NANTUCKET ALGONQUIAN STUDIES # 8.

THE INDIAN CONTRIBUTION TO ALONG-SHORE WHALING AT NANTUCKET

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ABSTRACT.

The chief purpose of this paper is to report and evaluate the Indian role in early American whaling at Nantucket. Since the technology of whaling in the American colonies has never been well documented, I also present all the evidence I have been able to find concerning the alongshore whaling industry at Nantucket.

Hunting right whales at sea began at Nantucket in the late seventeenth century, in the winter, using local Indian crews, small, light whaleboats based at shore stations, harpoons, lances, and drugs (drogues). The use of drogues, small squares of wood fastened perpendicularly to the harpoon line, supports the hypothesis made by Allen (1916:146-154) that the early whalemen of New England did not fasten their boats to the harpooned whales, as did the European whalemen of that time. In spite of tradition, I can find no evidence that Indians of New England routinely killed whales at sea, or used anything resembling a drogue, until the introduction of European whaling technology to the colonies. The credit given by early whaling historians to the American Indians was apparently earned by their remarkable seamanship and innovative use of European technology.

HISTORICAL BACKGROUND.

The Dutch, English, and French, while planting colonies on the east coast of North America, simultaneously ventured into the North Atlantic whale fishery, which had been dominated by the Basques or Biscayans since the thirteenth century (Browne 1968; Spence 1980). Although most of the European whaling took place north of Nova Scotia, remains of an early seventeenth century whaling station have been found at Pemaquid, Maine (Martin 1975), John Smith in 1614 tried, unsuccessfully, to whale near Monhegan Island (True 1904:21), and Gosnold in 1602 saw a Basque shallop manned by Indians off southern Maine (Brereton 1602:4). Whales were noted in 1605 off Nantucket Shoals (Rosier 1843:130-131), and off Provincetown in 1620 (Mourt's Relation 1802:204). The Dutch made several early attempts to whale off New York and Delaware (True 1904:24-26).

A certain amount of along-shore whaling by American colonists took place at the Isles of Shoals, New Hampshire (Josselyn 1833:323), at Rhode Island (Starbuck 1964:35), at Connecticut (Allen 1916:170; Hempstead 1718:Jan. 13), and at New Jersey (True 1904:76; Weiss et al 1974; Lipton 1975). However, "great whales of the best kind for oil and bone" (Mourt's Relation 1802:204; 1832:36), almost certainly right whales, were found in the greatest numbers off eastern Long Island, Martha's Vineyard, Nantucket, and in Cape Cod Bay. These shores(Figure 1) and their peoples, including Indians, successfully established what became the world-famous American whale fishery. As historians in 1768 and 1782 commented admiringly, it all began with a few whaleboats based at shore stations (Harrison and Hallowell 1925:428; Crèvecoeur 1971:126).

Even with an abundance of whales close to shore in southeastern New England, when the colonists first attempted to go whaling, no one was available

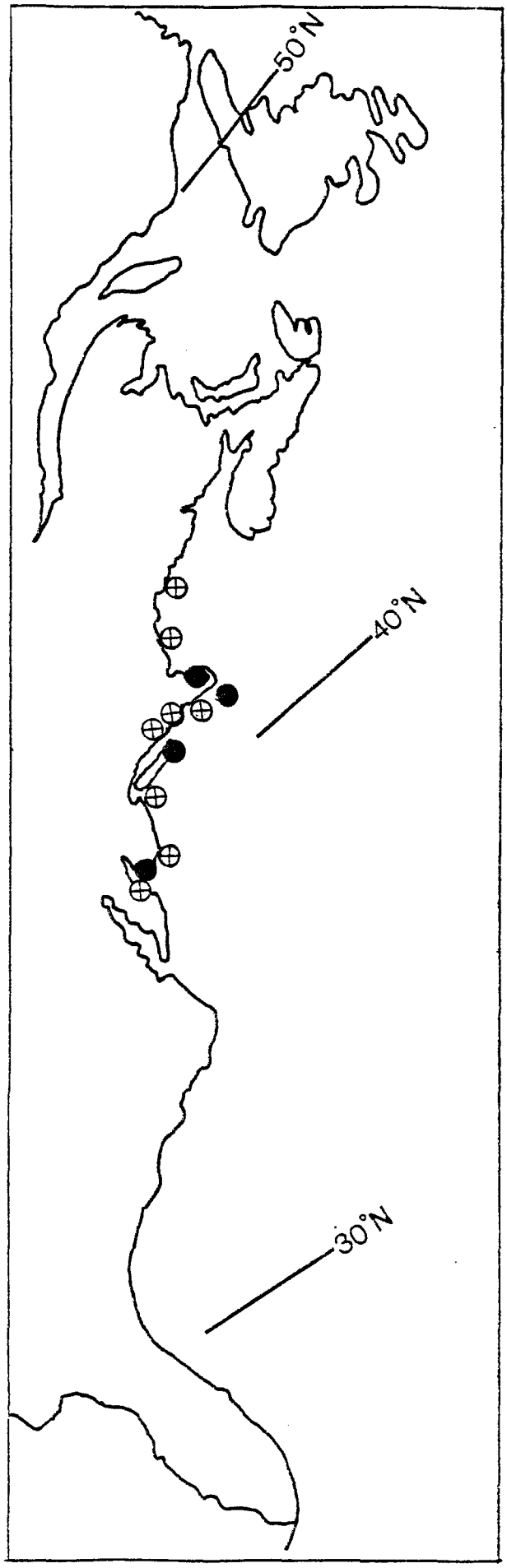


Figure 1. Location of Along-Shore Whaling stations in the Eastern United States During the Seventeenth and early Eighteenth Century.

⊕ Along-shore whaling stations

● Major Along-Shore whaling stations

who knew how to kill whales at sea efficiently. For example, Macy reported the tradition that a whale stayed in Nantucket harbor for three days, while the islanders "invented" and manufactured a harpoon with which to kill it (Macy 1835:28). The Indians of southeastern New England and eastern Long Island had been claiming and using drift whales, whales which had washed up dead, or stranded on the beach, or, in some cases, whales which had been driven ashore (Little and Andrews 1981).

In spite of many sporadic beginnings, the colonial whaling industry did not successfully get under way until after 1667 at eastern Long Island, when James Loper, a Dutchman, organized the Indians in along-shore whaling companies (Edwards and Rattray 1932:197). More than 20 years later, after 1688 in Cape Cod Bay, and after 1690 at the south shores of Nantucket and Martha's Vineyard, whaling companies with Indian crews were successfully established (Macy 1792a; Banks 1911 1:433; Crèvecoeur 1971; Stackpole 1953; Allen 1916: 168; Spence 1980:36). Although the records of Nantucket contain a whaling contract with James Loper in 1672 (Appendix 4), he apparently stayed at Long Island (Edwards and Rattray 1932), and Ichabod Paddock of Cape Cod is credited as Nantucket's teacher.

Because there is a tradition that American colonists innovated whaling techniques (Browne 1968:523), and Ichabod Paddock and James Loper seem to have been teachers, we would very much like to know details of the whaling technology of the earliest along-shore industry.

ALONG-SHORE WHALING AT NANTUCKET.

> "The whale fishery began at Nantucket in the year 1690. One Ichabod Paddock came from Cape Cod to instruct the people to whale in boats of from the shore, and the business lasted prety good until about 1760, and then the whales gon and prety much don..." (Macy 1792a).

Local histories of Nantucket add little to this memoir of Zaccheus Macy about the along-shore whaling business on Nantucket. For example, Ichabod Paddock appears to have left no traces beyond descendants on the island. A description of along-shore whaling at Nantucket by Crèvecoeur (1971) in 1782 includes much unsubstantiated detail, and many have doubted that he ever visited the island (Keeshan 1980). In this paper I present documentary evidence from Nantucket deeds, wills, account books, and other primary sources, which generally confirms and enlarges on Crèvecoeur's account.

The topics, taken up in order, will include, 1) Along-Shore Whales, Seasons, and Dates, 2) Whaling Stations, Whale Houses, and Look-out Masts, 3) Whale Fishermen, 4) Whaleboats, 5) Whale Craft, and 6) "Saving the Whales".

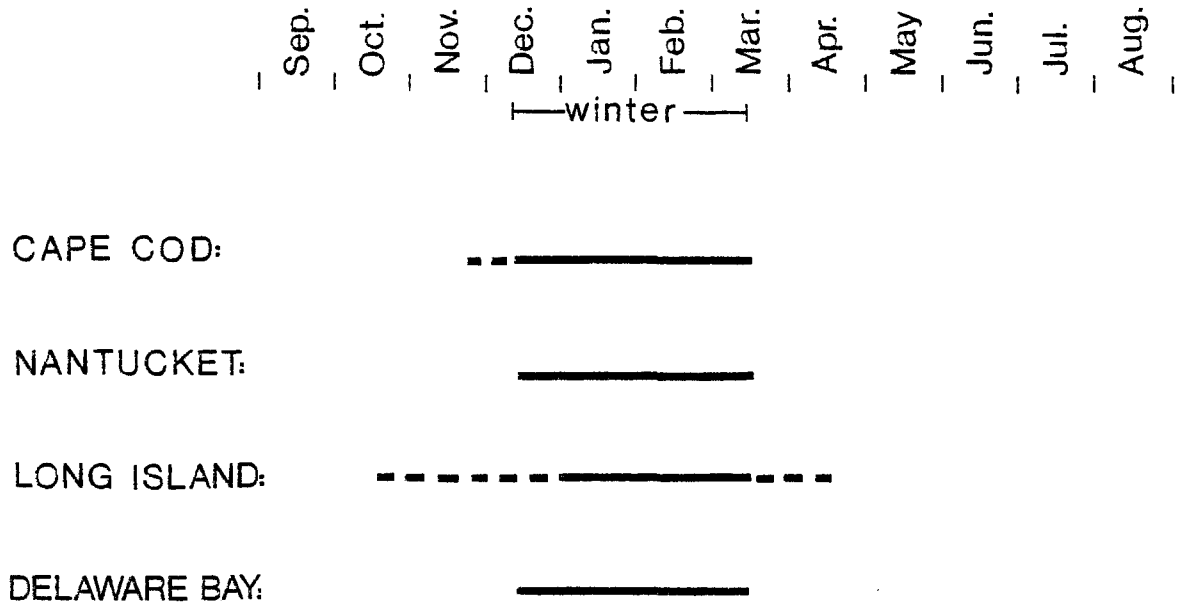


Figure 2. Along-shore whaling seasons for Cape Cod (Starbuck 1964:31; Mourt's Relation 1802:204); Nantucket (Macy 1835:30,31; NPR 1:43; Allen 1916:130); Long Island (Edwards and Rattray 1932:180,188,191,192,199,200; O'Callaghan 1855 5:60); and Delaware Bay (True 1904:24,26; Lipton 1975:7). Dashes represent extensions of the winter season, given by some sources. The dates are shown as given by seventeenth century sources, and I have subtracted eleven days to define a seventeenth century winter (Freidel 1974:23-25).

1. ALONG-SHORE WHALES, SEASONS, AND DATES.

"...some persons were on a high hill,...observing the whales spouting and sporting with each other, when one observed, 'there', pointing to the sea, 'is a green pasture where our children's grand-children will go for bread' " [Nantucket about 1690] (Macy 1835:33).

"The whales hitherto caught near the shores [of Nantucket] were of the Right species" (Macy 1835:31).

"They sometimes, in pleasant days, during the winter season, ventured off in their boats nearly out of sight of land. It has often been remarked by the aged, that the winters were not so windy and boisterous at that time as at present, though quite as cold; and that it would sometimes continue calm a week or even a fortnight" (Macy 1835:30-31).

Right Whales, Along-shore, in the Winter.

Obed Macy has given us two unique and valuable statements which hint at the proposition that right whales (*Eubalaena glacialis*) near the shores of Nantucket in winter supplied the whale oil and baleen for Nantucket's along-shore whaling industry. The following records provide additional evidence that along-shore whaling took place in winter at Nantucket:

- December 1727, a day's whaling trip (NCCR 1721-1785:65).
- February 1730, a whaling voyage in a whaleboat (NCCR 1721-1785:63).
- "16:12mo 1730/1731. At a Proprietors Meeting it was voted y^{t} the proprietors will go a perambulation between ye English and ye Indians on ye 24 day of this month if it be not a whale day; if it proved a

whale day ^{n} to goe ye next windy day if not too stormy etc" (NPR 1:43). The date would have been in late February by today's calendar (Freidel 1974:23-25).

- 30 whaleboats, six miles south of Nantucket, snow and a north wind (Macy 1792a).
- "to 3/0 pd ye cutter [for cutting blubber], in ye winter" [1710] (Blacksmith 1683-1744:11).

Furthermore, winter was the season for early long-shore whaling at Cape Cod Bay, Long Island, and Delaware Bay (Figure 2).

That winter was the first along-shore whaling season has been obscured by the infrequent sightings of right whales in the winter along New England's coasts during the past 200 years (Allen 1916:130). However, both modern and nineteenth century records of right whales show that cows and calves gather in bays in the southern hemisphere between 40° and 45° South in the winter (Scammon 1968:67; Browne 1968:551-572; Payne 1976:339). It is reasonable to suppose that right whale cows and calves of the North Atlantic once gathered in numbers in the winter on the North American (and European) coasts between 39° and 45° North, precisely where historic along-shore whaling took place.

The hypothesis that right whale cows and calves frequented the coast of eastern Long Island and southeastern New England in the seventeenth and early eighteenth centuries gains support from the knowledge of the commercial value of right whale cows and calves displayed by Lord Cornbury of New York in 1708, and by Paul Dudley of New England in 1725 (Table 1). At Nantucket, Peleg Folger's knowledge of right whales (Table 1) was derived long after whalemen had begun pelagic whaling, but Nantucket account

TABLE 1. KNOWLEDGE OF RIGHT WHALES IN COLONIAL NEW YORK AND NEW ENGLAND, EXCERPTS AND NOTES.

LORD CORNBURY to the Board of Trade, 1708, Long Island:

"A Yearling will make about 40 Barrils of Oyle, a Stunt or Whale two years old will make sometimes Fifty, sometimes Sixty Barrils of Oyl, and the largest whale that I have heard of in these Parts, Yielded one hundred and ten barrels of Oyl and twelve hundred Weight of Bone" (O'Callaghan 1855 5:60).

PAUL DUDLEY to the Royal Philosophical Society of London, 1725, New England:

- Gestation period thought to be 9 or 10 months.
- One calf born at a time, every other year. At birth the calf "is about 20 feet long, and of little value, but then the dam is very fat".
- A yearling, called a "short head" and "very fat", about 50 barrels. The dam at this time is "very poor", called a "dry skin", and yields less than 30 barrels.
- Two year old, after weaning, called a "stunt", gives 24-28 barrels.
- Over two years old, called a "skull fish".
- Maximum size: 60-70 feet long, bone (baleen) is 6-7 feet long; one whale produces 130 barrels of oil, and the tongue gives about 20 barrels.
- Food: "a sort of reddish spawn or bret, as some call it, that sometimes lies on top of the water for a mile together".
- Behavior of Dams: "However [the dams] may be chased or wounded, yet as long as they have sense, and perceive life in their young, they will never leave them...And therefore care is taken by those who kill these mate fish, as they are called, only to fasten the calf, but not to kill it, till they have first secured the cow".

