



Whaling

The prey, the history, the whaling ship,
the voyage, the products of the
industry, California whaling history, the
art

The Prey, the source of city and home lighting in the 16th – 19th Centuries

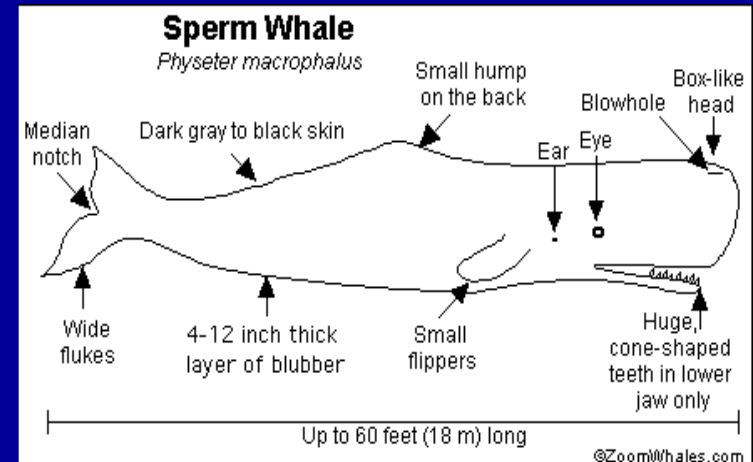
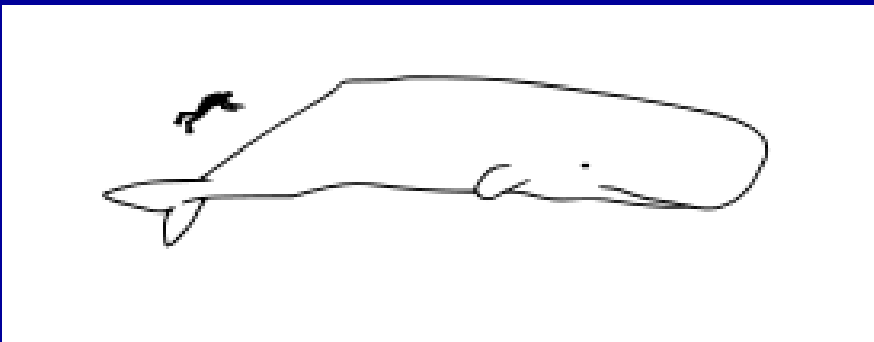
- Whales: esp. Sperm, Right, Bowhead, lesser importance: Humpback, Gray, & others
- Walrus
- Elephant seals

WHALES



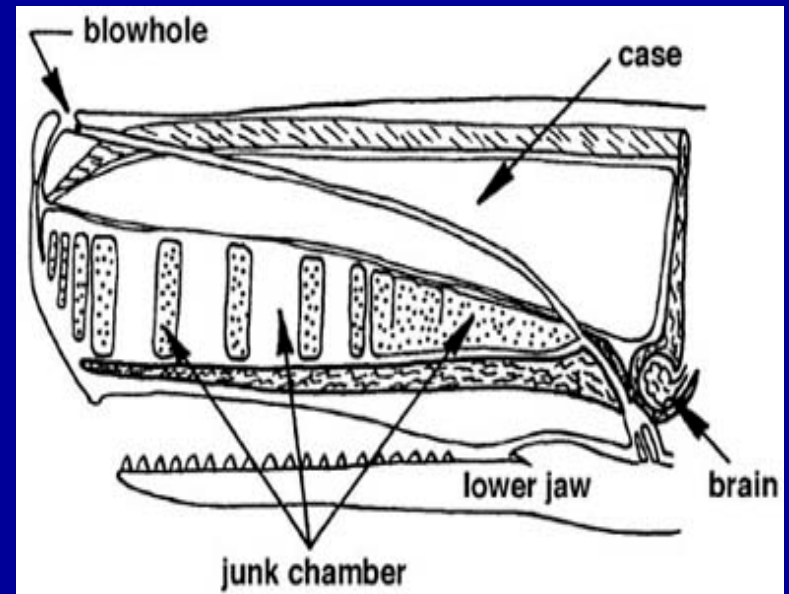
The Sperm Whale (*Physeter macrocephalus*)

- Size comparison relative to an average human being



The Sperm Whale (also known as the common cachalot, archaic French for tooth)

- The largest of the toothed whale (Odontocete)
- 26-29 pairs of teeth, the largest brain of any animal
- Hunted for spermaceti, sperm oil (from blubber, 4-12 inches thick), ambergris
- Other byproducts: teeth, panbone
- Life span: 70- 75 years
- Females & juveniles live in pods
- Males usually live alone
- Adult males 50-60 feet, 40-50 tons
- Believed to be approx, 200,000 sperm whales currently alive and recovering



Moby Dick – a fictional albino sperm whale

- The book Moby Dick, or The Whale, written by Herman Melville and published in 1851, following the Essex disaster, when an angry sperm whale attacked and sank the whaler Essex in the Pacific. Albino sperm whales do exist, but are rare.



The Sperm Whale

- Toothed whales (sperm, beluga, dolphins, etc, have only one blowhole (nostril))
- The “blow” is angled to the front, singular, ice cream cone shaped



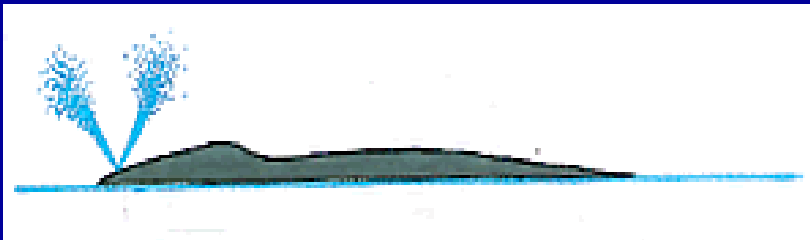
The Right Whale, a baleen whale

- Northern Atlantic: (*Eubalaena glacialis*) (rare, 500 + survive)
- Southern Right Whale: (*Eubalaena australis*), more numerous
- 50-60 feet, 100 tons
- Current total population : 7500-8000 (pre-whaling 190,000?)
- The “right” whale to catch (large amount of blubber, baleen or whalebone, slow swimming, floats when killed, usually not combative)



The Right Whale

- The blow of the Right whale is short and V shaped (the right whales have a double outlet blow hole)



The Bowhead

- *Balaena mysticetus* (also known as the Arctic whale, the great Polar whale, or the Greenland Right Whale), a close relative of the northern Right whale, an Arctic or sub-Arctic baleen whale that lives around the pack ice
- Like the Right whale, is slow, floats when killed, provides up to 100 barrels of oil and 1500 pounds of baleen or “whale bone”
- Discovery of petroleum in Penn. in 1859 diminished the need for whale oil, but commercial hunting for the bowhead continued into the early 1900’s for their baleen, as the spring steel or plastic of its day



The Bowhead

- Layers of blubber up to 2 feet thick
- Adult : 50-60 feet in length, may exceed 60 tons
- Feed on plankton, consume about 2 tons of food daily, 325-360 fringed baleen plates, up to 14 feet long & 12 inches wide
- While feeding, a bowhead whale skims through the water with its mouth open. As the water flows into the mouth & through the baleen, the plankton is trapped inside the mouth near the tongue to be swallowed
- Located in the Western Arctic , Canadian Arctic , Okhotsk Sea , and Spitsbergen west to Greenland (? Extinct)
- May live up to 100 years (recently, a beach stranded bowhead was found with a harpoon head in its neck that was manufactured in New Bedford in the late 1890's)

The Walrus

- *Odobenus rosmarus* (Latin for “tooth-walking sea-horse”)
- Hunted aggressively in the 18th, 19th, & early 20th centuries for blubber and ivory
- Adult males can weigh up to 4400 lb.
- Tusks, large canine teeth, can grow to 3 ft.
 - Average walrus yielded about 1 barrel of oil that would pass for whale oil



The Elephant Seal

- Northern Elephant Seal
(*Mirounga angustirostris*)
- ranges over Pacific coast of
US, Canada, & Mexico



- Southern Elephant Seal
(*Mirounga leonina*)
- found in Southern hemisphere
on islands such as South
Georgia, coasts of New
Zealand, South Africa, and
Argentina



The Elephant Seal

- The males of the Northern & Southern varieties reach a length of 16 ft & weight of 6000 lb.
- The average longevity of the elephant seal is 20 – 23 years.
- Populations have recovered since the time of near extermination in the 19th & early 20th centuries. A colony at Point Reyes Headlands near SF is growing at an average annual rate of 16 %



Whaling History

- Ancient, subsistence/indigenous
- European
- American
 - 18th, 19th, 20th centuries
 - Atlantic, Pacific, Bering Sea
 - California
- Current

Whaling History

- Humans began whaling in pre-historic times. The oldest known method of catching whales is to drive them ashore by placing numerous small boats between the whale and the open sea, and frighten them with noise, activity, and small weapons such as arrows. Used for small species, such as Pilot whales, Belugas, and Narwhales.

Whaling History - Korean stone age petroglyph

- A reproduction of the 3 x 10 m petroglyph discovered in 1971 in So. Korea
- “Whales are shown with spears embedded in their bodies”

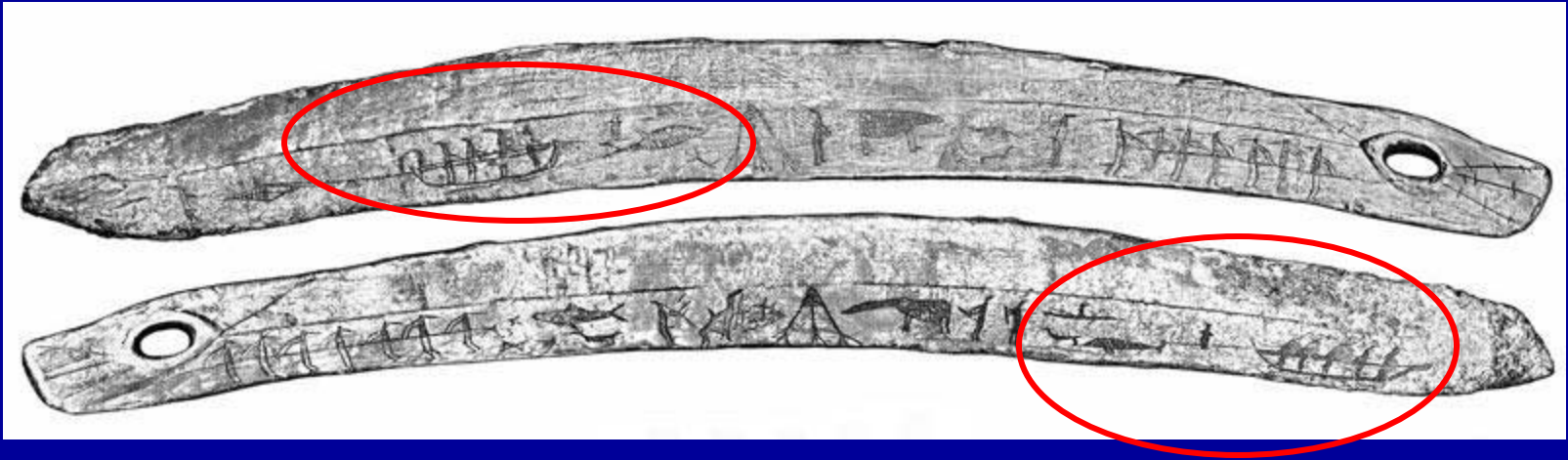


Whaling History - Korean stone age petroglyph

- Petroglyphs created between 6000 & 1000 B.C.
- More than 46 depictions of large whales
- Evidence of use of harpoons, floats, rope lines
- Images of Sperm, Right, and humpback
- Social cohesion & food source associated with whaling – similar to the historic Inuit culture

Whaling History

- Site in Russian eastern Arctic (Chukchi peninsula), found 2005, Un'en'en, engraved walrus ivory, dated approx 3000 years old, shows hunters engaged in whale hunt, using the umiak
- 50 cm long



Whaling History – Indigenous/Subsistence Whaling

- Makah-BC, Nootka, Coastal Salish (native peoples of the Pacific Northwest
- Inuit-Alaska
- Faroe islands
- Japanese (? Learned from the Portuguese in the mid 16th cent)
- Drift whales are relatively common

Whaling History - Indigenous

- Nootka whaler hat
- 18th century
- Northwest Coast
(Vancouver Island)



Whaling History - Indigenous

- Inuit seal/walrus rib - whaling pictographs
- Several hundred years old



Whaling History - Indigenous

- Faroe Islands (North Atlantic) – beach where pilot whales are driven for harvesting



Whaling History - Indigenous

- Faroe Islands
 - About 950 long-finned pilot whales (species of dolphin) are caught annually
- “Most Faroese consider the hunt important to their culture and history, and arguments concerning the topic raise strong emotions.”



Whaling History - Indigenous

- Whale meat hanging to dry and age – Faroe Islands



Whaling History – Indigenous

- Faroe Islands – local museum (in the town of Torshavn)
- Exhibition of local knives used in the annual whale harvest



Whaling History - ancient

- “The ancient Greeks and Phoenicians are said to have practiced whale fishing, and it has been mentioned that whale fishing was practiced along the French coast by the year 875, but whether this refers to capturing stranded whales or an established fishery is uncertain.”
 - Albert Church, Whaling, Past and Present, 1908

Whaling History

- The Greeks certainly were well acquainted with whales from their travels on the Mediterranean.
Thought of whales as sea monsters
- Had several variations of names (Ketos, Kaitos, Ketea, Ketea Pontos, Cete)
- Depicted on pottery & coinage
- Derivation of the word Cetacean



Whaling History - ancient

- 1100 BC – the Phoenicians probably operated shore based whaling for sperm (or other smaller) whales in the eastern Mediterranean
- Example of a silver coin from the Phoenician city of Sidon, 400 BC, above is a Trireme type of ship, below is a Seahorse (sea monster) Which is a combination of Pegasus (the winged horse) & Kaitos (the whale)



Whaling History - ancient

- Plant products (e.g. saponin) that could poison whales (and more often fish) were known to the Greeks and Phoenicians. Would spear the whale with a poisoned spear/harpoon, and wait 2-3 days until the whale was ill or died and rose to the surface, and could be hauled to shore for rendering.
- Also whalers of the Aleutian, Kuril, Kodiak Islands and the coasts of Japan (aconite roots, a member of the family Ranunculaceae, aka wolfsbane, monkshood.)
- The Norwegians, for at least the past 500 years, have known of poisoning whales within the fjord, with bolts infected with lethal bacteria, material from pigs infected with anthrax. Whale got sick 1-2 days later, arose to surface, and was easily killed.

Whaling History - Carta Marina (1539) by Olaus Magnus

(1490 – 1557)



Whaling History

- Olaus Magnus : A Swedish ecclesiastic and writer, a pioneering writer re the Nordic people, countries and surrounding oceans. His brother was the last Catholic archbishop of Sweden.
- Carta marina (Latin –map of the sea)
- The earliest detailed map of the Nordic countries (Norway, Sweden, Iceland, the Faroe islands)
- 12 years to finish
- Printed in 1539 in Venice
- A copy 1st discovered in 1886 in Munich & a 2nd copy in 1962 in Switzerland
- Note the sea monsters

Whaling History

- Sea Monsters



Whaling History

- Sea monsters



Sea Monsters OF THE 16TH CENTURY
MAP OF ICELAND BY ABRAHAM ORTELIUS, c. 1570

The Iceland map of Flemish mapmaker Abraham Ortelius (1527-1598) appeared as part of his *THEATRUM ORBIS TERRARUM*, the first modern world atlas to combine advances in cartography with the results of European voyages of discovery during the 15th and 16th centuries. Drawing also on the latest developments in copperplate engraving and printing, Ortelius' work exhibited a high degree of artistic skill as well as, for its day, geographic accuracy.

The imagined terrors of Iceland's waters are featured on the

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Whaling History

- Sea Monsters



Whaling History

- Jonah and the Whale – another sea monster



Whaling History – early European

- Basques – the first commercial whalers

1059 – first mention of Basque whaling at the town of Bayonne. By 1150, harvesting of the northern right whales in the Bay of Biscay.

1550 – Basques were traveling across the Atlantic to Newfoundland and Labrador.

