cm.) diameter, 3 in. (7.6 cm.) deep; stamped on stock and breech is E. PIERCE 3902. Length, $36\frac{1}{2}$ in. (92.7 cm.); length of barrel, $19\frac{1}{2}$ in. (49.5 cm.); bore, $\frac{7}{8}$ in. (2.2 cm.)

GRUDCHOS & EGGERS SHOULDER GUNS

237. Rifled barrel; walnut stock with brass butt plate; stamped on right side near hammer is GRUDCHOS & EGGERS / N. BEDFORD MASS. Length, 38 in. (96.5 cm.); length of barrel, 22 in. (55.9 cm.); bore, 1 in. (2.5 cm.)
238. Rifled barrel; walnut stock; percussion hammer missing; stamped on right side to rear of hammer pivot is GRUDCHOS & EGGERS / N. BEDFORD MASS. Length, 40 in. (101.6 cm.); length of barrel, $23\frac{1}{2}$ in. (59.7 cm.); bore, 1 in. (2.5 cm.)
239. Rifled barrel; walnut stock; stamped on right side near hammer is GRUDCHOS & EGGERS / NEW BEDFORD MASS. Length, $38\frac{1}{4}$ in. (97.2 cm.); length of barrel, $21\frac{1}{2}$ in. (54.6 cm.); bore, 1 in. (2.5 cm.)
240. Ramrod in position under iron barrel. Length, $38\frac{1}{2}$ in. (97.8 cm.); length of barrel, 24 in. (61.0 cm.); bore, $1\frac{1}{16}$ in. (2.7 cm.)



249

250

251

252

CUNNINGHAM & COGAN SHOULDER GUNS, 1877

241. Hammer missing. Length, 33 1/2 in. (85.1 cm.); length of barrel, 16 1/2 in. (41.0 cm.); bore, 1 in. (2.5 cm.)
242. Length, 34 in. (86.4 cm.); length of barrel, 16 3/4 in. (42.2 cm.); bore 1 in. (2.5 cm.)
243. Gun is in original wood box. Length, 33 1/2 in. (85.4 cm.); length of barrel, 16 1/4 in. (41.3 cm.); bore, 1 in. (2.5 cm.)

WILLIAM LEWIS SHOULDER GUNS

244. Main spring broken. Length, 35 1/2 in. (89.1 cm.); length of barrel, 16 1/2 in. (41.3 cm.); bore, 1 in. (2.5 cm.)
245. Painted black; number 12 stamped on top of breech. Length, 33 1/2 in. (85.4 cm.); length of barrel, 16 1/16 in. (41.1 cm.); bore, 1 in. (2.2 cm.)

O. ALLEN BOMB LANCE, 1846

246. Wood shank made in two lengthwise halves and tied together with twine in a groove provided for the purpose. Length, 41 1/4 in. (106.0 cm.); diameter, 7/8 in. (2.2 cm.)

C. C. BRAND BOMB LANCE, 1852

247. No. 1 bomb; original yellow paper label on one fin reads C C BRAND'S IMPROVED BOMB LANCE / PATENTED

JUNE 22d, 1852. Length, 17 in. (43.2 cm.); diameter 1/2 in. (1.3 cm.)

J. A. BRAND BOMB LANCE, 1879

248. Cast iron tip with three cutting edges, screws into brass bomb shell; rubber fins missing. Length, 16 1/2 in. (42.5 cm.); diameter, 1/2 in. (1.3 cm.)

PIERCE BOMB LANCE, 1879

249. Bomb is brass tubing; four metal fins retained by metal ring; tip has four cutting edges. Length, 27 1/2 in. (44.5 cm.); diameter, 1/2 in. (1.3 cm.)

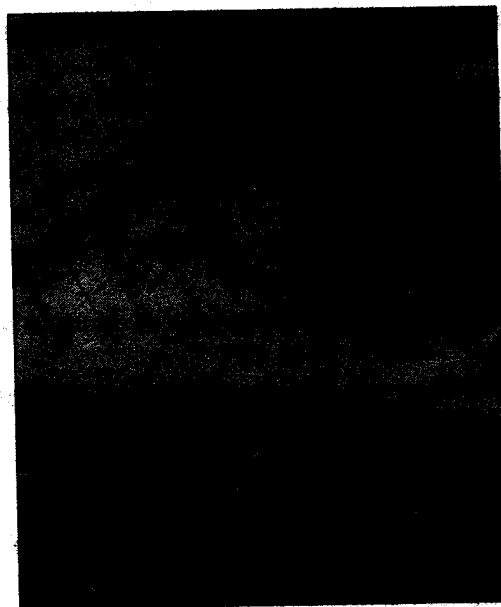
CUNNINGHAM & COGAN BOMB LANCE, 1875

250. Bomb is heavy cast iron; fins deteriorated; explosive missing; tag placed on bomb at unknown time reads CUNNINGHAM AND COGAN BOMB LANCE 1875. Length, 15 1/2 in. (39.4 cm.); diameter, 1 in. (2.5 cm.)