TABLE 1 (cont'd).

- "Whales are very gregarious, being sometimes found 100 in a scull, and are great travellers. In the fall of the year, the right or whalebone whales go westward, and in the spring eastward. But the several kinds of whales do not mix with each other, but each sort by themselves..." (Dudley 1809:80)

PELEG FOLGER of Nantucket, in his journal, 1753, at Davis Strait:

"A Right whale is a very Large fish (for the most part) they are Somewhat hollowing on their back, being all Slick and Smooth & having no hump at all as other whales; their bone (of which is made Stays and hoop'd petticoats) doth grow in their mouth, the upper end or Butt growing in the Gum of the upper Jaw; Their tongue is monstrous Large & will commonly Make a Tun of Oyl: their bone is from 3 to 12 feet Long according to the bigness of the whale & is all the teeth they have: They have two Spoutholes and make a forked Spout wherby they are distinguished from other whales at a Distance: Blubber, Lean, & Fluke, of a young right whale is good food" (Folger 1753 : June 25).

books, by listing a "stunt" in 1708 (Blacksmith 1683-1744:i), and a "fat whale" and a "dryskin and yearling" in 1711 and 1713 (Macy 1710-1760:10, 54,55), provide evidence that Nantucketers hunted cows and calves along-shore.

Other Seasons, Other Whaling Grounds, Other Whales.

Dudley observed in 1725 that, "In the fall of the year, the right or whalebone whales go westward, and in the spring eastward" (Table 1). This seasonal pattern is consistent with modern right whale sightings on the coast of New England, which generally take place in the fall and spring, as if the whales were migrating northeast in the spring and southwest in the fall (Allen 1916:140-142; J. C. Andrews, personal communication). At Nantucket, as well as at Long Island and Cape Cod, along-shore whalers may have hunted some migrating right whales in the fall and spring (Fig. 2).

That there were many whales on the Nantucket Shoals in the spring was first reported in 1605, when George Waymouth, on May 14, at 41° 20' North, six leagues eastsoutheast of Sankaty cliff, "saw many whales, as we had two or three days before" (Rosier 1843:130-131).

Whales on the shoals could also have been reported by Indian fishing crews at any time after 1682, when the fishing industry was established at Nantucket (Little 1981a; NCD 2:10). Codfish were plentiful on the shoals in May and October (Little 1981a), and, throughout the period covered by this study, a number of people were engaged both in fishing and in whaling "about Nantucket and adjacent shoals" (Appendix 6,9,10).

All of these bits of evidence point to the fact that Nantucketers knew very early that whales frequented the shoals, and, although they made voyages of up to six miles from shore in whaleboats (Macy 1792a),

by 1709 they had begun to use sloops carrying two whaleboats each (Starbuck 1924:355; Whale Fishery 1792; Harrison and Hallowell 1925: 428; see Edwards and Rattray (1932:192) for along-shore antecedents of pairs of whaleboats), to reach the spring whaling grounds among the shoals. Bow Bell, one of the most southerly shoals (J. C. Andrews, personal communication), is often mentioned in Starbuck's (1683-1766) whaling accounts.

About 1712 a sperm whale was caught (Blacksmith 1683-1744:11,58) accidentally some distance south of Nantucket (Macy 1835:36) (although not by a Christopher Hussey (Barney Records 4); this first sperm whale capture may have been made by one of his grandsons, Silvanus Hussey (Starbuck 1924:355), or Bachelor Hussey (Blacksmith 1683-1744:58)).

According to Zaccheus Macy, "in 1718 they began to wale out in the deep" (Macy 1792a), and by 1725, New Englanders were hunting sperm whales and right whales as far as Bermuda in the spring and summer.

> "Our people...go off to sea in sloops and whale-boats, in the months of May, June, and July, between Cape Cod and Bermudas; where they lie by in the night, and sail about in the day, and seldom miss of them; they bring home the blubber in their sloops. The true season for taking the right or whalebone whale is from the first of February to the end of May; for the sperma ceti whale, from the beginning of June to the end of August" (Dudley 1725 in Allen 1916:131).

By 1734, in summer voyages, Nantucket whalemen had reached Nova Scotia, by 1738, Newfoundland, and by 1736, Greenland (Starbuck 1683-1766:66).

Changes in seasons and whaling grounds, from winter along-shore to

spring off-shore, also took place at New Jersey and Long Island, as the population of right whales along-shore in the winter failed (Lipton 1975 :13-23; Bailey 1959).

Although right whales probably constituted an important element of the whales captured in the spring on the shoals, and in the summer at pelagic whaling grounds to the east and north of Nantucket, other whales were also encountered as the whalemen voyaged away from the shores of the island.

Humpback whales have shorter baleen than right whales, "good only to make buttons" (Folger 1753:June 25), and humpbacks do not come as close to shore as do right whales (Allen 1916:305). They migrate seasonally between Davis Strait and the West Indies, and frequently have been reported at Nantucket Shoals in the spring (Allen 1916:288-311; Macy 1835:174). Because they sink for 30-40 hours when killed (right whales usually float when dead)(Allen 1916:172), humpbacks were hunted in shoal water, using buoys to locate the carcass (Browne 1968:559).

Sperm whales, which have teeth rather than baleen, and do not normally come into shallow waters, were hunted near the edge of the Gulf Stream and near Bermuda in the summer (Dudley 1809:81; Stackpole 1953:29). Sperm whales do not sink when killed, but they can dive deeper and are faster and more aggressive with their jaws than right whales, and their capture, originated and later specialized in by Nantucket whalemen, contributed to the fame and fortune of Nantucket. Sperm oil, spermaceti candles, and ambergris, the most valuable products of whales, all came from the sperm whale.

Blackfish occasionally came or were driven ashore in schools (Little

and Andrews 1981), and were taken at sea if no larger whales were available (Blacksmith 1683-1744:47 (1712)). Finbacks, fast and of little oil, were not hunted commercially until the nineteenth century (Allen 1916:184).

Along-Shore Whaling.

Historians usually include the meager records of along-shore whaling with the records of all other kinds of whaling. By defining along-shore whaling as that which is carried out by whale-boats based on shore, and by rejecting references to drift whaling, sloops, cruises of two days or longer, and whaling grounds off-shore (away from shore), I have constructed Figure 3, which shows the estimated magnitude and duration of the colonial along-shore whaling industry at the major whaling sites on the east coast.

Some data exist (Fig. 3) for the number of whales or the number of barrels of oil obtained at Long Island and Nantucket, for given years. However, most of the documentationfor the along-shore whale fishery records the number of whalemen, or the number of shore stations or whaling companies, whaleboat crews, or whale houses. At Nantucket, in her peak year, 1726, 28 boat crews, of six men each, captured 86 whales (Starbuck 1924:356; Appendix 3). The average per boat per year given by these data is 3 whales. Although the number of boat crews may have been regulated by the towns, economic reasoning suggests that relating three whales to a boat per year gives a method of estimating at least the maximum number of whales caught per year, if we know the number of whaleboat companies.

In Figure 3, I have converted data on along-shore stations and their dates (see Appendix 1) into estimated maximum number of whales. The beginning and termination of along-shore whaling, as given in the sources,

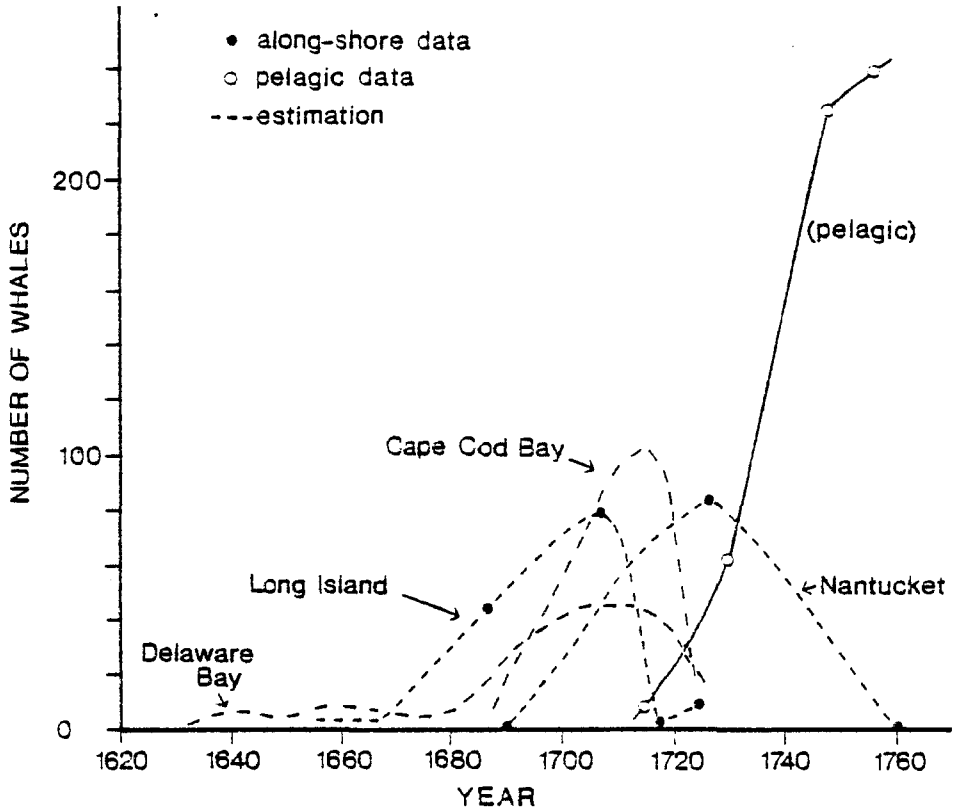


Figure 3. Estimated maximum number of whales obtained per year, dates of peaks, and duration of whaling at the major along-shore whaling stations on the east coast. I assume that one whale corresponds to 50 barrels of oil, and that an average of three whales per boat per year represents a maximum return (see Text). Data for eastern New Jersey are not sufficient to be included here, and the peak for Cape Cod, based here only on Barnstable data, would be significantly higher with the addition of presently unknown figures for Truro, Wellfleet, etc. Also shown is the number of whales obtained by pelagic whalers of Nantucket (Whale Fishery 1792).

have been connected to the peak with a smooth curve. Since these curves represent maximum possible catches, the average annual catches must have been somewhat smaller than these curves would indicate.

The duration of along-shore whaling, especially at individual locations, is much shorter than local histories usually suggest. The chief reason for this is that Figure 3 represents only the commercial phase of along-shore whaling during the colonial period. Occasional along-shore whales captured over the past 200 years have extended the duration of along-shore whaling in local legend, but did not constitute a reliable or a major industry (Edwards and Rattray 1932:175,184,202). Nineteenth century along-shore whaling, such as that which took place in Maine for humpbacks (Martin 1975), also lies outside the scope of this study.

Termination of Along-Shore Whaling.

Macy (1792a) claimed that along-shore whaling continued at Nantucket until 1760, which is supported by account book entries for "yor Boats part of cow & calf", and "oyl last winter" for 1746-1750 (Coffin 1738-1761:50,52). However, the along-shore whalemen at Cape Cod, Long Island, and New Jersey found their supply of whales failing long before 1760 (Fig. 3). Governor Hunter wrote in 1718 that, at Long Island, whales had "in a manner left this coast...in my time" (O'Callaghan 1855 5:510). For New England (Cape Cod), Dudley in 1725 wrote that, "Our people formerly used to kill the whale near the shore..." (Dudley 1809:81), and in 1727 the Boston News-Letter reported: "We hear from the Towns on the Cape that the Whale Fishery among them has failed much this Winter, as it has done for several Winters past..." (Starbuck 1964:31).

Eighteenth century authors gave various reasons for the diminished

number of along-shore whales. Zaccheus Macy said, "the whales gon and prety much don" (Macy 1792a), but a customs inspector at Nantucket in 1768 said, "the whales being disturbed in their Usual haunts, Near the shore, kept further off along the edge of the Banks..." (Harrison and Hallowell 1925:428). W. A. Schevill (personal communication) suggests that individual breeding populations (Fig. 3) may have been reduced by over-hunting of the cows and calves near specific shores. Data do not exist at present for the analysis of these questions.

Summary.

By carefully inspecting the available records of the earliest American whale fishery, I have separated some attributes of along-shore whaling from those of off-shore whaling. The fishery in which men in boats from the shore hunted right whales in winter began in Delaware in 1632, peaked at New Jersey, Long Island, Nantucket, and Cape Cod between 1690 and 1730, and had terminated at Nantucket by 1760 (Fig. 3). At Nantucket, along-shore whaling began, peaked, and terminated somewhat later than it did at other coasts.

After 1709, Nantucket whalemen in sloops hunted right whales, and possibly humpback whales, in the spring in the shoals. By 1718-1725, Nantucketers hunted right whales, sperm whales, and possibly humpback whales toward Bermuda in the spring and summer, and by 1736 had reached Greenland in the summer, looking for whales.

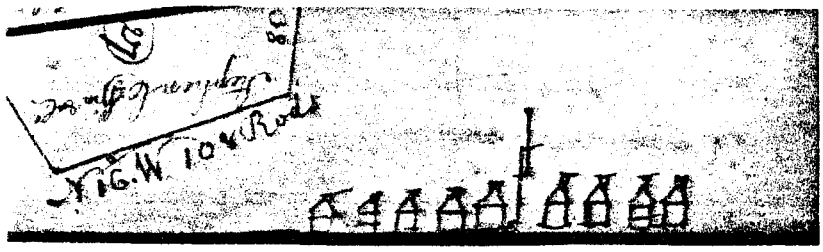


Plate I. Sketch of Siasconset in 1775, looking west (NPR 1:135), showing whale and fish houses and look-out mast.

2. WHALING STATIONS, WHALE HOUSES, AND LOOK-OUT MASTS.

> The "south side of the island [was]...divided into four equal parts, and each part was assigned to a company of six.... In the middle of this distance, they erected a mast, provided with a sufficient number of rounds, and near it they built a temporary hut, where five of the associates lived, whilst the sixth from his high station carefully looked toward the sea, in order to observe the spouting of the whales" [1782](Crèvecoeur 1971:115).

Crèvecoeur also reported at Siasconset, "the ruins of one of the ancient huts, erected by the first settlers, for observing the appearance of the whales" (Crèvecoeur 1971:154; Plate I).

Whale watchers huts, or whale houses, on Long Island have been described as thatched wigwams, constructed of "...oak saplings, sharpened and forced down in the sand, with an elliptical curve toward the narrow top, free for exit of smoke, tied together by twigs interwoven at right angles with these sapling ribs, and all thatched with rye straw except the door south" (Manley 1966:112). However, on Nantucket, both tradition and a study of the small whale houses, some of which still exist, suggest that whale houses were small, single-story structures built of boards and saplings or timbers, with interior partitions and a half loft (Little 1981a). Plate II shows the appearance of a whale house at Siasconset in 1980.