1600 – whaling stations in Iceland

Whaling History – early European

- Basques of the Bay of Biscay, about 1575
- 1612 : The Dutch, English, French & Basques in Greenland & Spitsbergen
- Later the Norwegians, Icelanders, Danish
- Whaling around Spitsbergen and Iceland continued until the 18th century

Whaling History

- The Basques of southern France & northern Spain – the first Europeans to capture large whales at sea ,commercially. Started approx. 1575 ???



Whaling History

- Krill “bloom” in Bay of Biscay NASA
satellite photo



Whaling History

- 16th century Basque whaling stations in North America



Whaling History

- Dutch, English, Germans & French exploited the Arctic Right whales found around the coast of Greenland, Spitsbergen and nearby islands such as Jan Mayen.
- 1611 – Following a report of abundant whales off the coast of Spitsbergen, the English sent an expedition, which was a disaster.
- 1612 – sent another English expedition which was successful
- 1613 – a large fleet was sent (7 ships), which met 20 other ships (12 Basque, 5 French, 3 Dutch)
- The next 35 years witnessed recurrent fighting amongst the various nations

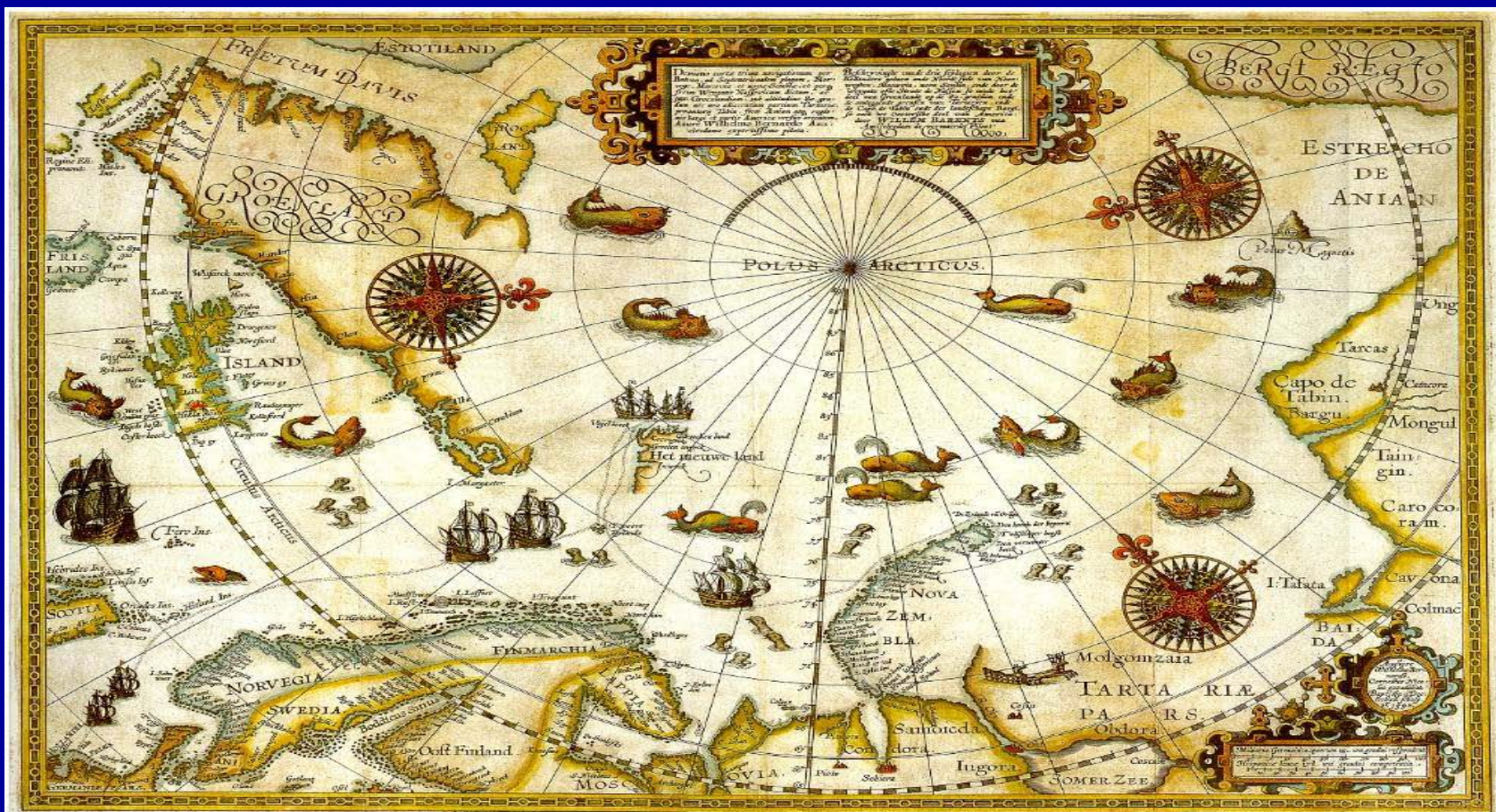
Whaling History

Spitsbergen

- The whales (Bowhead) were sighted within the bays or fjords by men at various vantage points (towers) and pursued by small boats, manned by 6 men, named shallops or chalupas. The whales were harpooned and lanced to death, and towed to the shore at low tide to be flensed (stripped of the blubber). Blubber boiled in large copper kettles, the oil contained within the blubber fat was released, the oil was then cooled in large wooden containers, and then placed into large wooden casks for subsequent shipment home.

Whaling History

- 1599 map of Arctic exploration by Willem Barentsz. Spitsbergen, here mapped for the first time, is indicated as “Het Nieuwe Land” (Dutch for “the New Land”)



Whaling History

- Dutch whalers near Spitsbergen, by Abraham Storck, 1690
- Dutch whalers off a mountainous coast, Abraham Storck, between 1659 & 1708



Whaling History

- Spitsbergen and the whaling processing sites (2007)
- Can still see the bricks & rocks used for the try works



Whaling History

- Spitsbergen whaling site – still find 16th century remnants of whale bone littered on the beach (2007)



Whaling History

- Jan Mayen Island (near Spitsbergen), discovered in 1614 by a Dutch whaling captain (JM), & used as a Dutch whaling base, 1615 - 1638. The local bowhead was hunted to near extinction by 1640, and has never thrived since then. Beerenberg volcano, again active, most recently 1985. The northernmost active volcano on earth.



Whaling History

Japanese Whaling

- Hunting of whales probably began before 300 BC (small harpoons & thousands of porpoise skulls found in burial mounds)
- Oldest written mention of whaling in the 7th century (whale meat was eaten by the emperor).
- Use of the harpoon was recorded first around 1570
- Net whaling was invented around 1676

Whaling History

- Whaling scene on the coast of Goto, by Hokusai, 1830, illustrates “net whaling”



- In 1853, the US Naval officer, Matthew Perry, forced Japan to open itself to the world. One of the purposes of this act was to gain access to ports for the American whaling fleet in the north-west Pacific Ocean.

Whaling History

American commercial whaling

- The harvesting of stranded whales on the beaches of the New England coastline had been practiced by the natives for centuries, and then later by the local townspeople. Off shore whaling began in the late 1600s (Pilgrims), and deep sea whaling in the early 1700s.
- In 1712, Christopher Hussey, a Nantucket whaling captain in a small whaling ship, was blown off course by a storm, and managed to kill one of the whales of a school of sperm whales (a pod). This was the first time a sperm whale had been hunted (by the colonists) and killed at sea.
- Eventually, larger ships were developed that could carry more men and sustain a voyage for 3 to 5 years.
- The method of processing the oil which was used on land was transferred on board (the tryworks) so that the ships could travel to areas where the whales were located, the animals could be processed on board, and the oil sent back to the US for sale.

Whaling History

- The Golden age of American whaling = 1835 - 1860
- American commercial whaling – the wharf at New Bedford, 1870-1880, loaded with ships and casks of whale oil



Whaling History

- A portion of the crew of a New Bedford whaling ship; Azorean and Cape Verdean





The Whaling Ship

- Prototype is the Charles W. Morgan



The Whaling Ship

- Charles W. Morgan



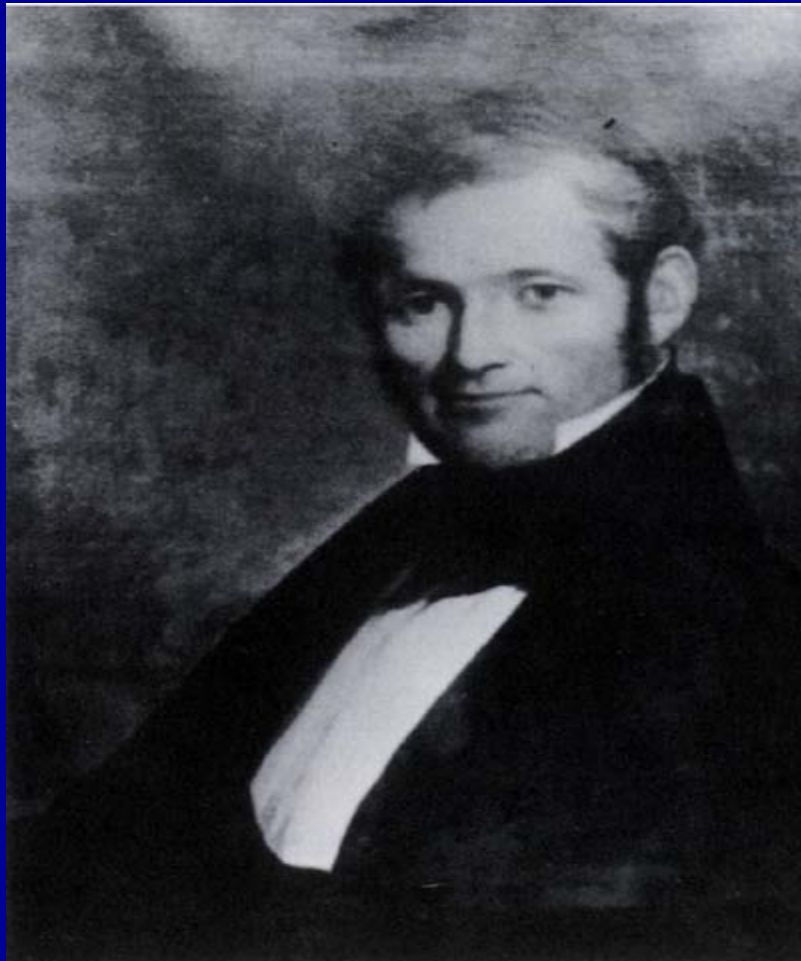
The Whaling Ship

- Historic photo of the Morgan, New Bedford harbor, wintertime



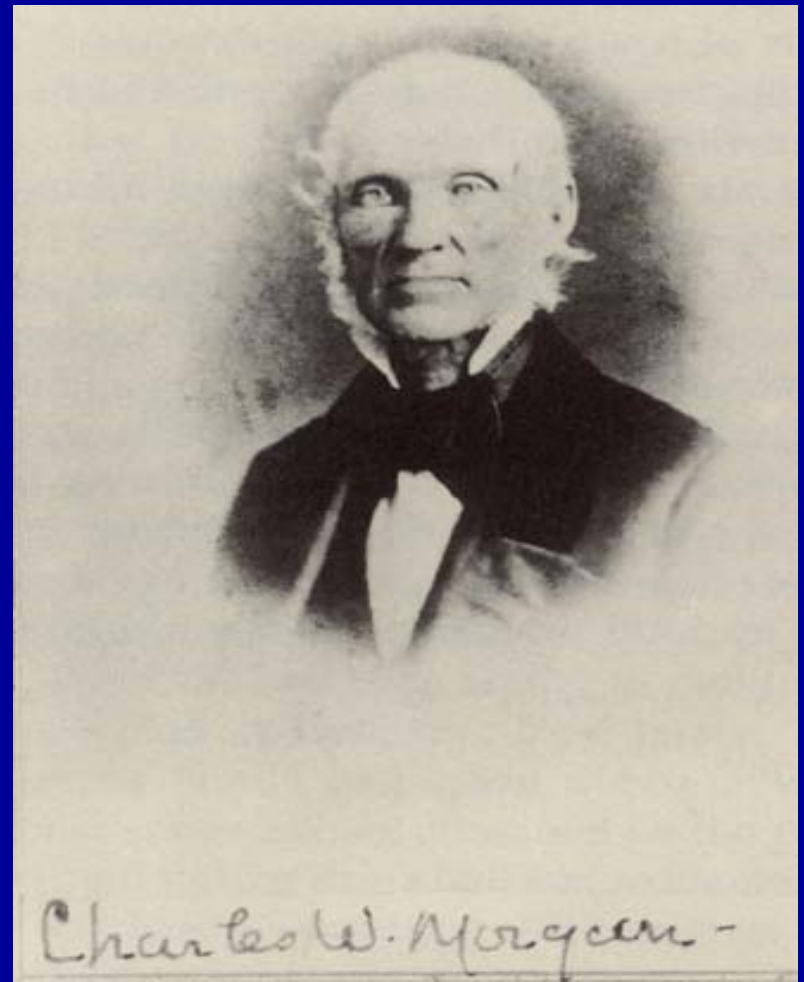
Charles Wain Morgan

1816, 20 yrs.



Charles W. Morgan at age twenty, in 1816. Photograph of a portrait by Chester Harding. (55-510)

ca. 1860, 65 yrs.



Charles W. Morgan

- The Stamp – a 1971 commemorative stamp of the CW Morgan



The Whaling Ship CW Morgan

- Historic photo of the CWM – approx 1920
- The CWM at Mystic Seaport today



©Mystic Seaport



The Whaling Ship CW Morgan

- The bow of the ship
- The tryworks



The Whaling Ship CW Morgan

- The tryworks



- The flensing stage



The Whaling Ship CW Morgan

- Whale oil barrels/casks – various sizes here, but the standard barrel contained 31.5 gallons
- Whale oil casks on the wharf, New Bedford, 1870-1880



The Whaling Ship CW Morgan

- The Captain's quarters – the living/work area
- The Captain's bed



The Whaling Ship CW Morgan

- A passenger's quarters
- The 1st mate's berth



The Whaling Ship CW Morgan

- The crew's cabin/berths



- The stern of the CW Morgan



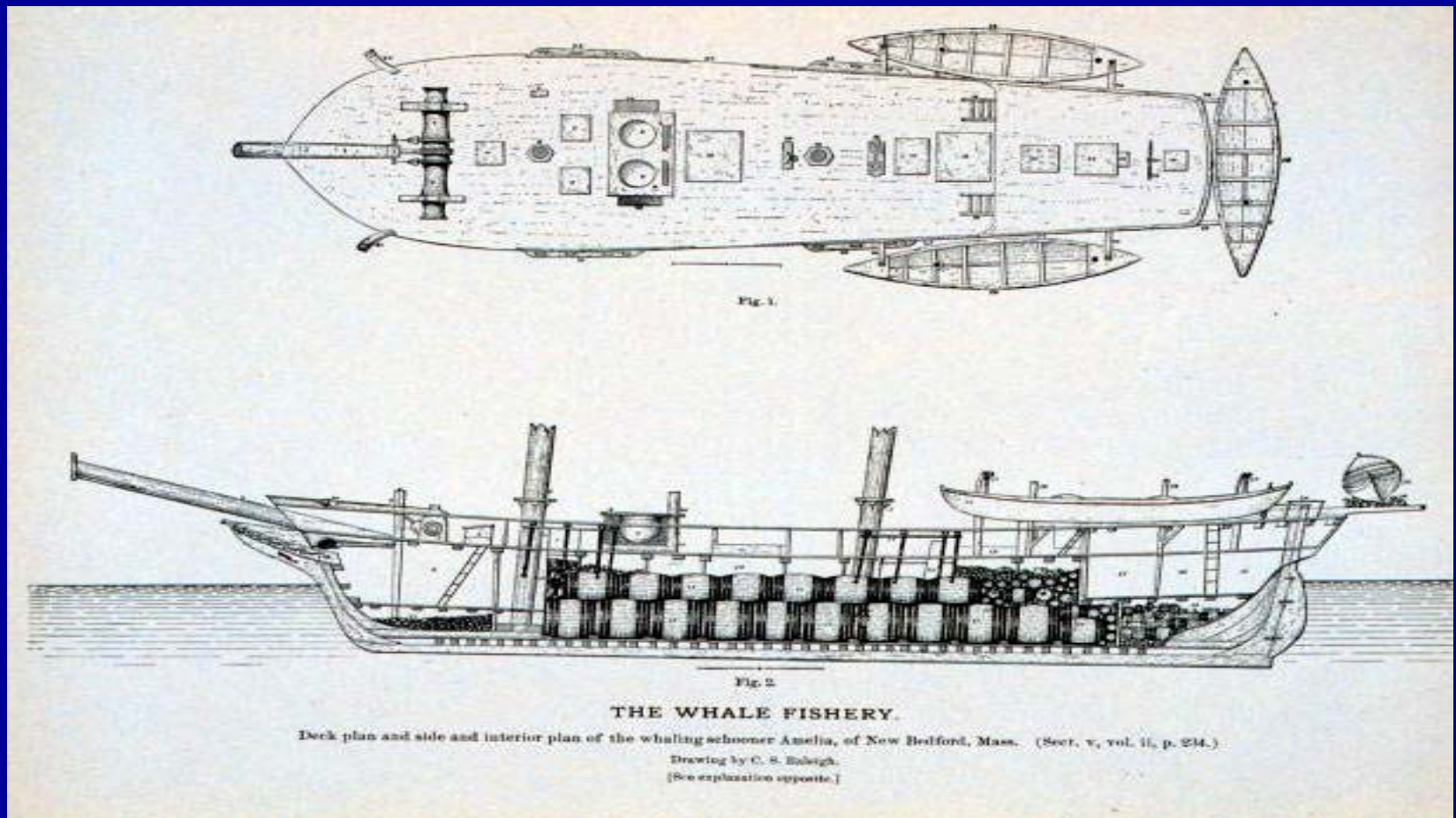
The Whaling Ship

- Scrimshaw— searching for whales (cruising on the whaling grounds)
- Look-outs on foremast and mainmast