LANCES

251. Maker's mark J. D. DRIGGS stamped on head, and CAST STEEL stamped on opposite side; mounted on pole. Length, 67 in. (170.2 cm.); length including pole, 132 1/4 in. (335.9 cm.)
252. Maker's mark J. D. DRIGGS stamped on head, and CAST STEEL stamped on opposite side; mounted on pole. Length, 61 1/2 in. (156.2 cm.); length including pole, 138 3/4 in. (351.5 cm.)

Appendix I
Internal Photograph of *Bonito*.¹



¹ The photograph shows boards under and parallel to the keel. The museum's staff added them to support the weight. Boards running perpendicular were attached to the bow by the museum in order to prevent the sides from collapsing.

Appendix J Genealogies

Another goal during the 2001 season was to explore the Bermudian whaler genealogies. As infrequently as whaling occurred in Bermuda, was whaling a true “family affair.” Bermudian literature always proclaimed that whaling companies worked like kin. Whaling is an extremely dangerous trade, and to succeed in the business, crews and company men needed to work in harmony. Nonetheless, since whaling requires a tremendous amount of strength, patience, and skill, the trade might have been passed down bloodlines.

The *Nineteenth Century Church Registers of Bermuda* and the *Nineteenth Century Bermuda Wills* were searched.¹ The Church Registry was very useful in tracking ancestral lines. Divided by faith and churches in each parish, the registry chronicles marriages, births, and deaths that occurred from the late eighteenth through early twentieth centuries. Along with this information, the registry cataloged the surname of brides and the husband’s occupation. This information should show if a whaler married into another whaler’s family. The investigation began with many assumptions. One was the belief that it would be easy to trace well-known whaler lineages.

Although Bermuda is physically small, paternal family bloodlines are extremely broad. Prominent whalers such as John Hayward, Francis Forbes Hinson, Benjamin Richardson, H. M. Fox, and Richard Conyers share surnames with thousands of other

¹ C. F. E. Hollis Hallett, *19th Century Registers of Bermuda*. (Hamilton, Bermuda, 1997); C. F. E. Hollis Hallett, *19th Century Bermuda Wills*. (Hamilton, Bermuda, 2000).

Haywards, Hinsons, Foxes, and Conyers'. Tracking family lines was possible only if families stayed in the same parish or continued to worship at one church for a long period. The registry, regrettably, only documented one-hundred years or approximately three generations of heredity.

The primary occupations of Bermudian whalers were farming or fishing. Only one self-proclaimed whaler was in the church registry. His name was Cockburn Fox of Devonshire, and on December 26, 1852, his wife, Elizabeth, gave birth to their daughter, Ella Lavinia.² Most Bermudian whalers were farmers and fishermen first. The most acclaimed whaler of the late nineteenth century was Henry Mortimer Fox of St. Georges' parish. In the baptismal records of his son, Victor James Terence, and daughter, Wilhelmina Marie, Henry's occupation is recorded as a farmer.³ Another farmer and whaler from the late nineteenth century was Profiris Gomez of Devonshire, whose family came from Cape Verde with a family whaling tradition. Like H. M. Fox, Gomez had a son, Peter, but there are no records of either son carrying on their father's trade.

The last recorded whaler in Bermuda was Fredrick Gunnison "Gunny" Astwood. Bermudians remember Gunny in his later life more as a fisherman than a whaler. According to Presbyterian registries from Paget, Gunny was raised by farmers.⁴ His father Frederick Brownlow Astwood was shown as a farmer in 1888 when he married his

² Hallett, *19th Century Registers of Bermuda*, p. 32.

³ *Ibid*, p. 33.

⁴ *Ibid*, p. 1305.

first wife, Elizabeth.⁵ Elizabeth passed away in 1895, but when he married again in 1902, he was still registered as a farmer.⁶

Other family names were researched in this manner, but no evidence surfaced to show that family lineages passed on a tradition of whaling. Whaling in Bermuda remained an intermittent trade on the islands for four centuries. For a trade to continue for such a lengthy amount of time in such a small place, the tradition of whaling must have been passed from one generation to the next. The records do not show this.

⁵ Hallett, *19th Century Registers of Bermuda*, p. 1305.

⁶ *Ibid*, pp. 1304 & 1342.