Historians have speculated on the sites of Crèvecoeur's four whaling stations (Forman 1966), because Zaccheus Macy in 1792 recalled,

> "...the Hummock Pond, whare we once had a great nomber of whale

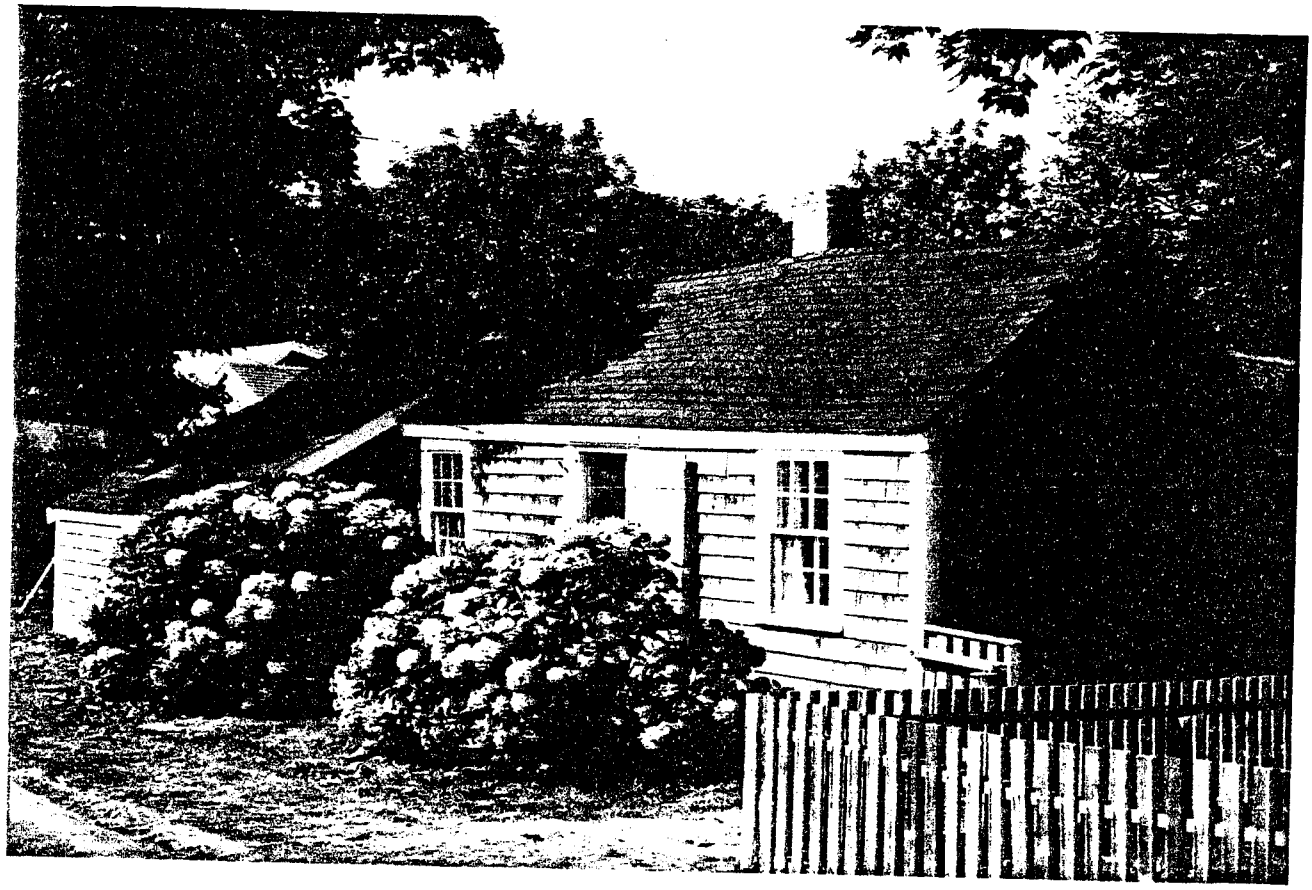


Plate II. An example of a Siasconset house, "Nauticon", in 1980. The original house, to the left of the chimney, may date from the late seventeenth or early eighteenth century, and may have been a whale house (Forman 1966:86,99,144,145).

houses with a Mast raised for a Look-oute, whith holes bord through and sticks put in like a Lader, to go up; then about three miles eastward to the said Weweder Ponds, stood another parsel of whale houses..." (Macy 1792b).

Macy's three mile spacing, times four, does not cover the 18 mile south shore, and therefore does not conform to Crèvecoeur's description. And did four whale houses exist at four sites, or a great number of whale houses at two sites? I propose that Crèvecoeur's description (Figure 4) applied to the earliest whaling, 1690-1695, and that later a growth in the number of whale houses took place at the most profitable sites, Hummock Pond and Weweder, resulting in the configuration which Macy recalled (Figure 5).

My evidence for these proposals has been obtained from the Nantucket County Registry of Deeds and Probate Records. Between 1691 and 1692, the English, who owned the south shore only from Smith Point to Hummock Pond, bought from the Indians parcels of land at Coboahcommoh (probably at the east side of Hummock Pond), at Madequecham ("Mattaquatcham"), and at Siasconset ("Sisiasconset")(Figure 4; Table 2). Although Zaccheus Macy named 1690 as the date of the beginning of along-shore whaling, these deeds provide precise dates, which, perhaps not by chance, represent the period during which the Province of the Massachusetts Bay took over the jurisdiction of Nantucket from New York (Starbuck 1924:81-87). Royal taxes on whale oil at New York, which did not exist at Massachusetts Bay, may explain this coincidence (Edwards and Rattray 1932; Starbuck 1924 :350).

With the addition of Smith Point as a whaling station, Coboahcommoh, Madequecham, and Siasconset would appear to have been the actual sites

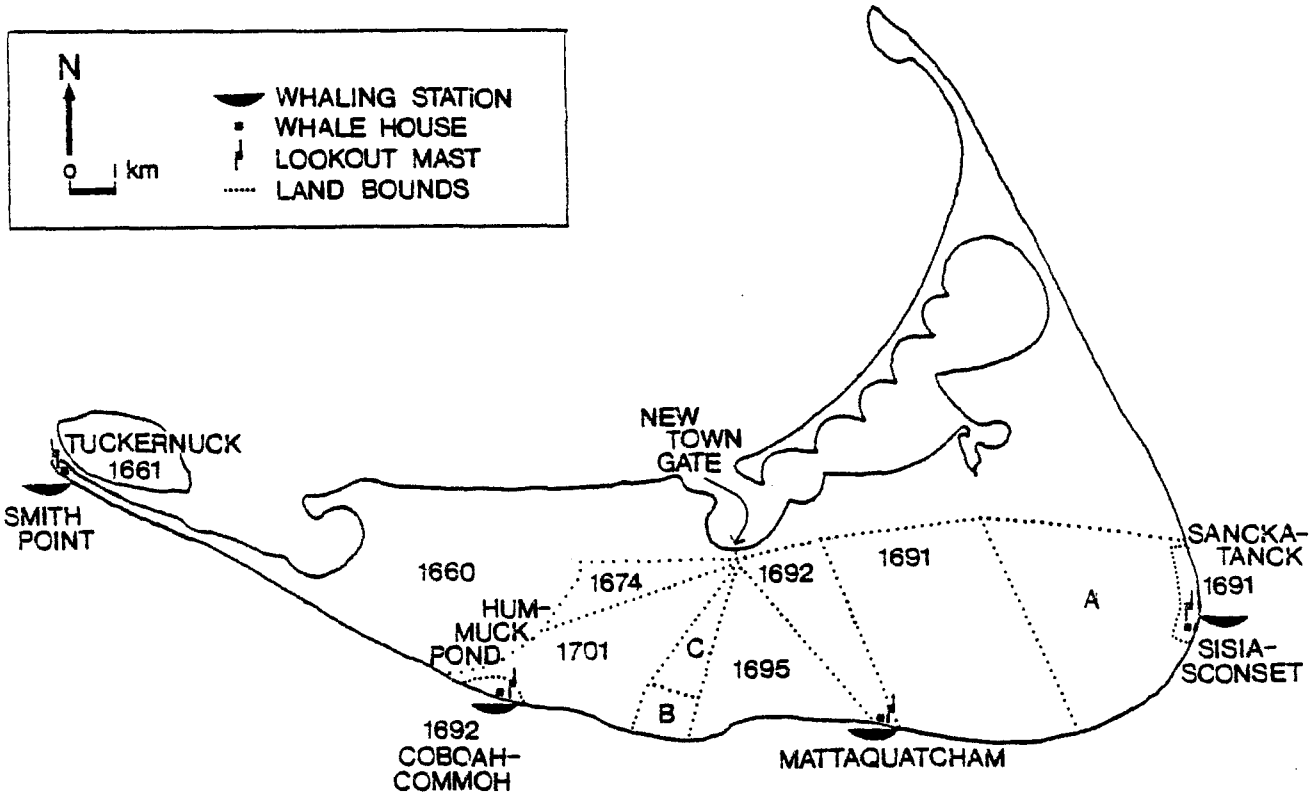


Figure 4. English land purchases from the Nantucket Indians, Tuckernuck to Siasconset. Tracts are identified by the date of purchase, see Table 2 for details. Land purchases of 1691 and 1692 would have allowed the four whaling stations shown, which fit Crèvecoeur's (1971:115,154) description of 1782.

TABLE 2. LAND PURCHASES FROM THE INDIANS BETWEEN TUCKERNUCK AND SANKATY.

1660: Wanachmamak and Nickanoose, the west end to the English (NCD 2:7).

1661: Wanachmamak and Pattacohonet, Tuckernuck to the Coffins (N.Y. Deeds 3:53).

1674: Obadiah, Spotso, and Musaquat, see Figure 4, to the English (NCD 2:8).

1691: Jeptha, land bounded on the west by Spotso, from a spring at Shimmo to near "Mattaquatcham", to the English (NCD 3:53).

1691: Jeptha, a strip 20 rods wide between "Sisiasconset" and "Sanckatanck", to the English (NCD 3:51).

1692: Musaquat, land at "Coboahcommoh" "by a cove which runs east and north from the pond", to William Gayer and Stephen Hussey (NCD 2:69).

1692: Daniel Spotso, land bounded on the west by a line from Monomoy to the west side of"Mattaquatcham", to the English (NCD 3:50).

1695: Daniel Spotso, land bounded west on a line from the New Town Gate to the south end of Weweder Pond, on the east by land he formerly sold the English, to the English (NCD 3:49; 2:77).

1701: Henry Britten, land between Miacomet Pond, the sea, and the English on the west and north, to the English (NCD 3:23).

A: Heirs of sachem Jeptha to the English, 1739,1741,1744 (NCD 4:185; 5:10,11,49).

B: Isaac Musaquat, sachem, to the English, 1744 (NCD 5:63,49; 6:74).

C: John Diamond, sachem, parts of Parcel C, to the English, 1757, 1762, 1763 (NCD 6:29,342,474). The Christian Indian Village of Miacomet.

(Additional deeds exist for small parcels of land within the above tracts which were sold by individual Indians, but which by date and location would not have any bearing on along-shore whaling).

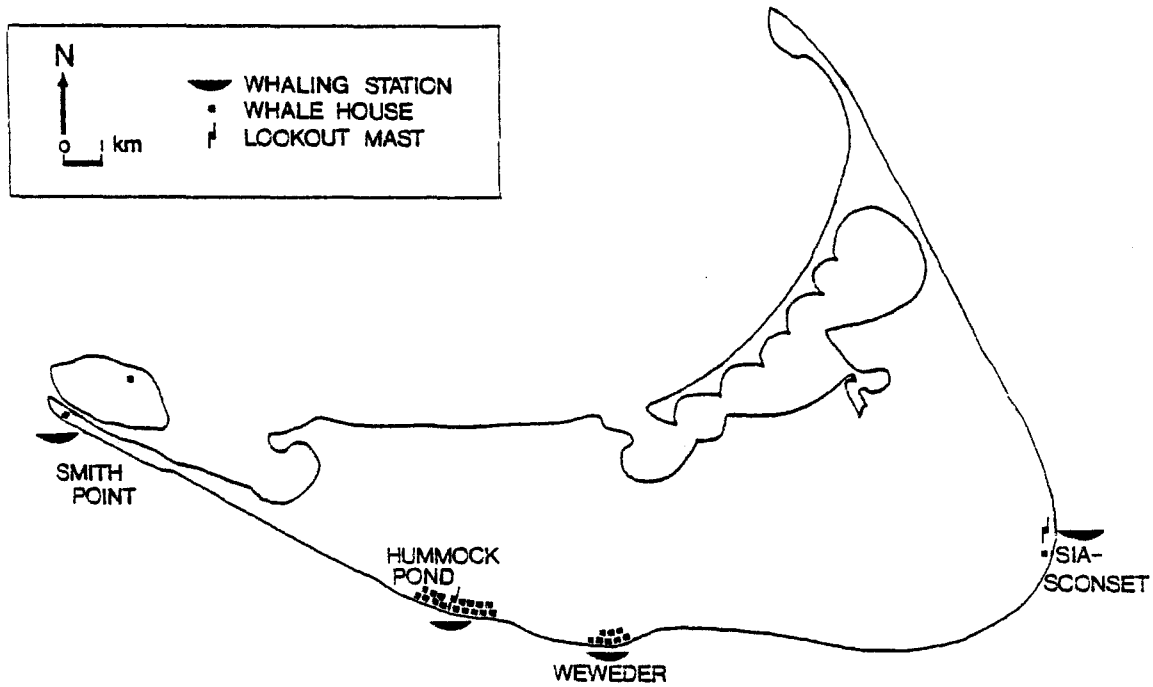


Figure 5. Whaling stations, whale houses, and look-out masts at Nantucket, as documented (see text), and as recalled by Zaccheus Macy in 1792 (Macy 1792b).

of the three other whaling stations described by Crèvecoeur (Fig. 4). Not only are they equally spaced, but these four sites span the whole range of the south shore. In support of this configuration, we have the "ruins" of a whale house at Siasconset (Crèvecoeur 1971:154), a whale house at Smith Point owned in part by Thomas Bunker in 1721 (Appendix 9), and the locations from which blubber was carted, 1702 to 1723 (Figure 9).

Since English deeds have not yet been searched for whale houses, we can at present only speculate on the ownership of Macy's great number of whale houses. The probate records show at Weweder part of a whale house belonging to Paul Coffin in 1734, and a house of Benjamin Barnard in 1735. In 1750, Thomas Brock had half a whale house at Tuckernuck. At unknown locations, a whale house belonged to Ebenezer Coffin in 1704 (Blacksmith 1683-1744:22), and parts of whale houses belonged to Nathan Skiffe in 1723, and to Joseph Coffin in 1724 (Appendix 9). These whale houses total only four or five. However, if five out of each six man crew were Indians (see Whalefishermen), whale houses would have functionally been Indian houses, and many of them may have been owned by Indians (Little 1981a).

We can, however, estimate the number of whale houses, if we assume that each boat crew had a whale house. On the basis of a list of the 27 English and one Indian whaleboat captains who caught whales in 1726 (Appendix 3), there must have been about 28 whaleboats. Macy (1792a) recalled 30 whaleboats at sea on one occasion. From these reports, we estimate that there may have been about 27 to 30 whale houses in 1726, distributed predominantly at Hummock Pond and Weweder (Fig. 5).

27 is an interesting number on Nantucket, because the English propriety was divided into 27 shares, and the proprietors may have regulated

the formation of whaling companies, as towns on Long Island and New Jersey did (Edwards and Rattray 1932; Lipton 1975). Nantucket's contract with James Loper in 1672 (Appendix 4) had strict limitations on the establishment of other companies. An unregistered list of companies which owned 27 shares "at Miacomet" in 1732, found in an account book of Richard Macy, is given in Appendix 2, because the date and location are appropriate for whaling companies.