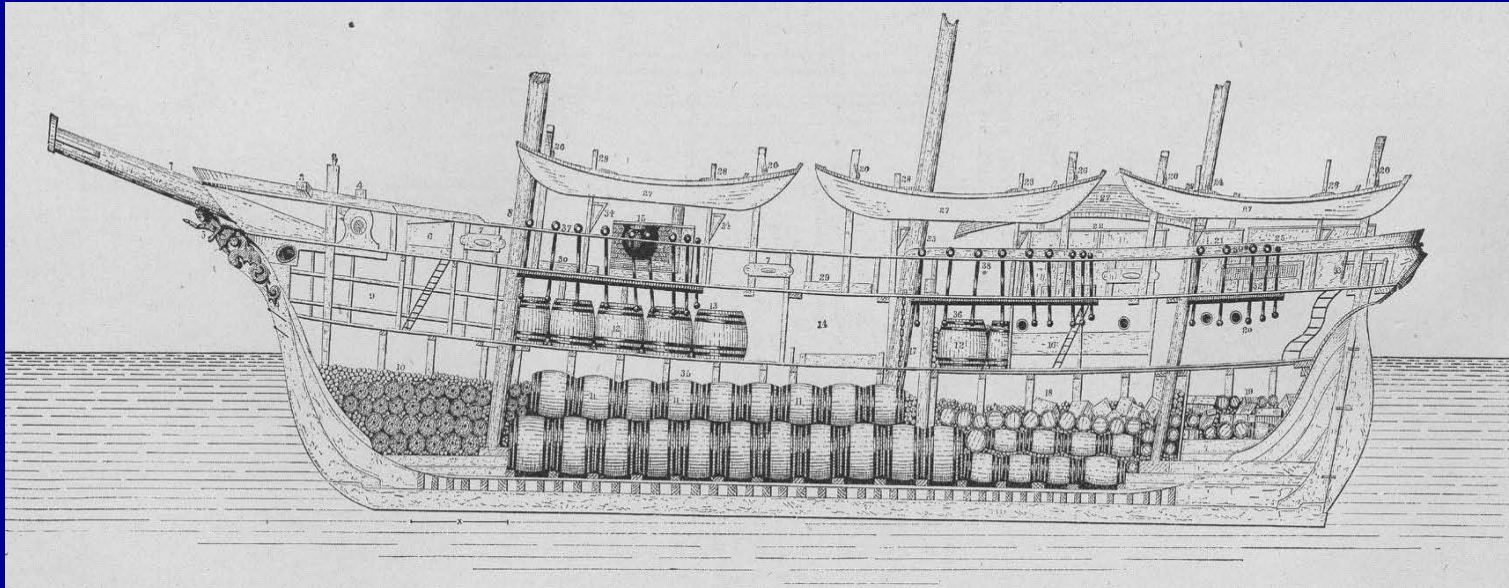
The Whaling Ship

- A smaller ship (a schooner)



The Whaling Ship

- A larger ship - more room for cargo & crew
- Longer voyages



The Whaling Ship

- Rigging –Rope and Sail

The Charles W Morgan as it looks now (2000) at Mystic Seaport in Mystic, Conn.



The Whaling Ship

- Rope

The fully rigged ship, with as many as 25 sails, used miles of rope. The complete amount of rigging for one 400 ton brig, launched in 1865, was 3.8 miles long.

Initially used hemp, which was soaked in pine tar (very heavy & flammable)

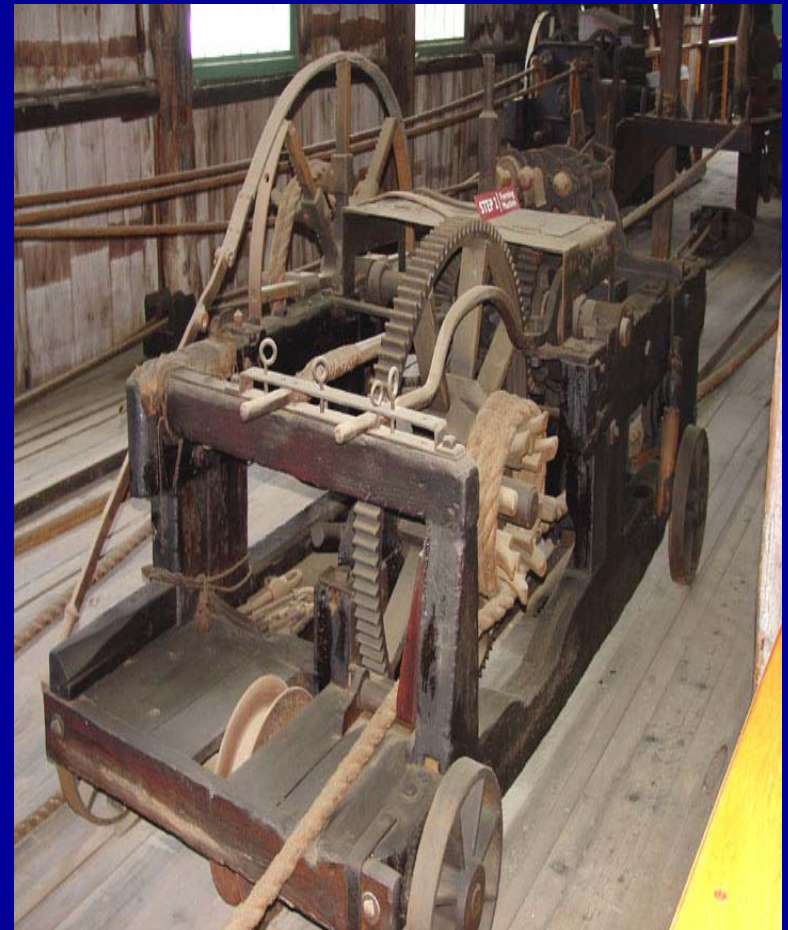
Later (1830s) used Philippine manila. Didn't need to be tarred & was more supple.

The Whaling Ship

- How it was made - #2



- How it was made - #3



The Whaling Ship

- The New Bedford Rope Works



The Whaling Ship

- The CW Morgan rigged as a brig with sails set (approx 1917)
- The sails on a whaler would cover an area of >11,000 sq. ft.
- May need as many as 20 – 25 sails when all sails are set, and needed numerous replacements for the voyage



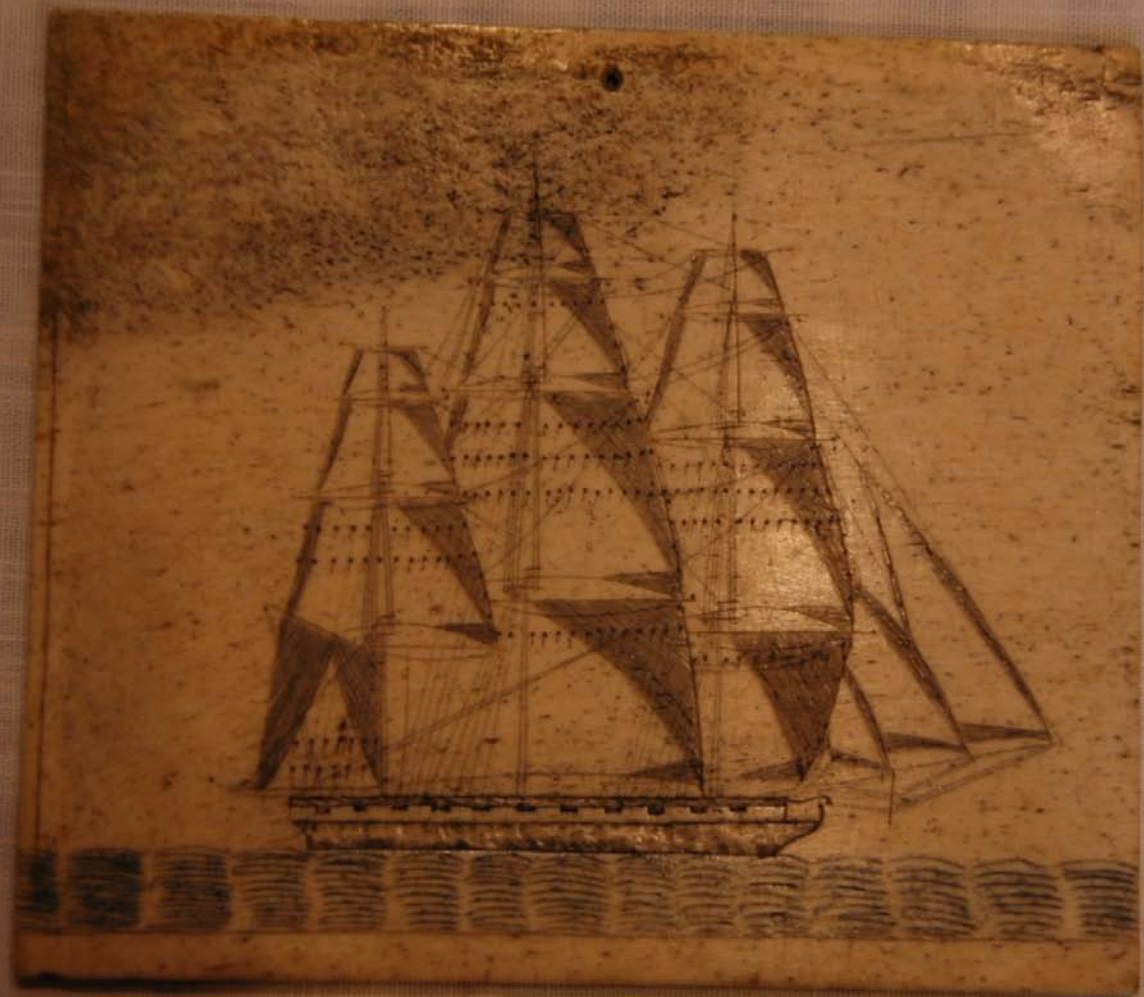
The Whaling Boat



The Whaling Boat

- About 28 ft long, 6 ft wide, 2.5 ft deep at center, 3 ft at ends, fore and aft ends almost exactly the same



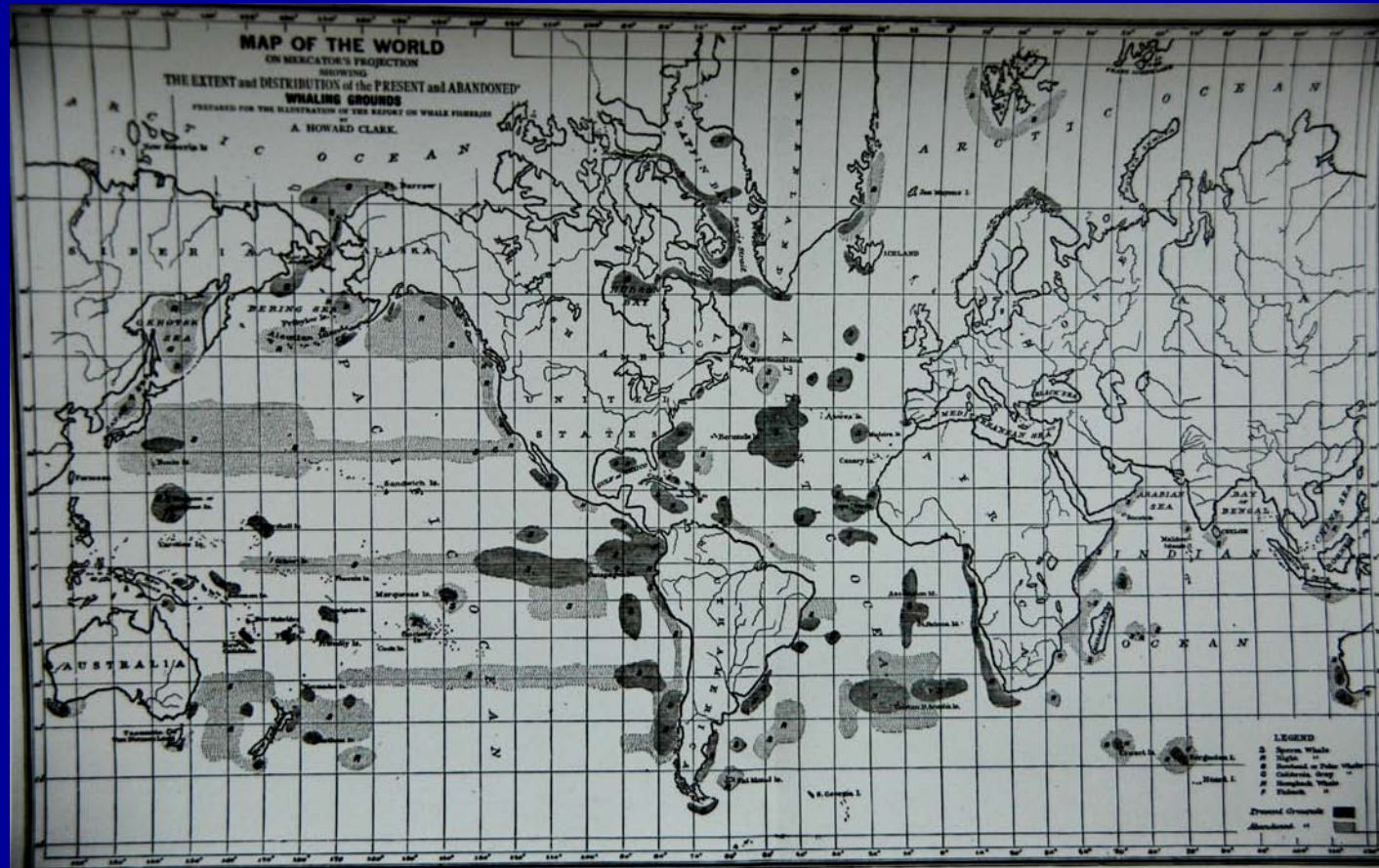


The Voyage

- Whaling map
- Ship's log
- Harpoons
- Hazards (illness, injury, punishment [flogging], weather, etc)
- Food