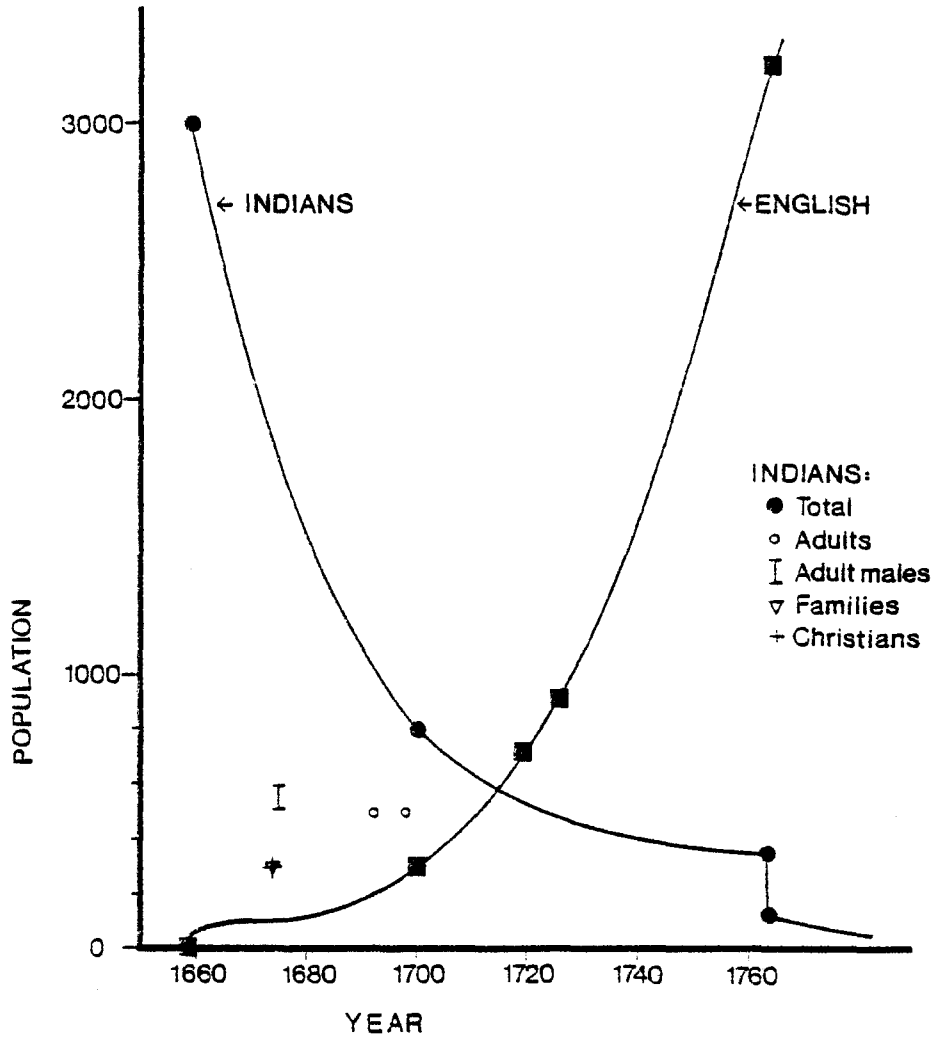


Figure 6. Indian and English population of Nantucket between 1660 and 1765 (Macy 1792a; Macy 1835:75; O'Callaghan 1855 3:787; Little 1981a:24).

3. WHALEFISHERMEN.

"[The Indians of Nantucket] are fond of the sea, and expert mariners. They have learned from the Quakers the art of catching both the cod and whale, in consequence of which, five of them always make part of the complement of men requisite to fit out a whale-boat" (Crèvecoeur 1971:107).

"...as the Indians early became their fellow-laborers in this new warfare, you can easily conceive how the Nattick expressions became familiar on board the whale-boats. Formerly it often happened that whale vessels were manned with none but Indians and the master" (Crèvecoeur 1971:122).

"The Indians, ever manifesting a disposition for fishing of every kind, readily joined...in this new pursuit.... By their assistance, the whites were enabled to fit out and man a far greater number of boats than they could have done of themselves. Nearly every boat was manned in part, many almost entirely, by natives...they soon became experienced whalemen, and capable of conducting any part of the business" (Macy 1835:30).

"They have no wages; each draws a certain established share in partnership with the proprietor of the vessel; by which economy they are all proportionately concerned in the success of the enterprise, and all equally alert and vigilant" (Crèvecoeur 1971:121).

The English settled Nantucket originally in order to raise sheep and other grazing stock (see, for example, the inventory of a Tristram

Coffin in 1706 in Appendix 8). If we consider that whaling required going to sea in the winter off the south shore of Nantucket in 20 foot whaleboats (see Whaleboats), most of us have underestimated the contribution of Indian mariners to the Nantucket whaling industry.

Some rough figures indicate the dominating role of Indians in the early industry, as well as the important place along-shore whaling had at one time in the life at Nantucket. Zaccheus Macy (1792a) mentioned thirty whaleboats at sea on one occasion. If each whaleboat had one English captain, and five Indians as crew, then manning 30 whaleboats would have required 180 men, roughly 30 Englishmen and 150 Indians. There were in 1700, 300 English and 800 Indians resident on the island (O'Callaghan 1855 3:787; Figure 6). If one out of five was an able-bodied adult male, that population would have provided 60 English and 160 Indians as potential whalefishermen. These estimations indicate that nearly the whole able-bodied male population, English and Indian, must have been involved in along-shore whaling at the early period.

Historians also remark on the whaling ability and seamanship of Indians of eastern Long Island and Cape Cod (Edwards and Rattray 1932; Allen 1916:158,163; Freeman 1869 2:655). By 1711 at Long Island, there were about 28 whaling companies (Ross 1902:872; Bailey 1959; Schmitt 1972), which would have required 168 men. At Barnstable in 1714 to 1724, 200 whalemen are remembered (Mellon 1794:12-17). Although at least 21 whaleboats were manned at New Jersey (Lipton 1975), Indian participation in whaling at New Jersey has not been memorialized.

Indians identified as whale fishermen are common in the records of Nantucket. In support of this statement, I show in Appendix 5 a list, unquestionably incomplete, of the names of 45 Nantucket Indians, and three

blacks, who were identified as whalefishermen in probate records, deeds, account books, and court records.

If I have adequately made the point that colonial Nantucket along-shore whaling was Indian whaling, with at most a single Englishman in the boat, we can appreciate the ironic humor in the famous story by Zaccheus Macy.

> "...it happened once, when there were about thirty boats about six miles from the shore, that the wind came round to the northward, and blowed up a hard snowstorm. The men all rowed hard, but made little head way. In one of the boats there were four Indians and two white men. An old Indian in the head of the boat, perceiving that the crew began to be discouraged and fainthearted, spake out loud in his own tongue and said,
>
> 'Momadichchatoo auqua sarshkee sarnke pinche eyoo sememoochike chaquanks whehe pinche eyoo:'
>
> which in English is, "Pull ahead with courage; do not be discouraged. We shall not be lost now, there is too many Englishmen to be lost now." His speaking in this manner gave the crew new courage. They soon perceived that they made head way; and after long rowing, they all got safe on shore" (Macy 1792a).

The method of compensation at Nantucket, which later developed into the uniquely American lay system (Starbuck 1924:37; Spence 1980:37; Scammon 1968:200), was to give each member of the crew an agreed upon share of the oil or bone of each voyage, or to credit the oil and bone to a whaleman's account. In contrast, European whalers received wages for their time.

The beginnings of this American system may be seen in drift whaling, carried on by the Indians of Nantucket between about 1660 and 1712. As

I have shown elsewhere (Little and Andrews 1981), Nantucket Indians did not sell any of their rights to stranded or drift whales to the English. Under these circumstances, the Indians probably sold oil and whalebone from drift whales to the English. Two possible cases of such sales can be found in Starbuck's Account Book with the Indians (1683-1766:10,49) for 1686 and 1691.

When along-shore whaling began, assigning each whalefisherman in a boat crew, Indian or English, a share in the bone and oil of the whales caught was a natural extension of an existing system. We find oil and bone credited to roughly one boat crew of Indians in at least three account books (Starbuck 1683-1766; Barnard 1698-1737; Coffin 1738-1761). In addition, references to a book of accounts with the Indians, or to Indian debts, appear commonly in the probate inventories of English owners of whale craft (Appendix 9). The surviving records suggest that each whaleboat crew, or whaling company, had one book of accounts.

One difference between drift whaling and along-shore whaling was that the English almost always owned the whaleboat and the whale craft. Although a few Indians owned a tow warp or a boat, no Indian probate records list lances or harpoons, although Indians were financially able to buy such tools (Little 1980). Curiously, Africa, a black, in 1728 owned a lance (Appendix 9).

In return for the investment in the tools, and frequent replacement and repair costs, the owner of the boat and craft received a half share in the proceeds of each voyage (Appendix 7). The crew, including the captain, divided the other half. The share of Ephra in 1727, one and 7/8 barrels of oil (Appendix 7), is consistent with the division of the crew's share into eighths, with the harpooner and captain receiving

double shares (Daniel Vickers, unpublished manuscript 1981).

Although it was sometimes difficult to get the crew together to go whaling (Banks 1911 1:440; Starbuck 1964:12), written contracts between Englishmen and Indian whale fishermen are rare. In a five year indenture, Paul Starbuck promised to pay Jonathan Paupamo the "full usuall & customary price that is or shall from time to time be gived to Indians that are in the same imploy for all the codfish, oile, & whalebone he the said Jonathan Popaumo shall take or obtain" (Appendix 6; see also Appendix 7, Appendix 10).

Most of the captains of whaleboats appear to have been English, but not all of them. Appendix 3, a list of 28 boat captains who captured whales in 1726, includes the name of Staples, an Indian. Also, references in account books to Smug's, Dimon's, Stub's, Corduda's, and Staple's whales suggest that these Indians were captains of whaling crews (Starbuck 1683-1766:9,36,37,123; Coffin 1738-1761:45).

For this paper, I have not investigated English along-shore whaleboat owners, although many of them are listed in English probate records (Appendix 9), and account books (Barnard 1698-1737; NCD 2(b):44; Blacksmith 1683-1744). The major problem, which in fact careful study of whaleboat owners could help solve, is the inadequacy of existing genealogical data. I have already noted the possibility that a list of 27 companies in 1732 (Appendix 2) represented whaling companies.

Summary.

> "[The Indians of Nantucket] are said to be the best soberest sort of Indians in America" (O'Callaghan 1855 3:787).

This remark of the Earl of Bellomont to the Lords of Trade in 1700 reflects a positive social and economic interaction on Nantucket be-

tween the two cultures, Indian and English. The Indians were enthusiastic fishermen, and the lay system was an American innovation favoring the able, courageous, hard-working, and lucky man, whereas wages preserve the status quo. The growth of the economy, in which Indians played a central role, was dramatic (Fig. 3). The road to wealth was broad (Moses Youkey in two voyages, 1756 and 1757, earned 122 pounds (Coffin 1738-1761 :66; see also Little 1980)). On the whole, I think the first half of the eighteenth century on Nantucket was an excellent time to have lived there (see also Macy (1835) and Crèvecoeur (1971)), and that English/Indian relations, while certainly not perfect (Little 1976; Starbuck 1924; Appendix 7), have to be considered among the best in America. For an opposing viewpoint, see Daniel Vickers (1981, unpublished manuscript).

4. WHALEBOATS.

"As soon as any [whales] were discovered, the sentinel [on the look-out mast] descended, the whale-boat was launched, and the company went forth in quest of their game. It may appear strange to you, that so slender a vessel as an American whale-boat, containing six diminuative beings, should dare to pursue and to attack, in its native element, the largest and strongest fish that nature has created. Yet by the exertions of an admirable dexterity, improved by a long practice, in which these people are become superior to any other whalemen; by knowing the temper of the whale after her first movement, and by many other useful observations; they seldom failed to harpoon it, and to bring the huge leviathan on the shores" (Crèvecoeur 1971:115-116).

The development of the American whaleboat in southeastern New England and eastern Long Island has so little documentation that it is difficult to evaluate the suggestions that the American Indian or the Norse influenced its beginnings (Gardner 1968; Ansel 1978:7-10). For this reason any information which can be found about colonial whaleboats at Nantucket has value.

By the mid-nineteenth century, the American whaleboat was a double-ended, light, open boat, with a length of between 27 and 31 feet, and a beam of slightly more than one fifth of the length (Ansel 1978:1). It was famous for speed, maneuverability, lightness, and sea-going qualities, as well as for simplicity and economy of construction (Gardner 1968; Ansel 1978:2).

In 1807, the Nantucket whaleboat was twenty seven feet long. "The whale boats also are all built at Nantucket. A whaleboat is twenty-seven feet long, is made of cedar boards half an inch thick, carries five men to row and one man to steer, is built by five or six workmen in three days, and costs fifty dollars: before the revolution the cost of it was thirty dollars" (Freeman 1807:31).

Going back still further in time, whaleboats of New England, about 1725, appear to have been surprisingly light and small, and of lapstrake construction (boards fastened with overlapping edges). As reported by Paul Dudley in 1725,

"Our way [of taking whales] differs very much from [the method at Greenland]. The boats our whalemen use in going from the shore after the whale, are made of cedar clapboards, and so very light, that two men can conveniently carry them, though they are 20 feet long, and carry 6 men, viz. the harponeer in the fore part of the boat, 4 oarmen, and the steersman. These boats run very swift, and by reason of their lightness can be easily brought on and off, and so kept out of danger" (Dudley 1809:81).

We have, unfortunately, no good description of early English or Dutch whaleboats at Greenland in 1725 (Gardner 1968), which Dudley has implied were heavier, slower, and less responsive than the American whaleboat. In 1960, an experimental weighing of a 28 foot nineteenth century American whaleboat gave a weight of about 1000 pounds (Schevill 1960). With the same method of construction, a 20 foot whaleboat would weigh between 300 and 500 pounds. Since even 300 pounds hardly seems 'convenient' for two men to carry, the 20 foot American whaleboat of 1725 must have been

of extremely light construction (Schevill 1960).

- - - - - - - - - - - -

TABLE 3. OVEN-DRY WEIGHT IN POUNDS PER CUBIC FOOT FOR SEVERAL KINDS OF WOOD (Bureau of Ships 1957:32-33).

Species:	Native to Nantucket in 17th century	Pounds per cubic Foot
Northern White Cedar	No	19
Atlantic White Cedar	?	21
White Pine	Possibly	23
Red Cedar	Yes	30
White Oak	Yes	44

- - - - - - - - - - - -

Table 3 lists the density of several kinds of wood possibly used to build whaleboats (Hegarty 1964:143-159; J. C. Andrews, personal communication). The Nantucket town records of about 1694 have a prohibition against cutting "the Pines and undevided wood on Coatue" except for whaleboats (NPR 1:48; NTM 1:27). These unidentified pines, along with red cedar and white oak, grew at Coatue in the seventeenth century, but the only evidence for Atlantic White Cedar is prehistoric (Little 1981b), and the range of Northern White Cedar does not extend to Nantucket. In any case, local supplies of timber would have been inadequate for the growth of boat-building, and, indeed, in 1703 an account book includes the item "for freight of my boat timber" (Blacksmith 1683-1744:36).