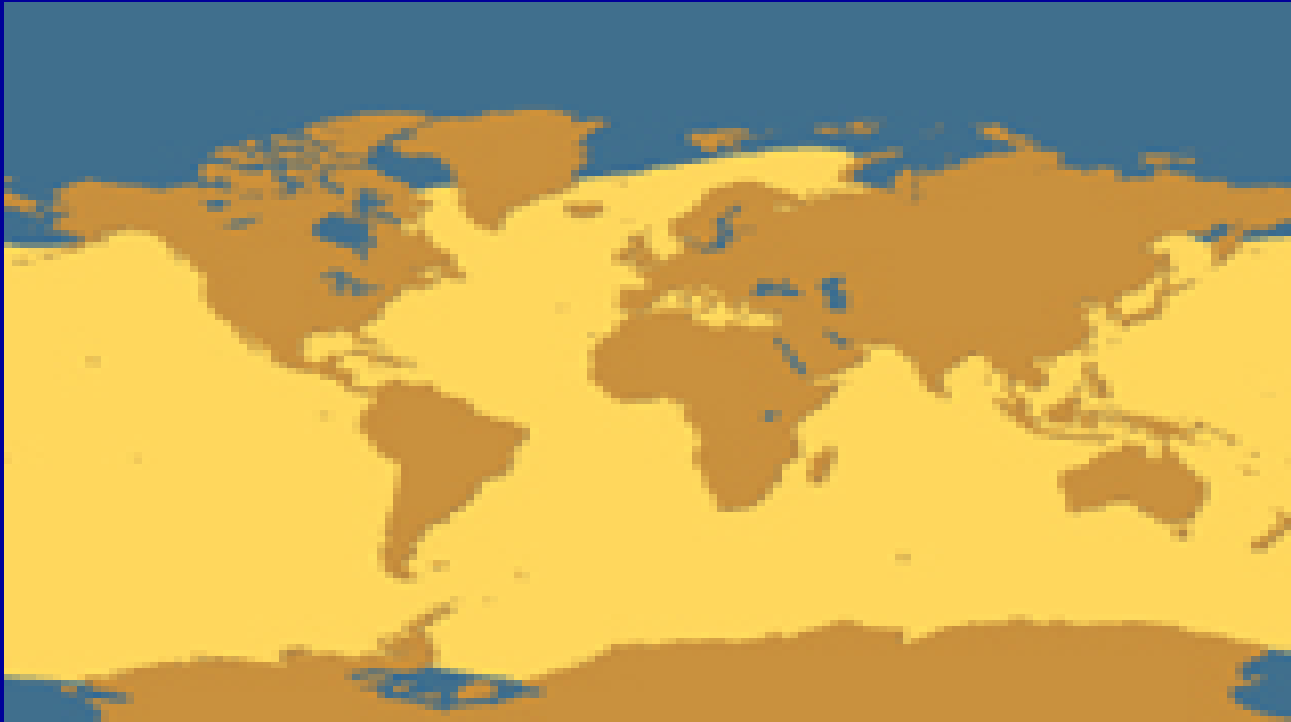
The Voyage

- The whaling map – of the known whaling grounds in the early 20th century



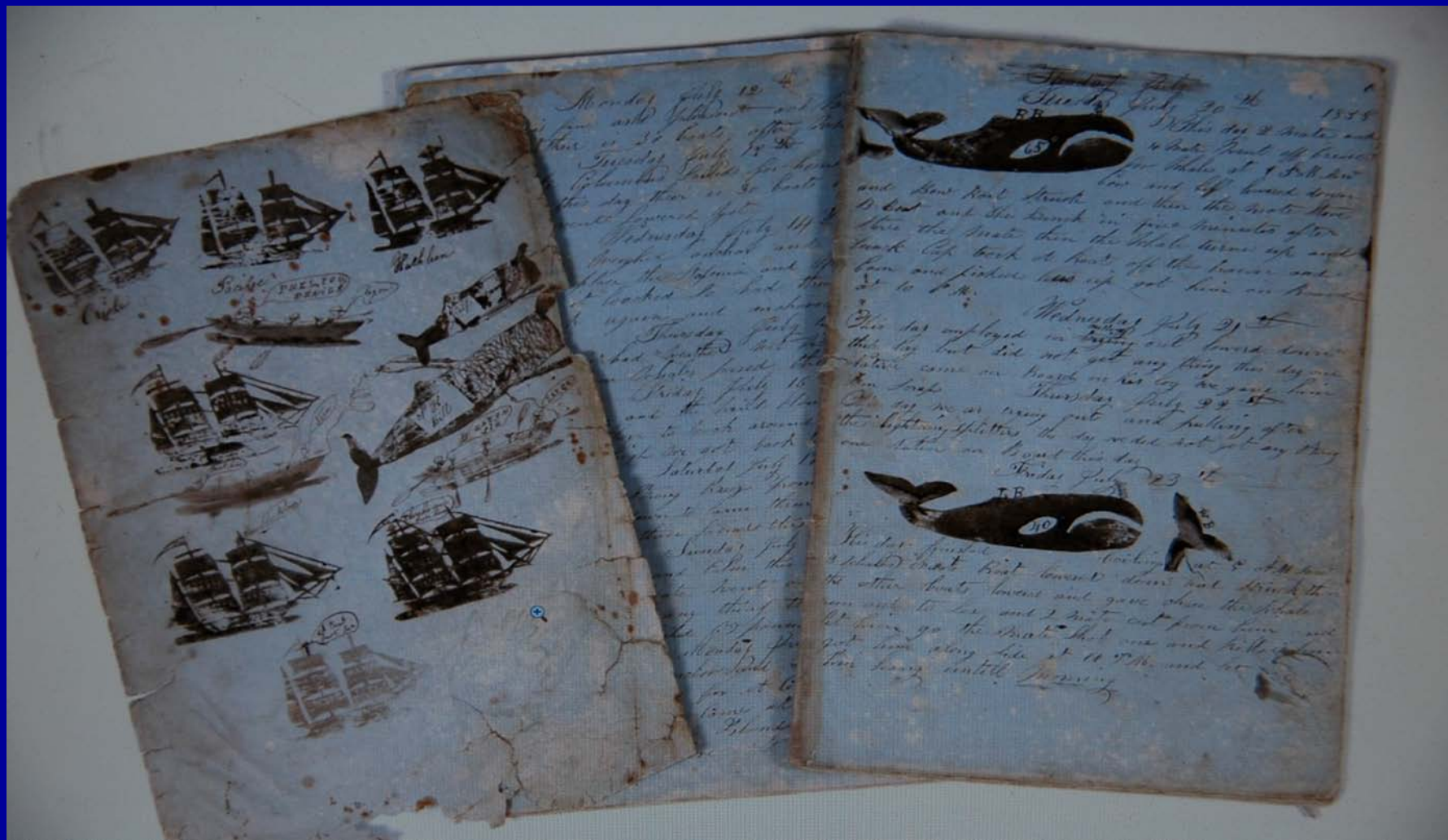
The Voyage

- A map of the distribution of Sperm Whales



The Voyage

- The Whaling Log – ship & whale stamp images



The Voyage

- A whale stamp for the log



The Voyage

- A double flue harpoon – initial classic design, but easily pulled out & lost the wounded whale.



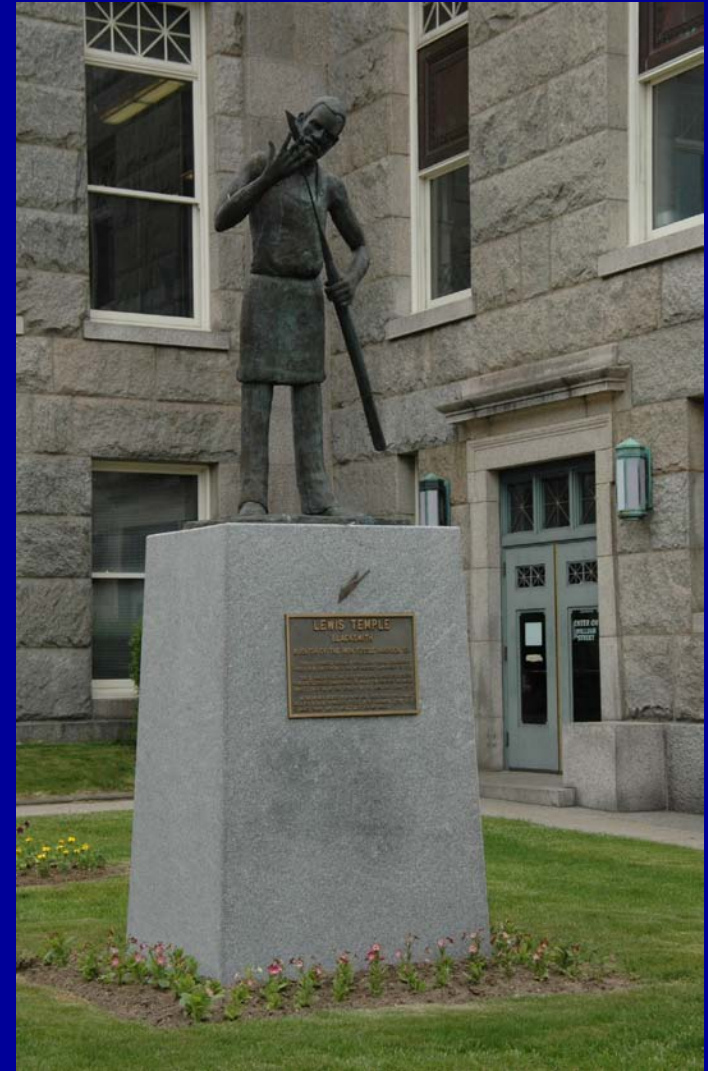
- A single flue harpoon – another early design, but again it pulled out easily



The Voyage

- 1848 - An African-American blacksmith in New Bedford, Lewis Temple, developed a new type of harpoon, the Temple toggle or the Temple iron, a toggle type of head which swiveled on its shaft after entering the whale. (an ancient Inuit design)

1800-1854 – Born a slave in Richmond, Va., he lived in New Bedford as an adult, 1830 to 1854. He didn't patent his harpoon design, and was destitute when he died in 1854.



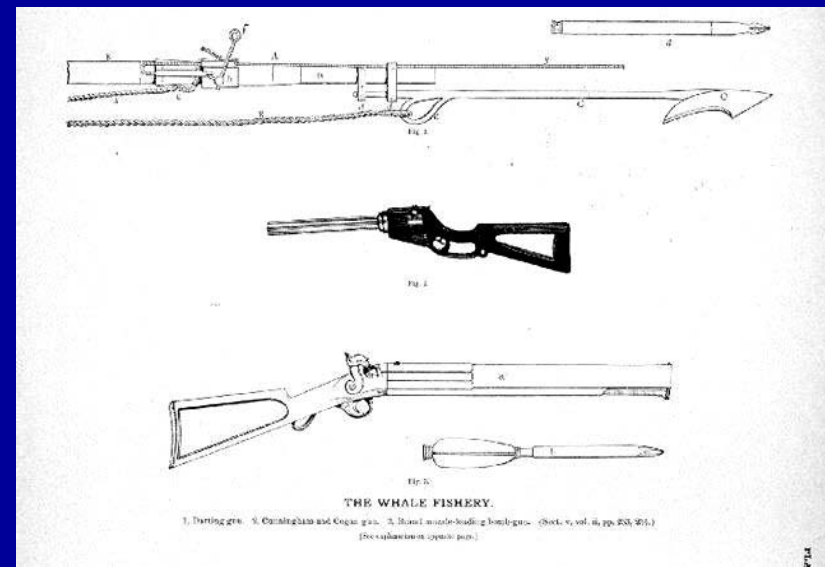
The Voyage

- Harpoons

A (Temple) toggle head harpoon – a better design, the head would rotate and be firmly embedded in the whale



Later inventions created shoulder-fired guns to shoot the harpoon head and lance in which there was an explosive charge



The Voyage

- Boat mounted harpoon gun – Greener gun



- The modern day explosive harpoon & harpoon gun on the bow deck of the whale catcher boat



The Voyage

- Harpooning the whale – scene from the movie Down to the Sea in Ships, 1922



The Voyage

- Later (late 1840s), the harpoon could be fired from a shoulder-fired gun with a bomb embedded in the harpoon (lance) tip



THE WHALE FISHERY.

Boat fastened to whale by harpoon and line; killing the whale with bomb-lance. (Seal. v, vol. ii, pp. 45, 262, 267.)

From painting by J. K. Taylor.

The Voyage

- Following the harpooning, the boat is attached to the whale



The Voyage

- The Nantucket Sleigh Ride – the small boat is pulled by the whale, often for miles, until the whale tires and rises to the surface, exhausted, and is killed by a lance thrust to the aorta/lungs (the most dangerous part of the chase & capture.)



The Voyage

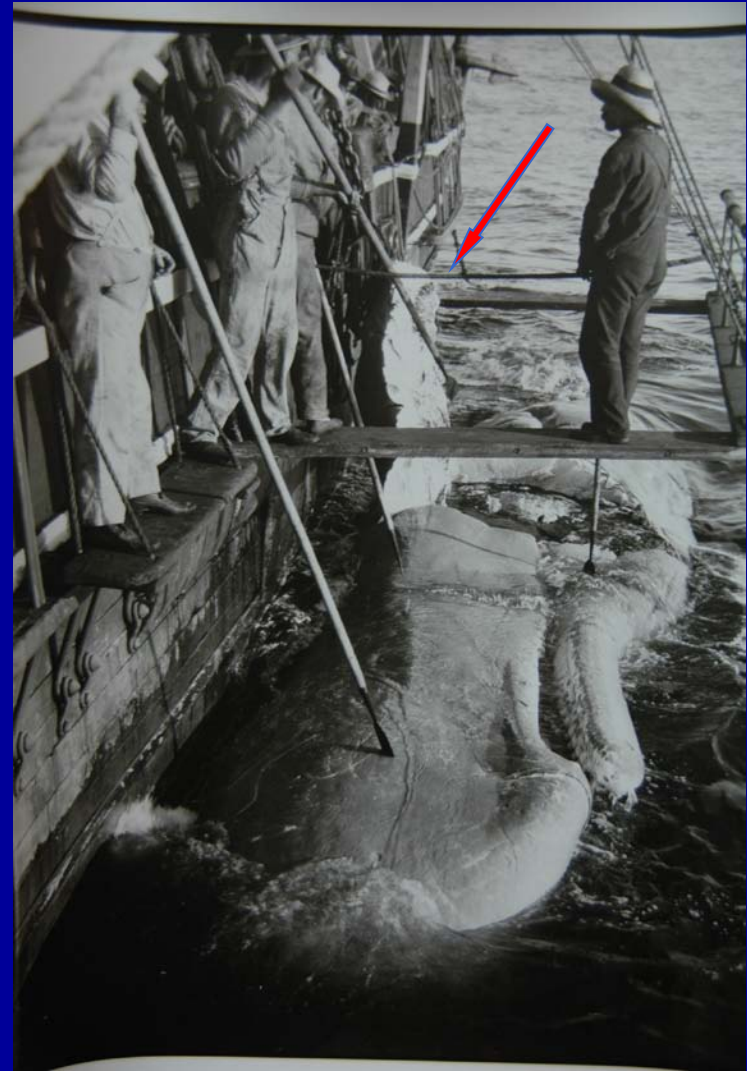
- Towing the whale back to the ship – often took hours, sometimes the next day after spending the night in the open sea, in the small boat, tied to the dead whale (floating or under water)



The Voyage

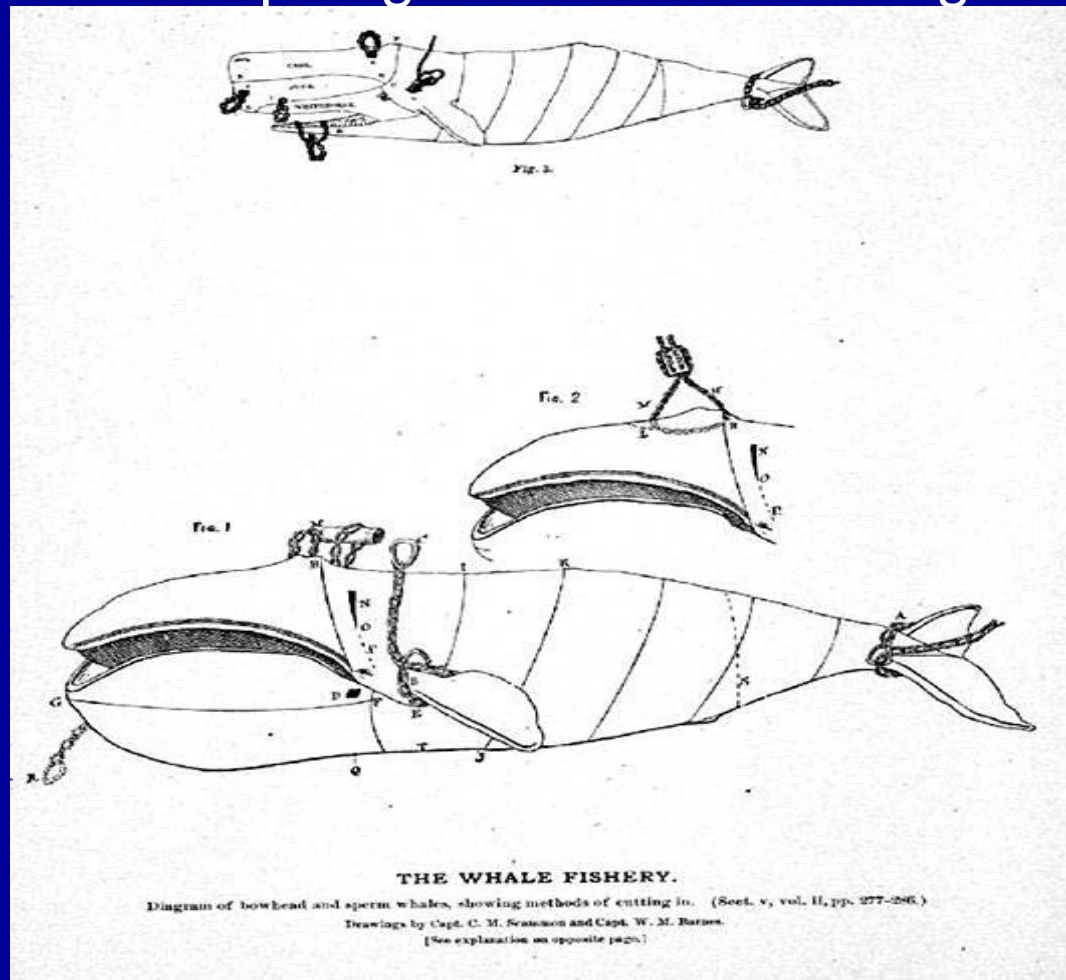
- Flensing the whale

In this case a sperm whale. Note the beginning of the process, with a hook or toggle on a chain through the strip of blubber and beginning to pull the blubber on board.



The Voyage

- Cutting-in or flensing diagrams for the sperm and bowhead whales, used for the pelagic outboard flensing of whales. Cuts are made in a spiral pattern which allows for the continuous removal of the blubber “blanket”



The Voyage

- Slowly pulling the strip of blubber onboard. When onboard, the long strip of blubber would be cut into smaller pieces, the blanket piece, each weighing about a ton.



The Voyage

- Cutting the blanket piece into smaller pieces on deck (the horse pieces and finally, the bible leaves, which would be thrown into the try pots).
- Note the blade & bare feet,
- and slippery whale fat all
- over the place, an injury
- just waiting to happen.
- What a mess!!



The Voyage

- Trying out the blubber in the try works. Could smell the odor of the smoke and ship for miles.



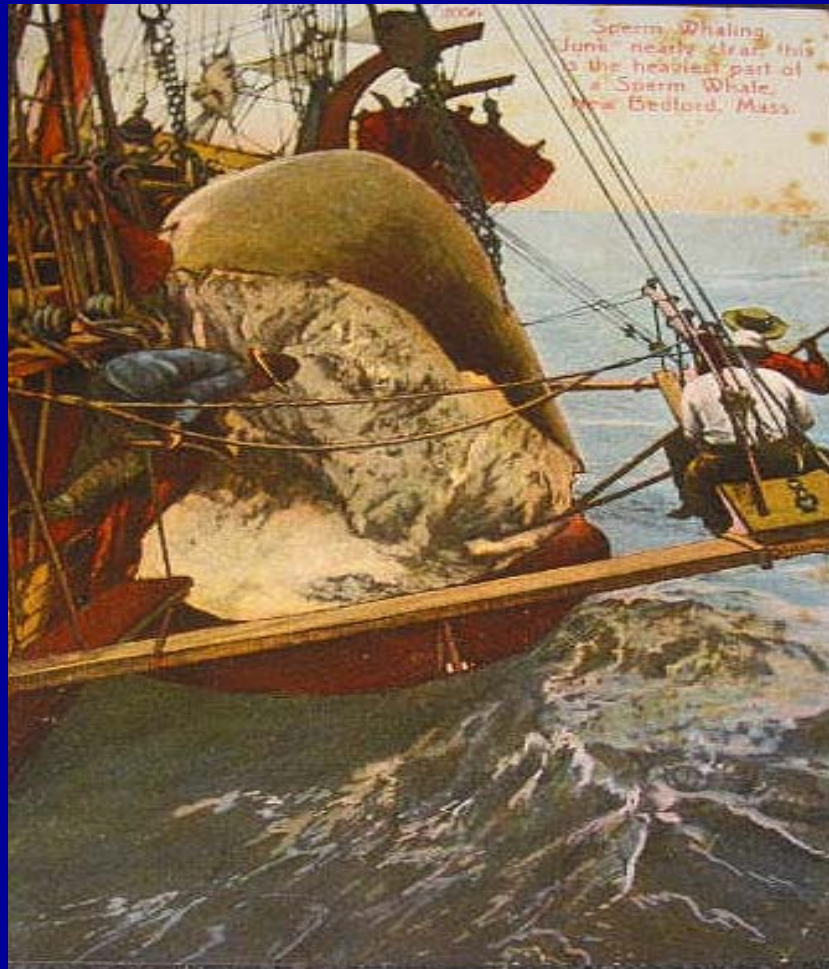
The Voyage

- The head or case is then removed & loaded onto the deck for scooping out of the spermaceti



The Voyage

- The head or case is almost cut away



The Voyage

- Ready to scoop/bail out the spermaceti.



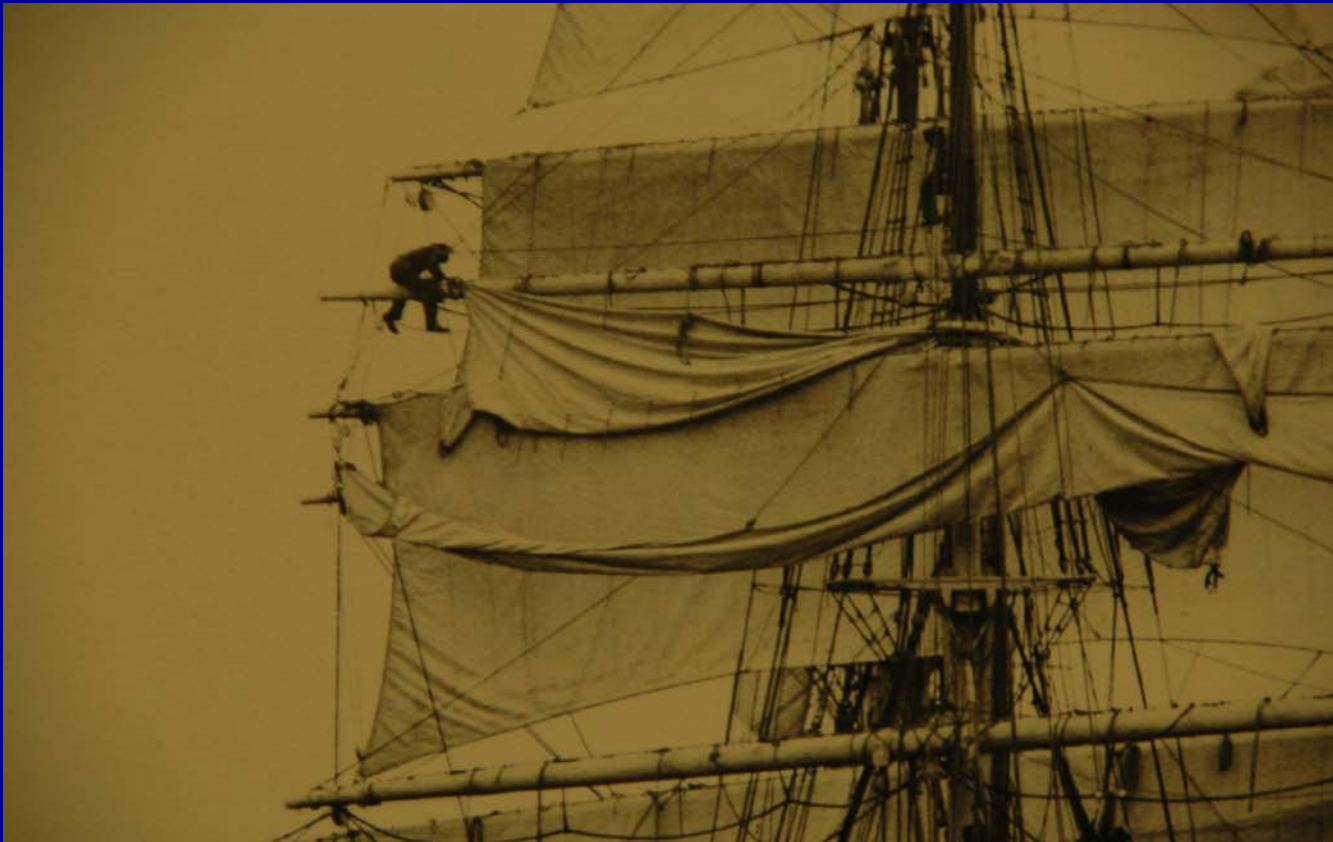
The Voyage (hazards)

- Injuries/illness, infection, scurvy
- Abusive officers
- Minimal medical care
- Food/water
- Weather (wet/temp)
- Boredom/loneliness
- Fatigue
- Bathing/toilet facilities
- Poor compensation
- Ship wreck/mutiny



The Voyage (hazards)

- High on the yard arms and rigging, falls & injury were not uncommon



The Voyage (hazards)

- A foot waiting to be sliced – “Toes are scarce among veteran blubber-room men.” — Moby Dick, chapter 94



The Voyage (hazards)

- Illness & injury were common during the voyages & there was little that could be done. Effective medications were not available, and no doctors were on board the whalers. Amputation was the safest method of treating a serious infection or a severely fractured extremity. Hence the need for crutches & prosthetics (ye olde peg leg)



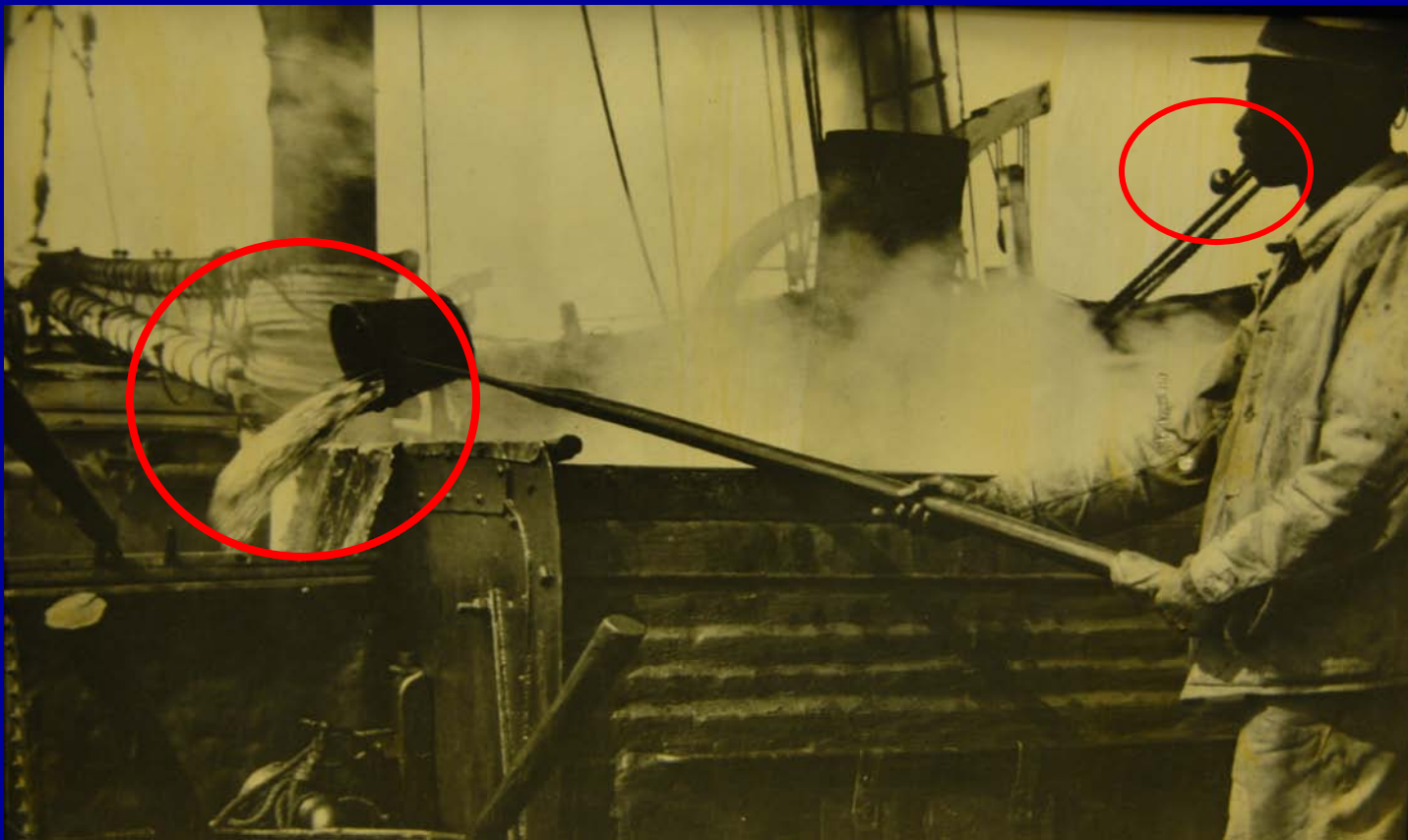
The Voyage (hazards)

- Injuries

The whale was dangerous when alive & even after death. A man could slip overboard from the slippery deck (blood & fat) to the sharks waiting below or simply drown. Others could be crushed by the large blanket pieces. Hot oil could be splashed on the crew by a wave that might rock the ship. Rarely, the fire from the tryworks would spread and burn the men and the ship.