Some undated notes recently found on the opening page of an account book kept by Richard Macy of Nantucket, may represent the dimensions of a Nantucket whaleboat of 1710. Although the accounts include items for many activities, including fishing, the along-shore whaling entries of the first pages and the earliest years provide some support for the possibility that these dimensions applied to a whaleboat of about 1710 rather

than to a fishboat.

"The Beging at the hed from the end of the ceal

	feet	inches
to the first bend	3 =	8
to the next bend	3 =	3
to the next bend	5 =	3
to the next bend	3 =	5
then to the end of the keel	4 =	1 " (Macy 1710-1760:i)

If this was a whaleboat, the total length, 19 feet and 8 inches, reinforces Dudley's 20 foot length for early American whaleboats.

Another Nantucket account book, kept by a blacksmith who also invested in a whaleboat (Blacksmith 1683-1744), confirms that whaleboats, at least as early as 1703, were built with cedar boards, nails, rufs, cedar bolts, and spikes (Table 4). The nails and rufs (roves) indicate that the planks were overlapped, and fastened by rivets. "Boat gigers", identity unknown, appear to have been fastenings of some kind ("8 gigers for a chest" (Blacksmith 1683-1744:24)). The blacksmith did not separate whaling items from farming and household tools in his account, but Table 4 includes references to pages on which the items are clearly associated with whaleboats. Cedar bolts were relatively expensive.

If I have interpreted "steering iron" correctly (Table 4), these accounts confirm that the whaleboat was double-ended from at least 1696 on. Additional evidence for a tapered stern is suggested by the several lengths of the oars (Table 5). Because of the variation in width between the middle and the ends of a whaleboat, American whaleboats, in another divergence from European practice, were provided with oars which varied in length, depending on the position of the oarsman. The data in Table 5, which show that the oars of about 1704 were somewhat shorter than the 14-17 foot, 16-17 foot, 17-18 foot, and 22-23 foot whaleboat oars of the

TABLE 4. WHALEBOAT COMPONENTS IN THE ACCOUNT BOOK OF A NANTUCKET BLACKSMITH (1683-1744). The citations show the earliest mention of of each item, and contexts with a good association with whaleboats. Money represented as shillings/pence.

BOARDS: Seader bords about 6 foot long 120 of them - 4/? (1713:62).

BOAT ANCHOR: (1701:i; 1702:36); weight: 16 pounds - 11/0 (1699:27).

BOLTS (BOALTS): for a boat - 2/0 pr boalt (1701:i; 1703:25); 26 Seader boalts for boats (1711:62); seder bolts (1704:25; 1707:62); at 2/0 each (1707:62); whaleboat bolts (1707:37,60,62); at 2/0 each (1707:62); to a Seder boalt to m- a boat at 1/6 (1703:34); (Baker 1962:33,96).

GEIGER, BOAT GIGER: 4/0 (1696:2); gigers for the boat - 1/6; -3/4 (1697:14; 1700:27); (1699:14,17,25; 1702:38).

NAILS: (1697:17; 1704:25; 1732:60); 60 nails - 1/0 (1708:56);(Baker 1962:33).

OARS: see Table 6; 0/2 per foot (1704:22); 0/4 per foot (1719:56).

RUFFS (RUFS, RUFTS, RIRFS, ROOFFS): 10 ruffs for boat - 2/3 (1702:27); 8 rooffs - 1/6 (1702:38); (1704:25; 1728:60); to rufs & nails & boalt for boat - 2/6 (1704:25); (rofe, rove: iron washer for nail rivets (OED)).

SPIKES (SPICKES): for the bottom of the boat - 0/10 (1699:25); 25 spickes - 1/9 (1702:25); for a boat, 5 spickes at 1/0 (1703:25), 6 ruffs & 2 spicks - 1/6 (1704:39); 10 spickes - 1/8 (1704:25); probably iron (Baker 1962:33).

STEERING IRON: (1696:2; 1697:14; 1717:49); -1/4 (1697:17; 1703:25); possibly an 18 inch iron bar projecting out on the port side of the stern and used to support the steering oar (Hegarty 1964:156).

STEM PIECE: (1707:28); the frame in the bow (Baker 1962:33).

TABLE 5. LENGTHS OF WHALEBOAT OARS (Blacksmith 1683-1744:2,8,14,15, 22,24,49,56,60,61 ,63). Each oar itemized in the account book is indicated here by date and length.

LENGTH IN FEET:	12½	13½	14	15	16	18
	1704	1704	1696		1702	
			1697		1702	
			1715		1718	1717(steering oar)
			1718	1719	1719	
					1719	
					1731	

TABLE 6. BOAT BUILDING FROM BLACKSMITH'S ACCOUNTS (1683-1744).

(George Gardner)	Work a bulding our boat the pink	1 04 00	(1696:11).
"	Working about our whaleboat	1 02 00	(1697:11).
"	...help m- boat	09 00	(1697:11).
"	3 days work bulding whale boat	09 00	(1702:11).
"	2 dayes work about whale boat	06 00	(1704:11).
(George Bunker)	3 days workes about the boat	09 00	(1696:16).
"	m- boat 1 day	03 00	(1699:16).
"	...work about boat 4 dys	12 00	(1704:16).
(Robard)	m- boat 4/		(1701:i).
(Robard Evens)	m- boat at wewedah		(1702:24).

nineteenth century (Ansel 1978:60), are also consistent with the small whaleboat of 1725 (Dudley 1809:81).

George Gardner and George Bunker, who clearly built whaleboats between 1696 and 1704 (Table 6), spent about three days on a boat, which was still the norm in 1807 (Freeman 1807:31). Among the entries in Blacksmith (1683-1744) we find a large number preceded by "m-", which I interpret as meaning "mending". With an extremely light construction, we would expect to find, as we do, that the boat had to be mended frequently (Table 6). The cost of a whaleboat may also be traced through these accounts: 14 pounds in 1702, 8 pounds 6 shillings in 1714, 9 pounds in 1723, and 22 pounds in 1744 (Blacksmith 1683-1744:28,38,56,60).

The "pink" mentioned in 1696 (Table 6) is interesting because Baker (1962:5,62,63) observed that pinks, boats with narrow sterns, preceded the double-ended American whaleboat. Account books and probate records of Nantucket also mention a sloop in 1697 (Blacksmith 1683-1744:2), a "catch" in 1706 (Blacksmith 1683-1744:39), a "long boat" in 1715 (Macy 1710-1760:87), and a "scooner" in 1750 (NCP 2:188).

Indian Contribution to Whaleboats.

Whaleboats were built by ancient methods. The "clapboards" were fastened edge to edge to form a shell, over moulds which temporarily established a shape. The ribs, frames, or timbers were inserted last (Baker 1962:34). This construction technique resembles that for bark and skin boats, but it resembles European boat building techniques even more (Ansel 1978:7; see Figure 8). Furthermore, the Indians (and early English colonists) of Nantucket and southern New England probably used dugout canoes, not bark canoes (Little 1981b), and it is diff-

icult to see a connection between the construction of dugouts and colonial whaleboats.

There is, however, a strong coincidence between the lengths of dugouts and the length of the early whaleboats, and between the reported seamanship of Indians in canoes, and the remarkable seamanship of the early whalemen. William Wood reported at Salem in 1635, that, in "small Cannowes, which are made of whole pine trees, being about two foot & a half over, and 20 feet long:...they goe a fowling, sometimes two leagues to sea..." (Wood 1865:46). And, reporting on bark canoes, he said that, in "these cockling fly-boats, wherein an Englishman can scarce sit without a fearefull tottering, they will venture to Sea..." (Wood 1865:96). Many other early observers comment on the ocean-going New England dugout canoes, most often of 20 feet in length, and also on the seamanship of the Indians (Hall 1884; Gardner 1969). According to Roger Williams in 1644, "It is wonderful to see how they will venture in those Canoes" (Williams 1973:178).

Now let us wonder at that 20 foot (or 19 feet and 8 inch) American whaleboat, in which five Indians and one Englishman were hunting whales, in the winter, in the open ocean south of Nantucket. Indian seamanship, rather than English, was surely demanded. Furthermore, Indian seamanship may have effected the small size and lightness of the first American whaleboats, and could in large part account for the traditions that would credit the American Indians not only for the whaleboat, but also for teaching the colonists how to catch whales (Banks 1911 1:430; Scammon 1968: 204; Stackpole 1953:16).

5. WHALE-CRAFT.

A lack of adequate documentation has obscured the origins not only of whaleboats, but of American whale hunting techniques. The tools (craft) and the techniques used by late eighteenth century American whalers had become almost indistinguishable from those used by seventeenth century Basques and Europeans. However, traditions, confirmed by newly found data, indicate that between at least 1701 and sometime before 1782, Nantucket whalers used the harpoon attached to a "drug" (drogue) instead of to the whaleboat as in the European fashion.

By 1782, the American method of capturing whales at sea had developed its classic form. As Crèvecoeur described it, when the man at the lookout sees a whale,

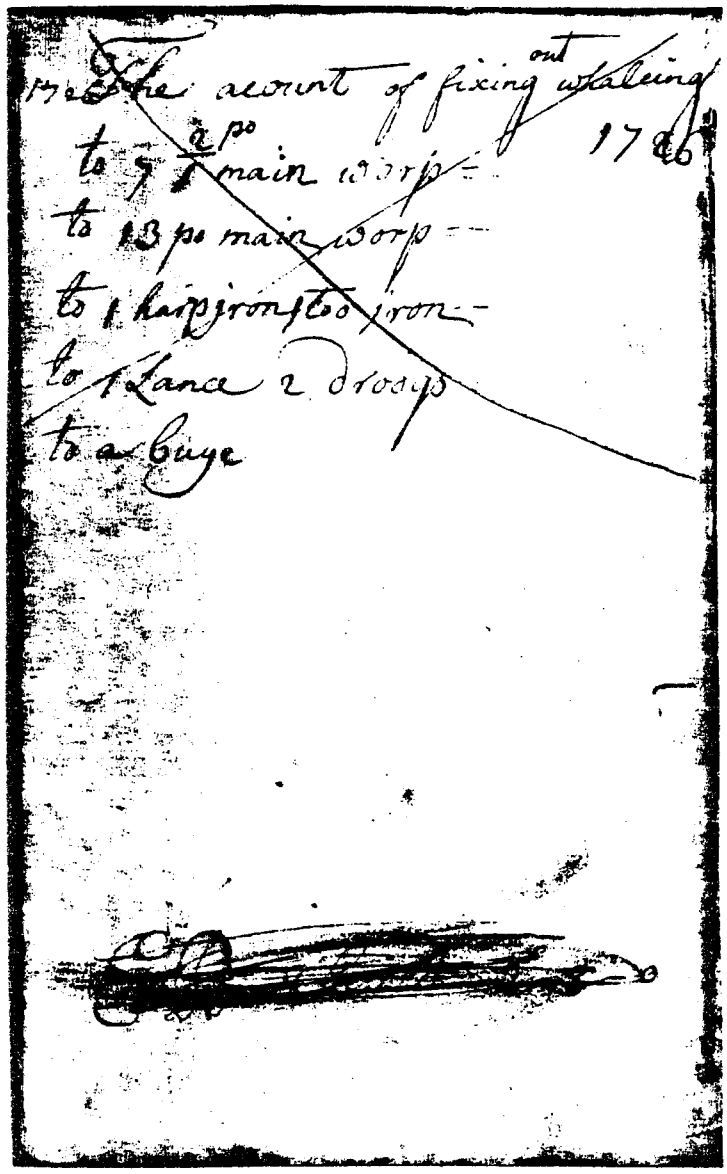
> "he immediately cries out AWAITE PAWANA, here is a whale...in less than six minutes the two boats are launched, filled with every implement necessary for the attack. They row toward the whale with astonishing velocity;...When these boats are arrived at a reasonable distance,...near the bows of [one boat] the harpooner stands up, and on him principally depends the success of the enterprise....in his hands he holds the dreadful weapon...to the shaft of which the end of a cord of due length, coiled up with the utmost care in the middle of the boat, is firmly tied; the other end is fastened to the bottom of the boat...at about fifteen feet [from the whale]...he balances high the harpoon...he launches it forth-she is struck:....Sometimes in the immediate impulse of rage, she will attack the boat and demolish it with one stroke of her tail....At other times she will dive....

> Sometimes she will swim away as if untouched, and draw the cord with sufficient swiftness that it will set the edge of the boat on fire by the friction...and carries the boat along with amazing velocity.... The harpooner, with the axe in his hands, stands ready [to cut the cord if the boat is pulled under]" (Crèvecoeur 1971:121-124).

Although Crèvecoeur neglected to mention it, after the whale became tired, it was killed with lances.

This method of killing whales, in which the harpoon served primarily to fasten the whaleboat to the whale, had been developed by Basque whalers, who, before 1609, had established shore whaling stations on the St. Lawrence River (Lescarbot 1609, and Champlain 1610, in True 1904:17,18). Purchas in 1613 (Starbuck 1964:6) and Marten in 1671 (Scammon 1968:193) gave almost identical descriptions of English and Dutch whaling at Greenland and Spitsbergen, and Wooley in 1678-1680 reported that the Long Island whalemen also fastened the whaleboat to the whale (Schmitt 1972:4).

The nineteenth century American method of killing whales was essentially the same as the European method just described, with the addition of minor pieces of whaleboat equipment, a thick wooden board called a drogue, and a barrel or bladder called a buoy. The drogue was occasionally fitted to the harpoon line, to help slow and tire an especially active whale, or to mark the end of the line if it had to be released (Scammon 1968:224,225). The buoy was occasionally used to mark a disengaged end of the harpoon line, especially with humpbacks, finbacks, or lean right whales, all of which usually sink temporarily when dead (Browne 1968:559; Allen 1916 :172; Scammon 1968:227). As the drogue did not appear in seventeenth century European whaling, historians have ascribed American origins, in particular, American Indian origins, to this device (Spence 1980:35;



1726 The acount of fixing out whaleing 1726

to 7 $\frac{2po}{I}$ main worp

to 13 po main worp

to 1 harp iron 1 too iron

to 1 Lance 2 droogs

to a buye

Figure 7. Facsimile copy of page 6(b) of John Barnard's Account Book #61 (1698-1737), reproduced with permission of the Nantucket Historical Association.

TABLE 7. WHALECRAFT IN BLACKSMITH'S ACCOUNT BOOK (1683-1744). Citations are given for the earliest dates of items, and for especially significant contexts such as an entire group of whalecraft. Money is represented as Shillings/Pence.

BOAT HASH: 1/10 (1696:9); (1701:i; 1702:38); 3/0 (1703:13); 2/6 (1704:29, 35); hash eye (1698:17); (axe or hatchet (OED)).

BOAT HATCHET: 3/0 (1704:46); 4/6 (1705:23); (1706:52; 1722:74; 1733:51).

BOAT KNIFE: 4/6 (1705:38); (1706:36).

DRUG: druig - 2/0 (1701:i); drug (1708:i); 1/6 (1719:47); 1/4 (1722:11); mak plats for drug (1703:13); (drogue).

GAFF: 1/0 (1700:17); 1/4 (1703:13); (1705:44; 1715:49); (similar to a boat hook, from context).