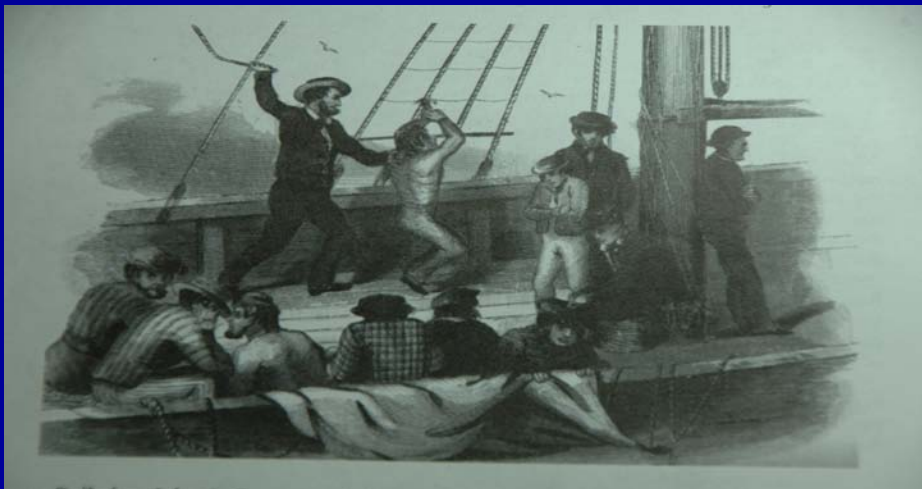
The Voyage (hazards)

- Burns (this is like smoking at the gas tank, just waiting for the explosion)



The Voyage (hazards)

- Flogging
- Captains had complete authority, and some were tyrannical & abusive. Crew could be placed in “irons” or flogged.
- A law passed in 1851 to abolish maritime flogging



The Voyage (hazards)

- “My tooth is killing me”
- Scrimshawed tooth displaying a tooth being pulled by the “doctor/dentist”; on a whaler, the “doctor” would be the captain or his designated crew member



The Voyage (hazards)

- 18th/19th century tooth extractor



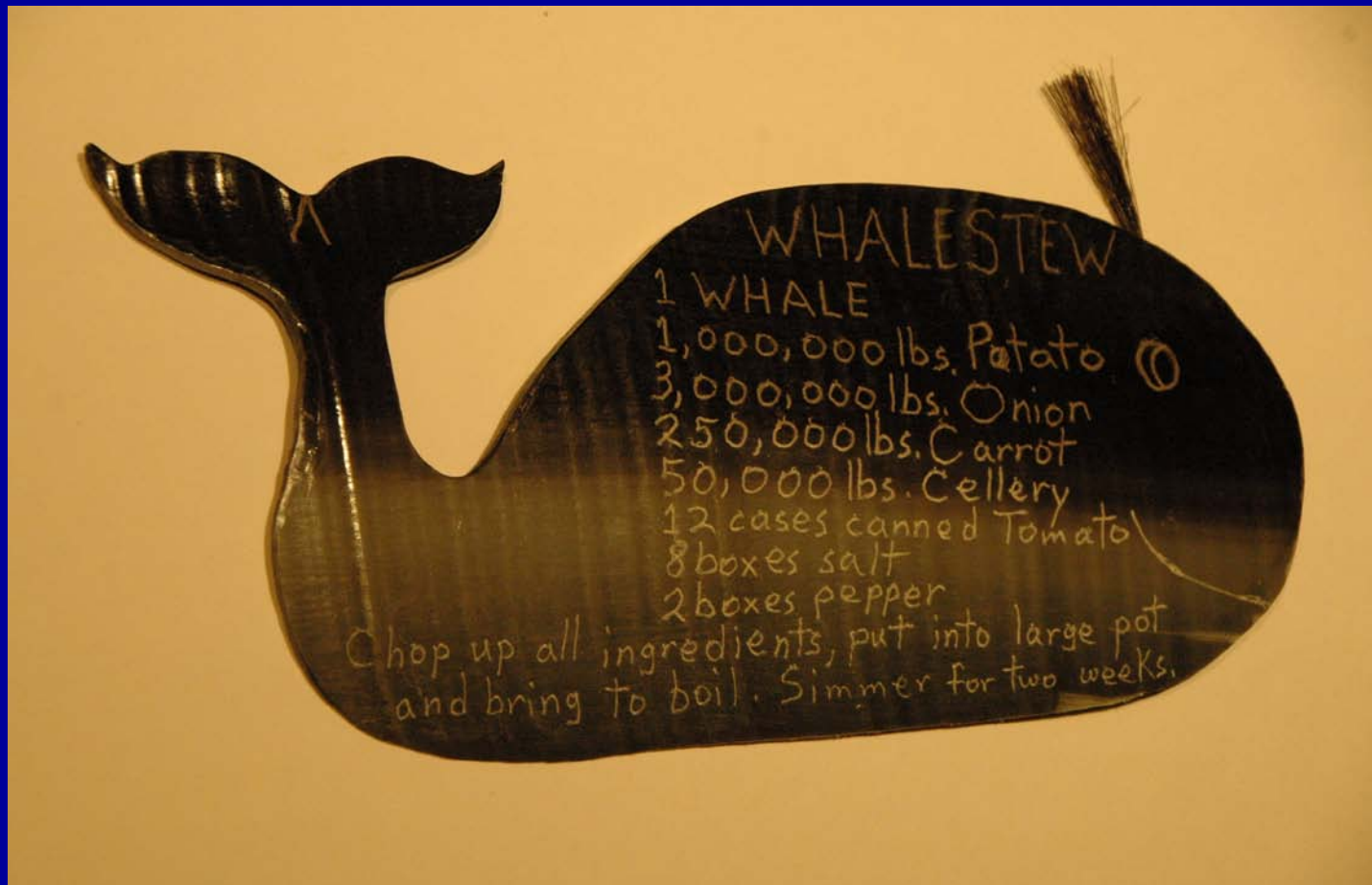
The Voyage (hazards)

- The medicine box on board a whaler. Primarily morphine (laudanum), a laxative, and some anti-diarrhea medication (i.e. more laudanum)



The Voyage (Food)

- The food was bad, but -----



WHALE STEW

1 WHALE

1,000,000 lbs. Potato

3,000,000 lbs. Onion

250,000 lbs. Carrot

50,000 lbs. Cellery

12 cases canned Tomato

8 boxes salt

2 boxes pepper

Chop up all ingredients, put into large pot
and bring to boil. Simmer for two weeks.

The Voyage (Food)

- Salted pork & beef (often barely edible)
- Hardtack (rock hard biscuits which needed to be soaked in water before they could be eaten)
- Duff (a mixture of flour, water & slush-i.e. melted pork fat, eaten with molasses) (cockroaches in the molasses & weevils in the flour)
- Fresh vegetables -- when available
- Fresh fish -- when they could catch it
- Lots of potatoes, onions, & fruit when arrived in the Azores or other supply sites (e.g., Valparaiso, Chile)



The Industry

- Whaling – the original American commercial energy/oil industry
- Shore whaling was one of the earliest industrial endeavors of the colonists in New England.
- Ultimately, at its peak in 1830-1860, during the era of pelagic whaling, the 5th largest industry in the U.S., involving tens of thousands of workers at sea and on shore, and millions of dollars of annual investment and returns.

The Industry

- Beach stranded whales
- Offshore whaling
- Deep Sea (Pelagic) whaling
- Modern mechanized whaling

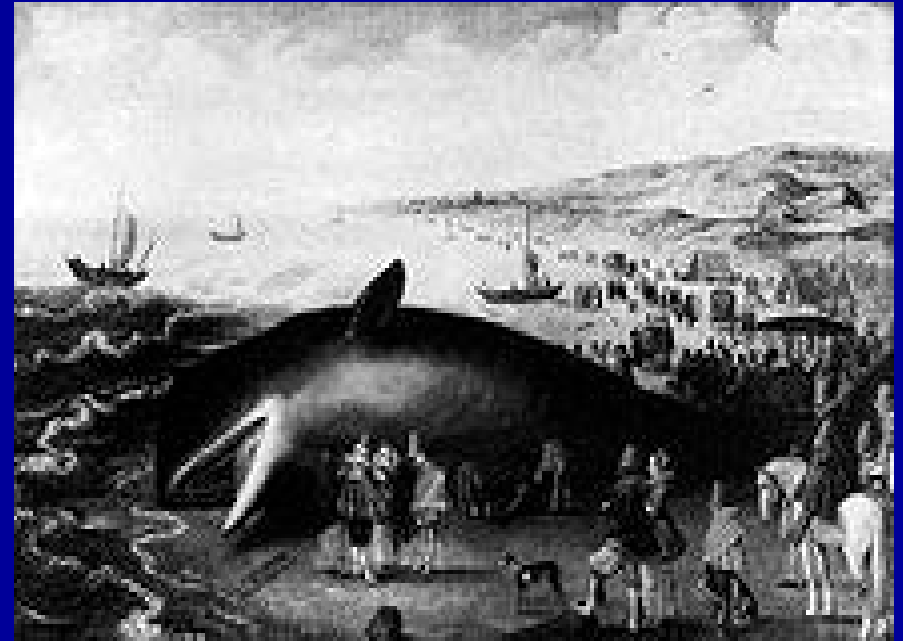
The Industry

- Stranded blackfish (pilot whales)
- Stranded Sperm Whales



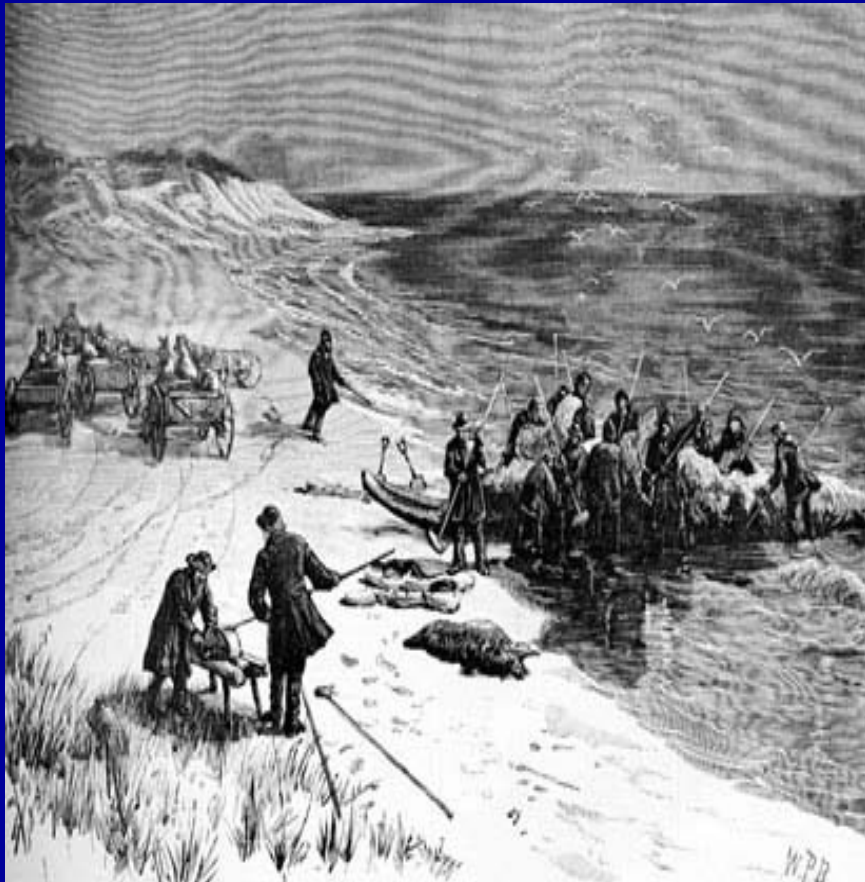
The Industry

- 17th century Dutch print illustrating stranded Sperm Whales
- 18th century Dutch whaling illustration



The Industry

- Shore whaling



- “Whaling Off Long Island” – by W.P. Bodfish, wood engraving, Harper’s Weekly, Jan. 31, 1885
- Illustration depicts shore whaling 200 years after its inception on the coasts of Long Island
- Displays flensing of the whale on the beach

The Industry – A timeline

- 1620: Upon their arrival, the Pilgrims saw numerous whales off Cape Cod, and became interested in whaling immediately. They lit their lamps with oil from nearby beached whales.
- 1640: The towns of Long Island (eg South Hampton) are believed to have been the first to establish an organized whale fishery, exploiting drift whales along the shores of New England around 1640.
- 1690: Nantucket began its fishery in 1690 as a shore based industry.
- Then numerous other towns/areas joined in & began day cruises
- 1710: Nantucket had 6 small sloops engaged in the whale fishery

The Industry – A Timeline

- 1712: Capt. Christopher Hussey of Nantucket was blown off course “into the deep”, during a storm and into a school (pod) of sperm whales. He killed one and brought it back to shore. This event began the eventual transition to deep water (pelagic) whaling, specializing in the hunting of the sperm whale.
- 1726 – Nantucket boats took 86 whales.
- 1730: Nantucket had 25 vessels of 38 – 50 tons employed; each vessel had 12-13 men, often half being Native Americans. (1770 – Nantucket had > 100 whaling vessels)
- 1750 – American whale ships equipped with onboard try-works for processing whale blubber at sea, allowing longer cruises on larger ships.

The Industry – A Timeline

- 1730 – 1776 – Exportation of spermaceti candles & whale oil (for lighthouses and cities) to Europe very profitable.
- 1768 – 1772: Sale of whale oil = 15% of all sterling earned by direct exports to Great Britain from the northern colonies.
- 1774 – Colonial whaling fleet = 360 vessels, 15 East coast ports
- 1776 – The Revolutionary War arrived, the war interfered with profits, and the Nantucketers attempted to stay out of the war & continue business as usual. \$ up & down (? Traitorous activity)
- 1776 – New Bedford (then known as the port of Dartmouth) becoming more important (deeper & larger harbor, less easily attacked by the British).
- 1783 – the Revolutionary War was over, but England imposed high tariffs on US whale oil to protect the developing English whaling fleet. \$ down
- 1786 – Lafayette had arranged for Paris to be lit by whale oil. \$ up

The Industry – A Timeline

- 1786 – first American whaler & 1790 – first British whaler into the Pacific
- 1790 - 1812 – short period of re-growth (although Napoleonic Wars eliminated trade with English & French ports)
- 1812-1814 – War of 1812 again shut down the American whaling industry, English import tariffs. \$ down
- 1814 – War over, Treaty signed, The Whaling industry greatly expanded, especially in New Bedford.
- 1820 – New Bedford had 36 whaling vessels, square-rigged, about 300 tons with brick tryworks, 30 – 35 men in crew, 3-5 whaleboats, enough provisions to last up to 4 years.

The Industry – A Timeline

- 1841 – 75 whaling vessels sailed out of New Bedford.
- 1841 – Herman Melville, age 21, ships out of New Bedford, on the ship Acushnet.
- 1846 – peak year of American whaling: 735 vessels (80% of world's total), 70,000 employed, \$70 million in property, 10,000 whales caught
- 1849 – The Bering Straits & the Western Arctic Sea opened by Captain Thomas W. Roys, hunting the Bowhead whale & its baleen. (San Francisco now became an major whaling port.)

The Industry – A Timeline

- 1851 – Herman Melville publishes Moby Dick.
- 1855 – New Bedford fleet reaches its peak, 329 vessels valued at \$12 million, employed > 10,000 men
- 1859 – Petroleum discovered in Pennsylvania, kerosene rapidly replaces whale oil as lantern fuel, whale oil price goes down
- 1850s – 1860s – price of baleen rose because of current fashion (hoop skirts, corsets)

The Industry – A Timeline

- 1860s & 1870s – Civil War, Stone Fleet, Confederate raiders Shenandoah, Alabama, & the Florida, Arctic disasters severely decreased the whaling fleet & changing clothing fashions decreased the price of baleen & the owners were not able to restore the fleet due to decreasing revenues.
- The American Whaling industry limped along through the rest of the 19th century & the first quarter of the 20th century, but never actively utilized steam powered vessels (except for limited use out of San Francisco), or harpoon cannons & was put to rest (except for California coastal whaling which continued intermittently to 1972) in 1925, when the last American whaling voyage under sail was made in the schooner John R. Manta.

The Industry – A Timeline

- The historian Elmo Hohman, in his book The American Whaleman (1928) captured the essence of the end of Yankee Whaling. He wrote: “When the Wanderer, tired of dragging out her days in the uncongenial atmosphere of the twentieth century, at length piled up on the rocks of Cuttyhunk in 1924, the (Charles W.) Morgan was left as the sole (and inactive) survivor of a fleet which once whitened every sea.”
- The CW Morgan is now (2010) berthed at Mystic Seaport museum, and the larboard whaleboat from the JR Manta is in the collection at the New Bedford Whaling Museum.

The Industry

- Lighting-oil
- Lubrication-oil
- Ambergris
- Whale bone (baleen)
- Spermaceti (candles, etc.)
- Sperm whale teeth and panbone saved for the Captains & crew (scrimshaw, canes, ditty baskets, etc)



The Industry

- Spermaceti – comes directly from the head of the sperm whale (the case), a milky, waxy, oily substance, without smell or taste, solidifies into a white waxy substance when the spermaceti in the case comes into contact with air & cools. Primarily used for candles (also smokeless & odorless when burning), also in ointments, cosmetics, lubricants, and leather-working. A large whale could have as much as 3 tons or 500 gallons of spermaceti.

Worth 3-5 times as much as other whale oil.



The Industry

- Processing Spermaceti



GRINDING AND PRESSING CRUDE SPERMACETI FOR REMOVAL OF TAUT-PRESSED OIL.