(HARPING) IRON : 7/6 (1695:2; 1701:i); (1700:17).

LANCE : (1696:2); a 9 foot lance - 7/6 (1699:25); a long Lance (1701:13); an 8 foot lance - 6/6 (1702:17); 5/3 (1701:i).

LANCE WARP: (1709:22); 5/3 (1722:11).

MAIN WARP: 12/0 (1722:11).

TOW IRON : 4/6 (1701:i); 4/9 (1702:25); (1702:38).

(IRON: 2·2·4 of New England iron (1708:62)).

Browne 1968:522). The buoy does not receive mention until the nineteenth century (Browne 1968:599).

Since there has been little documentation of the drogue or buoy in early American whaling, three account books and the probate records at Nantucket provide a substantial amount of sometimes obscure new data. A page of John Barnard's Account Book (1698-1737), which lists the items needed in 1726 for "fixing out whaleing", is reproduced in Figure 7. The items listed, probably the outfit for a whaleboat, are fewer in number than nineteenth century whalecraft (Scammon 1968:224). Barnard in 1726 needed a harping iron (harpoon), two main warps (harpoon lines), one half the weight (or length) of the other, a lance, and a tow iron for towing dead whales to shore or to the sloop. Instead of an ax for safety, he had a buye (buoy) and two droogs (drogues).

Two other Nantucket account books, Richard Macy's (1710-1760) and that of an anonymous blacksmith (Blacksmith 1683-1744), also list irons, warps, lances, tow irons, and drugs (drogues) after 1701 (Appendix 10, Table 7). The harpoon, lance, tow iron, tow warp, main warp, and drug, are common throughout another source, the eighteenth century Nantucket probate inventories (Appendix 9).

The earliest mention of a drug is found in 1701 (Table 7), which establishes that the drogue was used for along-shore right whaling. The earliest mention of a buoy occurs in 1715 (Appendix 10), by which time humpback whales may have been hunted in the shoals. Therefore, we cannot as yet conclude that buoys were originally used in the along-shore fishery.

If the early Nantucket whalers were fastening the harpoon to the boat, they would have needed an axe or hatchet for emergencies. The probate records list only a small number of broad axes, carpenters and coopers

axes among other carpenter tools. However, Blacksmith (1683-1744) does list approximately 8 hatchets between 1704 and 1733, some, but not all, identifiable as whale craft. In 1745, a "boat hatchet" is specifically listed as part of the whaling outfit of a sloop (Appendix 11).

Since the search for hatchets has finally proved successful, I cannot state with certainty that the harpoon was never fastened to the boat. However, the strong representation of the drogue in the records of whalecraft, about three drugs to every four harpoons, provides convincing evidence that Nantucket whalers were fastening harpoons to drogues routinely, at least between 1701 and sometime before 1782.

In Blacksmith's account book, I noted the interesting fact that hatchets appear to have replaced something called a "hash" or "boat hash" precisely in 1704. Between 1696 and 1704, at least six "hashes" are itemized. "Hash" or "hache" comes from the French for ax or hatchet (OED), but "drug", "druig", or "droog", suggests a Dutch origin (George Aubin, personal communication). These details merely hint at potential origins for early Nantucket whaling technology. Further analysis of seventeenth century American whaling technology will require data from Cape Cod and Long Island, where along-shore whaling had earlier origins than at Nantucket.

These records of the use of drogues are the earliest of which I am aware, but mine is not the first observation that early New England whalers were using drogues. In 1725, Paul Dudley wrote:

> "...and sometimes [the whales] will get away after they have been lanced, and spouted thick blood, with irons in them and drags fastened to them, which are thick boards about fourteen inches square" (Dudley 1809:81).

Moreover, Allen (1916:145-154) noted, from the large number of drift whales reported in the seventeenth century with irons in them, that most drift whales of New England at that time had been harpooned and then lost at sea. From this evidence, which he admitted was inadequate, he speculated that the early American whalers were not fastening their boats to the whales. The documentation reported here from Nantucket account books and probate records supports Allen's hypothesis.

Origin of the Drogue.

Most whaling histories claim that the drogue was an American Indian device. Thomas Beale wrote in 1835:

> "...we have had it proved to us that the Indians who inhabited the shores of America used to voyage out to sea and attack this animal [the sperm whale] from their canoes, and pierce him with their lances ...which...were fastened by a short warp, or piece of rope, to a large block of light wood, which was thrown overboard the moment the barbed instrument was thrust into its body..." (Browne 1968:522).

Although in this report the harpoon, which was barbed, is confused with the lance, which was not barbed, and I question the simultaneity of canoes and sperm whale hunting, I propose that Beale was trying to describe colonial American whaling, with Indian crews, and that later historians have interpreted this description as prehistoric.

Not only do I doubt that prehistoric Indians hunted sperm whales, which do not normally frequent coastal regions, but I challenge the existence of evidence for prehistoric or even Contact Period Indian use of drogues. For New England, only one description of Indian whaling is known for the Contact Period. According to James Rosier, who accompanied George Waymouth along the New England coast in 1605:

> One especial thing is their manner of killing the whale, which they call powdawe; and will describe his form; how he bloweth up the water; and that he is twelve fathoms long; and that they go in company of their king with a multitude of their boats, and strike him with a bone made in fashion of a harping iron fastened to a rope, which they make great and strong of the bark of trees, which they veer out after him: then all their boats come about him, and as he riseth above water, with their arrows they shoot him to death: when they have killed him and dragged him to shore, they call all their chief lords together, and sing a song of joy: and those chief lords, whom they call sagamores, divide the spoil, and give to every man a share, which pieces so distributed, they hang up about their houses for provision: and when they boil them, they blow off the fat, and put to their pease, maize, and other pulse which they eat. (Rosier 1843:156).

Rosier did not specify where this second-hand account had originated. Although Waymouth's first landfall was at Nantucket, he spent most of his voyage exploring the coast of Maine, and historians usually attribute this whaling to Indians in the region of the Kennebeck (Martin 1975:61). However, right whales in the seventeenth century were reported not on the coast of Maine, but between Cape Cod Bay and Delaware Bay (Little and Andrews 1981). In addition, the mention of maize, grown only south of the Saco River (Snow 1978:138), and sagamores, points to a location between Cape Cod and the Saco River for Waymouth's Indian whalers.

"Veer" means to let out; the description suggests a harpoon line held in the boat. We find no mention of buoys or drugs, and a unique and questionably efficient method of killing the whale with arrows. Either

this was a garbled report, or the Indians were trying to copy, in part, the Basque whaling techniques.

That this is the only description of American Indian along-shore whaling before the commencement of colonial along-shore whaling need not mean that Indians did not hunt whales at sea in prehistoric times. By the time the New England colonies were founded, the Indian population had been greatly reduced by epidemics, and whale hunts at sea might have become a thing of the past. Another possible explanation for the paucity of recorded Indian whale hunting is that most European voyages of exploration to the New World occurred in summer, whereas right whales visited the coast in winter. These are valid rationalizations. However, the use of stranded whales by historic Indians is well-documented, and the magnitude of this resource was probably great enough to have provided sufficient whale for prehistoric New Englanders (Little and Andrews 1981).

Whether the Indians hunted whales along-shore or not, if the only record we have of Indian whaling at sea includes fastening to the boat, and arrows, this record can hardly be used as evidence for the Indian origin of the drogue.

In searching for a possible origin of buoys and drogues, we find a 1765 description of whaling by Greenland eskimos : "...the Greenlanders dart many harpoons attached to large seal-skin bladders into the whale. These bladders not only prevent the whale from sinking deep into the water, but tire out the whale. Upon which they despatch him with short lances" (Rau 1885:262). As for the origin of wooden drogues, a photograph of a seal of the Basque town of Fuentearrabia, probably dating from about 1335 (Ansel 1978:18), shows very clearly a square shape attached to a whaling harpoon line (Figure 8). This is unequivocal evidence that the drogue had an ancient European origin.

One of the concepts which has clouded this issue has been historical

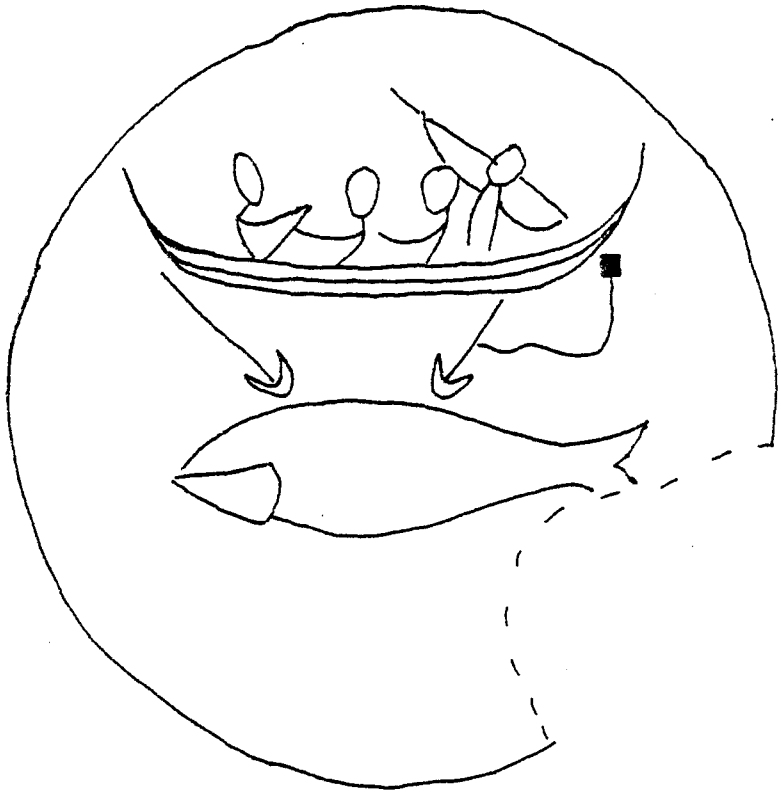


Figure 8. Sketch of seal of Fuentearrabia, Spain, about 1335 (after Ansel 1978:8), showing square object attached to harpoon line. Not only is this object an antecedent of the Nantucket "drug", and the American drogue, but the lapstrake construction of the whaleboat also appears to have preceded similar American whaleboat building methods.

descriptions of a log of wood attached to a harpoon (Allen 1916:146; Scammon 1968:204; Browne 1968:523). Now a log most commonly means a fairly large cyllindrical piece of a tree. However, a log can be a flat piece or chip of wood held vertically on a line, a device used to measure a ship's speed. The nautical instrument, and the use of the word 'log' to describe it, first came into documented use about 1570 in England (Kemp 1976:492). I propose that the log of wood attached to a harpoon line was in fact a perpendicularly held square of wood, precisely the drogue used by colonial along-shore whale fishermen. Having by this argument eliminated tree trunks from whaling, I think we must look to Europe and to Greenland for the origins of the buoy and drug.

If we wish to speculate, somebody, possibly James Loper or Ichabod Paddock, appears to have introduced the New England Indians to an ancient Basque technique, which bore some resemblance to the contemporary Greenlander's method of killing whales. It was an intelligent thing to have tried, and, indeed, was emminently successful.

Beale, after describing Indians, and colonists, hunting sperm whales with a harpoon attached "to a log of wood", went on to contribute an American whaling story which must have happened sometime before 1782. Having been

> "unable to capture any whales by means of the log harpoon, the captain" wished them to try "the method of which they had just heard, by the boat and line; but...the idea seemed monstrous; the mere thought of having the boat they were in attached to an infuriated leviathan by a strong rope struck terror among the whole crew....others more daring undertook the trial soon afterward, in which they frequently came off victorious, so that the new method was established among them, and has since been much improved" (Browne 1968:523).

Summary.

By 1701, at least, the colonial along-shore whalers of Nantucket were using harpoons, lances, and drugs, and by 1715, buoys. Although boat hashes, or boat hatchets can be identified in account books between 1696 and 1745, we cannot say that Nantucket whalemen fastened their harpoons to the boat until 1782 (Crèvecoeur 1971:121-124).

This method of whaling, with harpoons fastened to drogues, rather than to the boat as Europeans did at the time, had ancient origins in the Bay of Biscay, and contemporary usage with bladders instead of squares of wood among the natives of Greenland, as well as among natives of many parts of the world (Spence 1980). However, we have no evidence that the Indians of New England hunted whales at sea in that fashion, until the introduction of European technology.

Most of the historical problems in the early American whale fishery appear to have come about because nineteenth century historians displaced the famous colonial Indian whalemen, by moving them back in time, to make room for the history of colonial English along-shore whaling. If we recognize that the Indians dominated colonial American whaling, and understand that a log can mean a drogue, the problems of interpreting the Indian influence on American whaling technology disappear. Successful colonial American whaling appears to have begun only after the American Indians learned an archaic European method of catching whales.

6. SAVING THE WHALES.

"The process called saving the whales after they had been killed and towed ashore, was to use a crab, an instrument similar to a capstain, to heave and turn the blubber off as fast as it was cut. The blubber was then put into their carts and carried to their try-houses, which, at that early period, were placed near their dwelling-houses, where the oil was boiled out and fitted for market" (Macy 1835:31).

Many of the items needed for the process called "saving the whales" are listed in Table 8, along with the earliest references to them.

Illustrations of possible crabs, or portable capstains (Table 8), can be found in Spence (1980:38) and Scammon (1968:247). Gaffs, blubber fork, spades, "tacle" hook, and whale hooks were used for handling blubber. The spades, whale knives, blubber knives, and whale slices were used to cut the blubber off the whale and to cut the blubber into pieces small enough to go into the try kettles. The account books of Richard Macy (1710-1760) and Blacksmith (1683-1744) give the wages paid for "cuting whale", handleing a spade", "carting blubber", and "triing". See Figure 9 for the locations of these activities.

Although some try kettles and try houses can be found in Appendix 9, English deeds record additional try houses. For example, Ebenezer Gardner sold to Daniel Folger in 1741 one half the Try House and one half of three kettles (NCD 5:21).

Fitting for market was a process itemized in Blacksmith's account book under the term "full-binding". In a rare instance we find "by full binding

TABLE 8. EQUIPMENT USED FOR "SAVING THE WHALES".

BLUBBER FORK: 1699 (Blacksmith 1683-1744:25).

BLUBBER KNIFE: 1699, 1702, 1707 (Blacksmith 1683-1744:i,17,25); WHALE KNIFE: 1749 (NCP 2:191).

CANHOOK: 1715 (Blacksmith 1683-1744:49); a device for lifting barrels (OED).

CRAB: 1712 (Blacksmith 1683-1744:47); 1729,1764 (Appendix 9); portable capstain (OED).

GAFFS: from 1700 onwards (see Table 7); boathooks, from context.

LADLE: 1713 (Macy 1710-1760:55); for dipping oil.

SPADE: 1703 onward (Blacksmith 1683-1744:25,39); for cutting blubber off whale.

TACKLE (TACLE) HOOK: 1708 (Blacksmith 1683-1744:61).

TRY HOUSES: see Appendix 9.

TRY KETTLES: see Appendix 9.

WHALE HOOKS: 1712 (Blacksmith 1683-1744:58).

WHALE SLICE: 1703,1707 (Blacksmith 1683-1744:44,56); spade-like tool (OED).

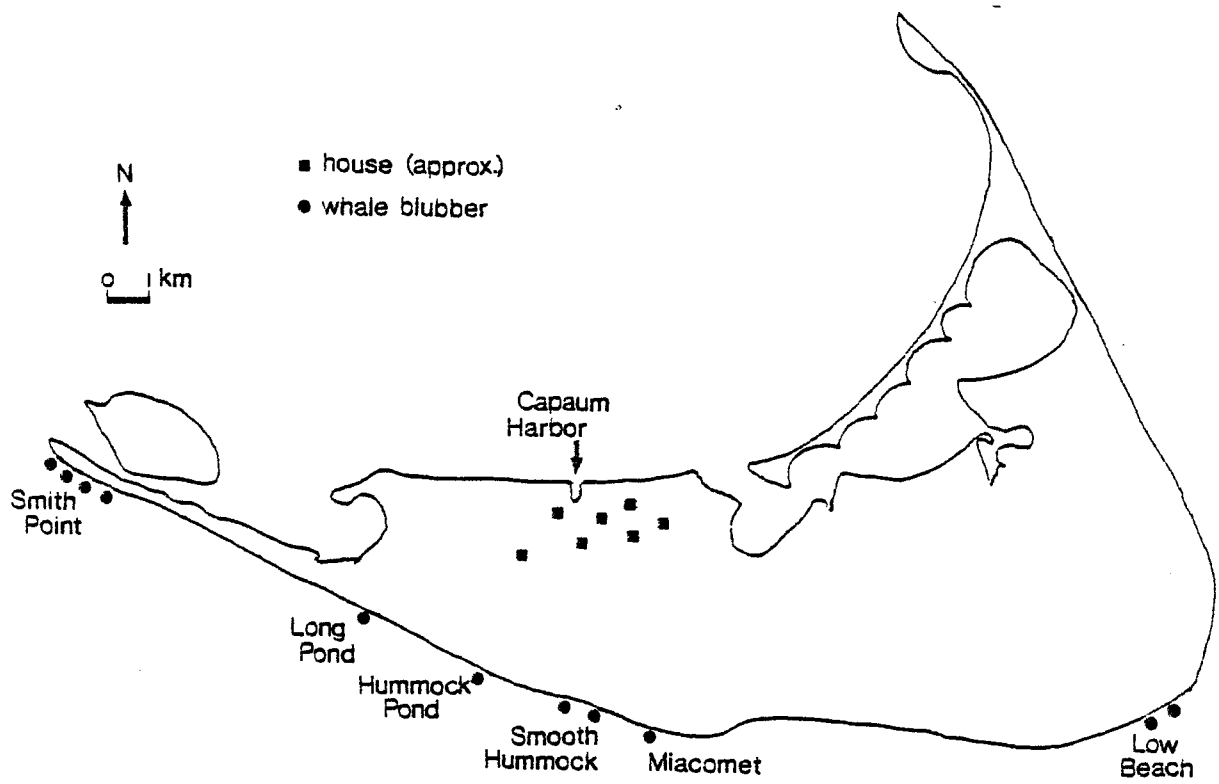


Figure 9. Locations from which blubber was carted, 1702-1723 (Blacksmith 1683-1744:22,25,37,49,56,63). Also shown are the approximate locations of English houses, where the try houses were situated (Macy 1835:31), and the harbor, before 1720.

3:bb: for Anthony to cary to London" ((1707) Blacksmith 1683-1744:35). In general we have at present little data on the market locations for the early eighteenth century Nantucket whale oil.

The name of the process, "saving the whales", possibly originated with drift whaling, as it implies the turning of a dead carcass into profitable oil and bone, instead of allowing it to be wasted or lost.

I should like also to consider the modern meaning of "saving the whales". The amount of whale oil obtained by along-shore whalers, including Indians, of New England was insignificant compared to that obtained by pelagic whalers of the twentieth century. In recent years we have recognized that whaling technology can be developed to the point at which the survival of whales is threatened. Some species may have already been over-hunted, but, with constraints on hunting stimulated by the Save-the-Whale movement, the whale population may be able to renew itself.

By a strange coincidence, the phrase "save the whales", which changed in meaning from making use of dead whales in 1700, to protecting live whales in 1981, encompasses the history of American whaling.

CONCLUSIONS.

* The American Indians taught the English colonists how to catch whales.
* The American whaleboat was either an Indian, or an American development.
* The American Indians used a harpoon attached to a log of wood.

These traditions have been rejected time and time again by historians from Scammon (1968:204) in 1874 to Little and Andrews (1981), by demonstrating the European origins of American whaling technology, with the exception of that curious log of wood, and by showing that the beginnings of colonial whaling supplanted Indian drift whaling. However, data have been scarce, and these traditions, increasingly garbled, still appear in the most up-to-date whaling histories (Spence 1980).

Traditions, however garbled, can sometimes prove valid. By assembling and analyzing the earliest along-shore whaling data at Nantucket, and especially by recognizing the important role colonial Indians did play in the along-shore whaling industry, I have found that the American Indian whaling traditions are valid, if interpreted in the proper time frame.

I find no evidence that prehistoric Indians of New England hunted whales at sea. The hybrid Indian whaling at sea reported in 1605 already reflected Basque influences. However, the colonial Indians, after being introduced to a mixture of contemporary and archaic European whaling technology (was this the innovation of James Loper of Long Island or Ichabod Paddock of Cape Cod?), enthusiastically undertook a genuinely American kind of whaling. At a ratio of five Indians to one Englishman, Nantucket manned at least 30 shore-based whaleboats for the winter along-shore right whale season, sometime around 1726.

The whaleboats, which resembled the New England dugout canoes only in size, were exceptionally small and light to carry six men on the winter ocean. The colonial American Indians fastened their harpoons to drugs, for which another term was 'logs' or 'drogues', rather than to the whaleboat. Neither the use of small, light whaleboats, nor the use of "drugs" is known in European whaling of the late seventeenth century.

Beyond a doubt, the colonial Nantucket Indians, with their remarkable seamanship, either taught, or helped the sons and grandsons of the original English proprietors of Nantucket to learn how to catch whales by this archaic Basque method between 1690 and 1760. Some time before 1782, American whalers began fastening to the whaleboat in the European fashion, and by 1807 American whaleboats had increased in size to 27 feet. The drogue remained a minor piece of American whaleboat equipment, which has challenged historians ever since as to its origin.

Perhaps the most significant discovery has been that Indians were so central to colonial American whaling that historians could describe colonial whaling as Indian whaling.

ACKNOWLEDGEMENTS.

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APPENDIX 1. WHALING STATION DATA FOR FIGURE 3, ESTIMATED WHALE CATCH.

NANTUCKET: Beginning 1690 (Macy 1792a). Peak 1726, when 28 crews caught 86 whales (Starbuck 1924:356). From this I derive an estimated maximum of three whales per crew per year. Termination 1760 (Macy 1792a).

CAPE COD: Beginning 1688 or just before (Starbuck 1964:8). Peak 1714-1724, when 200 men whaled at Barnstable (Mellon 1794). 200 men correspond to 33 boats, which times three is 99 whales, as an estimated maximum. Note that data for Truro, Wellfleet, etc., are lacking. Termination by 1725 (Starbuck 1964:31; Dudley 1809:81).

LONG ISLAND: Beginning 1667 (Edwards and Rattray 1932:197). I omit records of drift whaling. Peak 1687 (2250 bbls) to 1707 (4000 bbls) (Ross 1902:871-873). 18-20 companies (Ross 1902:871-873); about 6 more (Schmitt 1972); perhaps 2 more (Bailey 1959). 28 X 3 gives 84 whales, or 4200 bbls at 50 bbls per whale, as an estimated maximum, which corresponds well with the 4000 bbls reported for 1707. In 1687, each man on the average got 10-12 bbls (Ross 1902:872). This equals 60-72 bbls per crew, which suggests that our factor of 3 whales, or 150 bbls, per crew, is a robust estimate of a maximum rate of return. Termination by 1717 (O'Callaghan 1855 5:510).

DELAWARE BAY: At Delaware, various attempts were made by the Dutch in 1631, and 1656 (True 1904:24,26).

At Cape May, beginning 1680 (Lipton 1975:4-11). Peak 1707-1714, 15 or 16 houses, population of several hundred (Lipton 1975). 15 X 3 gives 45 whales as an estimated maximum. Termination by 1734 (Lipton 1975).

APPENDIX 2. MIACOMET SHARES 1732 (Richard Macy 1710-1760:76,77).

1732

the numbers of the Shears		at Miacomet	
EC½ RL¼ RC¼ Comp - - - -	14	John Colman & BS - - - - -	26
TM & Brethren - - - - - -	13	Bunkers & Cumpany - - - -	19
The huseys - - - - - - -	11	John Swain & william - - -	10
SC & Sam Coffin - - - - -	12	Edward Coffin & Bethiah G -	23
Jethro Starbuck - - - - -	5	Sarah G. & Company GH - - -	15
EG & Brethren - - - - - -	17	Stephen Coffin Jur - - - -	2
the worths SH 1/8, GU 1/8-	4	Pinkhams Fitch & Judith -	27
G Gardner - - - - - - - -	16	the Barnards - - - - - - -	3
ns & GG - - - - - - - - -	18	Peternops & piks ¼ - - - -	25
RG - - - - - - - - - - -	9	Sam G JG & cumpany - - - -	7
Jethro Coffin and company-	1		
macys (EA) & Dinah w - - -	20		
Elazer Folger & NF - - - -	21		
Jeams Coffin - - - - - - -	22		
Joseph S & BS - - - - - -	6		
Damaris C JC 1/8 & R 1/8-	8		
JC Jona Coffin & B(ethih)-	24		

APPENDIX 3. LIST OF NANTUCKET WHALEBOAT CAPTAINS, WITH THE NUMBER OF WHALES CAUGHT BY EACH, IN 1726, THE PEAK YEAR AT NANTUCKET (Starbuck 1924:356).

Allen, Nathaniel (3)
Bunker, John (1)
Coffin, Bartlett (4)
" , George (1)
" , Jonathan (4)
" , Nathan (4)
" , Richard (1)
" , Shubael (3)
Folger, Abishai (6)
" , Nathan (4)
" , Shubael (5)
Gardner, Andrew (4)
" , Benjamin (3)
" , Ebenezer (4)
" , Joseph (1)
" , Peter (4)
" , William (2)
Gold, Daniel (1)
Heath, Edward (4)
Hussey, George (3)
" , Silvanus (2)
Jenkins, Matthew (3)
Johnston, James (5)
Paddack, Nathaniel (2)
" , Paul (4)
Pierce, Clothier (3)
Staples (1)
Swain, John (4)

APPENDIX 4. JAMES LOPER'S WHALING CONTRACT AT NANTUCKET.

James Loper Doth Ingage to Carrey on a Designe of whale Catching on this Iland of Nantukket, that is the sayd James Ingages to be a third in al Respeckes, And som of the Town Ingages also, to Carrey on the other Two Thirds with him, in Like maner. The Town doth also Consent that first one Company shal begin, and afterwards, the Rest of the freholders or any of them, have Liberty to set up an other Company, provided that they make a tender to those ffreholders that have no share in the first Company, and if any Refuse, the Rest may go on themselves, And the Town Do also Ingage that no other Company shal be allowed hereafter. Also whosoever kil any whale, of the Company, or, Companys aforesayd, they ar to pay to the Town for every such whale five shillings. And for the Incorragement of the sayd James Loper, the town Doth grant him Ten Acers of Land, in som conveneant place that he may Chuse in (Woodland exepted) and also Liberty for the commonage of Thre cows, and Twenty sheepe and one horse with nessasary wood & warter for his use, on Condition, that he follow the trad of whalling on this Iland, Tow yeares, In al the seasons Thereof, begining the first of March next Insuing, also he is to build upon his Land, And when he Leaves Inhabiting upon this Iland, then he is first to ofer his Land to the Town at a valluable price, and if the town Do not buy it, Then he may sel it to whome he please. The commonage is granted onely for the time of his staying here. 5:4:72

(NCD 1:30)

APPENDIX 5. INDIAN WHALEFISHERMEN AT NANTUCKET, WITH REFERENCES.

(Abel), Ben, 1723-1735 (Starbuck 1683-1766:17).

Challins, John,1703 (Barnard 1698-1737:23).

Charles, John,1768 (NCP 3:78).

Cooper, Jonas of Rhode Island, 1726 (NCCR 1721-1785:22,35).

Corduda, 1742 (Coffin 1738-1761:45).

Diamond, John, 1728-1729 (NCD 6:474; Starbuck 1683-1766:138).

Duch, Peleg, 1737 (NCP 2:2).

Ephra, 1727 (NCCR 1721-1785:65).

Gundy, Micah, of Chapaquidic, 1758 (NCD 6:403).

Japhet, Obed, 1723-1736 (Starbuck 1683-1766:36-37; Coffin 1738-1761:106).

Jeffery, Isaac, 1768 (NCP 3:78).

Job, Joel, 1772 (NCP 3:190).

Josiah, 1731 (lost) (Starbuck 1683-1766:62).

Micah, Jonathan, 1758 (NCD 6:403).

Micah, Mattakachame, 1740 (NCP 2:35,36).

Micah, Peter, 1768 (NCD 7:263).

Mooney, John, 1770 (NCP 3:131, 132).

Nat, 1734-1747 (Starbuck 1683-1766:126).

Netowa, Jeremiah, 1727 (NCP 1:129).

Paupamo, 1757 (Paupamo 1757).

Pecane, 1707 (NCD 3b:4).

Pocana, James, 1726 (Starbuck 1683-1766:123).

Pone, Tom, 1726-1758 (Starbuck 1683-1766:9,116).

Poon, Jacob, of Gay Head, 1730 (NCCR 1721-1785:64).

Indian whalefishermen, cont'd.

Samson, Jose 1729-1742 (Starbuck 1683-1766:65,67,68).

Sasachumet, Isaac, of Chapaqusset 1730 (NCCR 1721-1785:64).

Schutquade 1707 (NCD 3b:4).

Scrute, Stephen 1767 (NCP 3:74).

Shay, James 1739 (NCD 4:185).

Smug, Eben 1728-1739 (Starbuck 1683-1766: 19,37).

Solomon 1707 (NCD 3b:4).

Spotso, Barney 1793 (NCP 4:105).

Staples 1726 (Starbuck 1683-1766:123).

Stub 1730 (Starbuck 1683-1766:9).

Stocker, Job 1746 (NCCR 1721-1785:161.

Tasheme, Isaac 1744-1758 (Starbuck 1683-1766:106,110,113).

Tasheme, John 1735-1739 (Starbuck 1683-1766:125).

Tasheme, John, junior 1741-1743 (Starbuck 1683-1766:122).

Titus, Peleg 1768 (NCP 3:78).

Towaddy, Abram 1731-1741 (Starbuck 1683-1766:69,70,124).

Towaddy, Joe 1734-1757 (Starbuck 1683-1766:66,67,115).

Unknown (page missing) 1728-1754 (Starbuck 1683-1766:145).

Wabska, Peleg of Chapoquisket 1730 (NCCR 1721-1785:63).

Wooso, Isaac 1727-1732 (Starbuck 1683-1766:146).

Youkey, Moses 1756 (Coffin 1738-1761:66).

Black Whalefishermen:

Africa, 1728 (NCP 1:146,102).

Boston, Tobias, 1772 (NCD 8:243).