The Industry

- Azorean whale oil
- Baleen (aka “whalebone”) – a protein material (keratin) which also is the protein skeleton of hair, finger nails, skin, hooves, horn. Hangs in strips from the upper jaw, and enables the baleen whales to “filter feed”



The Industry

- Baleen

- Objects made of baleen



The Industry

- Spermaceti
Candles, etc.
- Whale panbone
double candelabra



The Industry

- Lighting – oil lamps



The Industry

- Lubrication
 - The height of the world wide whaling industry, 17th, 18th, and 19th centuries, coincided with the onset of the Industrial Revolution, and the need for lubrication of the machines being rapidly created at that time.
 - (Whale oil used into the 1950-1960s for lubrication in fine instruments and submarines)

The Industry

- Baleen - the plastic of the 18th & 19th centuries. A baleen buggy whip. Other uses for baleen: carriage springs, corset stays, fishing rods, hoops for women's skirts, umbrella/parasol ribs, frames for luggage/trunks/women's hats



The Industry – the end of an era

- 1924 – The Wanderer crashes on the rocks at Cuttyhunk, at the onset of the voyage (last American square rigger)
- 1925 – The last American voyage under sail, the John R. Manta, out of New Bedford (one of its whaleboats is on display at the New Bedford Whaling Museum)
- Charles W. Morgan - the sole survivor of the American fleet – now moored at Mystic Seaport



The Industry – the end of an era

The causes of the end of American whaling

A. History

1. Civil War (or is it the Northern War of Aggression?): Stone Fleet in Charleston Harbor, Confederate ships destroying Union whale ships.
2. Arctic pack ice repeatedly destroying whale ships(1871&76)
3. 1860s – Norwegian Svend Foyn invented explosive tipped harpoon & harpoon cannon mounted of the bow of a steam powered iron hulled ship.
4. Gold was discovered in California in 1849, hundreds of ships (many of them whale ships) were abandoned in San Francisco Harbor . Some abandoned ships disintegrated, and some were converted into usable spaces. Many of these ships were scuttled and used for landfill .
5. Invention of the electric lamp in 1879 (oil) & the development of spring steel in 1906 (baleen)

The Industry – the end of an era

- Ships (including many whalers) fill San Francisco harbor in 1850 - 1851



The Industry – the end of an era

- Emblematic of the sailors and whalers who jumped ship to become “49ers” and seek their fortunes in the gold fields



The Industry – the end of an era

B. Economics

Cheaper sources of lighting material: beef tallow, lard oil; from the 1840s – coal derived kerosene and gas for city lighting; and after 1859, petroleum products. After the Civil War, petroleum products began replacing the sperm oil in lamps & spermaceti in candles.

C. Fashion

The fashion for very thin waists (wasp waists) in the late 19th century added about 15 years to the industry's life, but that was only temporary, by increasing the price of baleen, and ended around the turn of the century.



The Industry – Modern Whaling

- The harvesting of the large baleen whales, the rorquals (Blue, Fin, Humpback) was made possible by the invention of the 90 mm harpoon cannon, as well as the use of compressed air to inflate the whales to prevent sinking.
- The hunt shifted to the Southern oceans (Antarctic, Saint Georges Islands) at the turn of the century, where the Blue and Fin whales were still common
- On shore whaling stations were initially used, those nearby stocks were depleted, and longer off shore voyages were needed. Large modern factory ships (including the stern slipway) and fast motorized catcher ships were developed after WW1 and WW2.
- These technical improvements allowed easier and faster processing of the larger whales

The Industry – Modern Whaling

- Post WW 2, an international shortage of oil and animal fat/meat (30-40 pelagic factory ships , each using 10-14 chaser boats in the seas off the Antarctic)
1947 – whale meat made up > 50% of the meat consumed in Japan.
- Quotas were established (e.g.: in the 1960s, “16,000 Blue whale units could be taken in one season
1 Blue whale unit = 2 Fin whales
1 Blue whale unit = 6 Sei whales)
 - The whale population in the Southern Ocean plummeted
 - 1982 – International moratorium on commercial whaling
 - The Southern Ocean declared a whale sanctuary in 1994 by the IWC
 - The Animal Planet’s television series, Whale Wars, and the Sea Shephard

The Industry – Modern Whaling

- Canada – Inuit, 1 whale Q 2 yrs (Hudson Bay), 1 whale Q 13 yrs (Baffin Island - Davis Strait)
- Faroe Islands – 950 pilot whales/yr
- Iceland – resumed commercial whaling 2006
- Indonesia – 2 small islands continue indigenous whaling
- Greenland – Inuit – 175 /yr
- Japan – continues whaling on a scientific basis. The meat from these scientific hunts are sold in shops and restaurants. Whale meat was included in Japanese school lunches until the mid 1970s.

In recent years, Japan has caught up to 1100 minke whales annually (reported catch), also other whales by genetic testing of commercially available meat.

The Industry – Modern Whaling

- Norway – commercial whaling resumed 1993, minke whales are the only legally caught species, 485 in 2000 & 592 in 2007
- Russia – a single region in the Russian Far East, allowed up to 140 gray whales annually
- Saint Vincent and the Grenadines - the island of Bequia, quota of up to 4 humpbacks annually, traditional methods
- United States – 9 different indigenous Alaskan communities. The hunt takes about 50 bowheads annually. (Makah tribe in Washington state resumed whaling in 1999)

The Industry – Modern Whaling

- A Norwegian Catcher Boat



The Industry – Modern Whaling

- The Bow mounted harpoon gun



The Industry – Modern Whaling

- The Factory Ship – developed into huge ships, 20,000 tons or more (note the stern slipway)
- A factory ship & fleet of 8 catchers took 920 whales from the Antarctic seas in the 1936/1937 season



The Industry – Modern Whaling

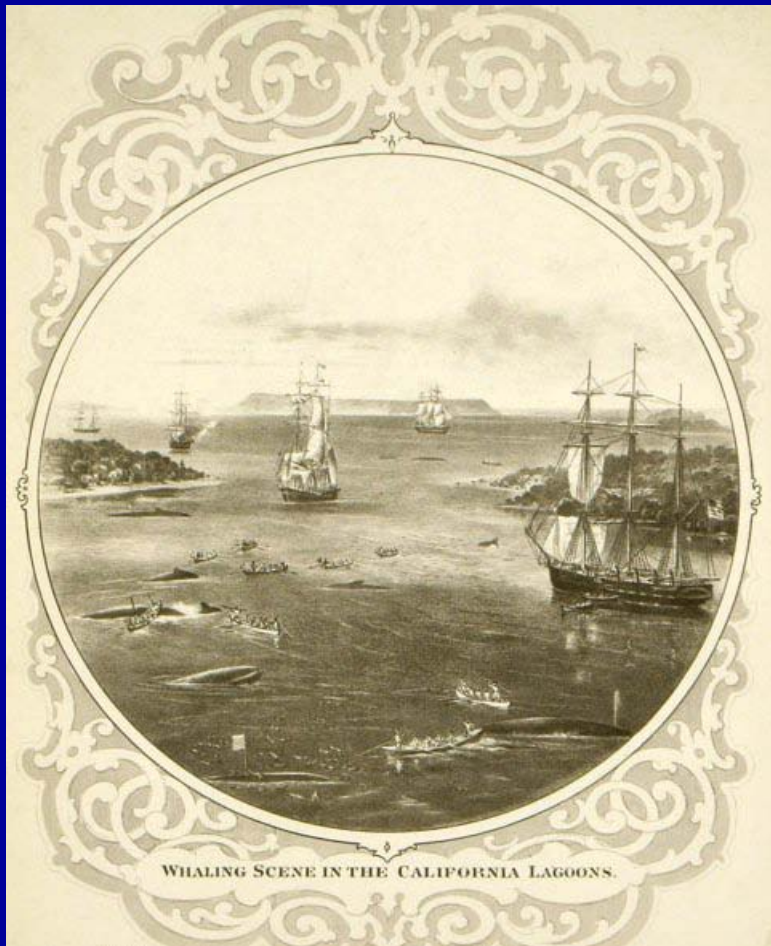
- Whale meat available in Norway





California Whaling History

- 1874, Charles Scammon, (an image of lagoon whaling in Baja California)



- Scammon's lagoon in Baja California is a breeding lagoon for Gray whales
- Discovered in 1857 by Captain Charles Melville Scammon
- Lagoon whaling targeted the female whales & decimated the Gray whale population. Lagoon whaling ceased in 1874 after years of declining whale population

Today, Scammon's lagoon is a major whale watching site



California Whaling History

Map of various whaling stations on coast of California (at least 27 by 1879), also stations in Baja California. 5 – 10 of these stations would be open concurrently



THE PORTUGUESE SHORE WHALERS OF CALIFORNIA 1854-1904



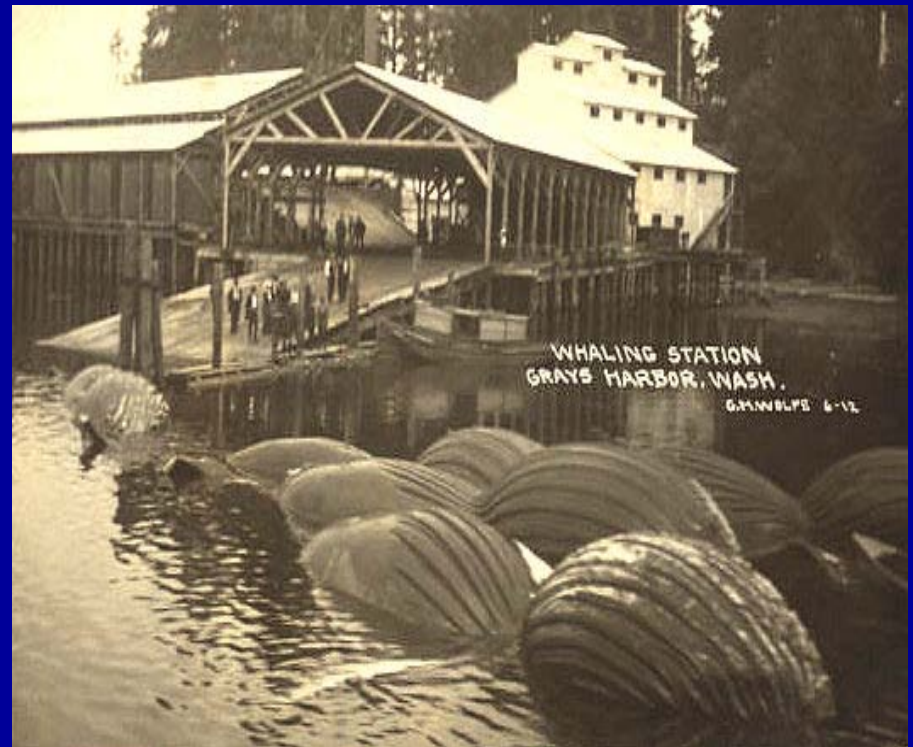
DAVID E. BERTÃO

“California” Whaling History

- There were also stations north of California which further reduced the whale population along the West Coast
- A postcard of the early 1900's of the whaling station at Grays Harbor, Washington – humpback whales awaiting processing. Whales are inflated with air to keep them afloat. If kept too long in this state, the intestinal bacteria multiply rapidly, create gas, eventually causing the carcass to ---

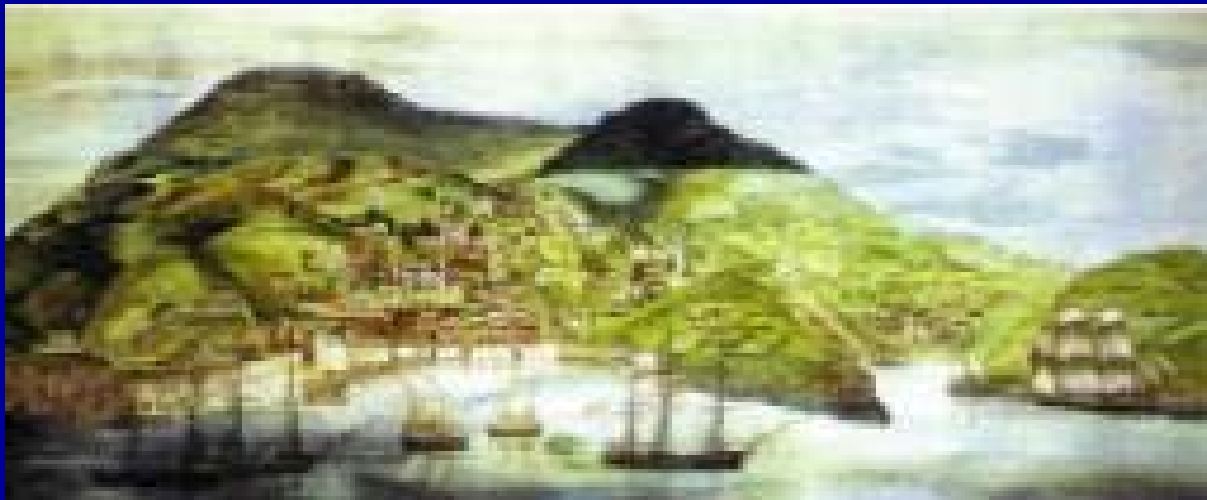
explode !!!

(Very Unpleasant)



California Whaling History

- Many Azorean Portuguese were part of the large whaling fleet of the 19th & early 20th century. Many of these whalers left the fleet to join the Gold Rush. Eventually many of these former whalers, as well as many who remained in the whaling fleet, emigrated to New England (esp. New Bedford area) & California (near former whaling ports/stations)
 - In the 1840s, pre Gold Rush, there were many whaling ships (with largely Azorean crews) in Monterey Bay hunting humpback whales. Whaling ships re-provisioned at San Francisco, following or prior to voyages to/from Honolulu and later the Arctic for bowhead whaling.



California Whaling History

- Shore whaling utilized 1 or more small whaleboats, with 6 crew each with an oar and a single sail. When notified by a member of the crew, watching from a nearby elevation of a visible whale, these men would row to the whale and attempt to capture it. If successful, the crew would row the boat and the whale back to shore for processing (each whale 30 tons or more). The blubber was stripped, cut into pieces, and boiled in try pots until the oil within the blubber separated from the cellular membrane. The oil, when cooled, was stored in barrels, & shipped by boat to specific areas (e.g. San Diego or San Francisco) where it was sold.
 - Each whaling season lasted about 6 months.
 - 150 – 200 whales were captured annually.

California Whaling History

- 1854 – Monterey, first shore whaling station. John Davenport with 12 Portuguese
- The Portuguese crews took over the business the next year, hired more crew (Azorean Portuguese) from boarding houses in San Francisco
- This encouraged more Azorean men and families to emigrate to California
- The Azorean/Portuguese whaling business at Monterey was sold in 1904

California Whaling History

- A description of the whaling station at Moss Landing, 1870-1880:
 - “A shore whaling company consisted of a captain, one mate, a cooper, two boat steerers, and 11 men. Each boat took a crew of 6, while 4 men were left on shore, working shifts in scanning the horizons for whales and attending to the boiling blubber in the try pots. There were always 2 boats out, in case a whale smashed 1, giving the survivors a boat to return to shore. The boat crews got their signal from the shore flag as to which direction the whales were located.”

California Whaling History

“Nearby the beach to which the whale was brought, are the try works, sending forth volumes of thick black smoke from the scrap-fire under the steaming cauldrons of boiling oil. A little to one side is the primitive storehouse, covered with cypress boughs. On the crest of a cone shaped hill, of the shapeless mass of the mutilated whale, together with the men shouting and heaving at the capstans, the screaming of gulls and other sea fowl, mingled with the noise of the surf about the shores, and we have a picture of the general life at a California coast whaling station.” E. C. Starks,
Calif. Fish & Game Commission, 1922

California Whaling History

- How a shore whaling company divided its earnings: 1 barrel of oil in 35 to boat steerers, coopers, and ship keepers; 1 barrel in 50 to the oarsmen & blubber carriers; the owner of the whaleboats got the rest.
 - “During the year (1855) a number of Portuguese whalers established themselves at Monterey Bay for the purpose of capturing such whales as are indigenous to the coast. They caught 5 grays, 9 humpbacks, 4 killers; 6 were lost; the crew was paid \$438 each for its work from April to September.”
3/14/1855, the Sacramento Daily Union

California Whaling History

- Moss Landing – 1919
1st whale, used larger steam driven boats (2) with bow mounted cannon harpoons (Greener guns)

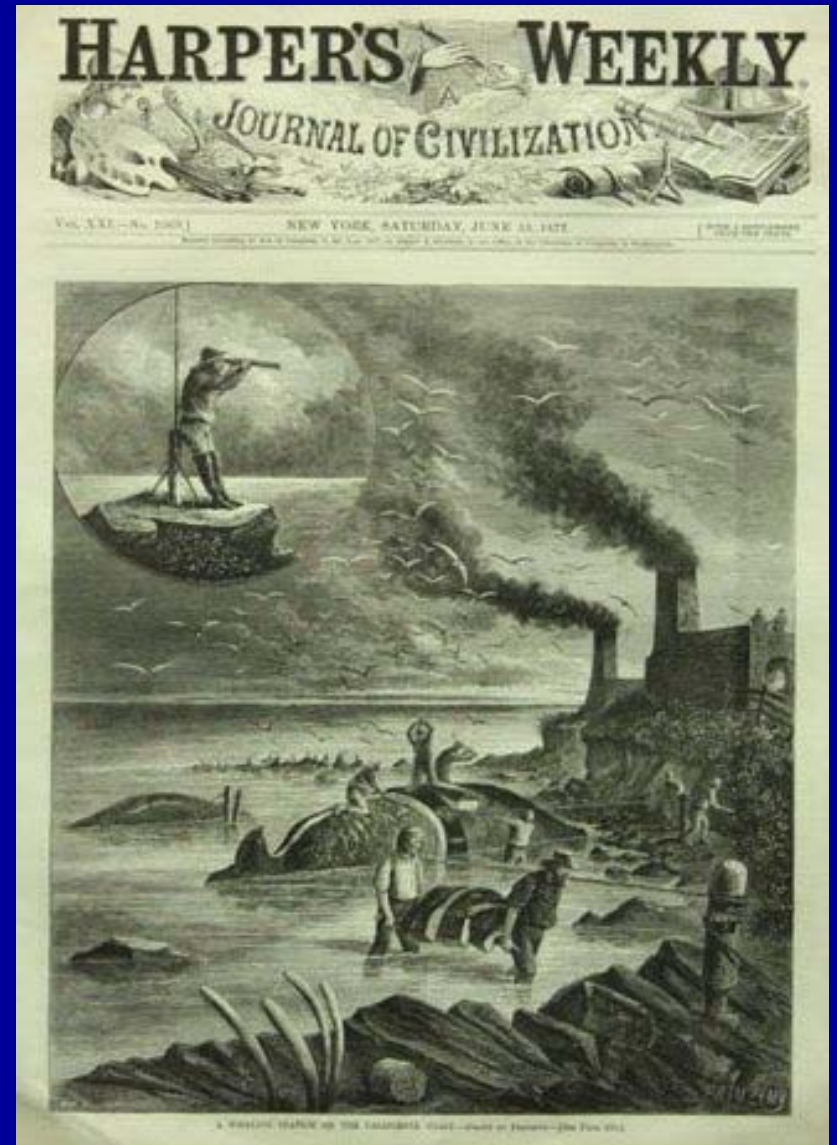


- Moss Landing – 2009
The pile of rocks at the left marks the end of the whale station slipway (the rocks anchored the slipway in place)



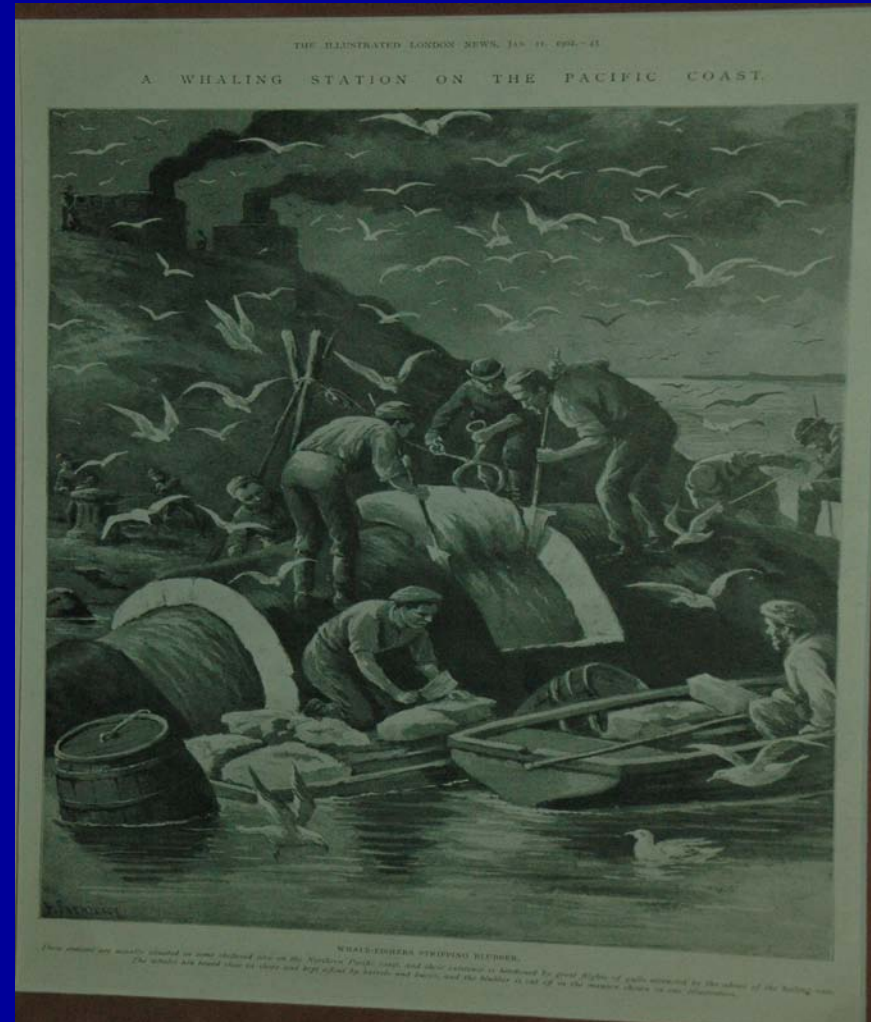
California Whaling History

- Whaling station at San Diego, Harper's Weekly, June 23, 1877
-P. Frenzeny, illustrator



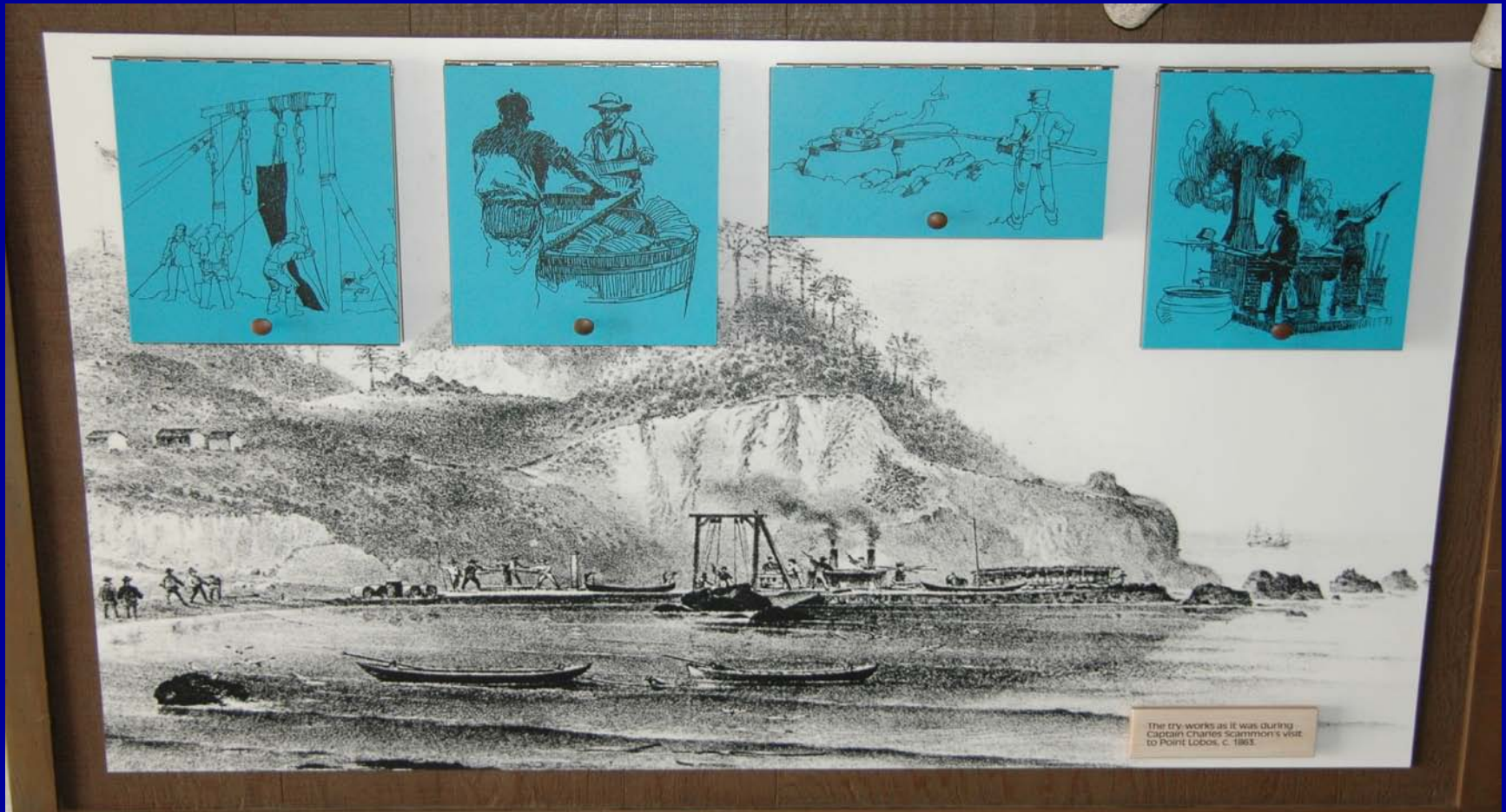
California Whaling History

- From the Illustrated London News, Jan. 11, 1902 on shore.
- A whaling station on the Pacific Coast – Whale-Fishers Stripping Blubber
P. Frenzeny, illustrator
- “These stations are usually situated in some sheltered cove on the Northern Pacific coast, and their existence is betokened by great flights of gulls attracted by the odor of the boiling vats. The whales are towed close in to shore, kept afloat by barrels and buoys, and the blubber is cut off in the manner shown in our illustration.” *
- This station was actually located south of Monterey, in what is now Carmel (Point Lobos) and originally started in 1862.



California Whaling History

- Based on a sketch during Charles Scammon's visit to Point Lobos in 1863



California Whaling History

- Pt Lobos – Whaler's Cove (2009)



California Whaling History

- Another view of Whaler's Cove at Pt Lobos (2009)



- Note the bolt in the rock where the whales were tied while awaiting processing



California Whaling History

- Try pots – Point Lobos
- Whale bones still present after 150 years



California Whaling History

A Brief History of Whaling in Monterey

Sometime in the Spring of 1854 Captain John Davenport, a semi-retired whaler out of New Bedford, MA, and Captain Joseph Clark, a Portuguese whaler started a small whaling company on the shores of Monterey Bay. Besides Captain Clark, that first crew was made up of men from Monterey, with no whaling experience. Meeting little success, this company disbanded after one season.



J.K.Oliver photograph; courtesy Monterey Public Library, California History Room

In 1855, a group of 17 whalers from the Azores jumped ship in San Francisco to try their hands in the gold fields. They heard of Davenport's whaling venture. Not having any luck in the gold fields, they came to Monterey and formed their own whaling company. For the next three years they plied the bay whaling in small 28-foot boats. The whaling technique they used was called 'the old fashioned way'—shore whaling.

California Whaling History

The whalers would push off from the beach each morning using their sails allowing them to quietly sneak up on the unsuspecting whales. They would then fire a harpoon from the “Greener Gun” into the whale—this was not meant to kill but rather to slow the animal down. If the whale did not turn and ram the boat, it would run—dragging the men in the boat for hours at a time. This was known as a “Nantucket sleigh ride.” The citizens of Monterey would line up along the shore and watch these boats being dragged through the bay.

Finally the whale would slow down and the harpoonist would hit it with his hand harpoons. Once the whale had been killed it would usually sink. A marker would be put in place where it went down, and the whale would float back to the surface in few days. The whalers would then tow the giant mammal back to shore, where the blubber would be stripped off for processing in the try pots. The rest of the carcass would then be towed out to sea. The currents being what they are in Monterey Bay, the dead whale would usually, wash up on a nearby beach. Besides the odor, large grizzly bears would come out of the hills to feed off the carcass of the dead whale.



J.K.Oliver photograph; courtesy Monterey Public Library, California History Room

California Whaling History

- Monterey – McAbee Beach today (2009), located next to Monterey's Cannery Row. Site of the old Monterey whaling station.



California Whaling History

- Monterey – McAbee Beach today(2009)



California Whaling History

Today, visitors to Monterey Bay hunt whales with binoculars and cameras. Historically, however, we captured and processed whales for the oil contained in their blubber and the baleen, or whalebone.

During the "golden age" of whaling (1835 - 1870), East Coast whaling was a sophisticated operation with ships functioning as floating factories. Here in Monterey, shore whaling was practiced. The California Gray and Humpback whales migration pattern brought them close to the coast which allowed the whale to be towed to sheds on the beach for processing.

California Whaling History

- Painting by Clifford W. Ashley of New Bedford

Though whaling was a part time job, the whaling industry in Monterey was very profitable it also was very competitive. By 1870 there could be up to four whaling companies working the bay at the same time! It was not unusual for more than one whaling company to converge on the same whale at the same time. Battles would ensue out in the bay over whose whale was whose. But in 1875 the industry began to slow down—not because they took to many whales—but because other products came on the market to replace whale oil, in particular kerosene. So our Monterey whalers became full time farmers, ranchers, dairymen and other kinds of fishermen. There was one company that operated just for the tourists who were coming to stay at the Del Monte Hotel and loved to watch the whalers get dragged through the bay.



California Whaling History

- The whaling station at Trinidad, Ca., 1926
- A Norwegian owned company, the California Sea Products Co.
- Steam powered chaser boats, whales pumped full of air, lashed to bow of boat, and towed to station, moored to buoy, then station crew takes over. Opened originally in early 1860s, closed in 1880s, Reopened in early 1900s & closed for good in 1927.



California Whaling History

- Portuguese Bend (near San Pedro), active after 1860 – 1885, harvested gray whales. (2166 barrels of oil, 1874-87, boats operated up to 10 miles offshore)
- Dead Man's Island, at entrance to LA Harbor (near San Pedro) 1873. A whaling station existed from 1861 to 1866. Harvested gray whales, Dec – April. Dredged away in 1928.



California Whaling History

- A stock certificate for one of the last whaling companies in California



California Whaling History

The final California whaling company

- The Del Monte Fishing Company (Richmond, near Monterey & San Francisco)
- 1956 – 1972
- Took about 100-150 whales annually, 125 mi radius from Monterey (mainly humpbacks)
- The final owner of this whaling station, John Caito, died August 14, 2010
- The disintegrating station was finally dismantled in 1998 (Russians & Japanese continued whaling off our coast & in the Pacific)

California Whaling History

- The Del Monte Whaling station at Richmond, Ca., 1960s or early 70s
- The station burned down in the 1990s, leaving only the charred foundation





The Art of the Whaleman

- Inuit – pictograph (seal or walrus rib)
- 2 ancient (pre 18th cent) Inuit (Old Bering Sea, Yupiq culture) whale carvings (hunting amulets)



The Art of the Whaleman

- The Ceres Artisan – ID=?



- Edward Burdett, born Nantucket, son of merchant sea captain
- 1805 – 1833
- Went whaling at age 17 & died age 28 during a whaling voyage
- Created his 1st piece 1823



The Art of the Whaleman

- A Susan's tooth: from the Ship Susan, by Frederick Myrick, 1808 – 1862, of Nantucket, 1st to sign & date some of his work, he served on the Ship Susan from 1826 - 1829



The Art of the Whaleman

- Another tooth by Burdett showing the hunt scene amongst the pod of whales, a “stove” boat, and a dead whale with a crew’s flag embedded in the whale.



The Art of the Whaleman

- A pie crimper jagging wheel (whale ivory)



- A pie crimper in the style of a whale (whale ivory)



The Art of the Whaleman

- A Watch stand



The Art of the Whaleman

- A very utilitarian item, a food carving set, but a wonderful set of handles (private collection)
- Detail showing the work of Edward Burdett



The Art of the Whaleman

- A corset busk for a loved one back home (panbone)



The Art of the Whaleman

- Panbone sperm whale sculpture



The Art of the Whaleman

- The Sailor's Farewell (sperm whale tooth, 19th cent)



THE
END