Jones, Edmund, 1753-1755 (Starbuck 1683-1766:127).

APPENDIX 6. INDENTURE OF JONATHAN PAUPOMOO, 1757 (Mss at Foulger Museum).

"This present writeing indented made the twentyth Day of August in the thirty first year of the Reign of George the Second of Great Brittan &c King, annaqsue domini 1757. Between Jonathan Paupomou an Indian of Sherborn on the Island of Nantucket in the Province of the Massachusets Bay in New England labourer...and Paul Starbuck of Sherborn on Nantucket... yeoman...witnesseth that the said Jonathan Poppaumoo...hath & hereby doth put out, place and Bind himself unto the said Paul Starbuck...to goe for & in the imploy of him the said Paul Starbuck on the fishing and whaleing uoiges at or about the said Iseland of Nantucket & on Nantucket Shoals & seas and coasts thereabouts or to anny other place the Nantucket whalemen sail to in pursuance of such voiges in the several and successive seasons there of for term of five years next insueing the Date hereof. Dureing which time & term the said Jonathan Papaumoo shall Dilligently constantly & faithfull attend on & follow said fishing and whaleing uoiges at all proper seasons.... In consideration whereof the said Paul Starbuck...doth hereby covenant promise and agree to & with the said Jonathan Popaumo to find & provide Boats, craft, & other necessarys for him according to custom & shall also pay & allow unto him the said Jonathan Papaumo the full usuall & customary price that is or shall from time to time be gived to Indians that are in the same imploy for all the codfish oile & whalebone he the said Jonathan Popaumo shall take or obtain for him Dureing the said term. In witness whereof both partys to these presents have interchageably set to their hands & seals the Day and year first above written

The Mark of Jonathan Paupaumo X X

Nantucket Is. The above written indenture was executed in our presence and approbated by us. Jep^{h} Gardner, Ebenezer Calefs, Justices of ye peace.

APPENDIX 7. COURT RECORDS OF NANTUCKET WHALING DISPUTES.

Nantucket County Court Records (NCCR 1721-1785):

1724: Jonas Cooper, laborer, in a dispute about 36 sticks or slabs of long whalebone (page 22).

1726: Jonas Cooper, mariner of Rhode Island, alias whalemen or laborer of Edgartown, had promised "to go a whaling for the plaintiff both winter & summer voyages for the space of three years & yet hath not performed sd obligation" (page 35).

1727: Ephra Indian whale fisherman vs. Micah Coffin, whale fisherman, who "sometime in December anno 1727 shipped the plt with him for that day on the whaling employ & obtained a part of a whale of which the plts share was one barrell and seven eighths of oyle" (page 65).

1730: Peleg Wabska of Chapoquisket, laborer who did "Feb last take away a whale boat belonging to the plt and conveyed sd boat to Martha's Vineyard while on the whaling voyage, by which the plt has lost the opportunity of a considerable profit" (page 63).

Indian Complaints to the Massachusetts General Court:

1718: Complaint that "their English neighbors allow them but half price for their whaling". The response, by Joseph Coffin, was "that they have no reason to complain, they being allowed according to the Custom of the Island, one half, the other being allowed for the Boat & Craft which is a proportion as is allowed to white men..." (Starbuck 1924:143).

1747: Complaint of Indians that "When the Einglishmen dak us out whaling with them to Sea they will let us no time to Rest on the Sabbath days.... how can we be anyways like christians...when we must be Rowing after whal or killing whal or cutting up whal on Sabbath day...?" (Starbuck 1924:154).

APPENDIX 8.

An Inventory of all and Singular the Goods Chattels Rights and Credits of Tristram Coffin of Nantucket Deceased, taken in Nantucket the seventeenth day of October 1706 and aprized by us whose names are under written

	£ S d		£ S d
A bed and bolster	- 3 00 00	a bed and bolster	- 2 10 00
a table	- 2 10 00	2 blankits	- 0 12 00
2 pillows	- 0 04 00	a coverlid	- 1 05 00
a bedstead	- 0 10 00	a gun	- 0 15 00
a suit of curtains	- 3 10 00	a kitle	- 0 09 00
a blanket	- 0 06 00	a pot	- 1 00 00
8 chairs at 2/9	- 1 02 00	belt and rapier	- 0 06 00
a brass kitle	- 1 00 00	a chest	- 0 05 04
a pot	- 0 12 00	a payr of andirons	- 0 15 00
a pot	- 0 04 00	a tramel & pot hooks	- 0 05 00
5 milk vessels	- 0 05 00	a great chair	- 0 03 00
2 poringers	- 0 02 00	a kitle	- 0 15 00
6 plates at 1/6	- 0 09 00	6 plates	- 0 09 00
a skillet	- 0 04 00	2 hiefers at 40^{s}	- 4 00 00
a tankard	- 0 03 06	2 oxen at 4/10	- 9 00 00
3 platers	- 0 12 00	2 steers at 35^{s}	- 3 10 00
a bason	- 0 02 06	a great bason	- 0 06 00
a trunk	- 0 06 00	3 platers	- 0 15 00
5 sheets	- 1 17 06	a candle stick	- 0 06 00
8 napkins a table cloth	-0 14 06	a flagon	- 0 03 00
3 payr of pillow cases	- 0 09 00	a gun	- 2 00 00
3 towels	- 0 03 00	a coverlid	- 1 10 00
a silver cup	- 2 10 00	4 harping Irons	- 1 10 00
2 pillows	- 0 04 00	2 lances	- 0 11 06

(Inventory of Tristram Coffin, 1706, page 2)

a main warp & drug	- 0 11 00	a payr of sheets	- 0 18 00
new warp	- 1 06 09	6 diaper napkins	- 0 07 06
a bridle and sadle	- 1 00 00	a table cloth	- 0 01 06
a yoke and chain	- 0 10 00	6 napkins	- 0 04 06
a chest	- 0 04 00	a towel	- 0 01 00
a gun	- 0 06 00	a towel	- 0 02 00
a pot	- 0 08 04	a table cloth	- 0 01 00
pot hooks	- 0 01 00	a towel	- 0 00 09
3 poringers	- 0 03 06	2 pillow cases	- 0 12 00
2 basons	- 0 02 00	a pillow case	- 0 02 00
a tinen pan	- 0 02 00	238 sheep at 4^{s}	-47 04 00
a skimer and brass ladle	- 0 02 00	a horse	-06 00 00
2 dishes	- 0 00 09	290# of wool at 11^{d}	-13 06 00
2 wooden plates	- 0 01 00	money	-14 10 00
a dozen trenchers	- 0 01 00	2 load ½ of hay at 15^{s}	- 1 17 06
a new bason	- 0 02 00	4 load English hay	- 3 10 00
an old bason	- 0 01 06	a cow	- 2 05 00
a pewter plate	- 0 08 00	2 calves	- 1 00 00
a pewter plater	- 0 05 00	a tub	- 0 03 00
a pewter plater	- 0 08 00	$45^{\#}$ of whale bone at 10^{d}	- 1 17 06
a quart cup	- 0 04 00	$6^{\#}$ of short whale bone	- 0 03 00
a plate	- 0 00 06	due to the deceased	- 1 05 08
a tramel	- 0 02 06	due to the deceased	- 0 6 4
a great Earthen bason	- 0 03 06	2 cows at 45^{s}	- 4 10 0
2 small Earthen basons	- 0 01 04	George Gardner	
a Jug	- 0 00 08	Stephen Coffin Junr	
2 cups	- 0 00 08	Nantucket November 4th 1706	

APPENDIX 9.

WHALE CRAFT, 1706-1764

(Nantucket Probate Records)

(+: mention made, no number given)
(): some uncertainty)

	Indian Accounts	Whale House	Whale Boat	Harping Irons	Lances	Main Warps	Drugs	Tow Iron	Tow Warp	Whale Craft	Whale Spades	Whale Knives	Try Kettle	Try House	Fishing Craft Fish Boat	Sea Bed	Unusual Items
1706: Tristram Coffin (NCP 1:8)				4	2	2	1										see Appendix 8
1721: Jonathan Bunker (NCP 1:80)	+									+					+		
1721: Thomas Bunker (NCP 1:92)	+	+		3	1	2			1						+ 1		½ sloop
1723: Nathan Skiffe (NCP 1:103)		(½)	+												+ +		1 bbl sparmacity, etc., "all gone to London".
1724: Joseph Coffin (NCP 1:70,73,123)	+	+	1							+					+ 1		
1725: Stephen Coffin (NCP 1:121)	+									+					+		"on Nantucket Shoals"
1727: Jeremiah Netowa (NCP 1:129)																	"voyage in the spring"
1728: George Coffin (NCP 1:139)	(+)		1	4	5	1	3		½		1	2	+	1		1	½ sloop RUBY, quadrant, compass, prospect glass
1728: Africa (NCP 1:102)					1												
1729: Nathaniel Gardner (NCP 1:157)	+				1								(1)			1	¼ sloop KINGFISHER, crab and some cable
1730: Prince Coffin (NCP 1:162)			1	+	+					+						1	cresset (oil torch)
1734: Paul Coffin (NCP 1:186)		1/7													+	1	
1735: Benjamin Barnard (NCP 1:190)	+	1	1	2	3					+						1	5/12 sloop RANGER
1737: Jethro Gardner (NCP 2:125)	+			8	9		4								+ 1	1	2/8 sloop
1738: John Pinkham (NCP 2:12)			1	1	1	2					1					1	

(cont'd).

WHALE CRAFT, 1706-1764.

	Indian Accounts	Whale House	Whale Boat	Harping Irons	Lances	Main Warps	Drugs	Tow Iron	Tow Warp	Whale Craft	Whale Spades	Whale Knives	Try Kettle	Try House	Fishing Craft	Fish Boat	Sea Bed	Unusual Items
1740: Mattakachame Micah (NCP 2:35)									1									
1742: Nathaniel Starbuck (NCP 2:214)	+									+					+			voyages about Nantucket and adjacent shoals
1743: George Bunker (NCP 2:70)	+									+					+	1		
1744: John Swain (NCP 2:74)										+	1				+	1		1/3 sloop HUMBURD
1747: Daniel Bunker (NCP 2:89)	+		2/3	+						+	1			½	+	1/3		1/3 whale sloop
1749: Peter Coffin (NCP 2:191)		(?)		1	7	2	5				1	5			+	1		7 gaffs, 1 boathook
1750: Thomas Brock (NCP 2:188)		½	7	11	8		4	1			3		1	1/3				part of sloops NANTUCKET, SUSANNA, CONSENT, HANNAH, TRYALL, JEMIMA, PEARL, FORTUNE, DOGHURD, FAME, and a "scooner".
1750: Daniel Hussey (NCP 2:218)		(?)		14	3												1	sloops MARY, HEPSIBAH, TWO BROTHERS.
1752: John Macy (NCP 2:205)			2							+	2		3	½	+	2		¼ sl. NANTUCKET, ½ sl. KINGFISHER, ¼ sl. HANNAH, 1/6 FRIENDSHIP.
1755: Richard Swain (NCP 2:242)																	1	¼ schooner, 1/6 old brig
1757: Thomas Carr (NCP 2:276)			1	3	7	5	6				2							5/16 sloop DESIRE, long boat, spyglass, quadrant.
1758: Zachariah Bunker (NCP 2:303,360)		¼		3	2	1	1	1		+					+	1		quadrant
1759: Thomas Macy (NCP 2:380)	+				+	+										1		1/8 sloops BOUNTY, RANGER
1760: John Way (NCP 2:412)			2	4	2		1								+	1		1/6 sl. BALTIMORE, 1/3 sl. PHENIX, 3/4 sl. ABIGAIL
1760: John Bunker (NCP 2:408)		¼	½												+	1	1	1/6 sl. RUBY
1762: Bartlett Coffin (NCP 3:6)													1					
1764: Ebenezer Gardner (NCP 3:41)													1	¼	+			crab and cable

APPENDIX 10. ACCOUNT BOOK #422. RICHARD MACY 1710-1760. EXCERPTS.

(no date): the acount of waight of bone (p.ii).

(no date): Thomas Macy, to carting of 2 lod of bluber 00 10 00 (p.ii).

1711: (Jon Colman) by charge upon the driskin and yearling 00 14 6

to trying 6 barels of fat whale 00 12 00

(no date, about 1712): (Stephen Coffin) to trying 5 galens of pickens 00 1 6

to triing of 2 barills of fat whale 00 -- 00 (p.11).

1713: (Nathaniel Barnard) to Cuting dryskin 00 11 04 (p.21).

(Edward Coffin)	by Trying one barel	00 2 10
	to carting whale	00 14 10
	by trying one barel of fat w--	00 2 00
	by trying barel Dryskin	00 2 6
	to 2 barels of fat whale	00 4 00
	to money for cuting whale	00 2 9
	to handleing a spade	00 3 0
	to money paid for the ladle and Barel	2 6
	to one galon of rome	00 5 6 (p.54,55).

(Thomas Macy) to making 3 oars 00 4 00

1714: (Benjamin Gardner) by 10 galons of oyl 00 15 9 (p.42).

(--?--) to 3 barels 00 16 6

to cash recieved for the vinyar whale 02 15 00

1715: The Acount of Charg

to worp laid in	04 00 00
to one drug	00 1 6
to irining the boat	00 4 00
to one Drug	00 1 06
to one boye	00 2 00

to one drug 00 1 6
to one drug 00 1 6
to mending 2 irons 00 7 3
to mending a bo-- 00 00 6
to charg to Edward Coffin 00 1 00
to mending the long boat 00 2 00
to money paid for the fat whale 00 2 00 (p.87).

to los of Craft

to the first whail 00 9 01

to the second whail 00 9 5 (p.88).

1717: (Richard Macy loans young Ephram money. If Ephram does not repay it, Ephram's son Jacob is bound for "whaling and fishing on this shore") (p.88).

1717 The seventh month the agreement made between Richard Macy & young Epharam. Epharam having taken the money 40 shilens he dothe engage to bring the money in 2 months and bind his 2 young sons for fishing apon bobal tal they are of the age of 21 years of age. (p.85).

(no date)

by Charg apone boat
to mending and trinard (?) of the boat 00 12 00
to one lans worp 00 3 1
to one drug 00 1 6
to the other drug 00 1 6 (p.89).

("Bobel" is Bow Bell, one of the most southerly of the Nantucket Shoals (J.C. Andrews, personal communication); a "dryskin" is a cow right whale with a yearling calf, and a "fat whale" is probably a cow right whale near parturition (see Table 1); "vinyar" is probably Vineyard; "irining the boat" must mean providing whale irons (harpoons, and possibly lances) for the boat).

APPENDIX 11. WHALECRAFT TO OUTFIT SLOOP BRITTANY 1745 and 1746 (Coffin 1738-1761).

1745 To Sundry Stores Laid into ye Sloop Brittany for ye Whaleing voige by Cromwell Coffin

...

To a whale Boat & 6 oars

To a Hatchet Toiorn

To 8 main worps

To 8 Drugs, 8 iorns

To 3 lances & 3 lance worps

To a whale Spaid 2 gafes

To 4 main worps

To 3 lance worps (Coffin 1738-1761:112)

1746 Sloop Brittany

6 drugs, 2 spades, 6 maine worps, 5 lance worps, 3 lances, 7 oars, a too iorn

To a Boat hatchet, 2 gaffs (Coffin 1738-1761:105)

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